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Exhibit No.:_____
Issue: Rates, Terms, and Conditions for Reciprocal Compensation Arrangements
Witness: Robert C. Schoonmaker
Type of Exhibit: Rebuttal Testimony
Sponsoring Party: Petitioners
Case Nos. TO-2006-0147, et al. (consolidated)
Date: January 20, 2006

BEFORE THE PUBLIC SERVICE COMMISSION
STATE OF MISSOURI

In the Matter of the Petition for Arbitration of Unresolved Issues in a Section 251(b)(5) Agreement with T-Mobile USA, Inc.	))))	Case No. TO-2006-0147
In the Matter of the Petition For Arbitration of Unresolved Issues Pertaining to a Section 251(b)(5) Agreement with Cingular Wireless	))))	Case No. TO-2006-0151

REBUTTAL TESTIMONY OF ROBERT SCHOONMAKER

FILED[4]
JAN 31 2006
Missouri Public Service Commission

Jefferson City, Missouri
January 20, 2006

Exhibit No. 2
Case No(s). TO-2006-147 / TO-2006-0151
Date 1-25-06 Rptr KC

BEFORE THE PUBLIC SERVICE COMMISSION
STATE OF MISSOURI

In the Matter of the Petition for Arbitration of Unresolved Issues in a Section 251(b)(5) Agreement with T-Mobile USA, Inc.	))))	Case No. TO-2006-0147
In the Matter of the Petition For Arbitration of Unresolved Issues Pertaining to a Section 251(b)(5) Agreement with Cingular Wireless	))))	Case No. TO-2006-0151

AFFIDAVIT OF ROBERT C. SCHOONMAKER

Robert C. Schoonmaker, of lawful age, being duly sworn, deposes and states as follows:

1. My name is Robert C. Schoonmaker. I am employed by GVNW Consulting, Inc. as President and Chief Executive Officer.

2. Attached hereto and made a part hereof for all purposes is my rebuttal testimony with accompanying schedules.

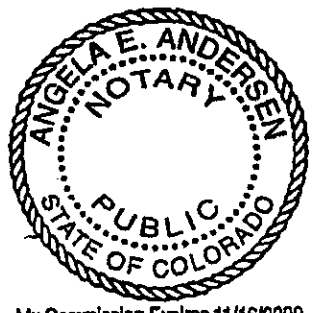
3. I hereby affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief and that the information contained in the attached schedules is also true and correct to the best of my knowledge and belief.

Robert C. Schoonmaker

Subscribed and sworn to before me this 20th day of January, 2006.

Angela E Andersen Notary Public

My Commission expires: 11-16-2009



My Commission Expires 11/16/2009

TABLE OF CONTENTS

REBUTTAL TESTIMONY OF ROBERT C. SCHOONMAKER

Q. Please state your name and address.

A. My name is Robert C. Schoonmaker. My business address is 2270 La Montana Way, Colorado Springs, Colorado 80918.

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

A. I am President and CEO of GVNW Consulting, Inc., a consulting firm specializing in working with small telephone companies.

Q. Are you the same Robert C. Schoonmaker who previously filed direct testimony in this case?

A. Yes, I am.

Q. What is the purpose of your rebuttal testimony?

A. I will respond to the testimony of Mr. Conwell who testified for both Cingular and T-Mobile, to Mr. Pruitt who testified on behalf of T-Mobile, and to Mr. Pue who testified on behalf of Cingular. I will also be providing evidence, pursuant to agreement of the parties, in regard to the issue of amounts owed to the Petitioners by Cingular and T-Mobile for past periods.

Forward-Looking Cost Models

Q. Mr. Conwell expresses at various places in his testimony considerable concern about the HAI model and its validity. Could you summarize your reasons for choosing the HAI model as the tool for developing the forward-looking costs for the Petitioners?

A. Yes. There were several. One reason was that the model was readily available and had been populated by experts with the data necessary to run the model for telephone companies throughout the United States, including Missouri. One key concern of the Petitioners was that they not spend an inordinate amount of time and effort to develop a cost model and gather information to create a forward-looking cost model that would then be criticized as being proprietary (i.e., not publicly available) or widely accepted. I would also note that the model Petitioners have used in this case and the methodology employed is consistent with prior submittals by Missouri Small local exchange carriers (LECs) in prior Missouri Commission proceedings. For example, the Petitioners used the HAI 5.0A model to calculate forward-looking costs as part of their presentation in the wireless termination tariff case (MoPSC Case No. TT-2001-139 et al.) and in the earlier arbitration case involving Alma Telephone Company et al. (MoPSC Case No. IO-2005-0468, et al.(Consolidated)). Accordingly, Petitioners have used this model for a number of years for purposes of estimating their forward-looking economic costs in various proceedings before the Commission and, until very recently, have not received serious objection to doing so.

A second reason was that the HAI model has been examined extensively both by various state commissions and by the FCC. Through several different versions, many of the earlier problems that were recognized by those who reviewed it have been corrected and the model has been used in proceedings both for universal service purposes and for developing the cost of individual network elements. In

examining alternatives available to it, the FCC used the HAI model as the basis for the switching and transport sections of its Synthesis Model.

Third, the Petitioners recognized that the model and its default inputs were developed under the sponsorship of AT&T and MCI, and those companies had a vested interest in seeing that the costs of network elements provided by ILECs were minimized. If anything, the HAI model might be considered to be biased against, rather than for, ILECs.

Q. Do you recognize that the HAI model has elements in it that are less than ideal in developing the costs of network elements?

A. I do and did in my direct testimony. Any time a model is built, the modeler has to make assumptions and develop mathematical logic to try to represent the real world. In that process there are always compromises that need to be made. In modeling a forward-looking network, there may also be variations in judgments about how that network will be constructed that will impact the network construction costs. The gathering and validating of data necessary to populate a model is also a difficult and time consuming process, and can impact the results of the model. At best, a forward-looking cost model is an estimate of the forward-looking costs, and it is not surprising that different models produce different results, sometimes substantially different results. As a whole, Petitioners' HAI cost studies have produced rates for the Petitioners that are reasonable, whereas Respondents' adjustments would produce rates that are artificially low.

Q. On page 23 of his testimony Mr. Conwell criticizes the HAI 5.0a model as running on an "outdated version of Microsoft Excel and Access" and indicates that he was unable to install the model. Do you have a response?

A. Yes. While the HAI model was released in 1998 and originally ran on earlier versions of Microsoft software, it is still compatible with current versions of Microsoft software. The computers that were used to provide the initial information to the Respondents and to do extensive additional analysis for Mr. Conwell in response to e-mail requests were all done on computers that have the Microsoft XP operating system and the Microsoft Office 2003 suite of application programs including Excel and Access.

Q. Has Mr. Conwell revealed any information about his computer system that may related to his problems in running the HAI model?

A. Yes. Both in an e-mail to me and in his deposition Mr. Conwell revealed that he did not have Microsoft Access installed on his computer. This program is one of the key systems that is used in running the HAI program and undoubtedly was a major contributor to his problems in running the program.

Q. **Is Microsoft Access a difficult program to obtain and install?**

A. No. Microsoft Access is part of the Microsoft Office 2003 Professional Edition and can be purchased separately, if not purchased as part of the suite, rather easily from a wide variety of stores and on-line outlets that sell Microsoft software. I found it available at WestgateMedia.com at cost of $125.

Q. On Page 24 of his testimony Mr. Conwell indicates that the HAI model "is not transparent" and that it is not a simple matter to trace calculations through the model. What are your comments?

A. The HAI model is a highly sophisticated model which can be used to model the wireline telephone network throughout the United States from distribution and feeder plant through switching and interoffice networks. In order to provide a basis for modeling the wide variety of geographic, population, and network conditions for both large and small companies with both low and high traffic volumes, the model is fairly complex. I would agree that it is not a simple matter to trace through many of these calculations. However, most of the model calculations are done in Excel spreadsheets that are available to review, and the model documentation contains several hundred pages including paper printouts of all the model formulas. Moreover, the Access queries that are used for some calculations as well as the macros that run the model are available for review. While the model is complex, as it must be, one can follow the logic through the modules of the model. Accordingly, not only is the HAI 5.0A transparent, it has been publicly examined and debated before state and federal commissions as I previously indicated.

Q. Did you or others in your firm provide assistance to Mr. Conwell to assist him in reviewing the model?

A. Yes, we offered technical assistance in regard to assisting him with installing the model, which he chose not to use.[1] In addition we made special efforts to capture

[1] Conwell Deposition, p. 68.

populated copies of the modules for him, prepared spreadsheets to show how some of the analysis was conducted, and wrote extensive explanations of how the model worked.

Q. Do you have any comments on Mr. Conwell's analysis and his resulting recommendations in this case?

A. Yes, I do. First, I would note that Mr. Conwell indicates that his forward-looking costs analysis is largely based on the HAI 5.0a methodology with, of course, different input values for a number of the key costs and assumptions and changes in calculation methods in some key instances. In other words, Mr. Conwell has not prepared his own fully independent study or model of the forward-looking costs for the Petitioners, but has at least partially relied on the HAI 5.0a model or methodology for purposes of arriving at his ultimate recommendations. The fact that Mr. Conwell was able to do this analysis (even though he was not technically able to "run" the model) indicates to me that the HAI model is sufficiently transparent for use in this proceeding.

Second, I would note that the end results of Mr. Conwell's forward-looking economic analysis do not make any sense in general. For example, Mr. Conwell's forward-looking economic cost recommendations for Petitioners range from a high of 1.47¢ per minute to a low of 0.25¢ per minute. (Conwell Direct, p. 11, Ex. WCC-1) These results are counterintuitive when viewed in light of other relevant data. T-Mobile and Cingular currently have interconnection agreements with SBC that call for a terminating rate of 1¢ per minute. SBC's service area is

much more urbanized than that of Petitioners and common sense would lead one to believe that SBC's costs are therefore less than Petitioners. Nevertheless, Mr. Conwell's study produces rates for sixteen out of twenty Petitioners that are less than 1¢ per minute. Additionally, other wireless carriers have agreed to rates of 3.5¢ per minute with Petitioners and, again, while those were negotiated rates, one would believe that if that rate is so far out of the realm of reasonableness then those wireless carriers would not have willingly agreed to that rate. The reasoning of the Commission in the Alma arbitration case is equally appropriate here:

> It is counter-intuitive to conclude that the forward-looking costs of Alma, Chariton Valley, Mid-Missouri, and Northeast would be less than those of SBC. . . . The Petitioners' costs to serve those exchanges would be at least as high as the costs that a Regional Bell Operating Company, such as SBC, would have to serve its exchanges.[2]

Accordingly, Respondents' recommended forward-looking economic costs are counterintuitive and should be viewed with great skepticism.

FCC COST RULES

Q. Mr. Conwell quotes extensively from the FCC's rules regarding the preparation of Total Element Long Run Incremental Cost (TELRIC) studies. Do you have any comments regarding these references?

A. I did not find any areas where Mr. Conwell quoted these rules incorrectly. However, some of his interpretations of the requirements of the rules go well

[2] *In the Matter of the Petition of Alma Telephone Company for Arbitration of Unresolved Issues Pertaining to a Section 251(b)(5) Agreement with T-Mobile*, Case No. IO-2005-0468, *Arbitration Report*, p. 13.

beyond the FCC's rule requirements, and I do have disagreements with some of those interpretations. Some examples will be illustrative.

1. On the bottom of Page 27, Mr. Conwell indicates that switch costs are supposed to reflect the cost today to purchase switches, which is a reasonable summary of the FCC's rules. However, he then states that Cass County should base its study on "...a specific switch vendor and available switches." This is an interpretation well beyond the requirements of the FCC rule. In developing forward looking costs in its Universal Service Fund (USF) proceeding, the FCC based its analysis on available public data of a wide variety of switches, not a single vendor's switches. Cass County could do the same without being in violation of the FCC rule.

2. In the third bullet point on Page 28, Mr. Conwell states correctly that the company must reflect the usage-sensitive portion of switching plant. However, he then indicates that in order to do this an ILEC must analyze the hardware, software, and other charges associated with the purchase of a new switch to make this determination. While this might be one way to accomplish this, his statement is well beyond the FCC rule requirements in Sections 51.505 and 51.511.

Q. In regard to the application of these rules to small ILECs, does the history of the development of these rules have some relevance?

A. Yes, I believe it does. Section 51 of the FCC's rules were developed in a six-month period between the passage of the Telecommunications Act of 1996 in February and the adoption of the rules in early August. The FCC had an overwhelming amount of comments on a wide variety of interconnection and

universal service issues to receive, digest, and decide in this very short time frame. The FCC issued thousands of pages of orders in early August to implement the Act. Clearly, its primary focus was on dealing with issues as they related to the large Regional Bell Operating Companies (RBOCs) and the focus of its rules were on those companies. Issues related to smaller companies often weren't given consideration because they were not the primary focus of the efforts. Thus, the rules that were promulgated, while admittedly with applicability to all, did not necessarily deal with the unique circumstances of smaller ILECs.

Q. Are there cases where the FCC recognizes the uniqueness of small companies and allow procedures that differ from general requirements or that don't meet the requirements of their rules?

A. There are. Part 36 of the FCC's rules contain requirements for jurisdictional separations studies to be performed by ILECs. However, the FCC has recognized a separate category of "average schedule" companies in Part 69 of their rules and has exempted them from the requirement to perform separations studies, and instead identify their interstate costs for recovery through "average schedule" formulas.

Part 36.6xx of the FCC's rules detail requirements regarding federal high cost loop expense allocations which form the basis for High Cost Loop (HCL) USF. These rules do not contain references to average schedule companies, but the FCC has allowed average schedule companies to receive (HCL) USF using formulas developed by NECA. These are just two examples where the FCC has recognized

the cost burden that their normal requirements can place on small companies and have allowed reasonable variances from their normal requirements to achieve a reasonable objective.

Q. Would it be reasonable for a state commission with the primary responsibility to implement the FCC TELRIC rules to make similar accommodations to the rules for small companies?

A. Yes.

END OFFICE SWITCHING

Q. Mr. Conwell identifies what he describes as three major issues with the development of switching costs in the Petitioner's studies. Can you summarize these?

A. Yes. The first issue he identifies is the level of switch investment, the second is the percentage of the switch that is usage sensitive, and the third is the land and building space needed for the switch. The impact of the differences in the first two items are substantial, while the impact of the third is relatively insignificant.

Q. Let's turn to the first issue, the level of switching investment. Can you briefly summarize how the local switching investment was developed in the Petitioner's cost studies?

A. Yes. The developers of the HAI model included default assumptions for the development of switch costs in the model. Initially, I ran the model with these default assumptions and compared the results for the small Missouri companies to their embedded costs. As displayed in Mr. Conwell's Exhibit WCC-4, this

analysis showed that the resulting HAI switch investment was 45% less than the Missouri companies' actual switch investments as of the end of 2003. Based on the fact that the digital switches deployed by Petitioners are the current forward-looking technology and were placed in service in the last five to ten years, I believed that the default results did not adequately reflect the current cost of switching. Therefore, I increased the switch cost input to a level of $520.14, which produced a model switch investment that is only 28% below Petitioners' 2003 actual switch investment. Recognizing that the cost of switching may have declined some from the earlier years when some of the embedded investment was made, I believe that these results are an appropriate reflection of the forward-looking costs of the Petitioners' switches.

Q. Does Mr. Conwell take issue with using digital circuit switching technology as the forward-looking switching technology?

A. He does not. In response to a question during his deposition he indicated that he did not dispute digital circuit switching technology as a forward-looking technology.[3]

Q. On page 29 of his testimony Mr. Conwell indicates that all of the Petitioners should have gone to vendors to get quotes for purchasing and installing a new switch and indicates he believes that this is practical. Do you agree?

A. I do not. Vendors are in the very competitive business of selling switches and do not freely provide cost/price information. The steps Mr. Conwell describes are time consuming and costly, and there is certainly a question as to whether vendors

[3] Conwell Deposition, p. 145.

would realistically respond to such requests. Mr. Conwell describes the specifications that would have to be developed to request such quotes and the analysis that would need to be conducted once such quotes, if available, were received. While this procedure might have some superficial appeal, it would be costly and difficult to perform.

Q. Mr. Conwell's first criticism of the changes you made is that you increased the default value for switch costs when he believes it should be decreased. How do you respond?

A. His analysis rests on a presumption that the default values adopted by the HAI developers were appropriate to begin with. If they were too low, as I contend that they were, then the appropriate input for switching investment should be increased even in a time when switch costs were decreasing. Mr. Conwell argues on Page 36 that the increase in the end office (EO) switching investment term from $416.11 to $520.14 overstates the switching investment in view of declining prices. He ignores the fact that the resulting switch investment which I use for the small Missouri companies is still 28% less than the actual embedded investment, which clearly does recognize declining prices.

Q. Mr. Conwell quotes your deposition testimony as indicating you believe switch prices have decreased somewhat over time. Is there anything contradictory between that testimony and the switch investments you developed with the HAI model?

A. No, the switch investments I developed reflect a 28% reduction in investment from the actual company investments in 2003.

Q. On Page 35 Mr. Conwell indicates that the cost of switch software for such features as Local Number Portability, Number Pooling, and CALEA should not be considered since they are "not attributable to termination". Do you agree with his reasoning?

A. No. First of all, at least some of these functions, such as Local Number Portability and CALEA, are applied to terminating as well as originating calls. Thus, I disagree with his characterization that these are "not attributable to termination". Secondly, there is nothing in the FCC rules that either requires or suggests that companies need to separately analyze originating versus terminating switching costs. These are costs of switching and should be considered in developing the reciprocal compensation rates for the Respondents.

Q. Mr. Conwell cites the CA Turner Price Index as evidence that the costs of switching have declined and uses it in his calculations to reduce the FCC switching cost by 12%. Can you comment on this index?

A. Yes. Mr. Conwell's source for his statements was indicated as coming, not from the Index, but from the testimony of a Sprint witness in a case in Tennessee, whose testimony describes this index as the C.A. Turner Telephone Plant Index. Mr. Conwell, at his deposition, acknowledged that he didn't have a copy of the Index information, that he did not have direct knowledge of how the index was developed, and that he did not know whether the data reflected the costs of small independent companies.[4] Knowing how competitive the central office switch business is and the proprietary restrictions placed on our clients in regard to

[4] Conwell Deposition pp. 133-138.

switch quotes, I certainly question whether this index is reflective of small company switching costs.

Q. What does Mr. Conwell use as his recommended basis for the investment in central office switches?

A. He proposes to use values adopted by the FCC in its "Tenth Report and Order" in CC Docket Nos. 96-45 and 97-160 which he then reduces 12%, based on his reliance on the Sprint witness in Tennessee that switch costs had dropped by 12% in the past five years except for those companies when the results would produce higher costs than their embedded costs.

Q. Mr. Schoonmaker, do you believe that the switch cost values adopted by the FCC in its CC Docket Nos. 96-45 and 97-160 are appropriate starting points for the value of Petitioners' switch investments?

A. No. As Mr. Conwell admitted in his deposition, the values the FCC adopted for switch cost investment were based on switch costs for both large and small LECs.[5] Large LECs are able to obtain much better prices for the same switches than small LECs because of their ability to buy in bulk and therefore obtain substantial discounts on a per switch basis. Accordingly, using a switch value that is influenced by cost prices available to large ILECs but not available to small LECs is inappropriate. And, Mr. Conwell's starting point for switch costs is similarly inappropriate.

Q. Notwithstanding Mr. Conwell's starting point for switch costs is it appropriate to reduce those costs by 12% to reflect current costs?

[5] Conwell Deposition, pp. 131-132.

A. No, it is not. First, as I indicated previously, it is not clear that the index factor Mr. Conwell uses is appropriate for small company switch investment. Secondly, when I view the results of Mr. Conwell's analysis on Cass County, I find the results clearly inappropriate.

Q. What Central Office switch investment did Mr. Conwell arrive at for Cass County and how does it compare with the default value contained in the HAI model, your input value and Cass County's actual investment in switching costs?

A. Mr. Conwell produces a central office switching investment for Cass County of $1,798,922 as shown on line 20 of his Exhibit WCC-7. This is compared to the $2,298,000 produced by the HAI default assumptions, the $3,047,000 included in the Petitioners' cost study, and the $6,106,918 of actual 2003 Central Office Equipment (COE) investment. Mr. Conwell's assumed switch investment for Cass County is only 30% of its actual investment (or an average investment of $209.48 per equipped line). In other words, Mr. Conwell's switch costs for Cass County are 70% less than its actual embedded costs. Since Cass County began business in 1996 and replaced all of its switches in the 1996 to 1999 timeframe, its actual investment in switching is less than six to eight years old. It is simply not reasonable to assume that Cass County's switches could be replaced at only 30% of their current investment. Nevertheless, that is what Mr. Conwell's input value for Cass County assumes.

Q. Let's turn now to the question of how much of the switching investment is traffic sensitive. What is your opinion on the portion of switch costs that are traffic sensitive?

A. I reviewed the default value provided with the HAI model and supported and adopted by the FCC in its *Tenth Report and Order* in CC Docket 96-45, which is 70%. I believe this is a reasonable allocation of switch costs to traffic sensitive costs based on my knowledge of and experience with Small ILEC switches.

Q. Mr. Schoonmaker, what is the significance of classifying costs as traffic sensitive or non-traffic sensitive?

A. Generally speaking, and in Petitioners' case, costs that are classified as traffic sensitive are recovered on a usage basis (i.e., per minute of use) and are charged to carriers. Costs that are classified as non-traffic sensitive are recovered on a non-usage basis (i.e., flat rate) and would have to be recovered from Petitioners' end-user customers. For years, a good portion of a LEC's switching costs have been treated by this Commission as traffic sensitive and, therefore, recovered on a usage basis via interstate and intrastate access rates (i.e., the local switching rate element). Currently, interexchange carriers who originate and terminate long distance traffic in Petitioners' exchanges pay an intrastate local switching access rate ranging from 0.71¢ to 3.69¢ per minute of use. Wireless carriers, such as Respondents, use the same switching facilities as IXCs of Petitioners terminate their traffic and therefore create the same costs as IXCs. However, Respondents claim that the majority of Petitioners' switching costs should now be classified as non-traffic sensitive which not only creates a significantly lower switching rate

for them in relation to IXCs (and a distinct competitive advantage) but it also shifts the cost recovery burden for those switching costs to Petitioners' end-user customers.

Q. Mr. Conwell on Page 47, Lines 7-8 indicates that he believes that value may have been correct in 1995, but goes on to say he doesn't believe so now. When were the documents you relied on published?

A. The HAI Input Portfolio carries a release date of January 27, 1998. The FCC's order was released on November 2, 1999.

Q. Is the FCC continuing to use this input in the model that it uses to determine non-rural company USF payments?

A. Yes. This input has not changed in the intervening years.

Q. Has the FCC issued any later orders reaffirming the 70% traffic sensitive factor?

A. Yes. On November 8, 2001 the FCC released its order *In the Matter of Multi-Association Group (MAG) Plan for Regulation of Interstate Services of Non-Price Cap Incumbent Local Exchange Carriers and Interexchange Carriers*, FCC 01-304. Included in the changes adopted in that order was a requirement for non-price cap companies to shift "line-port" costs from the local switching element to the common line element. The FCC codified this requirement in Section 69.306 of its rules. In doing so the FCC stated:

> 93. Rather than requiring cost studies, as we did for price cap carriers, we will permit rate-of-return carriers to shift 30 percent of their local switching costs to the common line category as a proxy for line port costs. We agree with commenters who argue that requiring cost studies for all rate-of-return carriers would be overly burdensome, costly, and time-consuming for small carriers. Several commenters support the use of a proxy to avoid the need for cost

studies. By adopting a proxy, we also respond to our obligations under the Regulatory Flexibility Act to minimize administrative burdens on smaller incumbent local telephone companies.

94. We adopt 30 percent of local switching costs as a reasonable proxy for line port costs because this figure is incorporated into the Commission's forward-looking high-cost model for price cap carriers. The model uses 30 percent to allocate local switching costs to the common line category to be included in the calculation of high-cost support.

Thus, in late 2001 the FCC still accepted that 70% of switching investment was traffic sensitive and adopted access charge rules incorporating that amount.

Q. Has this section of the FCC rules been modified since then?

A. It has not. FCC rules continue to allow non-price cap carriers (such as Petitioners) to use 30% as a proxy amount for the calculation of non-traffic sensitive costs, leaving 70% of those costs to be recovered through usage sensitive local switching access rates.

Q. Mr. Conwell cites as "evidence" of the alleged "dramatic" reduction in usage sensitive costs the fact that in more recent versions of the HAI model that the modelers now propose a non-port fraction of 0%. What are your comments?

A. I acknowledge that the newer versions of the HAI model do change this input value. I must make a correction in my deposition testimony, however. While the current HAI 5.2a documentation adopts a 0% traffic sensitive factor, that was not always the case. Initially when HAI version 5.2a was released, the model documentation dated July 28, 2000 still used the 70% traffic sensitive factor. However, in a more recent, April 9, 2002, version of the Inputs Portfolio a 0% factor is adopted with the following explanation: "This factor is based on the direct testimony of Mr. Gillan filed on March 18, 2002 in the Minnesota cost case, MPUC Docket # P-421/CI-01-1375."

Q. Have you had a chance to recently review the testimony on which this change in assumption was based?

A. I have. Mr. Gillan's testimony largely relies on testimony of a NYNEX witness in New York (who testified that NYNEX's switches were not traffic sensitive) and the testimony of a Mr. Palmer of Ameritech in Illinois. Mr. Palmer testified that

> By the terms of the [switch vendor] contracts, Ameritech buys switching equipment by paying a one-time price for each line that it demands. The line prices do not vary with the number of lines purchased, nor with the year of purchase, nor with the state in which the equipment is to be installed; the contracts are region wide.[6]

Based partially on the testimony of this witness, Mr. Gillan concluded in his Minnesota testimony that Qwest's local switching costs were not traffic sensitive and the HAI modelers changed their assumption on that basis. I do not believe this line of reasoning is appropriate for small LECs and, thus, the Minnesota testimony of Mr. Gillan is inapplicable.

Q. Mr. Conwell on pages 48 and 49 also quotes as "evidence" of the non-traffic sensitive nature of switches from an Illinois Commerce Commission (ICC) order. What are your observations?

A. I note that the quote refers specifically to the case where Mr. Palmer, as quoted by Mr. Gillan, testified that Ameritech's switch contracts called for pricing on a per line basis only. The ICC's conclusion in that case also, in my opinion, is inapplicable to the small LECs' situation because the pricing of their switches is not on the same basis as it is for Large LECs.

[6] See Direct Testimony of William Palmer, ICC Docket 96-0486, Ameritech-Illinois Exhibit 3.3 quoted in Direct Testimony of Joseph Gillan in Minnesota Docket #P-421/C8-01-1375 filed March 18, 2002.

Q. Why are the Minnesota and Illinois testimonies and conclusions inappropriate for the Petitioners?

A. The Petitioners do not have long term purchase agreements with manufacturers addressing the purchase of large volumes of switches. They do not have contracts with fixed prices per line, regardless of the number of lines or other equipment in the switches. Rather, Petitioners purchase switches on an individual switch basis, frequently obtaining bids from multiple manufacturers. Those bids continue to be developed on an individual switch basis, based on the component pricing that was used for all switches in earlier years.

Q. What is the basis for your observations regarding switch pricing for small LECs such as the Petitioners?

A. Our firm has an engineering section that regularly assists our clients in developing RFP's for switch replacements and in evaluating bids from manufacturers for replacement switches. I have recently confirmed with them that those bids continue to be based on component pricing for the individual switches.

Q. Do you have additional evidence that switch manufacturers view substantial portions of their switch equipment as being traffic sensitive?

A. Yes, recently Mr. Jason Hendricks of my staff had conversations with Jim Trier (Sr. Sales Executive) of Nortel, the switch vendor for a number of the Petitioners regarding the DMS-10 switch used by those Petitioners. As a result of those conversations, Mr. David Jarzemski, Product Manager, Rural Switching for Nortel, has provided a verified declaration, attached as Schedule RCS-8, which describes the traffic sensitive nature of Nortel's DMS-10 switch. I note

specifically that he states, "All physical facilities, i.e. DS-1 interfaces, network ports, tone circuits, ringing generators, announcements systems require detail engineering in accordance with expected traffic levels to provide acceptable grades of service." Essentially, he is saying that small LEC switches are configured based on traffic levels meaning they are still largely traffic sensitive.

Q. Mr. Conwell cites excerpts from a Virginia Arbitration Order on page 48 of his testimony. What is your response?

A. The Arbitration Order cited is a specific arbitration order related to Verizon and its operations in Virginia. The circumstances of Verizon in Virginia are very different than those of the Petitioners, both in terms of Verizon's buying power and the size of switches that Verizon primarily uses. Verizon is the country's largest ILEC, and while Verizon's serving area in Virginia probably encompasses some rural areas, its primary operating area is highly urban areas with large customer concentrations such as the portion of Virginia immediately adjacent to the Washington, DC area. In this Order the FCC adopted use of the SCIS model for developing switching costs rather than the FCC Synthesis Model, which uses switching cost development similar to HAI. The order was issued by the Chief, Wireline Competition Burea of the FCC, not the full FCC and is specifically related to the evidence presented in the Verizon case.

Q. Do you continue to believe that the 70% value is the correct value for the *end office non-port fraction*?

A. I do. Mr. Conwell's assumption and the very low local switching costs that he derives as a result are simply not appropriate for the Petitioners.

Q. Let's turn briefly now to Mr. Conwell's third area of disagreement which he describes as "Excessive Land and Building space requirements". What is the apparent basis for Mr. Conwell's characterization?

A. In lines 7-12 of his testimony on Page 52 he indicates that he based his conclusions on the responses to data requests received from the Petitioners. The data request stated: "Provide an estimate of the square footage of floor space required for each of the Petitioner's end office switches (host and remotes) identified in response to question 19. Show the space required for equipment bays versus aisles, hallways, *etc.* that may be included." We interpreted this request to include the footprint of the equipment bays only, and to exclude the aisles, hallways, etc. and instructed the Petitioners to respond in that manner. The responses to the data requests thus only include the space for the equipment footprint, not any of the aisles between the equipment bays, entry facilities, restrooms, space for heating and air conditioning equipment, storage space, etc. The 10' by 10' area for a remote switch and 14' by 14' area for a host switch assumed by Mr. Conwell are simply not adequate to house these facilities and should not be adopted by the Commission. Furthermore it appears from Exhibit WCC-8 that Mr. Conwell reduces the size of the land for remote switches to 200 square feet and for the host switch to 400 square feet. For the remotes this would be an area 14' by 14' or a perimeter of 4' around the building and 20' by 20' for the host switch with a perimeter of 6' around the building. This would leave an unacceptably small amount of space to accommodate utility and sidewalk

easements and provide parking area and room for external generators for emergency power.

Q. Mr. Conwell concludes his testimony on this issue by indicating that if his proposed information is inserted into Exhibit WCC-7 that a certain result would occur. Did he provide any evidence of these calculations?

A. No. Exhibit WCC-7 shows the HAI calculations for floor space and buildings. He has provided no evidence nor workpapers demonstrating how he obtained the results mentioned on line 22 of Page 52.

Q. Can you summarize your testimony regarding the end office switching costs?

A. Yes. Mr. Conwell's assumptions and analysis are incorrect and produce a woefully inadequate calculation of local switching costs of approximately one-tenth of one cent per minute. This analysis is presented in a footnote on page 15 of his testimony with no explanation of the derivation of the land and building loading factor, the 11, 542 minutes per line, or the 40% interoffice traffic fraction. The Commission should adopt the costs proposed by the Petitioners.

TRANSPORT COSTS

Q. On page 54 of his testimony, Mr. Conwell describes transport as beginning "...at the meet point with an intermediate carrier..." which delivers traffic to the Petitioner. Does this description sound like the definition of an embedded network to you?

A. While Mr. Conwell's description is basically accurate as it relates to the embedded or existing network, it does not necessarily reflect the design of a forward-looking network. The HAI modelers took a different approach to

developing interoffice networks. While the developers of the HAI model assumed that end office switches would be at their current locations, as the FCC required, the HAI model projects a forward-looking interoffice network with different ring configurations and points of network concentration than are used in the existing network. The model description documentation contains detailed descriptions of the network design and the algorithms used to optimize the network design. Included in these forward-looking assumptions are assumptions regarding the ownership of facilities interconnecting the networks. The HAI modelers have assumed that the large RBOCs and the large Independent Companies (ICOs) will build network facilities to connect their own switches and to carry traffic brought to them by small LECs, but have assumed that the small LECs will take responsibility for building network facilities to connect with the RBOC facilities.

Q. Do you believe that the MAI model makes an appropriate forward-looking assumption for network design?

A. Yes. If the interoffice network was to be rebuilt today, I would be very surprised to see RBOCs willing to build network facilities out to ICO locations in the future. The revenues associated with such facilities are constantly under pressure in regulatory proceedings like this one and in the FCC's Intercarrier Compensation investigation, and it would be difficult for the RBOCs to construct an economic case for building such facilities in the future. The responsibility for such facilities is likely to fall increasingly on the individual Petitioners. The HAI model recognizes this reality. Mr. Conwell's embedded network design does not.

Q. Have you seen evidence that the RBOCs will resist building such facilities in the future?

A. I have had discussions on several occasions over the past two to three years with Dee McCormack, President of Ellington Telephone Company (one of the Petitioners), specifically about this issue. Ellington's interoffice facilities have been on copper cables that are near the exhaust point. Mr. McCormack has had numerous discussions with SBC related to SBC building a fiber cable to the current meet point but SBC has strongly resisted. SBC has been unwilling to build such a replacement cable.

Q. In identifying the issues for decision in this case the Parties, based on Mr. Conwell's characterizations, have identified five significant issues of disagreement in regard to the Petitioner's cost studies. Can you identify the first of these issues?

A. The first of these has to do with the mileages produced by the Petitioner's studies in comparison to those proposed by Mr. Conwell. Mr. Conwell takes the position that the Petitioner's cost studies vastly overstate the interoffice mileages for a forward-looking network.

Q. After your review of mileages used in the HAI model and Mr. Conwell's testimony, can you comment on the your observations regarding the differences in the mileages produced by HAI and by Mr. Conwell?

A. Yes. I can identify several different reasons for the differences. They include:

1. The forward-looking network in regard to facility ownership incorporated in the HAI model vs. the embedded network design used in Mr. Conwell's cost development.

2. Network differences from the current actual network to the forward-looking network to provide full service redundancy.

3. Simplifying assumptions used in the HAI modeling.

Q. Can you comment further on the first of these observations?

A. Yes, as I described earlier, the HAI modelers assumed a forward-looking network that was reconstructed to, on a statewide basis, reflect an efficient statewide network. The network that is designed by the HAI has different tandem concentration points than the current network in order to minimize interoffice transport requirements and to increase the efficiency of the designed network. As described earlier, the model assumes that the RBOC will build network nodes and rings to interconnect its exchanges. The network design contemplates sufficient capacity on the RBOC ring network to accommodate ICO traffic, but assumes that the ICO's will provide the facilities to reach the RBOC network. This reduces the forward-looking cost of the RBOC's network, but puts additional investment requirements on the ICO's network. I have described earlier why I believe this is a reasonable forward-looking assumption.

Q. Are you able to quantify the difference between the HAI mileages that are assumed because of this forward-looking assumption in comparison with the Petitioners existing network?

A. I have not been able to do so in the limited time since the filing of Mr. Conwell's testimony and studies. In my brief review, I can say that is one significant factor that impacts the mileage differences.

Q. The second factor that you mentioned is network differences related to the forward-looking assumption that all networks would be fully redundant. Can you comment on this assumption?

A. Yes. The HAI modelers assumed that forward-looking networks would be built to provide full network redundancy to limit service outages and isolated exchanges. Much of the HAI network design accomplishes this by using ring architecture between offices, a technology which allows the traffic to reverse direction and go the other way around the ring should a break in the ring network occur. In other cases where a ring architecture is not used, the model designs two separate routes to provide this redundancy or diversity.

Q. Does this forward-looking network quality assumption have a significant impact on the mileages used by the HAI model?

A. It does. As I reviewed the detailed workpapers that Mr. Conwell developed on the individual Petitioners based on the data provided to him, it was my observation that, in many cases, without the provision of redundant facilities for diversity the HAI mileages were less than the actual network mileages. This was particularly true where the Petitioner did not use rings in their networks.

Q. Have all of the Petitioners fully implemented route diversity in their networks?

A. No. While some have either through the use of ring architecture or through diverse routes and others have implemented diversity to some of their exchanges, such diversity is not fully implemented in existing networks.

Q. Do these two examples point out one of the impacts of using forward-looking costs as required by the FCC?

A. They do. Forward-looking costs are estimates of network costs in the future using the most cost efficient forward-looking technology. While in some cases the cost efficient forward-looking technology is less expensive than embedded costs and technologies, that is not always the case, particularly in rural areas and for small companies. The conventional wisdom that forward-looking switching and transport costs have been reducing are likely true on a national scale, but are frequently not true in rural areas. The small companies in Missouri do not prefer using forward-looking costs; they prefer using embedded cost data which reflect the actual investments and expenses. However, the FCC has required the use of forward-looking costs, and the Petitioners are doing their best to comply with that directive.

Purchasers of services from the Petitioners generally favor the use of forward-looking costs, at least partially because of the conventional wisdom that they will be less than embedded costs. They are quick to point to and adopt forward-looking costs when they are less. However, when forward-looking network costs are more, service purchasers such as the Respondents quickly fall back on the existing embedded network as a more correct indicator of the costs they should have to pay.

Q. The third reason that you mentioned as a factor causing differences between the HAI model and Mr. Conwell's mileages is what you describe as simplifying assumptions in the HAI model. Can you comment on this factor?

A. Yes. In its default mode, the HAI model assumes that offices under 5,000 lines will be attached to rings via "spurs" or direct links off the rings. In the case of the Petitioners, this means that the model does not develop rings for the Petitioners' exchanges since they are all under that size. A number of the Petitioners actually use ring technology which is not reflected in the HAI model. In these cases, the mileage used by the model is larger than the current network mileages.

Another simplifying assumption that the HAI modelers made was that ICO exchanges would interconnect with the interexchange network to reach the tandem switch at the nearest RBOC wire center. On a national basis, that was a reasonable assumption since the RBOCs are the predominant providers of tandem connections for the ICO's, their exchanges are widespread, and there is generally an RBOC wire center fairly close to ICO exchanges. That, however, is not always the case. Mr. Conwell on Page 63 talks about Peace Valley Telephone Company and uses that company as an "example" of the "problems" with the Petitioners' cost studies. Peace Valley is located in the south central part of the state. It happens to be located in an area that is almost exclusively served by Century Telephone, and the nearest RBOC exchange is 86 miles away. That caused the HAI model to attribute significant mileage to Peace Valley and generate a very high transport cost for that company.

Q. How have the Petitioners tried to compensate for these simplifying assumptions?

A. They have done so by trying to be reasonable in their requests for rates as they have negotiated with wireless carriers, and in their presentations in arbitrations such as this one. The proposed rate of $0.035 is considerably less than the average calculated forward-looking cost of the Petitioners. One of the reasons for this proposal was a recognition that there may be some "less than perfect" assumptions in the models and their development of forward-looking costs and that accepting a rate considerably less than the indicated cost would help resolve those issues. This has been successful and a significant number of the wireless carriers in the state have reached agreements with the Petitioners rather than entering into arbitration proceedings.

Q. Mr. Conwell uses Cass County as an example company to demonstrate his calculations. Can you comment on his use of one company for this type of demonstration?

A. The use of one company simplifies his work effort a good deal and also may make it less complicated for those reviewing his work to understand some of his basic assumptions and cost calculations. However, the Commission should recognize that Cass County is only one of many companies that have many different circumstances. The Commission should be careful not to draw conclusions about the rest of the Petitioners solely on Cass County data. For example, Cass County is one of several companies that are using ring architecture in their internal network. There are other companies, particularly those with

smaller numbers of exchanges, that do not use that type of architecture and their network structures would be different.

Q. The next major issue identified by the Parties is the sizing of interoffice cables. What is your reaction to Mr. Conwell's criticism that the HAI model, by using 24-fiber cable for all interoffice routes, overstates the cost of cable?

A. I do not agree with his conclusion. In my discussions both with my engineering staff and with clients regarding this issue, I frequently am told of how the companies placed six, or eight, or twelve fiber cables five to ten years ago expecting them to provide adequate growth coverage for a twenty-five year period, and are already having to go back to those routes and place a second cable. In discussing current practices with those who are designing and placing networks, the undersizing of cables is a major consideration particularly because the material cost of the cable is a relatively minor part of the total cable cost and the material cost difference to double capacity by installing a 24-fiber cable rather than a 12-fiber cable is quite small. Based on my discussions, it is clear to me that the forward-looking engineering design for interoffice cables would be a minimum of 24-fibers and some companies use 48-fibers as their minimum interoffice cable size.

Q. On Page 66 Mr. Conwell suggests that a 12-fiber cable might cost 12% less than a 24-fiber cable and that if the current demand could be satisfied by the 12-fiber cable that it should be used. What is your reaction?

A. In economically designing a fiber cable that may have a 25 to 30 year life, one has to consider more than just the current demand, or even projections of demand for

current services. Demand projections for new services are much more difficult to do accurately, but if one views the changes in the demand for communications services of various types in the past few years and reviews the current business literature regarding expectations for future years, it is clear that there may be significant future increases in demand for communications services. Network designers are sensitive to these trends. What Mr. Conwell fails to recognize is that while it might cost 12% less to place a 12-fiber cable as opposed to a 24-fiber cable today, if an additional 12 fibers needs to be placed just a few years from now, the overall network cost will be at least 76% higher than if the 24 fibers are placed today.

Q. The next major issue the Parties identified is the appropriate sharing of cables. Do you disagree with the concept that the cost model should incorporate sharing of interoffice facilities to those services that use those facilities?

A. No. I agree that sharing should be recognized.

Q. Mr. Conwell makes statements on lines 9 and 22 of Page 70 of his testimony that the HAI model does not share any of the cost of the "fiber cable" with other services but assigns it all to transport. Do you agree with his statements?

A. I disagree with Mr. Conwell's statements. My review of the formulas in the "Wire Center Investment" worksheet of the Switching and Transport module of the model has revealed that the cost of the fiber cable is assigned to nine different types of trunks. While a significant portion of these trunks are tandem trunks

which are assigned to the common transport cost element, another significant portion is assigned to the dedicated transport element, and smaller amounts are assigned to local tandem and local direct trunks. The local direct trunks include host-remote links in those cases where host remote networks are modeled.

Q. On Exhibit WCC-16 Mr. Conwell provides his "corrected costs" for Cass County Telephone Co. Do you have additional concerns with the method he uses to arrive at his final MOU rate of $0.0021?

A. I do. Assuming for the time being that Mr. Conwell's cable investment of $1,358,709 shown on line 32 was correct, the calculations he uses to arrive at the weighted cost per minute of $0.0021 vastly understates the correct rate because he uses an inflated number of minutes to calculate the rate. For Cass County the HAI model calculates common trunk usage of 33,177,848 minutes over 330 trunks or an average of 100,539 minutes per trunk as shown on cell M43 of Exhibit WCC-16. However, rather than using the actual minutes to calculate the rate for Cass Telephone, Mr. Conwell multiples the minutes per trunk times the full trunk capacity he calculates in column L and uses that to calculate the rate. For the PCLRMOXA (Peculiar wire center) to SBC meet point link shown on line 1, rather than calculating the rate based on the 33,177,848 minutes, he uses 99,563,310 minutes.

Q. Assuming again that Mr. Conwell's $1,358,709 investment number was correct, is there a simpler way to calculate the correct rate based on this investment amount?

A. There is. The "annual charge" factor which Mr. Conwell uses to derive the annual cost/DSO (which he derived from HAI assumptions) is 26.091%. Multiplying this factor by his $1,358,709 investment amount results in an annual cost of $354,501. Dividing this annual cost by the 33,177,848 actual minutes that are estimated to use common transport facilities, results in a rate of $0.0107, a rate over five times as high as Mr. Conwell erroneously calculates.

Q. While Mr. Conwell's Exhibit shows the transport rate calculations for Cass County, they do not show those calculations for other companies. Yet he shows rates for many of the Petitioners on his Exhibit WCC-1. Have you been able to examine the derivation of the rates for the other companies?

A. I received workpapers from Mr. Conwell three days before the filing of this testimony showing the calculations for some, but not all of the Petitioners common transport rates on Exhibit WCC-1.

Q. Did Mr. Conwell use the same method for calculating these Petitioners rates as he did for Cass County?

A. I did not have time to review all of the calculations in detail. However, the same general improper method of determining the rate per MOU appears to be used, with one exception. In the calculations for these companies, Mr. Conwell used basically the same minutes per trunk for all the companies as he calculated for Cass County. In spot checking the correctness of this assumption I checked three companies, one had minutes per trunk within about 4% of the Cass County minutes. For the other two, the minutes per trunk were in the neighborhood of

30% lower than the Cass County level. This magnified the error in Mr. Conwell's calculations.

Q. Can you provide an example of the impact of using the inappropriate minutes per trunk?

A. Yes. In the case of Ellington Telephone Company, Mr. Conwell calculated a cable investment of $1,477,708 and an annual cost of $385,549. Mr. Conwell then calculated a per minute rate of $0.0045. When I take the annual cost of $385,549 and divide it by the 7,897,294 actual common transport minutes, I arrive at a rate of $0.04882 nearly 11 times the rate Mr. Conwell calculated. Clearly, his method for calculating the per minute rate does not appropriately consider the actual minutes of use for the facility and, consequently, drastically understates the rates he presents.

Q. The fourth transport issue relates to the appropriate transmission equipment for the interoffice network. What equipment does the HAI model assume is used in the interoffice transmission network?

A. The HAI model assumes an interoffice network built using OC-48 transmission systems with OC-48 add/drop multiplexer equipment and with accompanying OC-3 ADM terminal multiplexers. This equipment feeds into a digital cross connect or DACS system which separates out individual DS1 and DS0 circuits to be delivered to the end office switch or other end users of the facilities. The HAI developers identified this equipment as the equipment to be most efficiently used in a forward-looking, current technology network in the late 1990's, and it is even more prevalently used today.

Q. What is the major adjustment that Mr. Conwell makes in the transmission equipment?

A. He assumes that the Petitioner's transmission trunk requirements can be met with OC-3 systems and eliminates all of the OC-48 equipment and the regenerators associated with it over long distances.

Q. Do you agree with this adjustment?

A. No. I have discussed with my engineering staff the current forward-looking technologies that are being used in the interoffice network design. They tell me that while OC-3 equipment is still available from some manufacturers, it is becoming obsolete, and they would not consider using OC-3 in a new network design. Thus, it is my conclusion that the equipment proposed by Mr. Conwell does not meet the FCC's criteria of being forward-looking current technology equipment.

Q. What does your staff inform you is the forward-looking current technology?

A. At a minimum, they would recommend nothing smaller than an OC-12 system, but more typically they would recommend an OC-48 system, and in some cases even larger systems, up to OC-192.

Q. Did your staff explain why these would be the transmission systems they would recommend?

A. Yes. In designing networks one tries to buy equipment that will be cost effective over its projected life, which in the case of transmission equipment is in the neighborhood of ten years. At the present time there is a great deal of evidence that suggests that demand for communication facilities and bandwidth will

increase substantially over that ten year period, perhaps exponentially. As the engineer and management weigh the incremental costs of larger systems in comparison to smaller ones and consider the potential future demands, I am advised that the network planners most frequently migrate to OC-48 systems as an appropriate transmission system.

Q. Besides the choice of transmission equipment which is, in your opinion, inadequate and non-forward-looking, did you discover other issues with Mr. Conwell's calculation of transmission costs on a per minute basis?

A. I did. In calculating the cost per minute on Exhibit WCC-18 Mr. Conwell substantially overstates the actual minutes of use that will be transmitted over the Common Trunk facilities. On Line 42 of this schedule Mr. Conwell includes a total of 2,718 trunks for CassTel, the same number previously used in column L of Exhibit WCC-16. I have discussed these trunk quantities earlier in relation to Mr. Conwell's calculation of cable costs on that Exhibit. He then assumes that each of these trunks carriers 100,539 minutes per year as shown in Line 55. If I multiply the 2,718 trunks by 100,539 I arrive at the volume of billing minutes that Mr. Conwell has used in his calculations of 273,264,824. This is approximately 8.2 times the 33,177,848 actual common trunk minutes used in the HAI model. If one grows the common trunk minutes by the access line growth from the HAI model values to current access lines (21.56% growth), the common trunk billing minutes would only be 40,330,992. Mr. Conwell uses minutes that are nearly 6.8 times greater. Given the overall costs he calculates (with which I don't agree), the rate he calculates for CassTel is only 12.1 to 14.8% of what it should be.

Q. Were you able to review the calculation of transmission for other Petitioners even though Mr. Conwell did not provide that in his testimony?

A. As I indicated earlier, I received workpapers showing those calculations for some of the Petitioners, but not all of them, three days before this testimony was filed.

Q. What are your observations regarding Mr. Conwell's method to calculate transmission equipment for the Petitioners other than Cass County?

A. He did not base those calculations on the individual Petitioners' networks or their individual costs. Instead, he used the cost per minute calculated for specific Cass County exchanges (using the faulty minutes and method that I have described) and attributed those transmission costs to the other Petitioners' exchanges. Then he calculated a weighted average of the exchanges of the individual Petitioner. The costs clearly do not reflect calculations of the individual Petitioner's transmission costs, but an attribution of Cass County's flawed costs to those Petitioners.

Q. On Page 88 of his testimony, Mr. Conwell states that the HAI model results for ISUP signal links suffer from the infirmities of Transport Issue #1, 2, and 3. Do you agree with this assessment?

A. No. Mr. Conwell does not understand the signaling calculations for small ICO's and the differences between those calculations for the RBOCs. For small ICO's the HAI model uses a simplified investment input that is based on an amount per line per wire center. Thus, the calculation of signaling investment is totally unrelated to distance, cable sizes, cable sharing, etc. for small ICOs.

Q. Can you summarize your thoughts in regard to the costs developed by Mr. Conwell?

A. Yes. I believe that they are seriously understated. As I indicated at the beginning of my testimony Mr. Conwell's rates ultimately fail the test of reasonableness since he arrives at rates for the Petitioners that are lower than the rates charged by SBC in the contracts it has with the Respondents. SBC is a very large company and provides its services primarily in high-density/low-cost areas to serve. Mr. Conwell's results are not credible. As I have pointed out, many of his calculations are based on highly inflated minute totals. In other cases his assumptions do not reflect forward-looking network considerations.

Q. Mr. Pue on page 10 of his testimony makes a number of comparisons of the Petitioners' rates to the rates of RBOCs around the nation. Do you believe that his comparisons have any validity?

A. No. The RBOC companies provide the bulk of their service in urban areas where exchanges, switches sizes, traffic volumes, and population densities are much larger. I am not surprised that the rates for RBOC companies are in the range that Mr. Pue quotes, but the cost characteristics for RBOC operating territories are very different than for the Petitioners.

Q. Is this true even in the states of Wyoming and Montana that Mr. Pue cites as being sparsely populated, rugged, and mountainous?

A. It is. While the states are sparsely populated, Qwest serves a very small amount of the physical areas of those states. Several years ago, Qwest sold most of its rural exchanges. In Wyoming, Qwest's serving area is predominantly in the three

largest cities in the state, Cheyenne, Laramie, and Casper. In Montana they primarily serve Billings, Bozeman, Butte, Great Falls, Helena, and Missoula.

Q. Mr. Pue also makes comparisons with Cass County's interstate access rates as a NECA pool member on Pages 11 and 12 of his testimony. Can you comment on his observations?

A. Yes. While a comparison to the NECA rates is possible, it needs to be recognized that these rates represent average costs of a wide group of companies across the country, including a number that are substantially larger than the Petitioners. Comparisons to the Petitioners' access rates thus are not direct comparisons to the Petitioners' costs. Secondly, the interstate access rates are based on embedded costs, not forward-looking costs of the Petitioners. Thirdly, as I discussed earlier in my testimony, in regard to access rates the FCC rules still recognize a large portion of switching investments as traffic sensitive. The 2003 decision referred to in line 19 of Mr. Pue's testimony was a ruling in a case involving a single company by the Chief of the Wireline Competition Bureau, not a policy decision for all companies made by the Commission. Finally, while most of the Petitioners are members of the NECA traffic sensitive pool, Mr. Pue is incorrect when he states that all of the Petitioners' rates are represented by the NECA tariff. Citizens Telephone Company files its own interstate tariff rates based on its own costs. Currently, Citizens' local switching rate is $0.0291 and its tandem switched transport rate is $0.04296. On a combined basis, its interstate access rates are more than double the $0.035 rate that the Petitioners (including Citizens) are requesting in this proceeding.

Mobile to Land/Land-to-Mobile Traffic Ratio (Issues -16-18)

Q. What is the Petitioner's position in regard to "Traffic Ratio"?

A. The Petitioners believe that such a factor is unneeded since the traffic originating from their exchanges to the wireless carriers is almost all traffic that is originated by IXC customers and carried by those IXCs to the wireless carriers. It is not the Petitioners' traffic. The Petitioners believe such a factor is particularly unnecessary in the Cingular proceeding because Cingular takes no position regarding that issue. Nevertheless, I provided in my direct testimony the results of studies conducted by a number of the Petitioners to identify the level of Mobile-to-Land/Land-to-Mobile traffic (the "Traffic Ratio") should the Commission decide to require such a factor. The Petitioners propose that the Traffic Ratio be set at 84/16 for T-Mobile and 83/17 for Cingular if such a factor is needed.

Q. Did the Respondents provide some evidence in their direct testimony regarding these factors?

A. Yes. Mr. Pruitt for T-Mobile provided Attachment A (Proprietary) to his testimony and Mr. Pue for Cingular provided Confidential Schedule B containing the results of Cingular's study in regard to the Petitioners traffic.

Q. Can you comment first on Mr. Pruitt's study and proposal for T-Mobile?

A. Yes. Mr. Pruitt proposes a Traffic Ratio of 65/35 for each of the Petitioners with T-Mobile. He testifies that the study results he has attached produce a 75/25 Ratio (Page 17, Line 22). He further describes his rationale for proposing a lower ratio because of the lack of validity and reliability of the study which he believes

understates the land-to-mobile factor by 10%. He apparently has no factual basis for the level of this adjustment.

T-Mobile did provide detailed worksheets of their study material for four Petitioners which have been reviewed by those individual Petitioners. While we do not clearly understand T-Mobile's data gathering methods, a comparison of the study results of the individual Petitioners resulted in a general observation that the ratios developed by the actual data were reasonably close to those produced by the Petitioners themselves, but that the volume of minutes was substantially different than the Petitioners observed. For example, Citizens calculated a Traffic Ratio of 87/13 based on the call detail information provided by T-Mobile; Green Hills calculated a Traffic Ratio of 84/16 based on the call detail information provided by T-Mobile; Holway calculated a Traffic Ratio of 94/6 based on the call information provided by T-Mobile; and Mark Twain calculated a Traffic Ratio of 89/11 based on the call detail information provided by T-Mobile. Thus, using T-Mobile's own information for these four Petitioners, the largest percent of land-to-mobile is 16%, which is nowhere near the 35% Mr. Pruitt is hypothesizing.

I did a further analysis to validate Mr. Pruitt's testimony that the study data resulted in a 75/25 Traffic Ratio. I have attached that analysis as Schedule RCS-9(P). To my surprise, the analysis shows a composite Traffic Ratio for the three months combined of 82/18, not the 75/25 that Mr. Pruitt described.

Q. What is your recommendation to the Commission regarding establishing a Traffic Ratio factor for T-Mobile if one is needed?

A. I continue to recommend that the Commission adopt the 84/16 Traffic Ratio proposed by the Petitioners. T-Mobile admits to concerns about the validity of its study and has not offered reasonable evidence to support its proposed 65/35 Traffic Ratio. The data that T-Mobile has presented shows results very similar to the 84/16 Traffic Ratio proposed by the Petitioners as demonstrated in Schedule RCS-9(P).

Q. In regard to Issue #18, do the Petitioners object to the interconnection agreement containing language to modify the Traffic Ratio based on further traffic studies?

A. They do not. In their agreements with US Cellular and Sprint/Nextel the Petitioners have agreed to such provisions. To the extent that the initial Traffic Ratios established in this arbitration are found to be in appropriate, this type of provision would allow the Traffic Ratio to be changed.

Q. Would you turn now to Mr. Pue's testimony? What are your comments on his testimony?

A. Mr. Pue provides in Confidential Schedule B the results of Cingular studies to calculate the Transit Ratio for each of the Petitioners. We have not had the opportunity to discuss with Cingular the derivation of these studies, the data techniques used, etc. While the percentages that the Cingular schedule show are in a reasonable range with the studies that the Petitioners have performed, the Petitioiners would continue to request the Commission adopt the factor proposed by the Petitioners since we have confidence in the data used in our studies.

Inter-MTA Traffic Factors (Issue 28)

Q. Can you briefly describe the issue at dispute between certain of the Petitioners and T-Mobile in Issue 28?

A. Yes. Three of the Petitioners have proposed, and T-Mobile has accepted, factors that recognize that a portion of the traffic terminating from T-Mobile is interMTA traffic. The Parties agree that the compensation for such traffic should be access rates. The issue revolves around whether the interstate or intrastate access rates should be applied. Rather than do detailed studies to develop this factor, the Petitioners have been able to negotiate with other wireless carriers, including Cingular, an agreed upon ratio of 80% intrastate traffic and 20% interstate traffic. That is the ratio that Petitioners have proposed to T-Mobile as well. Mr. Pruitt has stated in his testimony that T-Mobile's position is that the ratio should be reversed, that is 20% of the traffic should be deemed intrastate and 80% interstate.

Q. What has been the rationale for the Petitioners' proposal and the other wireless carriers acceptance of the 80/20 ratio intrastate to interstate?

A. Most wireless carriers have represented to the Petitioners that they routinely deliver interstate traffic to IXCs to terminate across the country along with their intrastate interLATA traffic, much of which is also interMTA. However, in the case of these three LEC Petitioners, their exchanges are in the same LATA as the RBOC tandem, but in a different MTA. Therefore, these three Petitioners may receive a substantial percentage of interMTA traffic because of these boundary situations. Most wireless carriers have recognized that this traffic is primarily

intrastate in nature, but T-Mobile has not. T-Mobile has provided no explanation as why it believes its traffic flows are different.

Q. Has Mark Twain Rural Telephone Company reviewed the detailed traffic data workpapers which T-Mobile provided to support their study of Mobile-to-Land/Land-to-Mobile traffic.

A. They did, and found that the T-Mobile data does not support the factor proposed by Mr. Pruitt. The vast majority of the traffic terminating to Mark Twain in the T-Mobile study terminated from the Kansas City tandem switch. While Mark Twain's exchanges are mostly in the Kansas City LATA, none of them are in the Kansas City MTA. Thus, most of the traffic terminating from the Kansas City tandem to Mark Twain's exchanges is interMTA. After reviewing the T-Mobile data call-by-call and identifying any interMTA calls that had an interstate phone number, Mark Twain calculated the percent of interstate interMTA calls and arrived at a result of 3%, with 97% of the interMTA traffic being intrastate traffic. I have reviewed the T-Mobile data and Mark Twain's analysis and attached them as Schedule RCS-10(HC).

Q. What is the Petitioners' position on the appropriate interstate factor?

A. The Petitioners are still requesting approval of an 80% intrastate/20% interstate split of interMTA traffic. A ratio at least this large is supported by T-Mobile's own data.

Pre-Wireless Tariff Traffic (1998-2001)

Q. Please describe the unresolved issue about Pre-Wireless Tariff.

A. In 1998, the Commission allowed Southwestern Bell Telephone Company (SBC) to change its wireless interconnection service tariff so that wireless carriers, rather than SBC, would be responsible for compensating Petitioners for the use of Petitioners' rural networks in completing wireless-to-wireline calls. At that time, the Commission directed wireless carriers to enter into agreements with Petitioners before they began sending traffic, and the Commission required SBC's tariff language to reflect this requirement.

> Wireless carriers shall not send calls to SWBT that terminate in an Other Telecommunications Carrier's network unless the wireless carrier has entered into an agreement to directly compensate that carrier for the termination of such traffic.

SBC's tariff became effective on February 6, 1998.

Q. Did Cingular and T-Mobile enter into the agreements envisioned by the Commission and required by SBC's tariff?

A. No. Cingular and T-Mobile never established such agreements, yet both of these wireless carriers continued to send wireless calls to Petitioners' exchanges in violation of the Commission's order and SBC's tariff. The small ILECs could not block or otherwise prevent wireless carriers from making this unauthorized and uncompensated use of their facilities and services. Years of litigation followed, and Respondents have still not paid for their use of the Petitioners' networks during the three year period between the February 6, 1998 effective date of SBC's

tariff revisions and the 2001 effective dates of Petitioners' wireless termination service tariffs.

Q. How many minutes of wireless-originated calls did Cingular and T-Mobile send to Petitioners' rural exchanges between February 1998 and the effective date of the Petitioners' wireless termination service tariffs in 2001?

A. The wireless cellular transiting usage summary report (CTUSR) traffic records provided by SBC establish that T-Mobile sent a total of 2,207,943 minutes of wireless-originated calls to Petitioners' small rural exchanges and Cingular/AT&T Wireless[7] sent a total of 20,371,389 minutes of wireless-originated calls to Petitioners' small rural exchanges between February, 1998 and the 2001 effective date of Petitioners' wireless termination service tariffs approved by this Commission. The Respondents delivered this traffic in the absence of an agreement and therefore in violation of the Commission's prohibition against sending such traffic in Case No. TT-97-524.

Q. Have Petitioners consistently made resolution of outstanding pre-tariff traffic amounts an issue in their negotiations with wireless carriers?

A. Yes. In their negotiations with wireless carriers, Petitioners have maintained that one of the issues that needed to be resolved was compensation for pre-tariff traffic. Petitioners did so in this case as well. In fact, Petitioners have, from time to time, been involved in negotiations with both T-Mobile and Cingular prior to issuing their bona fide request on April 29, 2005, and the issue of pre-tariff traffic has always been raised and discussed, though not resolved. In all of the other

[7] The merger between AT&T Wireless and Cingular became effective on October 26, 2004. *See* http://www.prnewswire.com/mnr/cingular/20429/

agreements that Petitioners have with wireless carriers that have been filed with the Commission for approval, Petitioners and the wireless carriers have been able to resolve this issue and entered into confidential settlement agreements. Petitioners believe this is an appropriate issue to be raised in this arbitration and one that the Commission should resolve, particularly when it involves companies such as Respondents that have willfully ignored the Commission's directive.

Q. What is the appropriate rate for this traffic?

A. The Petitioners' position is that they should be compensated for all intraMTA 1998-2001 traffic at the same $0.035 per minute rate that Petitioners have proposed for intraMTA traffic under the new agreement, or at the rate finally determined by the Commission as a result of this arbitration.

T-Mobile's Post-Wireless Tariff Traffic (2001-2005)

Q. Please describe the issue of T-Mobile's Unpaid Post-Wireless Tariff Traffic.

A. In February of 2001, after notice and hearing, the Commission approved Petitioners' wireless termination service tariffs that set the rates, terms, and conditions for wireless traffic that was delivered to their exchanges in the absence of a negotiated agreement.[8] Petitioners' wireless tariffs became effective on February 19, 2001.[9] All of Missouri's major wireless carriers (except T-Mobile) participated in the case and appealed the Commission's decision. On April 29,

[8] *In the Matter of Mark Twain Rural Telephone Company's Wireless Termination Service Tariff*, Case No. TT-2001-139.

[9] Grand River Mutual Telephone Company's wireless tariff was filed separately and became effective on Sept. 20, 2001. *See* Case No. TT-2002-127.

2003, the Missouri Court of Appeals – Western District rejected the wireless carriers' claims that the tariffs were preempted by or in conflict with the Act.[10]

Q. Did the FCC find that wireless tariffs were permitted under its rules during the period between 2001 and 2005?

A. Yes. On February 24, 2005, the FCC released a Declaratory Ruling which held that incumbent LECs were not prohibited from filing state wireless termination tariffs.[11] The FCC expressly stated that tariff arrangements were permitted under its existing rules, and by routing traffic to LECs in the absence of a request to establish reciprocal mutual compensation, wireless providers accepted the terms of otherwise applicable state tariffs. On a going-forward basis, the FCC prohibited the use of wireless tariffs after April of 2005 and expressly granted rural ILECs the right to compel negotiations with wireless carriers

Q. Have any other wireless carriers refused to pay for service between 2001 and 2005?

A. No. T-Mobile is the only wireless carrier in Missouri that has refused to pay for wireless traffic delivered between 2001 and April of 2005. After the Missouri Court of Appeals issued its decision, all of Missouri's other major wireless carriers paid for the wireless calls they sent to Petitioners' exchanges between 2001 and 2005. The only outlier in this regard is T-Mobile.

Q. How much traffic did T-Mobile send to the Petitioners' exchanges after the effective date of the wireless tariffs approved by the Missouri Commission?

[10] *Sprint Spectrum v. PSC*, 112 S.W.3d 20 (Mo. App. 2003).

[11] *T-Mobile Petition for Declaratory Ruling*, CC Docket No. 01-92.

A. SBC's wireless traffic records establish that Respondent T-Mobile sent a total of 26,843,075 minutes of wireless calls to Petitioners' exchanges after the 2001 effective date of the Petitioners' wireless termination service tariffs. T-Mobile has failed to compensate the Petitioners for this traffic, and T-Mobile currently owes Petitioners nearly $1,750,000.00 for this traffic as detailed in Attachment E (Proprietary) of the Verified Petition for Arbitration.[12] This past due balance is a significant amount for small rural carriers such as Petitioners.

Q. Has the Commission ordered T-Mobile to pay its past due bills?

A. Yes. On January 27, 2005, the Commission sustained a Complaint filed by number of Petitioners against T-Mobile finding that T-Mobile had failed to pay for its post-tariff wireless traffic and ordering T-Mobile to do so, including interest, late fees, and reasonable attorney's fees.[13] Although T-Mobile did not appeal the Commission's decision to the circuit court, T-Mobile has failed to comply with the Commission's decision.

Q. Were the tariffs ever stayed by the FCC or any court?

A. No.

Q. What should the Commission do about T-Mobile's violation of prior Commission orders and its failure to pay the Petitioners?

A. Petitioners' position is that T-Mobile must compensate Petitioners for all past due traffic in accordance with Petitioners' wireless termination service tariffs, including interest, late fees, and reasonable attorney's fees as authorized by the

[12] T-Mobile's past due balances do not include late fees or attorneys' fees, both of which are authorized by the tariffs.

[13] *BPS Telephone Co. et al. Complaint*, Case No TC-2002-1077, *Report and Order*, issued Jan. 27, 2005.

tariffs and the Commission's order in Case No. TC-2002-1077. The Commission should require T-Mobile to pay its past due bills before allowing T-Mobile to take advantage of a new agreement. To this end, Petitioners and any transit carriers (such as SBC) should be authorized by the Commission to take the necessary steps to block T-Mobile's traffic from terminating to Petitioners' exchanges over the LEC-to-LEC network until it pays its past due bills. Such blocking is authorized by the Commission's Enhanced Records Exchange (ERE) Rule.[14]

Q. Does this conclude your testimony?

A. Yes.

[14] 4 CSR 240-29.130.

Schedule RCS-8

Nortel Networks Inc.
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Dave Jarzemsky
Product Manager, Rural Switching
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January 19, 2006

Jason Hendricks
Senior Consultant
GVNW Consulting , Inc.
2270 LaMontana Way
Colorado Springs, CO 80918

Subject: DMS-10 Traffic Considerations

Dear Jason:

I write in response to your recent request regarding a description of traffic blocking areas and Nortel Networks Inc. ("Nortel") DMS-10 Switching System. Nortel's response is as follows:

> Any incoming traffic presented to Nortel's DMS-10 Switching System either via incoming trunk circuit or line circuit will have an impact on the total traffic handling capacity of the DMS-10 Switching System network. A single call coming from an incoming trunk will tie-up a DS0 from the incoming DS-1 facility. The DS-1 facility must be terminated on a switched network port. The call must be processed to pass though the network matrix to a network port associated to a terminating peripheral. The terminating peripheral requires physical line or trunk circuits. Additional switch resources are required for tone processing, ringing generation and announcement requirements.
>
> Traffic of all types determine the size and scope of a switching system. The network matrix and the switching system CPU have a upper limits to network matrix and call handling capacity. All physical facilities, i.e. DS-1 interfaces, network ports, tone circuits, ringing generators, announcements systems require detail engineering in accordance with expected traffic levels to provide acceptable grades of service. Engineering of systems without accounting for expected traffic will result in unacceptable levels of performance complaints.

It is further understood this information is being provided for GVNW Consulting, Inc's use for the sole purpose of representing certain Nortel customer's before the Missouri Public Utility Commission. Should you have any questions, or if I can be of any further assistance, please don't hesitate to contact me.

Sincerely,
Nortel Networks Inc.

David Jarzemsky

cc: James Trier (Nortel-Sales)

PROPRIETARY