

STATE OF ILLINOIS
ILLINOIS COMMERCE COMMISSION

Illinois Commerce Commission)	
On Its Own Motion)	
)	
v.)	
)	
McLeodUSA Telecommunications Services, Inc.)	Docket No. 09-0315
d/b/a PAETEC Business Services)	
)	
Investigation into Whether Intrastate Access)	
Charges Of McLeodUSA Telecommunications)	
Services, Inc. d/b/a PAETEC Business Services)	
are Just and Reasonable.)	
)	

DIRECT TESTIMONY OF

DR. JASON ZHANG

ON BEHALF OF VERIZON

PUBLIC VERSION

Verizon Exhibit 2.0

February 22, 2010

1 **Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.**

2 A. My name is Jason Zhang. I am a Senior Consultant with Verizon. My business
3 address is One Verizon Way, Basking Ridge, New Jersey.

4

5 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
6 **PROFESSIONAL EXPERIENCE.**

7 A. I received a B.A. in Management from the Beijing Institute of Business of
8 Beijing, China in 1987. I then completed an MAPE/PhD program at Boston
9 University in 1997. My dissertation analyzed the pricing and investment decisions
10 of U.S. wireless carriers. I joined GTE Laboratories in Waltham, Massachusetts in
11 1993, where I was a Member of Technical Staff with the Economics and Statistics
12 Department of the Telecommunications Research Lab. I have analyzed various
13 cost models developed for unbundled network elements ("UNEs"), universal
14 service, and access charges, including BCPM, Hatfield and the FCC's Synthesis
15 model. I have filed expert affidavits before the FCC and have filed testimony
16 before the state public utility commissions in Texas and Iowa. I currently work in
17 the Strategic and Financial Planning department at Verizon, where I continue to
18 evaluate cost models.

19

20 **Q. WHO ARE YOU REPRESENTING IN THIS PROCEEDING?**

1 A. I am presenting testimony on behalf of MCI Communications Services, Inc. d/b/a/
2 Verizon Business Services, Verizon Enterprise Solutions LLC and Verizon Long
3 Distance LLC (together, “Verizon”), which are all certified telecommunications
4 carriers that provide interexchange telecommunications services in Illinois and
5 pay intrastate access charges to McLeodUSA Telecommunications Services, Inc.
6 d/b/a/ PAETEC Business Services (“McLeod”).

7

8 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY.**

9 A. Verizon witness Mr. Don Price explains why, from a policy perspective,
10 McLeod’s purported costs should not be pertinent to establishing intrastate
11 switched access rates that satisfy the “just and reasonable” requirement of Section
12 9-250 of the Public Utilities Act (220 ILCS § 5/9-250). My testimony
13 demonstrates that even if the Illinois Commerce Commission (“ICC”) chooses to
14 consider McLeod’s Network Usage Cost Assessment (“NUCA”) model in some
15 manner, NUCA is seriously flawed and does not satisfy McLeod’s burden to
16 establish that its current intrastate switched access rates are just and reasonable.

17

18 **Q. PLEASE SUMMARIZE YOUR CONCERNS WITH MCLEOD’S NUCA**
19 **COST STUDY.**

20 A. McLeod claims that its NUCA tool “is designed to generate total economic cost
21 using the Total Service Long Run Incremental Costs (“TSLRIC”) approach.”¹

¹ See Direct Testimony of Michael Starkey on behalf of McLeodUSA Telecommunications Services, Inc. d/b/a PAETEC Business Services, filed October 8, 2009, at 36-39 (“McLeod Direct”).

1 But after reviewing McLeod’s NUCA model, it is clear that NUCA does not
2 adhere to the basic TSLRIC principles that McLeod claims to have followed. In
3 this testimony, I will highlight the following major problems with McLeod’s
4 NUCA cost model.

- 5 1. NUCA violates the “cost causation” principle central to any
6 incremental costing method.
7
- 8 2. NUCA fails to model the use of the most efficient technology
9 available, as required by the TSLRIC approach.
10
- 11 3. NUCA relies on flawed and unreliable inputs.
12

13 These and other problems discussed below mean that McLeod’s intrastate
14 switched access costs, as developed and presented by Mr. Starkey using the
15 NUCA model, are severely overstated. In addition, there are serious issues with
16 the reliability of many of the inputs used in the model. Taken together, the
17 problems I identify in this testimony lead to the conclusion that NUCA’s results
18 should not be considered for any purpose in this proceeding.
19

20 **Q. PLEASE DESCRIBE THE “COST CAUSATION” PRINCIPLE AND HOW**
21 **MCLEOD’S NUCA MODEL VIOLATES THAT PRINCIPLE.**

22 A. In the *Local Competition Order* cited in Mr. Starkey’s direct testimony,² the FCC
23 stated that costs in a forward-looking study:

24 must be attributed on a cost-causative basis. Costs are causally-
25 related to the network element being provided if the costs are
26 incurred as a direct result of providing the network elements, or

² See McLeod Direct at 38-39.

1 can be avoided, in the long-run, when the company ceases to
2 provide them.³

3
4 Essentially, the cost causation principle requires that only costs that are actually
5 *caused* by the service being studied should be included in the forward-looking
6 economic cost of that service. In this case, only the costs caused by the provision
7 of switched access service should be included in a study of the forward-looking
8 costs for switched access. As I discuss below, McLeod clearly violated this
9 principle when it included in the cost of its switched access service a portion of its
10 local loop costs – specifically, the costs of the Digital Loop Carrier (“DLC”) and
11 the related fiber feeder to the serving switches.

12
13 **Q. PLEASE DESCRIBE THE MODELED MCLEOD NETWORK.**

14 A. According to McLeod, it has only *****BEGIN CONFIDENTIAL**  **END**
15 **CONFIDENTIAL***** switches in Illinois, and these switches serve exclusively
16 its Illinois customers.⁴ These switches are located in the “Service Nodes,” the
17 terminology by which McLeod refers to its switching centers. These switches
18 represent “the actual telecommunications switching machine employed by
19 McLeodUSA in connecting callers to one another and/or callers to other carriers

³ See First Report and Order, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, CC Docket No. 96-98 (rel. August 8, 1996) (“*Local Competition Order*”) at ¶ 691.

⁴ See NUCA, “National Switch Inventory” tab of the “Trunk-to-Trunk Switching Module – IL.” NUCA is already in the record as Confidential Attachment MS-4 to the McLeod Direct.

1 (e.g., IXCs)."⁵ McLeod further confirms that all switched traffic, regardless of
2 the type (intraswitch or interswitch, local or toll), would utilize these switches.⁶

3 From the switches to the end user customer premises, the network
4 architecture is quite simple. As illustrated by Mr. Starkey, calls from McLeod's
5 customers served via various ILEC central offices are aggregated by a digital loop
6 carrier, or "DLC."⁷ The aggregated traffic from each location is then connected,
7 using SONET⁸ rings (or leased facilities), to these switches for switching and
8 interconnection with other carriers. As I explain later, McLeod violated the cost
9 causation principle by including in its NUCA model the costs of its DLC
10 equipment – identified as "AnyMedia" equipment in its study – and the related
11 fiber feeder costs associated with extending the end user loops from the DLC
12 terminals to McLeod's switches.

13

14 **Q. DOES MCLEOD DISPUTE THE FACT THAT THE ANYMEDIA**
15 **EQUIPMENT MODELED IN NUCA IS A DLC?**

16 A. No. From all indications, McLeod utilizes the equipment just like any other
17 DLCs, which are typically used to reduce copper cable pair requirements and to
18 overcome electrical constraints on long loops. Basically, DLCs make it possible
19 to aggregate calls and extend the end user loops to switches located far away, just

⁵ See McLeod Direct at 46 (Diagram 5) and 48.

⁶ See McLeod's Confidential Response to ICC Staff Data Request JZ 2.01 (January 26, 2010), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

⁷ See McLeod Direct at 19 (Diagram 2).

⁸ "SONET" is "Synchronous Optical Network," defined as "a family of fiber optic transmission rates from 51.84 million bits per second to 39.812 gigabits per second." See Newton's Telecom Dictionary, 23rd Edition (2007) at 856.

1 as McLeod must do in its network. As McLeod conceded in discovery, the
2 Lucent AnyMedia System *****BEGIN CONFIDENTIAL** [REDACTED]
3 [REDACTED] **END CONFIDENTIAL***** The
4 fact that these AnyMedia systems are nothing more than DLCs is further
5 confirmed by McLeod’s own Engineering Standards, which refer to them simply
6 as *****BEGIN CONFIDENTIAL** [REDACTED] **END**
7 **CONFIDENTIAL***** There is no discussion anywhere in Mr. Starkey’s
8 testimony, the NUCA model, or the supporting documentation for NUCA
9 produced in discovery, nor any information I could locate regarding the
10 AnyMedia equipment modeled in NUCA that would indicate that these systems
11 perform any different functions than a typical DLC would perform. Most
12 importantly, the AnyMedia equipment modeled in NUCA does not perform any
13 switching functions, which are performed exclusively by the *****BEGIN**
14 **CONFIDENTIAL** [REDACTED] **END CONFIDENTIAL***** switches in Illinois that
15 McLeod owns and has modeled in NUCA.¹¹ The DLCs are connected to the
16 McLeod switches by fiber, either through SONET rings or leased facilities.¹²
17 Therefore, as with ILEC networks that use DLCs, McLeod’s loops begin at the

⁹ See McLeod’s Confidential Response to ICC Staff Data Request JZ 1.06(B) (December 16, 2009), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

¹⁰ See Confidential file entitled “CONFIDENTIAL - LEC Collocation Engineering Standards V1.4.pdf,” at Section 2.2, Table 2, produced as part of McLeod’s Response to Data Request 3 of Verizon’s First Set of Data Requests (December 8, 2009), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**, at Section 2.2, page 3.

¹¹ As confirmed by McLeod’s Confidential Response to Staff Data Request JZ 2.01 (January 26, 2010), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**, all of McLeod’s switched traffic, regardless of type, *****BEGIN CONFIDENTIAL** [REDACTED] **END CONFIDENTIAL*****

¹² See McLeod Direct at 47.

1 end user premises and end at the service switch, inclusive of the DLC and the
2 related fiber feeder to the switch.

3

4 **Q. PLEASE EXPLAIN HOW THE COST OF DLC AND RELATED FIBER**
5 **FEEDER TO THE SERVING SWITCHES SHOULD BE CLASSIFIED.**

6 A. The costs of the DLCs and related fiber feeder are properly classified as part of
7 the loop. As discussed above, the AnyMedia DLCs are essentially no different
8 from other DLCs that have been used by the industry for years. Loop costs are
9 exclusively caused by the demand for basic local exchange service¹³ and have
10 historically been classified in incremental cost studies as part of the cost of
11 providing basic local exchange service. For example, the FCC Synthesis Model
12 includes the entire cost of loops, including the DLCs and related feeder, as part of
13 the basic local exchange service cost. Thus, to be consistent with cost causation
14 principles, these costs must not be included in an analysis of switched access
15 costs. Incremental cost study principles require that only costs caused by the
16 provision of switched access service are to be included in a study of switched
17 access service costs. Examples of such costs include the costs associated with
18 switching and with transport of traffic to and from interexchange carriers. The
19 cost of local loops (inclusive of the cost of the DLCs and related feeder) is caused
20 exclusively by the provision of basic local exchange service, not by the provision
21 of switched access service. That is, the costs of the DLC and related fiber feeder

¹³ See Steve G. Parsons, “Seven Years After Kahn and Shew: Lingering Myths on Costs and Pricing Telephone Service” Yale Journal on Regulation, Vol 11, Number 1, Winter 1994.

1 cannot be avoided even if McLeod ceases to provide switched access service in
2 the long-run. The local loop would still be required even if a customer never
3 made any toll calls, demanded to receive only local calls, or made only
4 emergency calls. A proper TSLRIC study for switched access costs should
5 include only costs that are incurred starting at McLeod’s Service Node (where
6 McLeod’s switches are located) and outward to other McLeod Service Nodes or
7 interconnecting carriers’ points of presence (“POPs”), and should not include
8 anything from that Service Node inward, towards McLeod’s end user customers.
9

10 **Q. HAS MCLEOD DEMONSTRATED OR OTHERWISE JUSTIFIED**
11 **INCLUDING DLCS AND RELATED FIBER FEEDER COSTS IN ITS**
12 **MODELED SWITCHED ACCESS COSTS?**

13 A. No, not at all. Given that such costs have traditionally been classified in
14 incremental cost studies as part of the costs of basic local exchange service, the
15 Commission should demand a compelling evidentiary basis to justify Mr.
16 Starkey’s radical deviation from this historic practice. In fact, Mr. Starkey’s
17 direct testimony sponsoring NUCA made no mention of cost causation at all, nor
18 did it provide any explanation as to why the McLeod DLCs and associated fiber
19 feeder costs should be included in a forward-looking analysis of the cost of
20 providing switched access. Indeed, McLeod conceded in discovery that “*loop*
21 *costs attributable to the provision of local exchange services*” should not be

1 included in the cost of switched access.”¹⁴ The remainder of McLeod’s discovery
2 response made plain that McLeod simply chose to include such costs in NUCA as
3 its preferred means of cost *recovery*, not because those costs were *caused* by the
4 provision of switched access service.¹⁵

5

6 **Q. DOESN’T MR. STARKEY CLAIM THAT THE DLCS AND RELATED**
7 **FIBER FEEDER ARE “TRAFFIC SENSITIVE”?**

8 A. Yes, he does. At pages 22-23 of his direct testimony, Mr. Starkey claims, without
9 any evidentiary support, that the DLCs and related fiber feeder are “traffic
10 sensitive costs,” and since “switched access rates are, in general, intended to help
11 the underlying carrier recover the traffic sensitive costs,” Mr. Starkey concludes
12 that these costs should be included in the study of switched access costs. Mr.
13 Starkey’s conclusion is logically, conceptually and factually wrong.

14

15 **Q. COULD YOU EXPLAIN FURTHER WHY MR. STARKEY’S ASSERTION**
16 **AS TO THE TRAFFIC SENSITIVE NATURE OF THESE COSTS DOES**
17 **NOT JUSTIFY THEIR INCLUSION IN AN ANALYSIS OF THE COSTS**
18 **OF SWITCHED ACCESS?**

19 A. Yes. Mr. Starkey seems to have confused the “traffic sensitive” nature of the
20 costs with the “cost causation” principle. A cost that is caused by a service may
21 be either traffic sensitive or non-traffic sensitive. Yet, a traffic sensitive cost does

¹⁴ See McLeod’s Response to Data Request 2 of Verizon’s First Set of Data Requests (December 8, 2009), a true and correct copy of which is attached as part of **Attachment JZ-2** (emphasis in original).

¹⁵ *Id.*

1 not have to be a switched access cost: for example, a hard drive used for
2 voicemail service (to save messages) may be traffic sensitive to voicemail traffic,
3 but is clearly not caused by the provision of switched access service.
4 Furthermore, all traffic sensitive costs of the switch are likewise not attributable
5 to access service, because access traffic is only a portion of the traffic handled by
6 the switch.

7 The “cost causation” principle is a key incremental cost principle that
8 determines whether a particular cost item is part of the TSLRIC for the service
9 being studied. A cost that is not caused by a service cannot be considered
10 “incremental” to the provision of that service. This principle is a threshold
11 requirement for any incremental service cost analysis. Determining whether costs
12 are “traffic sensitive” or “non-traffic sensitive” is an important question in
13 deciding the design of rates – that is, the efficient way to *recover* the costs once
14 they have been properly categorized.¹⁶ Asking the question of whether a
15 particular cost is traffic sensitive or non-traffic sensitive only makes sense after it
16 has been determined that the cost in question is *caused* by the service being
17 studied – here, switched access.

18 Finally, Mr. Starkey’s statement that “switched access rates are, in
19 general, intended to help the underlying carrier *recover* the traffic sensitive

¹⁶ See First Report & Order, *In the Matter of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing Usage of the Public Switched Network by Information Service and Internet Access Providers*, FCC 97-158 (rel. May 16, 1997) at ¶ 24 (“The Commission has recognized in prior rulemaking proceedings that, to the extent possible, costs of interstate access should be recovered in the same way that they are incurred, consistent with principles of cost-causation. Thus, the cost of traffic-sensitive access services should be recovered through corresponding per-minute access rates. Similarly, NTS costs should be recovered through fixed, flat-rated fees.”).

1 costs”¹⁷ in no way relates to cost *causation*. Instead, it is an assertion of a rate
2 design principle. Surely Mr. Starkey does not believe that all traffic sensitive
3 costs are *caused* by the provision of switched access service. For regulated
4 services, rates may be designed to recover many things, but it does not follow that
5 whatever is recovered through a particular rate is necessarily the cost of the
6 service in question. For example, universal service costs have been recovered in
7 the rates for other services, such as interstate long distance, but that does not mean
8 that universal service costs are caused by interstate long distance service.

9

10 **Q. COULD YOU EXPLAIN FURTHER WHY INCLUDING DLC COSTS**
11 **AND RELATED FIBER FEEDER IN MODELED SWITCHED ACCESS**
12 **COSTS IS FACTUALLY UNSUPPORTABLE?**

13 A. Yes. Mr. Starkey’s claim that the McLeod DLCs and related fiber feeder are
14 traffic sensitive costs does not address the question of whether those costs should
15 be included in his analysis of switched access costs. To justify the inclusion of
16 these costs in a switched access cost study, he would have to demonstrate that
17 these costs are in fact *caused by switched access traffic*. However, Mr. Starkey
18 offers no specific study, analysis or other evidence to support this assertion.¹⁸

19 That is not surprising, because Mr. Starkey’s claim is contradicted not only by

¹⁷ See McLeod Direct at 23 (emphasis added).

¹⁸The only support Mr. Starkey could muster for the claim was some vague experience and discussions with McLeod’s network engineers. See McLeod’s Response to Data Request 11 of Verizon’s First Set of Data Requests (December 8, 2009), a true and correct copy of which is attached as part of **Attachment JZ-2**.

1 long-standing industry practice, but also by McLeod’s actual modeling of the
2 DLC equipment.

3 An examination of the AnyMedia DLC investment calculations shows that
4 the total investment calculated is in no way sensitive to switched access traffic. In
5 fact, the AnyMedia per-node investment is entirely determined by the number of
6 DS0 lines; that is, the number of end user lines connected through the DLC to the
7 McLeod switch. No switched access traffic is included in the investment
8 calculation.¹⁹

9 Likewise, the investments for the related DLC fiber feeder are not related
10 to the type of traffic carried by the transport media. The majority of the cost for
11 the fiber feeder is the structure costs, such as trenching costs for the fiber rings.
12 These costs are not related to the type of traffic traveling over the fibers in those
13 structures. Tellingly, McLeod’s supporting calculations for fiber costs do not
14 reflect any traffic-related data, indicating that switched access traffic levels are
15 irrelevant to those calculations.²⁰

16 Therefore, it is clear that McLeod’s DLCs are utilized in the same manner
17 that DLCs are utilized throughout the industry: that is, aggregating calls and
18 connecting them over long distances to the serving switches. Mr. Starkey’s
19 testimony provides no basis for the Commission to deviate from the historical
20 treatment of DLCs as a component of the local loop cost in incremental cost
21 studies. The costs of DLCs and their related fiber feeder are simply not part of

¹⁹ See NUCA, Access Node Module-IL.xls, tab “Per Node Investment.”

²⁰ See NUCA, Fiber Transport Module-IL.xls, tabs “Aerial projects summary” and “Buried projects summary.”

1 switched access costs, and therefore should not be included in the NUCA

2 switched access cost study.

3

4 **Q. HOW WOULD THE PROPER ASSIGNMENT OF THE LOOP COSTS**
5 **AFFECT MCLEOD’S MODELED INTRASTATE SWITCHED ACCESS**
6 **COST?**

7 A. Removing the loop costs from McLeod’s purported switched access costs
8 would reduce its local switching cost by approximately two-thirds, from more
9 than *****BEGIN CONFIDENTIAL** ■ **END CONFIDENTIAL***** cents per
10 minute, as reported by McLeod,²¹ to less than ***** BEGIN CONFIDENTIAL**
11 **■ END CONFIDENTIAL***** cents per minute.²²

12

13 **Q. HAS MCLEOD VIOLATED OTHER TSLRIC PRINCIPLES IN ITS**
14 **STUDY?**

15 A. Yes. McLeod has violated the fundamental forward-looking cost requirement to
16 model only the forward-looking technology that a carrier is expected to deploy
17 over the course of the study period."²³ As a starting point, McLeod uses outdated
18 data in NUCA (mostly dating back to 2002-2006), and in many cases simply takes
19 the embedded quantity on its books at that time as the quantity that would be
20 called for by its forward-looking network today, which is clearly wrong. For

²¹ See Confidential McLeod Direct at 53.

²² The new rate is derived by zeroing out cells D42:I42 in the “Rate Element Mapping” tab of “Model Results - IL.xls” in NUCA.

²³ See, e.g., *Local Competition Order* at ¶ 690.

1 example, NUCA’s fiber transport module does not even attempt to size the correct
2 quantity based on forward-looking demand; it simply sets the amount to the
3 existing fiber on its books as of August 5, 2005.²⁴ McLeod’s use of embedded
4 network investment is wrong and leads to overstated costs, because:

5 First, the embedded network McLeod has modeled also reflects an
6 incrementally-deployed network, which is less efficient – and thus more
7 expensive – than one built at one time.

8 Second, McLeod’s actual embedded network was overbuilt due to
9 McLeod’s rapid over-expansion during the telecommunications “bubble,” which I
10 describe later, thus exacerbating the problem of using its embedded network as
11 forward-looking.

12 Finally, the use of outdated data fails to reflect recent improvements in
13 both operations and technology that allow providers to design and operate more
14 cost-efficient networks. This is especially significant in this case, given the
15 efficiencies that McLeod has acquired from two bankruptcy filings and the
16 merger with PAETEC, which eliminated debt and produced other benefits for
17 McLeod.

18 The necessary elements for determining McLeod’s forward-looking
19 economic costs of providing switched access service are: (1) a model based on the
20 forward-looking technology that McLeod would be expected to deploy over the
21 study period; (2) a reasonable analysis of current operations; and (3) an up-to-date

²⁴ See McLeod’s Confidential Response to ICC Staff Data Request JZ 2.03 (January 26, 2010), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

1 demand forecast for that same study period. The NUCA model’s reliance on
2 network design and equipment from many years ago is a fundamental violation of
3 TSLRIC principles that renders it unreliable as an indicator of McLeod’s forward-
4 looking cost of providing switched access service.

5

6 **Q. COULD YOU FURTHER EXPLAIN THE MODELED EXCESS CAPACITY**
7 **AND RESULTING INEFFICIENT NETWORK?**

8 A. Yes. In addition to using outdated technology, McLeod models an inefficient
9 network by including excessive capacity within its fiber network. It should be noted
10 that to the extent this fiber network is used for its fiber feeder, its costs are not part of
11 the cost of switched access. As discussed above, instead of actually modeling the
12 fiber network based on its current or future demand, McLeod simply relied on the
13 amount of fiber that was on its books as of August 5, 2005. As I mentioned above,
14 the embedded fiber network reflects an incrementally-deployed network, and
15 therefore one that is less efficient than one called for under TSLRIC principles,
16 which would have been deployed at one time.

17 This inefficient network is compounded by McLeod’s over-expansion of its
18 network during the telecommunications “bubble” years of 1996 to 2002. During
19 the bubble, driven by the irrational expectations, new telecom carriers, including
20 CLECs, overbuilt their network capacity.²⁵ McLeod was no exception. “[I]t tried to

²⁵ See Martin Fransman, “The Telecoms Boom and Bust, 1996-2002: Puzzles, Paradoxes, and Processing,” available on-line at <http://www.telecomvisions.com/articles/pdf/BoomToBust.pdf>.

1 be everything to everybody,”²⁶ which eventually led to its first bankruptcy. Even
2 after the first bankruptcy and ensuing restructuring, McLeod still found itself facing
3 declining revenues for its network, which eventually necessitated its second
4 bankruptcy filing.²⁷ It is clear McLeod had too much fiber capacity in its network
5 compared to current forward-looking demand levels. Further, as described by Mr.
6 Starkey, McLeod has experienced a “significant decline in traffic since that time.”²⁸
7 Attempting to recover inefficiently-incurred historical network costs, as McLeod
8 attempts to do here, is inconsistent with forward-looking, least-cost, most-efficient
9 TSLRIC principles, and should cause the Commission to reject the results of the
10 NUCA model.

11
12 **Q. ARE THERE OTHER AREAS WHERE MCLEOD HAS MODELED AN**
13 **OVERBUILT NETWORK?**

14 A. Yes. Beyond the fact that the AnyMedia DLC equipment (and related fiber feeder)
15 should not be included in the costs of the switched access service at all, McLeod also
16 overbuilt the number of AnyMedia systems needed for its network. As explained
17 above, the AnyMedia system is part of DLC system. As modeled by McLeod, the
18 AnyMedia system basically consists of a shelf with *****BEGIN CONFIDENTIAL**
19 **END CONFIDENTIAL***** open slots. Each slot can accept *****BEGIN**
20 **CONFIDENTIAL END CONFIDENTIAL***** circuit pack. Each LPA380

²⁶ See Josh Long, “Covad, McLeodUSAUSA Beat Bankruptcy,” (June 1, 2002), available on-line at http://www.xchangemag.com/articles/544/544_261buz&fine4.html.

²⁷ See McLeodUSA SEC 10K for Quarter Ending September 30, 2005, available on-line at <http://www.McLeodUSAUSA.com/ResourceRetrieval?fileId=427>.

²⁸ See McLeod Direct at 53.

1 circuit pack can serve up to *****BEGIN CONFIDENTIAL** **END**
2 **CONFIDENTIAL***** “plain old telephone service” customers.²⁹ Instead of using
3 *active or reasonably predicted* demand, McLeod uses what appears to be *ultimate*
4 demand to size the shelf and the number of circuit packs.³⁰ Even worse, regardless
5 of the number of active lines, McLeod assumed that any shelf it uses would have
6 *****BEGIN CONFIDENTIAL** **END CONFIDENTIAL***** slots filled
7 with circuit packs,³¹ when in reality, the circuit packs should have been added as
8 actual demand was realized. Such assumptions result in NUCA modeling excessive
9 spare capacity and overstating McLeod’s costs.

10

11 **Q. COULD YOU PROVIDE AN EXAMPLE OF THE MODELED EXCESS**
12 **CAPACITY?**

13 A. Yes. Again, McLeod’s DLC costs do not belong in its switched access cost model.
14 That said, McLeod vastly inflates those DLC costs in NUCA. For example
15 Lakeshore³² has only *****BEGIN CONFIDENTIAL** **END**
16 **CONFIDENTIAL***** DSOs, which would have required one shelf, with at most
17 *****BEGIN CONFIDENTIAL** **END CONFIDENTIAL***** LPA380 circuit
18 packs (with enough capacity to serve *****BEGIN CONFIDENTIAL** **END**
19 **CONFIDENTIAL***** DSOs). Instead, McLeod modeled *****BEGIN**

²⁹ See file titled “CONFIDENTIAL – AnyMedia Pricing 08-25-05.xls,” produced as part of McLeod’s Response to Data Request 3 of Verizon’s First Set of Data Requests (December 8, 2009), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

³⁰ See NUCA, tab “Per Node Investment” of “Access Node Module-IL.xls.”

³¹ *Id.*

³² See NUCA, Row 80, tab “Per Node Investment” of “Access Node Module-IL.xls.”

1 **CONFIDENTIAL** **END CONFIDENTIAL***** fully engineered AnyMedia
2 shelves with *****BEGIN CONFIDENTIAL** **END CONFIDENTIAL*****
3 LPA380s circuit packs, with capacity to serve up to *****BEGIN CONFIDENTIAL**
4 **END CONFIDENTIAL***** DS0s, leading to excessive spare capacity with
5 only approximately *****BEGIN CONFIDENTIAL** **END**
6 **CONFIDENTIAL***** effective fill.³³ That level of excessive capacity is even
7 more outrageous if one takes into account the fact that McLeod’s access lines have
8 been declining for the past few years and will likely continue to do so. As a result,
9 the costs modeled in NUCA are severely overstated.

10

11 **Q. COULD YOU FURTHER EXPLAIN MCLEOD’S USE OF OUTDATED**
12 **TECHNOLOGY IN ITS STUDY?**

13 A. Yes. For example, the AnyMedia equipment McLeod modeled has been
14 discontinued by Alcatel-Lucent and was no longer available as of December 31,
15 2009.³⁴ A technology that is no longer available cannot be the forward-looking
16 technology that a carrier is expected to deploy, as required by TSLRIC.

17

18 **Q. PLEASE DESCRIBE SOME OF THE OTHER PROBLEMS WITH**
19 **MCLEOD’S SWITCHED ACCESS COST STUDY.**

20 A. McLeod has modeled its switch costs for Illinois using per-trunk (total) costs
21 based on smaller-sized switches, leading to overstated costs. For example,

³³ *Id.*

³⁴ See McLeod’s Confidential Response to ICC Staff Data Request JZ 1.06(E) (December 16, 2009), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

1 McLeod actually uses a large *****BEGIN CONFIDENTIAL** [REDACTED] **END**
2 **CONFIDENTIAL***** switch that serves *****BEGIN CONFIDENTIAL** [REDACTED]
3 **END CONFIDENTIAL***** trunks in Illinois.³⁵ However NUCA relied on a total
4 per-trunk cost from McLeod’s purchase of the *****BEGIN CONFIDENTIAL**
5 [REDACTED] **END CONFIDENTIAL***** switch in April 2003, which
6 has only *****BEGIN CONFIDENTIAL** [REDACTED] **END CONFIDENTIAL*****
7 trunks.³⁶ Smaller switches have higher total per line/trunk costs due to the existence
8 of fixed costs,³⁷ and therefore, the calculated switch investment for Illinois is
9 overstated.

10
11 **Q. DO YOU HAVE ANY FURTHER CONCERNS WITH THE FIBER**
12 **COSTS MODELED IN NUCA?**

13 A. Yes. Again, McLeod’s fiber feeder costs do not belong in its switched access cost
14 model. Even so, NUCA reflects significant flaws in the calculations of these costs.
15 In addition to treating McLeod’s actual, overbuilt, embedded network as of five
16 years ago as forward-looking, NUCA calculates the costs associated with this
17 network based on a small number of network projects performed largely outside the
18 state of Illinois, many years ago, with very limited scope. For example, to calculate
19 the fiber and structure costs for this embedded fiber network, covering about
20 *****BEGIN CONFIDENTIAL** [REDACTED] **END CONFIDENTIAL***** miles, using at

³⁵ See NUCA, tab “National Switch Inventory” of Trunk-to-Trunk Switching Module - IL.xls.

³⁶ See NUCA, tab “Lucent Model Equipped Trunks” of Trunk-to-Trunk Switching Module - IL.xls.

³⁷ See Tenth Report and Order, *In the Matter of Federal-State Joint Board on Universal Service; Forward-Looking Mechanism for High Cost Support for Non-Rural LECs*, CC Dockets 96-45 and 97-160, FCC 99-304 (rel. November 2, 1999) at Appendix A-21.

1 least *****BEGIN CONFIDENTIAL** **END CONFIDENTIAL***** fiber sizes,
2 McLeod uses fiber³⁸ and structure costs from *****BEGIN CONFIDENTIAL**
3 **END CONFIDENTIAL***** much smaller network construction contracts
4 undertaken from late 2004 to early 2005 in separate states, with each deploying a
5 single fiber with an average length of *****BEGIN CONFIDENTIAL** **END**
6 **CONFIDENTIAL***** miles and the smallest project covering only *****BEGIN**
7 **CONFIDENTIAL** **END CONFIDENTIAL***** miles of fiber.³⁹

8 Because of the many fixed costs associated with these projects, and the
9 absence of the larger discounts available with larger projects, the unit costs
10 associated with smaller projects are much higher than with larger projects. TSLRIC
11 requires the modeling of “long run” and “total service or element,” which means the
12 costs used in the NUCA model should reflect the construction of a network big
13 enough to serve the entire current or predicted demand, not a network that would be
14 built incrementally in small steps over time. The model’s use of unit costs based on
15 much smaller projects overstates the cost of such network. The cost of the fiber
16 network is further inflated by the use of fiber prices that date back five years,
17 because fiber prices have been declining.

18 Finally, McLeod failed to account for Illinois-specific factors that may cause
19 its costs to be different from those in the majority of the contracts modeled in

³⁸ The fiber material prices used in the cost calculation were updated based on a quote obtained a few months later in 2005. Analysis of related data reveals additional concerns about McLeod’s inputs, as I discuss later.

³⁹ See NUCA, at Fiber Transport Module-IL.xls, tabs “Aerial projects summary” and “Buried projects summary.” The aerial projects are located in *****BEGIN CONFIDENTIAL** **END CONFIDENTIAL*****, and the buried projects in *****BEGIN CONFIDENTIAL** **END CONFIDENTIAL*****. See McLeod’s Confidential Response to ICC Staff Data Request JZ 2.06 (January 26, 2010), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

1 NUCA. For example, contractor rates tend to be locality-specific due to different
2 labor expenses and zoning requirements. The costs of installing outside plant
3 facilities, such as fiber cable, can vary greatly based on local geography, where
4 factors such as the type of installation (aerial, underground, buried) and the type of
5 terrain (soft, rocky, city streets) can all influence the cost of placing cable. McLeod
6 offered no concrete evidence that the projects reflected in its sample would have
7 costs similar to the installations modeled for Illinois.

8

9 **Q. ARE THERE ANY OTHER FLAWS IN MCLEOD'S COST STUDY?**

10 A. Yes. NUCA uses numerous flawed inputs. I will highlight the following:

- 11 1. Unreliable inputs
12 2. Overstated capital cost inputs
13 3. Overstated expense inputs.

14 Reliance on flawed, unreliable inputs will lead to unreliable costs, and overstated
15 inputs will lead to overstated costs. Without corrections, they cannot and should
16 not be used in a forward-looking cost study.

17

18 **Q. PLEASE EXPLAIN MCLEOD'S USE OF UNRELIABLE INPUTS.**

19 A. NUCA uses extensive data from McLeod's books, from contractor costs to
20 expenses to the quantities of various facilities. But the analysis below of its fiber
21 cost data shows that inputs based on McLeod's booked data do not produce
22 reliable cost assessments.

1 As I discussed above, McLeod relied heavily on data from a few small
 2 projects in different states to estimate its fiber costs in NUCA. These contracts
 3 contain fiber prices for certain fiber sizes that also show up in an updated price
 4 list that McLeod received a few months later. The table below reflects the fiber
 5 price changes between the time the project estimates were originally prepared,
 6 and August 5, 2005, when McLeod received the new fiber price quotes.

7 **Fiber Price Changes Between Project Date and New Fiber Quote Date**

8 *****BEGIN CONFIDENTIAL**

	Project Est Date	Project Fiber Price	New Fiber Quote Date	New Fiber Price	Time Lapsed (years)	% Actual Change	% Annualize Change
██████████	██████████	\$ ██████████	██████████	\$ ██████████	██████████	██████████	██████████
██████████	██████████	\$ ██████████	██████████	\$ ██████████	██████████	██████████	██████████
██████████	██████████	\$ ██████████	██████████	\$ ██████████	██████████	██████████	██████████
██████████	██████████	\$ ██████████	██████████	\$ ██████████	██████████	██████████	██████████

END CONFIDENTIAL***

Source: See NUCA at Fiber Transport Module-IL.xls, tabs "Aerial projects summary" and "Buried projects summary"; see also McLeod's Confidential Responses to ICC Staff Data Requests JZ 2.04, 2.05, 2.09, 2.08 and 2.15 (January 26, 2010), true and correct copies of which are attached as part of **Confidential Attachment JZ-1**. Project estimate date for Aerial #1 is not available and first day of activity month provided in Confidential Response to ICC Staff Data Request JZ 2.08 is used.

9 From the table, it is clear that within only a few months, some fiber prices had
 10 gone *down* *****BEGIN CONFIDENTIAL** ██████████ **END CONFIDENTIAL*****
 11 while others had gone *up* *****BEGIN CONFIDENTIAL** ██████████ **END**
 12 **CONFIDENTIAL***** on an annual basis. In addition to these wild swings, the
 13 table also shows illogical fiber prices for the projects. For instance, the price of a
 14 288-fiber cable was less than *****BEGIN CONFIDENTIAL** ██████████ **END**
 15 **CONFIDENTIAL***** of that of a 36-fiber cable. Many of the NUCA model's

1 inputs are based on McLeod's actual booked data, including the data reflected in
2 the above table. There may be several reasons why these booked costs appear so
3 unreliable or illogical. For instance, if the fiber prices paid for those projects
4 included the cost of other things, or other project costs included partial fiber costs,
5 or some of the fiber costs were accounted for outside the fiber prices provided by
6 McLeod, it would affect the integrity of the data in the table.

7 It is also possible that the number of bankruptcies/reorganizations that
8 McLeod has undergone affected the integrity of the data (*e.g.*, McLeod no longer
9 has the workpapers for its depreciation inputs). But whatever the reason, these
10 erratic fiber project costs should immediately call into question many of the cost
11 estimates utilized in NUCA. Without clear explanations for these unusually wide
12 pricing variances, the inputs based on McLeod's booked costs are highly suspect,
13 and the outputs from NUCA are simply not credible.

14
15 **Q. PLEASE EXPLAIN MCLEOD'S USE OF OVERSTATED CAPITAL COST**
16 **INPUTS.**

17 A. For capital cost inputs, NUCA uses depreciation lives that were originally
18 determined back in the *****BEGIN CONFIDENTIAL [REDACTED] END**
19 **CONFIDENTIAL***** and for which McLeod admits that it has no supporting
20 work papers.⁴⁰ For its cost of debt, equity, and capital structure inputs, McLeod
21 used values based on a new debt issue in 2006 and Jefferies & Company estimates

⁴⁰ See McLeod's Confidential Responses to ICC Staff Data Request JZ 1.43(B) (December 16, 2009), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

1 in the same year.⁴¹ All of these capital cost inputs pre-date McLeod's merger
2 with PAETEC, and are no longer in use by McLeod or PAETEC.⁴² As a result,
3 they should be rejected out of hand. However, if the Commission chooses to rely
4 on McLeod's cost study in any way (and Mr. Price explains why the Commission
5 should not), it should require McLeod, at a minimum, to:

- 6 • Replace the depreciation lives modeled in NUCA with the current
7 financial reporting lives used by PAETEC, which have been provided in
8 discovery.⁴³
9
- 10 • Replace the inputs for costs of debt and equity and the capital structure to
11 reflect PAETEC's current profile. All else being equal, following its
12 merger with PAETEC, McLeod would have better access to capital by
13 virtue of being part of a much larger and solvent entity. In fact,
14 PAETEC's recent 10-Q shows that, even during the recent financial crisis,
15 it was able to issue long term debt at a rate of 8.875%.⁴⁴ McLeod
16 indicates that PAETEC's recent market based debt and equity percentages
17 are *****BEGIN CONFIDENTIAL [REDACTED] END CONFIDENTIAL*****
18 and *****BEGIN CONFIDENTIAL [REDACTED] END CONFIDENTIAL*****,
19 respectively.⁴⁵ With the improvement of financial markets, PAETEC's
20 cost of debt should only improve, as should its cost of equity, since during
21 financial crises, investors can become excessively risk averse, and require
22 extra premia for taking on risks. Therefore, if the Commission chooses to
23 rely on NUCA in any way, it should, at minimum, require McLeod to
24 substitute the current PAETEC cost of debt and capital structure in
25 NUCA, and to reduce its cost of equity substantially.
26
27

⁴¹ See McLeod's Confidential Response to ICC Staff Data Request JZ 1.44, a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

⁴² See *id.*; see also McLeod's Confidential Response to Data Request 40 of AT&T's First Set of Data Requests (December 22, 2009), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

⁴³ *Id.*

⁴⁴ See PAETEC Holding Corp. Form 10-Q, filed November 6, 2009, at 7, available on-line at <http://ccbn.10kwizard.com/cgi/convert/pdf/PAETECHoldingCo10Q.pdf?ipage=6589138&num=-2&pdf=1&xml=1&cik=1372041&odef=8&rid=12&quest=1&xbrl=0&dn=2&dn=3>.

⁴⁵ See McLeod's Confidential Response to ICC Staff Data Request JZ 1.44 (December 16, 2009), a true and correct copy of which is attached as part of **Confidential Attachment JZ-1**.

1 **Q. PLEASE EXPLAIN MCLEOD’S USE OF OVERSTATED EXPENSE**
2 **INPUTS.**

3 A. NUCA uses dated 2003-2004 booked investment and expense data for its inputs
4 for operating expense ratios, common cost factor, and bad debt ratio. Due to
5 their vintage, those booked expenses cannot reflect the efficiencies that McLeod
6 has gained from its two bankruptcies and merger with PAETEC, and they cannot
7 reflect the the additional efficiency they would have gained simply from running
8 the operations to date. As a result, the expenses are overstated, as are inputs
9 based on them.

10 In addition, the common cost factor used in NUCA is further inflated by
11 the use of an inadequate retail avoided cost factor. The retail avoided cost factor
12 is used to remove a portion of common costs that are not related to wholesale
13 operations, such as switched access service. For this purpose, NUCA uses SBC
14 Illinois’ (now AT&T Illinois) retail avoided cost ratio of *****BEGIN**
15 **CONFIDENTIAL** [REDACTED] **END CONFIDENTIAL*****⁴⁶, which is too low for
16 McLeod, because ILECs such as SBC Illinois have obligations to provide
17 unbundled network elements (“UNEs”) that CLECs do not have. As a result, a
18 much smaller share of SBC Illinois’ common expense is dedicated to its retail
19 operations than is the case for CLECs such as McLeod. Therefore, the applicable
20 retail avoided cost factor should be higher for McLeod, which would lower its
21 common cost factor.

22

⁴⁶ See NUCA, tab “Common Cost Factor” of Factor Module-IL.xls.

1 **Q. COULD YOU PLEASE SUMMARIZE YOUR TESTIMONY?**

2 A. NUCA fails to comply with TSLRIC costing principles and contains numerous
3 serious errors, leading to substantially overstated and unreliable costs that cannot
4 justify McLeod's switched access rates. It is thus inappropriate for the
5 Commission to rely on NUCA's results, even should it decide to consider them as
6 part of its analysis (which Verizon witness Mr. Don Price has explained is
7 unnecessary). For all the reasons discussed herein, a properly-conducted TSLRIC
8 analysis of the cost of providing switched access would produce a much lower
9 result that that offered by McLeod here.

10

11 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

12 A. Yes.