BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF SOUTH DAKOTA

IN THE MATTER OF THE PETITIONS OF MCCOOK COOPERATIVE TELEPHONE COMPANY, KENNEBEC TELEPHONE, SANTEL COMMUNICATIONS COOPERATIVE, INC., AND WEST RIVER COOPERATIVE TELEPHONE COMPANY FOR ARBITRATION PURSUANT TO THE TELECOMMUNICATIONS ACT OF 1996 TO RESOLVE ISSUES RELATING TO AN INTERCONNECTION AGREEMENT WITH ALLTEL COMMUNICATIONS, LLC	))))))))))	Docket Nos. TC 07-112 TC 07-114 TC 07-115 TC 07-116

PUBLIC VERSION

SUPPLEMENTAL REBUTTAL TESTIMONY OF W. CRAIG CONWELL ON BEHALF OF ALLTEL COMMUNICATIONS, LLC.

July 27, 2009

Q.   **Please state your name, business address and employer.**

A.   My name is W. Craig Conwell. My business address is 405 Hammett Road, Greer, South Carolina. I am self employed as an independent consultant, specializing in telecommunications cost analysis.

Q.   **Have your previously filed testimony in this case?**

A.   Yes, I filed testimony on four occasions. On March 24, 2008, I filed direct testimony on behalf of Alltel Communications, LLC ("Alltel"). On June 12, 2008, I filed supplemental direct testimony, and on July 7, 2008, I filed reply testimony. I testified in the hearing before the South Dakota Public Utility Commission (the "Commission") held July 29 through July 31, 2008. Then on July 3, 2009, I filed reply testimony in response to the revised Rural Local Exchange Carrier (RLEC) cost studies.

Q.   **What is the purpose of this testimony?**

A.   The purpose of my testimony is to respond to the supplemental rebuttal testimonies of Messrs. Tim Eklund and Nathan A. Weber filed on July 17, 2009 on behalf of the RLECs in this arbitration.[1] There are three serious problems raised in their testimony.

- Parts of the testimony are incorrect, and the record should be corrected for these errors.

- Portions of the testimony are misleading, and in these instances, the record should clarify the facts.

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[1] "Supplemental Rebuttal Testimony of Tim Eklund on Behalf of the South Dakota RLECs in Response to the Commissions Decision on January 29, 2009," "Pre-Filed Rebuttal Testimony of Nathan A. Weber on Behalf of McCook Cooperative Telephone Company, Kennebec Telephone Company, Inc., Santel Communications Cooperative, Inc., and West River Cooperative Telephone Company Inc.," Before the Public Utilities Commission of the State of South Dakota, Docket No. TC07-112, 114, 115 and 116, July 17, 2009.

- The witnesses were silent on key issues with respect to the RLEC's new revised cost studies contained in the rebuttal testimony, and it is important that these issues not be overlooked in reaching final decisions on transport and termination rates.

Q.   Mr. Eklund states on page three of his testimony that the Commission directed the RLECs to make a "(r)eforcast of future demand and recalculation of the transport and termination rate per minute using the updated demand forecast." Is that a correct assessment of what the Commission required?

A.   No, in my view, it fails to entirely address what the Commission required in its Order.[2]

At this stage of the arbitration Mr. Eklund must be aware that justifying the large OC-192 transport systems reflected in the cost studies is an issue. Yet, Mr. Eklund suggests that the Commission only required a forecast of transport demand as of some future date, and then simply to divide the same OC-192 transport system costs by the forecasted demand to compute transport rates per minute.

However, the Commission Order (para. 23) stated as follows:

> "... Therefore, the Commission finds that the record does not contain a credible projection of forward-looking demand and the use of 2006 demand is inconsistent with the proposed use of an OC-192 network. The Commission finds that in order for the Commission to determine the appropriate reciprocal compensation rate, the record must be supplemented on this issue. The Commission directs McCook to file a new projection of forward-looking demand."

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[2] "Findings of Fact, Conclusions of Law; Notice of Entry of Order," "In the Matter of the Petition of McCook Cooperative Telephone Company for Arbitration Pursuant to the Telecommunications Act of 1996 to Resolve Issues Relating to an Interconnection Agreement with Alltel Communications, Inc.," TC07-112, entered February 27, 2009.

The issue was not just the use of 2006 demand rather than forward-looking demand; the issue also was assuring that the transport system size (OC-192 or smaller) was *consistent* with – properly sized for – that demand.

In the revised cost studies, the RLECs forecasted demand represents only ███ to ███ percent utilization of the capacity of the OC-192 systems represented in the cost study.[3] This is incredibly low utilization of plant capacity, resulting in high transport rates per minute. To make matters worse, Mr. Eklund has now eliminated significant, future demand for transit circuits, further lowering transport system utilization. This is not *consistency*. It would be analogous to basing the ticket price for a flight on a Boeing 747 "Jumbo Jet" with 416 seats on the cost of the jet divided by ███ to ██ passengers. This is exactly what the RLECs are doing.

The RLECS responded to paragraph 23 of the Commission's Order by completely ignoring the directive for *consistency* in transport system size, costs and demand. Furthermore, it ignores the FCC's requirements in 47 C.F.R. 51.505(b)(1) and 51.511.[4]

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[3] *See* "Reply Testimony of W. Craig Conwell on Behalf of Alltel Communications, LLC. in Response to Revised RLEC Cost Studies," July 3, 2009, p. 58, Table row 61.

[4] §51.501(b)(1) requires that "(t)he total element long-run incremental cost of an element should be measured based on the use of the most efficient telecommunications technology currently available and the lowest cost network configuration, given the existing location of the incumbent LEC's wire centers. The OC-192 transport systems reflected in the RLEC cost studies are not the lowest cost network configuration based on evidence provided by the RLECs of their projected demand. §51.511 requires that "(t)he forward-looking economic cost per unit of an element equals the forward-looking economic cost of the element, as defined in Sec. 51.505, divided by a reasonable projection of the sum of the total number of units of the element that the incumbent LEC is likely to provide to requesting telecommunications carriers and the total number of units of the element that the incumbent LEC is likely to use in offering its own services, during a reasonable measuring period." The RLECs' forecasts are for eighteen months or through 2010, which is only ██ percent of the life of transport electronics equipment. This measuring period is not reasonable in that it (1) does not reflect future demand causing transport system investment and (2)

Q. **On page four of his testimony, Mr. Eklund states that your claim that transport and termination rates in the revised cost studies should have decreased rather than increased "does not comport with reality." Do you agree with this?**

A. No, I find Mr. Eklund's testimony to be somewhat misleading. He indicates that transport rates were lowered by the redistribution of costs away from switched circuits to special circuits, and that termination rates were lowered by removing Centrex, CALEA and Web Self Care system costs. He then points out that costs increased overall due to the reduction in switched transport and total switched minutes of use. It sounds plausible; however, there are additional revisions that should have been made to the RLEC cost studies that would have resulted in an overall reduction in costs, rather than an increase.

First, the transport costs being redistributed are too large to begin with, because RLEC demand does not justify OC-192 transport systems and 48-fiber interoffice cables. The evidence clearly shows this.[5] Second, too little of the transport costs are redistributed away from switched circuits to special circuits, because the RLECs' forecast period is too short (just one or two years) and special/dedicated circuit demand is understated. Switching costs, even after removing Centrex, CALEA and Web Self Care system costs, are too large. As the RLECs reduced switch usage by ■ to ■ percent, they made no concomitant reduction in switch investment and costs. Moreover, the fact that there was

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places the burden of substantial spare capacity on current users of transport, resulting in high transport costs per minute of use.

[5] "Reply Testimony of W. Craig Conwell on Behalf of Alltel Communications, LLC. in Response to Revised RLEC Cost Studies," July 3, 2009 p. 58 and pp. 73-74.

no change in switch costs further highlights the fundamental question of whether switch processor costs are usage-sensitive. By purportedly "showing" that transport and switching costs declined in the revised cost studies, only to be offset by the effect of lowering transport and switch usage, Mr. Eklund wants the Commission to believe there is nothing untoward about the revised cost studies.

The Commission should not be misled by Mr. Eklund's statement that "Mr. Conwell's claims that rates should have decreased rather than increased does not comport with reality." To the contrary, if the RLECs produced cost studies in compliance with FCC rules and the Commission's Order, rates will decrease – from a range of ████████████ per minute in the revised cost studies to a range of ███████████ per minute (if switch processor costs are incorrectly included), and a range of ███████████ per minute excluding switch processor costs.[6]
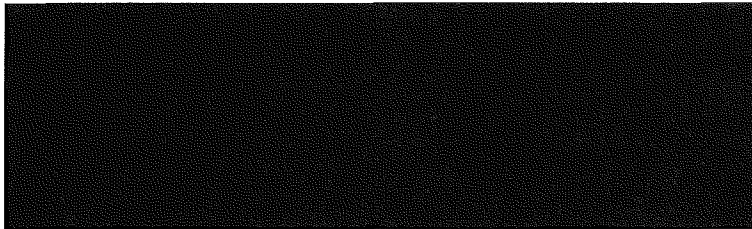
Q. From pages four through seven, Mr. Eklund discusses the issue of measuring transport demand. What comments do you have?

A. Mr. Eklund spends a good deal of time discussing "who said what and when." He also discusses a case before the Nebraska Commission and a decision by the Eighth Circuit court. I find some of his explanation inaccurate and a good deal of it to be confusing.
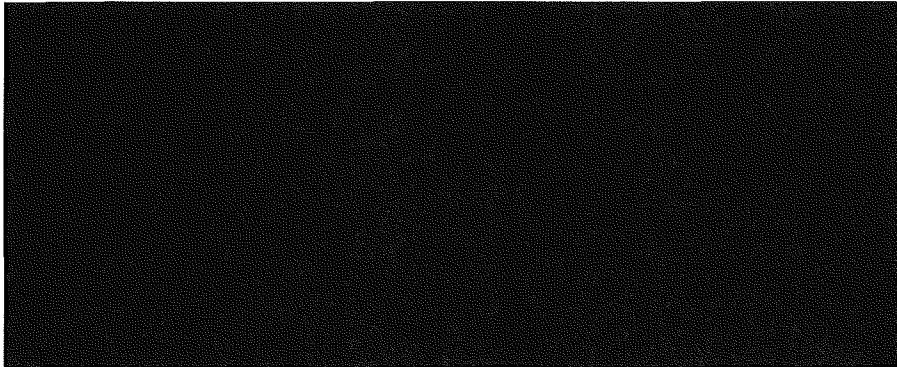
I would like to try to clarify where the RLECs and Alltel are in agreement on how transport demand should be measured and where we are not in agreement. I will use

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[6] *Id.*, p. 79.

McCook as an example, but the points apply equally to all RLECs. McCook projected for 2010 transport demand shown in the following table.

McCook, using the method sponsored by Mr. Eklund, converts the demand quantities using rate equivalents derived from Qwest's Unbundled Dedicated Interoffice Transport (UDIT) rates. Their method is shown in the next table.
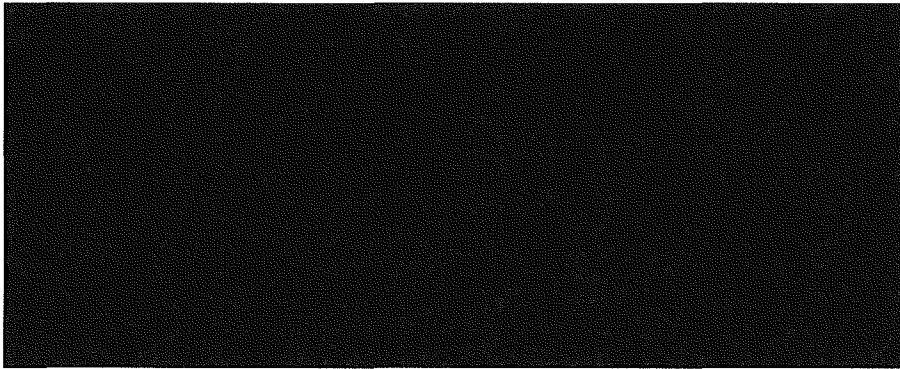

The "common denominator" is a DS-0 circuit, so the ■ DS-0 special circuits are counted simply as ■ DS-0 circuits. The ■ DS-1 special circuits are counted as ■ DS-0 special circuits, based on Qwest's DS-1 UDIT rates being ■ times greater than its DS-0 UDIT rates.[7] In other words, using the UDIT rate as a surrogate for costs, a DS-1 special circuit is represented as costing ■ times a DS-0 special circuit, so ■ DS-1 special circuits are

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[7] ■ equivalent DS-0 special circuits = ■ DS-1 special circuits X ■ ratio of DS-1 UDIT rate to DS-0 UDIT rate.

7

counted as the cost equivalent of ██ DS-0 special circuits. The ██ DS-3 special circuit is similarly counted as ██ DS-0 special circuits.[8] Total DS-0 circuit equivalents for special circuits are ████. The ████ voice trunks (with DS-0 bandwidth) are counted the same as DS-0 special circuits, so their quantity remains at ████ DS-0s. This would result in ██ percent of transport costs being allocated to special circuits and ██ percent allocated to switched circuits or voice trunks. In other words, the majority of transport costs are allocated to switched circuits carrying voice traffic, rather than special circuits carrying private lines, special access, Digital Subscriber Line (DSL) circuits and, in the future, broadband services.

Now, the method Alltel has proposed would measure transport demand as shown in the following table.[9]

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[8] ██ equivalent DS-0 special circuits = ██ DS-3 special circuit X ████ ratio of DS-3 UDIT rate to DS-0 UDIT rate.

[9] The method proposed by Alltel uses DS-1 circuits as the common denominator, rather than DS-0 circuits, because DS-1 circuits are the lowest bandwidth circuit for the interoffice transport systems reflected in the RLEC cost studies. The calculations shown in the table for the "Corrected RLEC Revised Cost Study" are methodologically and algebraically the same whether DS-1 or DS-0 circuits are used as the common denominator.

8

Note the methods are exactly the same with one exception, which is shaded in black. The forecast quantities of special/dedicated circuits and voice trunks are the same. The rate equivalent ratios are the same. The rate equivalent demand for special/dedicated circuits is the same. There is <u>only one difference</u> – the ███ voice trunks are equated to ██ DS-0 special circuits, rather than ███ DS-0 special circuits. The ██ figure is calculated as follows:

██ DS-0 rate equivalents = (███ voice trunks / 24 voice trunks per DS-1 circuit) X ██ DS-1 rate equivalent.

Based on Mr. Eklund's testimony, he would have the Commission believe that Alltel's method is diametrically opposed to his method and methods adopted by the Nebraska Commission or sanctioned by the Eighth Circuit. Yet, there really is only one difference, although it is an important one.

I described in detail in my July 3, 2009 testimony the rationale for dividing the quantity of voice trunks by 24 to express switched circuit demand in terms of DS-1 circuits.[10] I even provided on page 28 of my testimony a document from McCook showing that on May 27, 2008 it had ██ voice grade trunks being carried over █ DS-1 circuits. It is a simple matter to multiply the █ DS-1 circuits times the ██ rate equivalent to equate them to ██ DS-0 special circuits. Mr. Eklund, though, refuses to do this because the result is that ██ percent of transport costs are allocated to special circuits and ██ percent to switched circuits – a critical and proper shift of transport costs away from voice trunks carrying Alltel mobile-to-land traffic.

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[10] *Id.*, pp. 22-29.

The point I would emphasize to the Commission is that in spite of all of Mr. Eklund's testimony about "who said what", what the Nebraska Commission may have decided, and even a diversion regarding wholesale versus retail transport rates, the only question is whether the quantity of voice trunks should be measured the same as DS-0 special circuits.

The Commission should recognize that Alltel's proposed method does indeed utilize the rate equivalents as the Commission decided contrary to Mr. Eklund's claims in his rebuttal testimony. It also should recognize that there is only one difference between the approach used by the RLECs and the approach Alltel recommends – that is to divide the quantity of voice trunks by 24 to obtain the corresponding DS-1 common transport circuits and then multiply this amount by the DS-1-to-DS-0 UDIT rate equivalent. The Alltel treatment of voice trunks is consistent with how local exchange carrier networks are actually deployed in design and practice (*i.e.*, voice trunks are consolidated to DS-1 circuits at the switch). If the Commission accepts the RLEC method of treating voice trunks and DS-0 special circuits as being the same, too much of transport costs will be shifted to voice trunks carrying basic voice traffic and away from special services, effectively resulting in a subsidy of special services.

Q.   **On page 8 of his testimony, Mr. Eklund offers an explanation for continuing to use the "path" method for measuring transit circuit demand. What is your opinion of his explanation?**

A.   The explanation suggests, at best, that the measures of transit circuit demand in the RLEC revised cost studies were simply incorrect. Consider this. McCook's revised cost study included demand for transit circuits of ■ DS-1 circuits and ■ DS-3 circuits. McCook counted these as ■ transit "paths."[11] Had McCook properly expressed these quantities as rate equivalents, transit circuit demand would have been measured as ■ DS-0 equivalent special circuits.[12] That's an error in measurement of almost five-to-one.

Now, Mr. Eklund says in his latest testimony that "(g)iven the decrease in switched access demand and the uncertainty of the timing of when the transiting circuits will cease to exist, forecasted demand was counted as paths or DS0s in 2010 decreasing to zero shortly thereafter." If transit circuit demand is indeed expected to decrease to zero, surely McCook could have forecast demand at the end of next year and properly used rate equivalents, rather than paths, to measure this demand. There is, however, a more fundamental issue.

Q.   What is this issue?

A.   By eliminating future demand by other carriers for transiting their transport networks, the RLECs are further lowering transport system utilization and raising transport costs. In McCook's revised cost study, it forecast demand in 2010 for ■ DS-1 circuits of bandwidth.[13] This equates to approximately ■ percent utilization of an OC-192

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[11] In the latest McCook cost study results provided in Exhibit TE-SR-5, Mr. Eklund indicated that the original count of ■ transit circuits was erroneous, and the correct figure was ■. No explanation was provided as to the difference between the two measures of transit circuit demand.

[12] ■ DS-0 equivalent special circuits = ■ DS-1 circuits X ■ DS-0-to-DS-1 rate equivalent + ■ DS-3 circuits X ■ DS-0-to-DS-3 rate equivalent.

[13] Conwell Reply Testimony, July 3, 2009, p. 58, footnote 31.

transport system and ▇ percent of an OC-48 transport system. Neither ▇ percent nor ▇ percent are efficient levels of transport system utilization. Now, Mr. Eklund says that ▇ of the ▇ DS-1 circuits or ▇ percent of bandwidth in use will disappear shortly after 2010.[14] The effect on transport system utilization and transport costs should be obvious.

Q. **Is there any evidence in the record that supports the sudden, dramatic elimination of transit circuits in the RLEC networks?**

A. There is no substantive such evidence. On pages 7 and 8 of his testimony, Mr. Eklund justifies the elimination of transit circuits "due to decreases in switched access demand" and Mr. Weber's previous testimony regarding changes in RLEC network design. The ▇ transit circuits in McCook's original cost study included ▇ DS-1 circuits for special access, ▇ DS-1 circuits for switched traffic and ▇ DS-3 circuits for conference bridge traffic. Only a portion of these circuits appear to be carrying "switched access demand," so given that ▇ percent of the previous total demand for transport now is expected to disappear, there should be some evidence of whether the demand for transit circuits carrying special access and conference bridges remains, or whether this demand now appears as an increase in the transport demand of other RLECs.

Q. **What is your opinion of Mr. Eklund's rationale for projecting transport demand to only 2010, or for one to two years?**

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[14] ▇ DS-1 circuits of bandwidth = ▇ DS-1 transit circuits + ▇ DS-3 transit circuits X ▇ DS-1 circuits of bandwidth/DS-3 circuit.

A. His rationale for forecasting demand to 2010 is invalid and inappropriate. On page 9 of

his testimony, Mr. Eklund states the following:

> The prior interconnection agreement between the parties was terminated in late 2006. Under the terms of what has already been agreed to by the parties, the new agreement will be deemed effective as of January 1, 2007 and remain in effect for three years after January, 1 2007. Given that the agreement could be terminated sixty days prior to January 1, 2010, which is the end of this coming October, the Petitioners believe that a reasonable measuring period in which to calculate demand is up to the end of the term of the agreement. In addition, the Petitioners believe that the projected demand advanced in the revised FLEC study is a reasonable projection. Introducing data points beyond 2010 simply adds risk of error in the projection. (emphasis added)

Think about the ramifications of this rationale. The RLEC cost studies reflect the

construction today of OC-192 transport systems and hundreds of miles of 48-fiber cables,

which evidence shows are substantially oversized. The new transport system is expected

to last and serve customers for the next ▮ years. The new cable is expected to last for

▮ years. Mr. Eklund would have the measuring period for demand equal three months

("the end of this coming October"). Even by extending the forecast period to 2010 or for

a total of 18 months, the RLECs have measured demand over ▮ and ▮ percent of the

lives of the transport systems and fiber cables, respectively. In the case of McCook,

utilization of the transport system during the forecast period reaches at most ▮ percent

for the transport system and ▮ percent for fiber cable.[15] This means that the RLEC

proposed transport rates are bearing costs of spare capacity of over ▮ percent for the

transport system and almost ▮ percent for fiber cable. The purpose of projecting

demand, besides properly sizing plant resources, is to recover costs over the demand

causing the costs. A forecast period of three months through October or 18 months

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[15] ▮ = ▮ DS-1 circuits of bandwidth / 5,376 DS-1 circuits of bandwidth per OC-192 transport system. ▮ = 10 maximum fibers in service / 48 fibers per cable.

13

through the end of 2010 fails to accomplish this. That is why I recommended a seven year forecast period for the transport system.

Mr. Eklund's statement that "(i)ntroducing data points beyond 2010 simply adds risk of error in the projection" is quite telling. In effect, the RLECs are attempting to transfer the risks of business planning, which every competitive business experiences, to today's users of their network even though it is their anticipated future users causing a significant portion of the costs. In my July 3, 2009 testimony, I produced transport costs based on *levelized* demand over a seven year forecast period in which future demand was discounted taking into consideration risks.[16] A unit of transport demand seven years into the future is given only 52 percent of the weight of a more certain unit of demand next year.

Q. **On page nine of his testimony, Mr. Eklund disagrees with your position that special circuit rate equivalents should not be used for voice trunks. Do you agree with his analysis?**

A. No, his logic is flawed, and he comes close to admitting that a voice trunk costs 1/24th the cost of a DS-1 circuit. At pages 9-10 of his supplemental rebuttal testimony, Mr. Eklund states the following:

> A CLEC can purchase a DS0 Unbundled Dedicated Interoffice Transport ("UDIT") circuit or a DS1 UDIT from Qwest. The CLEC can use that UDIT to transport voice traffic between central offices. Although the CLEC can purchase a DS1 UDIT and put 24 times the amount of voice traffic over that transport route using a DS1 than using a DS0, the DS1 only the costs [sic] the CLEC ▓ times the amount than the DS0. It is incorrect to say that UDIT pricing cannot be used for voice services.

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[16] Conwell Reply Testimony, July 3, 2009, pp. 65-67.

First, if a CLEC purchased a DS-0 UDIT to transport voice traffic, it likely would be for a voice grade private line – a dedicated, private communications channel between two central offices. Such a circuit would not be switched and is not likely to be used to transport Alltel mobile-to-land traffic. So, a DS-0 UDIT for voice traffic is irrelevant in this case.

If a CLEC purchased a DS-1 UDIT to transport voice traffic, as Mr. Eklund admits, the CLEC could "put 24 times the amount of voice traffic over that transport route using a DS1 than using a DS0 ..." Another way of stating the same thing is that the CLEC could put 24 switched voice trunks over the DS-1 UDIT. Here is the critical point. Each switched voice trunk would cost $1/24^{th}$ of the DS-1 UDIT rate. It is the same as the cost per slice of a pie with eight slices – each slice costs $1/8^{th}$ the price of the pie.

When Mr. Eklund states that "the DS1 (UDIT) only costs the CLEC ▮ times the amount than the DS0 (UDIT)," he is correct that a DS-1 <u>dedicated or special</u> circuit costs ▮ times the cost of a DS-0 <u>dedicated or special</u> circuit. But a DS-0 dedicated circuit is not the same as a common transport voice trunk, and a common transport voice trunk does not cost ▮ of a DS-1 circuit. It costs $1/24^{th}$ of a DS-1 circuit.

Q.   Does equating 24 voice trunks to one DS-1 circuit result in a disproportionate allocation of costs to special circuits, as argued by Mr. Eklund?

A.   No, it does not. Dividing the quantity of voice trunks by 24 to obtain the quantity of DS-1 circuits, as I have shown even the RLECs do, equates demand for voice trunks on a rate equivalent, or cost equivalent, basis as the Commission required in its Order. To divide the quantity of voice trunks by ■ in the case of McCook would produce a measure of DS-1 circuits for voice trunks that are not rate or cost equivalent.

Q.   **Mr. Weber gave testimony disagreeing that a DS-0 special circuit costs substantially more than a voice trunk. What is your reply to his testimony?**

A.   On pages two through four of his July 17, 2009 testimony, Mr. Weber describes a scenario in which DS-1 circuits from other carriers such as Qwest and SDN Communications are carrying a mixture of "various types of traffic such as toll, SS-7 A-links, Operator circuits, and special circuits," and he describes how these circuits would have to be separated and then the voice traffic recombined to DS-1 level for connection to RLEC switches. Based on this scenario, he concludes that switch traffic "in this example has a greater cost than the special circuits."

There are several problems with Mr. Weber's description. First, he does not reveal whether mobile-to-land traffic is conveyed over the type of "mixed traffic" DS-1 circuits he described. Secondly, he does not address the more common scenario in which transport of voice trunks is over a DS-1 circuit containing only voice trunks, in which case the incoming trunk would be connected directly to the switch without the demultiplexing/re-multiplexing described in his scenario. In this scenario, I would hope that Mr. Weber would agree that transport costs for a voice trunk are lower than those of

a DS-0 special circuit. Third, he does not indicate the prevalence of the two scenarios for each RLEC. With respect to the latter, it should be noted, for example, McCook had as of May 7, 2008 ██ toll trunks carried over █ DS-1 circuits (██ toll trunks per DS-1 circuit) and ██ EAS trunks carried over █ DS-1 circuits (██ EAS trunks per DS-1 circuit).[17] In addition, McCook had ███ 911 trunks and ███ Operator trunks. If these latter trunks were sharing DS-1 circuits, at most ████ DS-1 circuits might involve the scenario described by Mr. Weber, with the remaining █ DS-1 circuits containing all voice trunks. If the 911 and operator trunks were combined on DS-1 circuits, the number of "all voice trunk" DS-1 circuits would be greater than ██. The logical conclusion given the information provided in discovery is that in the majority of cases voice trunks cost significantly less than DS-0 special circuits.

Q.   **On page 10, Mr. Eklund seems to disagree with your statement that the Commission did not require the RLECs to change their switched transport and total switched minutes of use. Is this an issue?**

A.   The issue is not whether the RLECs changed their switched transport and total switched minutes of use, <u>although the reductions in minutes of use were unsubstantitated</u>. (The lack of substantiation is an issue.) When I stated in my July 3, 2009 testimony that the RLECs had chosen to update their minutes of use, it was to say that they had "opened the door" for the Commission to reconsider the question of whether switch processor investment and costs are usage-sensitive. The RLECs have lowered their total switched minutes of use from █ to █ percent, and have predicted future usage to decline. Yet, there apparently was no change in switch processor investment and costs. It begs the

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[17] *See* "Reply Testimony of W. Craig Conwell," July 3, 2009, table of McCook trunks and DS-1 circuits, p. 28.

question, "How could switch processor costs be usage-sensitive, when they remain constant as usage drops ▮ to ▮ percent, and future demand is not expected to press on capacity?"

Mr. Eklund makes the statement that, "It appears that what Mr. Conwell is advocating is for the Petitioners to only include changes in the study that have a net benefit to Alltel." This is incorrect. The RLECs should comply with FCC Rule 51.511 and produce credible projections of <u>all</u> demand – their own and that of other carriers – over a reasonable measuring period, and comply with FCC Rule 51.505(b)(1) to size network elements for efficient configuration.

The RLECs' cost studies – original, revised and now those filed with Mr. Eklund's latest testimony – suggest a manipulation of assumptions and input data in an attempt to maintain rates in a range of ▮ to ▮ cents per minute. The RLECs may choose to project switched transport and total switched minutes of use. While they are at it, they also should make credible projections of minutes of use for a seven year period and make credible projections of transport circuit and cable fiber demand over the same period. In concert with these projections, transport and switch plant should be sized for efficient configuration. The RLECS have not done this.

Q.   **On page 11, Mr. Eklund argues that a reduction in switch minutes does not preclude switching costs from being recovered through a per minute usage charge. What comments do you have regarding his argument?**

A. This is a critical issue. The issue is not whether a reduction in total switched minutes of use (by ▮ to ▮ percent) changes the recovery method for switching costs. In other words, the issue is not that before the drastic reduction in total switched minutes, switching costs were recoverable in per minute charges, and after the reduction the basis for recovering costs has changed. Costs are to be recovered on the basis of cost causation irrespective of their absolute level.

In my direct testimony, I referred to the FCC Common Carrier Bureau's view regarding the recovery of "getting started" costs of the switch in the 2003 *Virginia Arbitration Cost Order*. The Bureau stated as follows:

> We conclude . . . that the "getting started" cost of the switch is a fixed cost, meaning that it does not vary with the number of ports or the level of usage on the switch. We find here that the "getting started" costs of the switch should be recovered on a per line port basis. "Getting started" costs are incurred for capacity that is shared among subscribers. Verizon incurs these costs to be ready to provide service upon demand. Given the record evidence that modern switches typically have large amounts of excess central processor and memory capacity, the usage by any one subscriber or group of subscribers is not expected to press so hard on processor or memory capacity at any one time as to cause call blockage, or a need for additional capacity to avoid such blockage. Thus, no one subscriber or group of subscribers is any more or any less causally responsible for the processor or memory capacity costs. Principles of cost causation, therefore, support a per line port cost recovery approach because, more than any other approach, it spreads getting started costs to carriers in a manner that treats equally all subscribers served by a switch.[18]

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[18] *Virginia Arbitration Cost Order,* 18 FCC Rcd at 17903-04 ¶463. *See also id.* at 17877-78 ¶ 391 ("We agree with AT&T/WorldCom that . . . the 'getting started' costs are fixed costs. That is, they are costs that do not vary with the number of lines, trunks, or usage on the switch. Verizon agreed with AT&T/ WorldCom that switch manufactures today design switches that are limited only in the number of lines that they can serve."); *id.* at 17904 ¶ 465 ("Principles of cost causation do not, therefore, support a per MOU price. . . .").

Reinforcing this finding, the FCC's *First Report and Order* implementing the 1996 Telecommunications Act states that "usage-based charges should be limited to situations where costs are usage sensitive."[19] The RLECs have produced evidence showing that as total switched minutes of use decline ■ to ■ percent there is no change in switch processor investment and costs. This strongly suggests that the switch processor costs as reflected in the RLEC cost studies are not usage sensitive and according to the FCC usage-based charges would not be applicable. Again, I respectfully recognize the Commission's interim Order tentatively addressed this issue; however, the evidence produced by the RLECs sheds new light on switch processor cost causation.

Mr. Eklund states, "Further, a reduction in switched access demand does nothing to change the fact the processor is required investment for call to be placed between Alltel subscribers and the RLEC's subscribers." The issue is not whether the processor is required. That is not the standard by which costs are attributed to termination of calls under FCC rules. For example, switch line termination equipment and loop plant also are required to reach the RLEC's subscribers; however, the RLECs agree that the costs of these network elements do not vary with usage and that there are no "additional costs" for line termination and loop plant from handling Alltel mobile-to-land traffic. The same reasoning applies to switch processor costs which have not changed as switch usage declined.

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[19] *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, First Report and Order, FCC Rcd. 15,499, para. 1063 (rel. Aug.8, 1996) ("First Report and Order").

Q. **On page five of his testimony, Mr. Weber disagrees that low utilization of cable fibers results in high transport outside plant costs per minute. What is your reply?**

A. I do not believe Mr. Weber understands the issue. The cost per fiber in service for 48-fiber cables with ▇ to ▇ fibers in service (as reflected in the RLEC cost studies) is greater than the costs per fiber in service for the same cables when there are 12, 24 or 36 fibers in service. Correspondingly, the transport outside plant costs per minute are higher with only ▇ to ▇ fibers in service versus costs per minute with higher fiber utilization.

The RLEC cost studies do not project future demand for cable fibers and thus in some cases reflect only ▇ fibers in service, with at most ▇ fibers in service. If the RLECs projected fiber demand over a reasonable proportion of fiber cable life, one would expect fibers in service to increase, cable costs per fiber in service to decrease, and the transport outside plant costs per minute to decrease. This would result in lower transport rates.
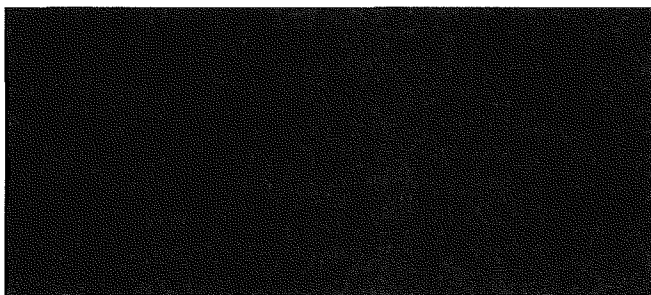
Q. **Mr. Weber offered estimates of the change in investment from substituting 24-fiber buried cable for 48-fiber cable. Do you agree with his estimates?**

A. I think the purpose of Mr. Weber's estimates of cable investment per foot was to show that the cost of placing 48-fiber cable versus 24-fiber cable is not double, and that the incremental material costs per foot for 48- versus 24-fiber cables are relatively small. There are other cost differences, such as the costs of splicing 48- versus 24-fiber cable that are not reflected in his analysis.

Nevertheless, the more fundamental issue is that no matter how expensive or inexpensive it is to place larger cable, cable sizes should be consistent with projected demand and cable costs should be recovered over projected demand. The RLEC cost studies do not do these things.

Q. **What is your opinion of the latest cost studies produced by the RLECs reflecting OC-48 transport systems, 24-fiber cables and no transit circuit demand?**

A. The cost studies fail to comply with FCC Rules §§51.505 and 51.511, and their results therefore cannot be used to establish transport and termination rates. The RLECs offering of new cost studies based on a smaller transport system (from OC-192 to OC-48) and cable size (from 48- to 24-fiber cable) seems to be an attempt to address two errors in previous cost studies, while maintaining rates in the range of ▮▮▮▮▮▮ cents per minute as shown in the following table:
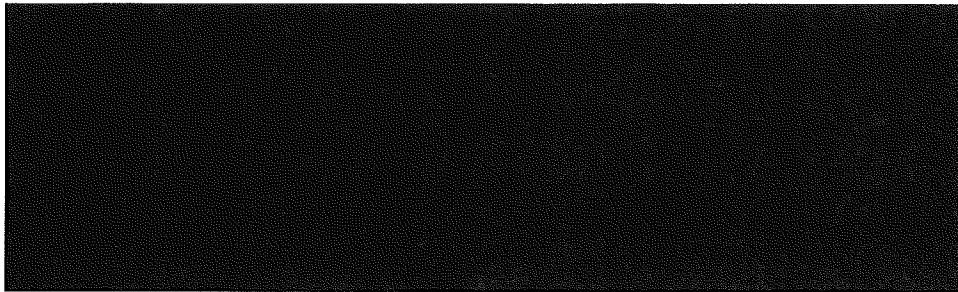
The fundamental errors in the cost studies remain. These include the following:

- Transport electronics (now OC-48 transport system) are oversized for projected demand, especially given the elimination of transit circuit demand.

- Transport outside plant (now 24-fiber cable) is oversized for indicated fibers in service.

- Demand forecasts are limited to 2010. Forecasted demand does not include growth in special/dedicated circuits beyond 2010 supposedly requiring OC-48 (or OC-192) transport systems and resulting in an excessive allocation of transport electronics and outside plant costs to switched circuits. This also results in extraordinarily large amounts of costs for spare capacity being loaded on transport demand in the next one to two years and none of these costs being borne by the future demand causing them.

- Incorrect measurement of voice trunk demand by assuming voice trunks and DS-0 special circuits have the same costs or rate equivalents.

- Drastic reduction in total switched minutes of use without a concomitant reduction in switch processor investment and costs. Or, more fundamentally, the inclusion switch processor costs that new evidence indicates are not usage-sensitive.

Q. **Can you demonstrate for the Commission the criticality of these issues?**

A. Yes. The latest cost study for McCook provided by Mr. Eklund in his July 17, 2009 testimony produced a transport and termination rate of ▮▮▮▮ per minute or approximately ▮▮ cents per minute. I ran the McCook model making four critical corrections, with the results shown in the following table.

The first correction was to extend the forecast period for transport from 2010 to 2016. This is a period of seven years or ▮ percent of the life of transport electronics. Levelized (risk-weighted, average) utilization of the OC-48 transport system is assumed to be 40 percent. This represents reasonable transport system utilization and allows for growth in future broadband services not reflected in McCook's 2010 forecast. The transport and termination rate is reduced from ▮▮▮ to ▮▮▮ per minute.[20] If the Commission does not require this correction, it will be accepting for McCook only ▮ percent utilization of the OC-48 transport system, now reflected in its cost study.

The second correction was to properly measure the quantity of DS-1 common transport circuits (▮) required to handle McCook's projected ▮▮ voice trunks, and then to use the ▮ rate equivalent to express ▮ DS-1 transport circuits as ▮ DS-0 special circuits. This lowered the transport and termination rate per minute from ▮▮▮ to ▮▮▮. If the Commission does not require this correction, demand for voice traffic will be overstated by a factor of seven.[21]

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[20] Cell B7 of the McCook FLEC model spreadsheet, "Demand Inputs," was changed from ▮ to ▮▮. ▮▮ = ▮ utilization X 1,344 DS-1s of bandwidth per OC-48 system – ▮ DS-1 circuits for switched circuits. ▮ = ▮ voice trunks / 24 voice trunks/DS-1 circuit.
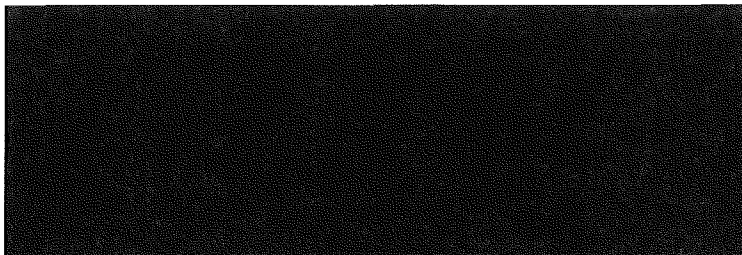
[21] ▮ DS-1 common transport circuits = ▮▮ voice trunks / 24 voice trunks/DS-1 circuit. ▮ DS-0 equivalent special circuits = ▮ DS-1 circuits X ▮ rate equivalent. Cell B6 in the "Demand Inputs" spreadsheet was changed from ▮▮ to ▮▮. 7 = ▮▮ voice trunks / ▮ DS-0 equivalent special circuits.

The third correction was to extend the forecast period for cable fibers in service so as to achieve 50 percent utilization of 24-fiber cable. In other words, 12 fibers would be in service and 12 fibers would be "dark," available for backup or future use. This correction lowered the transport and termination rate per minute from ███████ to ████████. If the Commission does not require this correction, it will be accepting transport outside plant costs that assume that all but ████ miles of McCook's ██ miles of interoffice cable will have ███ or fewer fibers in service and ███████ or more "dark."

Finally, the fourth correction was to remove switch processor costs, while leaving in the cost study switch trunk costs that both the RLECs and Alltel agree are usage-sensitive. This revision lowers McCook's transport and termination cost to ███████ per minute. Absent substantive proof that switch processor investment and costs vary with usage, this last correction is appropriate.

Q.   What do you recommend in order to establish proper transport and termination rates?

A.   I recommend the Commission establish transport and termination rates based on the forward-looking economic costs I computed for each RLEC in my July 3, 2009 testimony. These are contained in the following table from that testimony.

These corrected costs reflected an OC-48 transport system with transport demand projected for seven years. The costs also included 48-fiber cable costs, with demand projected to achieve 50 percent utilization of the fiber cable. I have also recommended that the Commission reconsider its previous finding that switch processor costs vary with usage based on new evidence. If it concludes that these costs are not usage-sensitive, appropriate transport and termination rates range for ███████ to ███████ per minute.

If the Commission prefers, I can make similar revisions to the latest cost studies for Kennebec, Santel and West River as I did for McCook.

Q. **Before concluding, are there any important issues that you raised with respect to the RLEC revised cost studies to which Messrs. Eklund or Weber did not respond?**

A. Yes. With respect to switching costs, they failed to confirm that switch processor costs remained constant as total switched minutes of use dropped ██ to ██ percent (other than removing Centrex, CALEA and Web Self Care system costs unrelated to switched minutes of use). They again failed to produce information on switch processor component unit investments, how these investments were determined and why they did not change as total switched minutes of use declined. With respect to transport electronics costs, they failed to project future demand for transport circuits so as to prove the need for OC-192 or OC-48 transport systems. They did not comment on my suggested method for computing levelized transport demand over a seven-year period so as to reflect the future demand driving transport costs and to properly distribute the

26

majority of transport costs to special/dedicated circuits. For transport outside plant, they did not project future demand for cable fibers to even justify the 24-fiber cables in their latest cost studies and to distribute the costs of fiber cable among future users of the cable.

Q.   Does this conclude your testimony?

A.