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August 28, 2001

DOCKET FILE COPY ORIGINAL

Magalie R. Salas, Esq.
Federal Communications Commission
Office of the Secretary
The Portals
445 12th St. S.W.
Room TWB 204
Washington, D.C. 20554

Re: CC Docket Nos. 00-218, 00-249, and 00-251

Dear Ms. Salas:

The testimony filed by WorldCom, Inc. and AT&T yesterday included the Rebuttal Testimony of Terry L. Murray. That testimony was inadvertently filed without a confidential designation. Please destroy all of the copies of that testimony.

We have enclosed with this letter an original and three copies of the Murray testimony with the proper designation along with an original and 3 copies of the public version of the testimony. An additional eight copies of each have been provided in a separate envelope to be delivered to the arbitrator. Finally, an extra copy is enclosed to be file-stamped and returned.

If you have any questions, please do not hesitate to call me at 202-639-6005. We apologize for this oversight. Thank you very much for your assistance with this matter.

Very truly yours,

Mark D. Schneider

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CERTIFICATE OF SERVICE

I do hereby certify that true and accurate copies of the foregoing Rebuttal Testimony of Terry L. Murray on pricing issues were delivered this 28th day of August, 2001, by federal express to:

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By: _____
Mark D. Schneider

PUBLIC VERSION

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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AUG 28 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of Petition of WorldCom, Inc. Pursuant To Section 252 (e)(5) of the Communications Act for Expedited Preemption of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes With Verizon Virginia, Inc., and for Expedited Arbitration	)	CC Docket No. 00-218
In the Matter of Petition of Cox Virginia Telecom, Inc. Pursuant to Section 252 (e)(5) of the Communications Act for Preemption Of the Jurisdiction of the Virginia State Corporation Commission Regarding Interconnection Disputes with Verizon Virginia, Inc. and for Arbitration	)	CC Docket No. 00-249
In the Matter of Petition of AT&T Communications Virginia Inc., Pursuant to Section 252 (e)(5) of the Communications Act for Preemption of the Jurisdiction of the Virginia Corporate Commission Regarding Interconnection Disputes with Verizon Virginia, Inc.	)	CC Docket No. 00-251

REBUTTAL TESTIMONY OF TERRY L. MURRAY

ON BEHALF OF AT&T AND WORLDCOM, INC.

AUGUST 27, 2001

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1 **I. INTRODUCTION AND SUMMARY**

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

3 A. My name is Terry L. Murray. I am President of the consulting firm Murray &
4 Cratty, LLC. My business address is 227 Palm Drive, Piedmont, CA 94610.

5 **Q. HAVE YOU PREVIOUSLY TESTIFIED IN THIS PROCEEDING?**

6 A. Yes, I filed direct testimony on behalf of AT&T Communications of Virginia,
7 Inc.,[1] ("AT&T") and WorldCom, Inc. ("WorldCom"). Exhibit (TLM-1) to that
8 testimony provides a summary of my qualifications and experience.

9 **Q. WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

10 A. AT&T and WorldCom have asked me to review and respond to the economic and
11 policy positions presented in the direct testimony filed by Verizon Virginia, Inc.
12 ("Verizon VA" or "Verizon"). In particular, I will rebut the direct testimony of
13 Verizon witnesses Dr. Gordon and Dr. Shelanski, as well as the Panel Testimony
14 on Unbundled Network Element and Interconnection Costs ("Verizon Cost Panel
15 Direct").[2] Based on my review, I have reached the following conclusions:

---

1 This rebuttal testimony is presented on behalf of AT&T Communications of Virginia, Inc., TCG Virginia, Inc., ACC National Telecom Corp., MediaOne of Virginia and MediaOne Telecommunications of Virginia, Inc. (together, "AT&T").

2 The members of Verizon's cost panel are: Donald Albert, Ralph Curbelo, Joseph Gansert, Nancy Matt, Louis Minion, Mike Peduto, Gary Sanford, and John White.

- The methodology that Verizon has employed in its cost studies in this arbitration and that Drs. Gordon and Shelanski have endorsed is *not* consistent with either this Commission's Total Element Long Run Incremental Cost ("TELRIC") methodology or with generally accepted principles of calculating long-run, forward-looking economic costs.
- Instead, as Verizon has acknowledged in its argument before the U.S. Supreme Court and as another Verizon economic witness has stated in Delaware cost proceedings, TELRIC requires the calculation of forward-looking economic costs based on a "reconstructed local network" that ubiquitously employs the most efficient commercially available technology to meet current and reasonably foreseeable demand, constrained only by the existing locations of the incumbent local exchange carrier's wire centers.
- Verizon's cost studies are based on assumptions about the technology mix that the company will employ over a three-year planning horizon (or, in some cases, the technology mix that the company has employed over the past three years). Verizon's cost studies also reflect to a substantial degree the characteristics of its network architecture determined in a survey of company engineers in the early 1990s and the utilization or "fill" experienced in its current network. The resultant network architecture and technology assumptions are significantly different from—and produce substantially higher costs than—the network architecture and technology

that an efficient carrier would deploy today. Indeed, in own engineering guidelines Verizon publishes for internal use, Verizon explicitly calls for use of less expensive long-run technologies that it downplays in this cost proceeding.

- Because Verizon uses what it calls a "forward-looking-to-current adjustment factor," the expenses assumed in its cost studies also reflect largely embedded expenses. These embedded expense figures do not incorporate reasonably predictable expense reductions, such as the full realization of the cost savings that the company touted before this Commission to justify the mergers of Bell Atlantic with NYNEX and with the post-merger Bell Atlantic with GTE Corporation.
- Contrary to the allegations of Verizon and its economic witnesses, the Commission cannot presume that Verizon's booked expenses and its current network architecture and technology are efficient simply because Verizon Virginia has operated under price cap regulation for a number of years. Price cap regulation does not eliminate the company's incentive to shift costs onto its rivals, as Verizon is clearly attempting to do through, *e.g.*, its proposed Wideband Testing ("WTS") charge. Nor did price cap regulation affect network architecture decisions made prior to the imposition of that regulatory regime and still reflected in the company's current network architecture and technology mix (which by Verizon's own

1 description represents slow and incremental changes to its embedded
2 network design) and the expenses associated with that network design.
3 • Verizon's non-recurring cost studies reflect the network design it expects
4 to have in place at the end of a three-year planning horizon, an even less
5 forward-looking network design than that incorporated in its recurring cost
6 studies. Moreover, the assumption of different network architectures in
7 the Verizon recurring and non-recurring cost studies creates a situation in
8 which Verizon is seeking to recover far more than its *total* forward-
9 looking economic costs. Contrary to the assertions of Drs. Gordon and
10 Shelanski, there is no valid justification in economic theory for computing
11 non-recurring costs on a different basis from recurring costs. Certainly,
12 there is no valid basis for this Commission to permit Verizon to erect such
13 high barriers to entry.
14 The remainder of my rebuttal testimony explains the basis for each of these
15 conclusions.

II. VERIZON HAS MISCONSTRUED AND MISAPPLIED THIS COMMISSION'S TOTAL ELEMENT LONG RUN INCREMENTAL COST ("TELRIC") METHODOLOGY.

Q. WHAT METHODOLOGY DO THE ECONOMISTS TESTIFYING ON BEHALF OF VERIZON ADVOCATE BE USED TO ESTABLISH THE COST BASIS FOR PRICING UNES AND INTERCONNECTION IN THIS ARBITRATION?

A. Both Dr. Gordon and Dr. Shelanski recommend using some variant of what they claim to be forward-looking economic costs.[3] Both witnesses also claim that the approach Verizon has employed to develop the recurring and non-recurring cost studies submitted in this arbitration complies with the TELRIC methodology that this Commission has adopted.[4]

Q. DO YOU AGREE THAT THE COSTS AND PRICES ADOPTED AS A RESULT OF THIS ARBITRATION SHOULD REFLECT FORWARD-LOOKING ECONOMIC COSTS?

A. Yes. As I stated in my direct testimony, I agree that prices for UNEs and interconnection should be based on forward-looking economic cost, and I agree that the proper methodology for estimating forward-looking economic cost in this arbitration is TELRIC. TELRIC is the right methodology because, as this Commission explained when it adopted the TELRIC methodology in its *Local Competition First Report and Order*:

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[3] *See, e.g.*, Gordon Direct at 4; Shelanski Direct at 5.

[4] *See, e.g.*, Gordon Direct at 5; Shelanski Direct at 35.

> Adopting a pricing methodology based on forward-looking, economic costs best replicates, to the extent possible, the conditions of a competitive market. In addition, a forward-looking cost methodology reduces the ability of an incumbent to engage in anti-competitive behavior.[5]

Q. DO THE ECONOMIC PRINCIPLES THAT DRS. GORDON AND SHELANSKI DESCRIBE IN THEIR DIRECT TESTIMONIES COMPORT WITH THE TELRIC METHODOLOGY THAT THIS COMMISSION HAS ADOPTED?

A. No. The economic principles that Drs. Gordon and Shelanski espouse differ in several ways from TELRIC methodology that this Commission adopted in its *Local Competition First Report and Order.* Moreover, their interpretation of forward-looking economic costs seems to differ substantially from the interpretation of the TELRIC methodology they themselves sometimes appear to espouse, as well as the methodology on which Verizon has based its advocacy before the 8th Circuit Court of Appeals and the U.S. Supreme Court, and the interpretation of TELRIC pricing principles that at least one other Verizon economic witness has advanced in prior cost proceedings.

The single most important difference between the Gordon-Shelanski view of forward-looking economic costs and my understanding of the TELRIC methodology lies in the assumptions concerning forward-looking technology and

---

[5] First Report and Order, Implementation of the Local Competition Provision in the Telecommunications Act of 1996, 11 FCC Rcd. 15499 ("Local Competition Order"), at ¶ 679.

network architecture in each approach. Dr. Shelanski states bluntly that, in his opinion:

> An economically correct cost study should not discard the entire existing network and proceed based on the assumption that the firm has instantaneously built a hypothetical, new network from scratch. Rather, a carrier's cost study should be based on the forward-looking costs of deploying an efficient mix of technologies over an economically reasonable planning period (to be discussed below).[6]

Dr. Shelanski's description of "[a]n economically correct cost study" is inconsistent with my understanding of TELRIC principles.

Instead, I understand the TELRIC methodology to require that the forward-looking network architecture assumed in cost modeling be the architecture that would result if the incumbent were to build its network anew today, to serve the total quantity of demand for the functionality of all network elements in the most efficient manner possible and using the most efficient technology currently available for purchase. Under TELRIC, I understand the choice of network architecture to be constrained by taking into account the location of the incumbent's existing wire centers and the location of customer demand. I base this understanding on a plain reading of the Commission's *Local Competition First Report and Order*, which states that:

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[6] Shelanski Direct at 6.

> ...We, therefore, conclude that the forward-looking pricing methodology for interconnection and unbundled network elements should be based on costs that assume that wire centers will be placed at the incumbent LEC's current wire center locations, but that the *reconstructed local network* will employ the most efficient technology for reasonably foreseeable capacity requirements.[7]

The network architecture modeled under TELRIC is not constrained in any other way by the actual technologies or network architecture that the incumbent has chosen to deploy in its existing network. 47 C.F.R. § 51.505(b)(1), which codifies the Commission's rule with respect to technology and network architecture assumptions, makes no provision for consideration of the incumbent local exchange carrier's current network architecture, other than its wire center locations.[8]

Dr. Shelanski's contention that "an economically correct cost study should not discard the entire existing network and proceed based on the assumption that the firm has instantaneously built a hypothetical, new network" is inconsistent with this rule. It is also inconsistent with Dr. Shelanski's own explanation of forward-looking costs at a high conceptual level. Both Dr. Shelanski and Dr. Gordon appear to agree on a definition of "long run" that, in my view, is

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[7] *Local Competition First Report and Order* at ¶ 685, emphasis supplied.

[8] I am informed by counsel that this rule is still applicable to this arbitration, although it is currently under review by the U.S. Supreme Court.

1 consistent with this Commission's TELRIC methodology. According to Dr.
2 Shelanski:

> 3 A long-run analysis is one in which nothing is fixed
> 4 and in which all inputs and costs are assumed to be
> 5 variable. The purpose of a long-run economic
> 6 analysis is to determine what a firm's optimal cost
> 7 structure would be if it could change all aspects of
> 8 its current production technology.[9]

9 Dr. Gordon also acknowledges this standard economic definition of the
10 long run, at least in passing.[10] But both Dr. Shelanski and Dr. Gordon, in practice,
11 fail to accept such fundamental economic concepts and instead support cost
12 models based on the technology Verizon will adopt in an "economically
13 reasonable planning period," not what a firm's optimal cost structure would be if
14 it were unconstrained by its current production technology.

15 At least in its briefs before the U.S. Supreme Court, Verizon appears to
16 share my understanding of the TELRIC methodology and differ with Drs. Gordon
17 and Shelanski. For example, Verizon has argued that "... the FCC concluded that
18 it should set prices by projecting the forward-looking costs of a hypothetical
19 carrier that *always uses throughout its network only the most up-to-date*

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9 Shelanski Direct at 8.

10 Gordon Direct at 11.

1 *technology deployed in the most efficient network configuration.*"[11] In a
2 subsequent brief, Verizon similarly argued that:

> 3 On that theory, the FCC's methodology asked what
> 4 particular elements would cost if the entire
> 5 telephone network were rebuilt from scratch, as
> 6 though writing on a blank slate.... The FCC then
> 7 projected a hypothetical "least cost, (*sic*) "most
> 8 efficient" network that at all times deployed solely
> 9 the latest technology and that always maintained an
> 10 optimal network design.[12]

11 Again, as recently as July of this year, Verizon re-emphasized this interpretation
12 of TELRIC before the Supreme Court when it argued that "TELRIC then piles
13 speculation on top of hypothesis by assuming the instantaneous deployment of an
14 optimal network."[13]

15 Elsewhere, at least one Verizon economic witness has acknowledged that
16 TELRIC principles provide that the network being modeled is not constrained by
17 existing facilities other than wire-center locations. A recent decision by the
18 United States District Court for the District of Delaware cited Dr. William Taylor,
19 Verizon's economic witness in the Delaware state UNE cost proceedings, as
20 having testified that the FCC's *Local Competition First Report and Order:*

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[11] Brief for Petitoners, *Verizon Communications, Inc., et al.* v. *Federal Communications Commission, et al.*, No. 00-511, at 8-9 (April 9, 2000)(emphasis supplied).

[12] Brief for Respondents, *WorldCom, Inc., et al.* v. *Verizon Communications, Inc., et al.*, Nos. 00-555, 00-587 & 00-590, at 5-6 (June 8, 2001)(citations omitted).

[13] Reply Brief of Petitioners, *Verizon Communications, Inc., et al.* v. *Federal Communications, et al.* No. 00-511, at 17 (July 23, 2001).

> says rip every switch out. All of them ... every switch in the network, rip them out. Leave the ... wire center location where they [sic] are. And build the network that you would build today to serve the demand.[14]

Dr. Taylor further testified to his understanding of the "reconstructed local network" requirement described in paragraph 685 of the *Local Competition First Report and Order* as follows:

> I take that to mean that all elements of the local network, including the switches, including the building that surrounds the switch ... all of those elements get rebuilt as if the neutron bomb had flattened them.[15]

I agree with Dr. Taylor on this point. Indeed, in paragraph 685, the Commission specifically defined the reconstructed local network as that based on "the most efficient technology for reasonably foreseeable capacity requirements."

Verizon's characterizations of the TELRIC methodology before the Supreme Court and the prior statements of Verizon's economic witness Dr. William Taylor bear no resemblance to the forward-looking costing methodology that Drs. Gordon and Shelanski have attempted to portray as "the most economically appropriate interpretation of TELRIC"[16] in this arbitration. The Commission is, of course, in the best position to interpret and apply its own

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[14] 80 F. Supp. 2d at 238.

[15] *Id.*

[16] Gordon Direct at 4.

TELRIC methodology. I merely observe and emphasize that the positions taken by Verizon's witnesses in this arbitration have little to do with the TELRIC methodology as I understand it, as frequent Verizon economic witness Dr. William Taylor describes it, and as Verizon itself characterizes that methodology when submitting argument to judicial bodies.

Q. IS THE TELRIC CONSTRUCT OF A "RECONSTRUCTED LOCAL NETWORK" CONSISTENT WITH THE WAY IN WHICH ECONOMISTS CONCEPTUALIZE LONG-RUN COSTS?

A. Yes. The concept of long-run costs that do not depend in any way on a firm's current plant or facilities existed long before this Commission adopted its TELRIC methodology, and the Commission's TELRIC methodology is well-grounded in mainstream economic theory. Indeed, in its *Local Competition First Report and Order*, the Commission cited a textbook definition of long-run costs from the 1977 edition of William Baumol's *Economic Theory and Operations Analysis*: "The very long run is a period so long that all of the firm's present contracts will have run out, its present plan and equipment will have been worn out or rendered obsolete and will therefore need replacement, etc."[17] This textbook definition is one of many explanations of long-run incremental costs in the economic literature.

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[17] William Baumol, *Economic Theory and Operations Analysis* 290 (4th ed. 1977), cited in fn. 1682 to paragraph 677 of the Commission's *Local Competition First Report and Order*.

1 The Commission's textbook definition of long-run costs not only
2 demonstrates that the Commission's TELRIC methodology comports with well-
3 established economic principles, it renders implausible any claim by Verizon that
4 its cost studies, which for the most part consider only those changes that Verizon
5 will implement over a relatively brief "planning horizon," comport with either this
6 Commission's TELRIC methodology or established principles of long-run
7 costing. Indeed, as I will explain in more detail in the answers that follow, the
8 network architecture and technology mix assumed in the Verizon cost studies that
9 Drs. Gordon and Shelanski have endorsed is so different from the architecture and
10 technology that Verizon's own engineering guidelines identify as the company's
11 preferred forward-looking configuration that the Verizon study cannot fulfill what
12 Dr. Shelanski has identified as the purpose of a long-run cost study: "to determine
13 what a firm's optimal cost structure would be if it could change all aspects of its
14 current production technology."[18]
15 For the same reason, Verizon's cost methodology does not have the
16 advantages of TELRIC that this Commission has previously identified. Verizon's
17 methodology does not mirror the costs an incumbent would face in a market in
18 which efficient competitors were using the best available technology. And
19 Verizon's methodology enables the company to shift inflated and inefficient costs

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[18] Shelanski Direct at 8.

1 onto its competitors, even where Verizon can avoid incurring such costs for the
2 provision of local service to its own retail customers.

3 **Q. IN YOUR PRIOR ANSWER, YOU INDICATED THAT VERIZON'S**
4 **COST STUDIES REFLECT A RELATIVELY BRIEF "PLANNING**
5 **HORIZON." PLEASE ELABORATE.**

6 A. Verizon adopts different methodologies for pricing recurring and non-recurring
7 costs, but both reflect a three-year planning horizon. In calculating recurring
8 charges, Verizon assumes a network in which the technological mix mirrors that
9 which Verizon will deploy in its network over the next three years. For example,
10 Verizon assumes the existence of a network in which 57% of the loops employ
11 integrated digital loop carrier ("IDLC") technology because it projects that 57% of
12 the new loop plant it deploys in the next three years will use IDLC. In contrast,
13 Verizon calculates non-recurring costs based on the technological mix that it
14 projects will exist in its network at the end of three years. Hence, Verizon
15 calculates non-recurring costs based on a network with 26% IDLC, not 57%,
16 because Verizon calculates that it will have 26% IDLC in its network at the end of
17 three years if 57% of the new loop plant it deploys in those three years uses
18 IDLC.[19]

19 As I will show below, neither Verizon's method for calculating recurring
20 charges nor its method for calculating non-recurring charges complies with

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[19] Verizon Cost Panel Direct at 325-326.

TELRIC. Both are based on a three-year planning horizon and are inappropriately constrained by Verizon's current technology. Moreover, Verizon's use of different methods to calculate recurring and non-recurring charges further undermines the accuracy of Verizon's cost results.

Q. IS IT CLEAR THAT VERIZON USES A THREE-YEAR PLANNING PERIOD IN CALCULATING RECURRING COSTS?

A. Yes. Although Dr. Shelanski states that Verizon's evaluation of recurring costs is based on those costs that would exist "if the best available technology mix had been fully implemented network-wide,"[20] Verizon's Cost Panel Direct makes clear how Verizon actually calculates recurring costs:

> The inputs Verizon VA used were based on forward-looking assumptions about the network plant mix and about improved operational methods that Verizon VA could achieve using the most efficient currently available technology mix *that it expects to deploy over the next three years—i.e.,* the study planning period. Verizon VA based its recurring cost studies not on the costs that it would in fact incur at the end of the planning period, but instead on the costs that it hypothetically would incur if it were to deploy the forward-looking mix of technology network-wide.[21]

The Cost Panel further explains, "under TELRIC principles, ... the entire hypothetical network would mirror the percentage of new technology that *Verizon*

---

[20] Shelanski Direct at 22.

[21] Verizon Cost Panel Direct at 16, emphasis supplied.

1 *VA* anticipates deploying *over the forward-looking planning period.*"[22] This is
2 also apparent from the example I provided above. Verizon bases its calculation of
3 recurring charges on a network with 57% IDLC because that is the percentage of
4 IDLC that Verizon expects to deploy in its network over the next three years.

5 **Q. IS THE USE OF A THREE-YEAR PLANNING HORIZON**
6 **EQUIVALENT TO A LONG-RUN STUDY?**

7 A. No. The *incremental* technology mix that the company plans to deploy over the
8 next three years—given its embedded base of facilities—is not the same
9 technology mix that an efficient entrant (or Verizon itself) would deploy if it
10 constructed a new network —*even if one assumes that Verizon is in fact pursuing*
11 *the optimal "expansion path" from its embedded base of facilities.*[23] For
12 example, most engineering experts appear to agree that the long-run IDLC
13 technology of choice is GR-303 or Next Generation Digital Loop Carrier
14 ("NGDLC").[24] Verizon claims, however, that for the most part, it will deploy
15 older, TR-008 IDLC over the next three years because its existing digital switches
16 are largely configured for TR-008 switch interfaces.

---

22 Verizon Cost Panel Direct at 325-326, emphasis added.

23 Moreover, the technology mix deployed in the next three years will disproportionately reflect the choices that Verizon makes to serve areas with high growth, which may not be representative of the network as a whole.

24 **BEGIN VERIZON PROPRIETARY *** END VERIZON PROPRIETARY**

Verizon's business decision to deploy the preferred forward-looking technology incrementally over a period of time, rather than to replace all of its facilities today, may be entirely rational. But that business decision has nothing to do with the determination of the long-run economic costs that would form the basis for pricing in a competitive market.

Q. WHY DO YOU SAY THAT VERIZON'S BUSINESS DECISIONS CONCERNING PLANT DEPLOYMENT OVER ITS "PLANNING HORIZON" HAVE NOTHING TO DO WITH THE DETERMINATION OF THE LONG-RUN ECONOMIC COSTS THAT WOULD FORM THE BASIS FOR PRICING IN A COMPETITIVE MARKET?

A. In a competitive market, Verizon would have to match the prices of new entrants that deployed the most efficient technology currently available, even if Verizon itself chose not to deploy that technology in the short run. Therefore, as Dr. Shelanski acknowledges, "even if a carrier does not immediately deploy the latest technology throughout its network, that new technology constrains the economic value of relevant installed equipment."[25] Dr. Shelanski also admits that "the *mere existence* of more efficient technology may reduce the economic value of existing facilities and hence reduce the forward-looking costs of those facilities."[26]

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[25] Shelanski Direct at 11. Unfortunately, as I will explain in more detail in answers that follow, Dr. Shelanski has not applied this theory correctly in his evaluation of Verizon's cost study methodology.

[26] *Id.* at 34, emphasis in original.

1 In other words, the pace at which Verizon chooses to deploy the most
2 efficient technology currently available is irrelevant to the determination of the
3 forward-looking cost of using Verizon's network to provide UNEs and
4 interconnection. The forward-looking economic cost of Verizon's *existing*
5 network cannot exceed the forward-looking economic cost of a reconstructed
6 local network deploying the most efficient technology currently available because
7 the value of the existing plant declines to the level at which the cost of owning
8 and operating the existing network equals the cost of owning and operating the
9 reconstructed network.

10 In theory, the forward-looking cost could be calculated based on costs in
11 the embedded network *taking into account the reduced value of the existing plant*
12 *as a result of all efficiency gains that would be associated with new plant.*[27] But
13 the most straightforward way to measure forward-looking economic costs is to
14 determine the costs of owning and operating a reconstructed local network that
15 optimally deploys the most efficient technology currently available to meet current

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[27] As I discuss further below, this alternative forward-looking cost methodology is workable only if a cost study consistently applies the "revalued embedded network" approach for estimating *all* costs, recurring and non-recurring, using the same network design. Verizon instead chooses a purely embedded network approach for the portion of costs—non-recurring expenses—that is highest based on embedded network architecture and technology assumptions, but does not give competitors the benefit of the lower recurring charges that would result if recurring costs were based on the lower asset value of its embedded plant, with correspondingly reduced costs for depreciation and cost of capital allowances.

1 and reasonably foreseeable demand. That is also the approach the Commission
2 has chosen.
3 Verizon's cost studies do not follow this straightforward approach. Nor
4 does Verizon calculate recurring charges based on the reduced value its plant
5 would have if Verizon faced competition from competitors using the most
6 efficient technology. Instead, Verizon has modeled a variety of different network
7 architectures and technology mixes, none of which corresponds to the most
8 efficient configuration that Verizon could achieve with a rebuilt network
9 optimally deploying the most efficient current technology. As a result, Verizon's
10 cost results overstate the forward-looking economic costs that Verizon will incur
11 to provide UNEs and interconnection to competitors such as AT&T and
12 WorldCom.

13 **Q. ARE THERE ANY OTHER OVERARCHING ERRORS THAT**
14 **AFFECT VERIZON'S FORWARD-LOOKING COST ANALYSIS?**

15 A. Yes. Verizon incorrectly presumes that its existing choices have been
16 economically efficient and that they therefore reflect forward-looking costs.
17 TELRIC principles require a determination of the most efficient
18 technology and the costs of operating that technology. Verizon repeatedly argues
19 that because it acts efficiently, its own past choices are evidence of what
20 technology is most efficient and of the costs that an efficient carrier would incur
21 to operate that technology. For example, Verizon argues that the amount of
22 money it has spent developing OSS should be the basis for determining forward-

1 looking costs of the OSS, that its current utilization rates should be used to assess
2 future utilization rates, and that the time current employees take to perform
3 manual tasks should be used to assess future costs.

4 But, as I have noted already, even if Verizon's choices were efficient given
5 the constraints of its *existing* network, this does not mean they would be efficient
6 choices in a *reconstructed* network. Moreover, Verizon's argument presumes
7 Verizon's past choices were efficient at the time they were made. In many
8 instances, this will not have been the case.

9 A critical link in Verizon's analysis is the assumption that Verizon has
10 made efficient choices concerning the tradeoffs between upgrading existing
11 facilities and installing new facilities. Both Drs. Gordon and Shelanski suggest
12 that the price-cap regime to which Verizon VA has been subject since January
13 1995 has given the company strong incentives to engage in such efficient behavior
14 and to employ efficient engineering practices.[28] There are several reasons to
15 doubt the accuracy of this conclusion.

16 The efficiency incentives of price caps could not have affected Verizon's
17 decisions concerning plant deployed before price caps went into effect in 1995.
18 Thus, a substantial portion of Verizon's existing outside plant, central office
19 buildings and even its switching capacity was undoubtedly put into service before

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[28] Shelanski Direct at 25; Gordon Direct at 4 and 15.

1 the price cap plan took effect in Virginia. Certainly, for example, Verizon must
2 have put in service before 1995 all of the loop plant that now requires the removal
3 of load coils and excessive bridged tap to be "conditioned" for Digital Subscriber
4 Line ("DSL") services. Otherwise, Verizon's supposedly efficient behavior under
5 price caps would have included the violation of industry-wide engineering
6 guidelines (the "Carrier Serving Area" or "CSA" guidelines that Mr. Riolo
7 confirmed have been the standard for more than 20 years)[29] originally adopted to
8 ready the incumbents' outside plant to provide ISDN services.

9 Nor is there any reason to believe that the efficiency incentives of price
10 caps guarantee least-cost decision making in the case of facilities that will wholly
11 or largely be used by Verizon's competitors. For example, there is no reason to
12 believe that the efficiency pressures of price caps have had any effect on the cost
13 inputs for the gateway systems and software modifications for which Verizon
14 seeks recovery through its "access to OSS" charge. Verizon's proposed price for
15 this element would force its competitors to bear all of the "actual" costs that
16 Verizon has allegedly incurred to enable competitors to access the preordering
17 capabilities inherent in Verizon's OSS. The potential entry-inhibiting effects of
18 excessive prices for access to OSS provide Verizon with ample incentive to
19 inflate UNE costs.

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[29] Riolo Direct at 7.

1 Similarly, Verizon proposes to base virtually all of the non-recurring
2 charges at issue in this arbitration on the costs that it allegedly incurs to perform
3 those activities on behalf of competitors, without regard to the costs it incurs to
4 perform similar tasks on behalf of its retail customers. For example, Verizon has
5 inserted manual intervention into the UNE service ordering process that does not
6 exist for its retail customers. It also proposes to base the cost of unbundled loops
7 in large part on costly Universal Digital Loop Carrier ("UDLC") facilities, even
8 where the company would use more efficient GR-303 technology in an Integrated
9 DLC ("IDLC") mode in providing loops to its retail customers.[30] And it seeks to
10 impose the costs of an unnecessary Wideband Testing System ("WTS") on
11 competitors that have not requested such testing capability from Verizon.[31] There
12 is no downside for Verizon in serving competitors in a less efficient manner than
13 it serves retail customers, especially where there is no retail analog. Verizon can
14 continue to employ efficient practices in its retail operations, and reap the direct
15 and indirect financial rewards of doing so. Meanwhile, so long as regulators buy
16 into Verizon's cost estimates (as Drs. Gordon and Shelanski urge), Verizon will
17 not lose money on high-cost operations allegedly undertaken on behalf of
18 competitors and likely will receive direct financial benefits from the decreased
19 competition that results.

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[30] Verizon Cost Panel Direct at 91-92.

1 These anti-competitive incentives for inefficiency, claimed or real, have
2 existed since almost the beginning of the Verizon VA price cap plan. Verizon has
3 been aware since at least February 1996—and likely before, during much of the
4 period that the Telecommunications Act of 1996 ("Act") was being debated in the
5 Congress—that it would have an opportunity to charge its competitors the "cost"
6 of providing UNEs and interconnection services, regardless of the nature of the
7 price-cap regime in place in Virginia or elsewhere. Economists have long known
8 that a regulatory regime that combines some form of cost-based pricing for the
9 products and services sold to captive customers with less stringent controls on
10 prices and profits for services open to competition creates strong incentives for
11 incumbents to shift costs onto the monopoly products and services for which
12 regulators set cost-based prices and to overstate the true cost of providing those
13 products and services. These cost-shifting incentives are all the more powerful
14 when the captive customers in question are also the incumbent's competitors in
15 some or all of the markets in which the incumbent has more pricing flexibility.
16 For all of these reasons, I cannot agree with Drs. Gordon and Shelanski
17 that the Commission should presume Verizon's UNE cost studies reflect efficient
18 technology choices and efficient engineering practices. Quite to the contrary.
19 Verizon has both the incentive and the ability to overstate all of the costs it will

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[31] Verizon Cost Panel Direct at 151-152.