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December 21, 2001

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OFFICE OF THE SECRETARY

Ms. Magalie R. Salas
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

RE: *WorldCom, Cox, and AT&T v. Verizon*
CC Docket Nos. 00-218, 00-249, and 00-251

Dear Ms. Salas:

Enclosed for filing please find 4 public versions of Verizon Virginia Inc.'s ("Verizon VA") Initial Post Hearing Brief in the above-referenced arbitration proceedings.

Verizon VA is also serving 8 copies of the non-public version of the brief, as well as 2 copies of the public version, on Commission staff.

Verizon VA is providing AT&T/WorldCom the proprietary version of the Initial Post Hearing Brief, which contains information proprietary to Verizon VA, pursuant to the protective order issued in this case on June 6, 2001.

Additionally, please be advised that the Revised Cost Studies, filed on November 1, 2001, should be marked as Verizon Exhibit Number 211. This is a correction of our letter of December 20, 2001, in which we inadvertantly requested that the Revised Cost Studies be marked as Exhibit 205.

Please call Scott Randolph (202-515-2530) or me if you have any questions.

Very truly yours,

Lynn R. Charytan
Attorney for Verizon Virginia Inc.

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Before the
FEDERAL COMMUNICATIONS COMMISSION
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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., etc.	)	CC Docket No. 00-249
In the Matter of Petition of AT&T Communications of Virginia Inc., etc.	)	CC Docket No. 00-251

VERIZON VIRGINIA INC.

INITIAL POST HEARING BRIEF

(Public Version)

DECEMBER 21, 2001

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BEFORE THE
FEDERAL COMMUNICATION COMMISSION

POST-HEARING BRIEF
OF VERIZON VIRGINIA INC.

I. INTRODUCTION

The decision the Commission reaches in these proceedings will have a significant impact on the type of competition that develops in the Commonwealth of Virginia and on Verizon Virginia Inc.'s (Verizon VA) ability to provide services and recover its costs.[1/] In order to encourage the development of efficient competition, the Commission's decision must provide accurate signals about the real economic costs of UNE-based competition.[2/] This necessarily requires that UNE prices reflect, as accurately as possible within the constraints of TELRIC, the efficient, forward-looking costs Verizon VA will incur in providing UNEs to CLECs. While the TELRIC regime of a hypothetical, reconstructed network does not permit recovery of Verizon

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[1/] In April 1999, the Virginia Commission set prices for Verizon Virginia's unbundled network elements and interconnection services using this Commission's TELRIC methodology. Those prices are comparable to, and usually lower than, the prices that this Commission in various 271 proceedings has found to be within the zone that a reasonable application of TELRIC would produce. For purposes of these proceedings, that should be the end of the inquiry, at least until the Supreme Court decides whether TELRIC will even be the governing standard in the future. *See Verizon Communications, Inc., et al. v. Federal Communications Commission, et al.,* Case No. 00-511 (2001) (*"Verizon v. FCC"*).

[2/] As the Commission recently argued before the Supreme Court, the goal of the Communications Act's pricing standard, among other things, is to encourage CLECs to enter the market "when economically they should enter, not when economically it'd be wasteful for them to enter." *See Verizon v. FCC,* Tr. of Oral Argument at 63 (Oct. 10, 2001).

VA's true forward-looking costs, it is still important to try to set UNE prices based on correct economic analysis to the maximum extent possible. The reason is straightforward: prices set too far below the incumbent's costs will lead to inefficiently high consumption of UNEs by new entrants and deter efficient investment in alternative facilities.

Accordingly, it is critical that the Commission adopt a model and inputs that reflect, to the extent possible within the constraints of TELRIC, a network capable of being built in the real world and designed to serve the local market in Virginia. The evidence submitted by the parties here clearly establishes that Verizon VA's cost studies provide better measure of the forward-looking costs of such a network, while complying fully with the Commission's TELRIC rules. Indeed, in conformance with those rules, the Verizon VA's model is based upon a hypothetical, reconstructed network, using technology and plant deployment assumptions that will never (and can never) be achieved in the real world. Specifically, Verizon VA's model assumes that its existing network is replaced with one that uses the same mix of technologies network-wide that Verizon deploys in areas where it is doing new construction. And it does so despite the fact that this mix of technologies in fact will not be deployed network-wide for the foreseeable future.

Nevertheless, Verizon VA's studies have at least some tether to reality, reflecting (within the constraints of TELRIC) informed realistic and cost-minimizing decisions regarding the forward-looking network, taking into account the technological and demand uncertainties inherent in providing telecommunications services, particularly in a forward-looking competitive environment. The design, plant, and technology chosen for the forward-looking, reconstructed network underlying Verizon VA's studies are driven by the judgments and assessments made by Verizon engineers and costs analysts based on experience operating a real local exchange

network. Verizon's methodology thus models a network that is actually capable of providing all UNEs and services at the level of quality required for Virginia and by the Virginia Commission.

In addition, Verizon's model appropriately reflects at least some of the risks and uncertainties that play an essential role in investment decisions and costs. To be relevant, any forward-looking model must take into account the fundamental uncertainties that telecommunication carriers have always faced in terms of uncertain demand and changing technology. Carriers contend with demand uncertainty at the most micro-level — dealing with growth, contraction, and churn on every route. And in an industry characterized by rapid technological change, carriers face the risk that a technology that is at the forefront today may be outmoded tomorrow, potentially stranding investment. Although these risks underlie Verizon's reasonable assumptions regarding utilization and structure, even Verizon's model cannot fully take technological risk into account because of the TELRIC requirements that a fully reconstructed "forward-looking" network be assumed.

The Commission also has observed that a TELRIC model must "take[] into account not only existing competitive risks . . . but also risks associated with the regulatory regime to which a firm is subject."[3/] Indeed, while Verizon VA faces existing and ever-increasing levels of competition going forward, it also faces a new type of competitive risk unique to providing UNEs. Verizon VA must build, augment, and maintain its network, in part for CLECs, and then lease pieces of that network at prices that are less than the true costs to provide those items. Moreover, Verizon VA faces the risk that CLECs will abandon the facilities leave it with stranded investment, a risk that is significantly heightened in the case of providing UNEs

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[3/] Reply Brief for Petitioners Federal Communications Commission and the United States, *Verizon Communications, Inc., et al. v. Federal Communications Commission, et al.* at 12 n. 8 (July 2001) ("FCC Reply Brief").

because, through that process, Verizon facilitates the CLECs' transfer of business away from its network. Moreover, Verizon VA also faces a new form of regulatory risk in providing unbundled elements. As demonstrated by these proceedings, Verizon VA faces the added regulatory risk, inherent in the TELRIC regime, that prices will be set based on the assumed (but not real) deployment of supposedly newer, more efficient technologies. To make matters worse, those prices will be re-set every few years (as they are here) based on the assumption of yet another all-new network using supposedly still newer and even more efficient technologies. Thus, at every level, TELRIC results in the incumbent recovering less than its true forward-looking costs or the forward-looking costs of any real world carrier — less investment, less operating cost; and less maintenance cost — all of which dramatically increases the level of risk to which the incumbent is subject.

UNE prices must reflect these risks, not just through the use of realistic inputs for technology and utilization assumptions, but also, as both the Commission and the Petitioners told the Supreme Court, in determining a cost of capital and depreciation lives that fully compensate for these risks. While Verizon VA has sought to recognize these risks in its model, its inputs cannot and do not fully account for them, in part because the TELRIC reconstructed network regime precludes realistic technology and plant deployment assumptions. Similarly, even the depreciation and cost of capital used as inputs in Verizon VA's cost models do not account for the added regulatory risk inherent in an instantaneous replacement model such as TELRIC, and accordingly would have to be adjusted upward to adequately account for this added risk. Accordingly, Verizon's cost model, although the most appropriate choice in these proceedings given the constraints of the TELRIC regime, still undervalues the very real regulatory risks faced by Verizon and significantly understates appropriate forward-looking costs.

The alternative model proposed in these proceedings by AT&T/WorldCom — the Modified Synthesis Model (MSM) — understates costs beyond the realm of credulity and is wholly inappropriate for use in a UNE cost proceeding. While AT&T/WorldCom seek to portray their approach as an adoption of the Commission's model for analyzing UNE costs (with certain major modifications),[4] the Commission has made clear in the past that the Synthesis Model is not a UNE costing tool. AT&T/WorldCom's changes to the model, while conveniently reducing the resulting costs below those calculated by the Commission for Virginia in the universal service context, do nothing to change that. But this is of no evident concern to Petitioners, whose entire approach is grounded on one notion: that this case is an opportunity for the Commission to lower rates, sending a message to the states that have, in AT&T/WorldCom's view, gotten TELRIC wrong. (*See* Tr. at 2792.) In fact, Petitioners apparently believe *this* Commission has gotten TELRIC wrong in the past as well, as they propose here a statewide average loop rate of *$6.48* — almost $8.00 *less* than the rates the Commission recently found acceptable in Texas, New York, and Pennsylvania and almost $9.00 less than rates the Commission found acceptable for Oklahoma and Missouri.[5] It is inconceivable that costs in

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[4] *WorldCom, Cox and AT&T v. Verizon Virginia, Inc.*, CC Docket Nos. 00-218, 00-249 and 00-251, Transcript of Hearing ("Tr.") at 2793-2797 ("We have abandoned putting in our own cost model. We have put in yours.").

[5] Arbitration Award, Petition of Rhythms Links Inc. for Arbitration to Establish an Interconnection Agreement with Southwestern Bell Telephone Co., Docket No. 20272 at 88 (Pub. Util. Comm'n of Tex., Nov. 30, 1999) ("Texas § 271 Order"); Memorandum Opinion and Order, Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Kansas and Oklahoma, 16 FCC Rcd 6237, 6279 ¶ 86 n. 253 (January 22, 2001) ("Kansas-Oklahoma § 271 Order"); Memorandum Opinion and Order, Application of Verizon Pennsylvania Inc., Verizon Long Distance, Verizon Enterprise Solutions, Verizon Global Networks Inc., and Verizon Select Services Inc. for Authorization To Provide In-Region, InterLATA Services in Pennsylvania, 16 FCC Rcd 17419

Virginia are so much lower than those in these other states that UNE rates should drop by more than half. And it is ironic that, at the same time as WorldCom is telling the Supreme Court that loop costs have *increased*,[6] it has asked this Commission to decrease loop rates by approximately $7 from the rates set by the Virginia commission.

Petitioners have provided no basis for their extremely low UNE rate proposals or for the inputs and assumptions they use to arrive at those rates. Their proposed rates are so low that the only economically rational means of entering the Virginia telecommunications market would be to use Verizon VA's facilities, rather than any sort of facilities-based entry. Notwithstanding AT&T/WorldCom's insistence to the contrary (AT&T/WCom Ex. 20 at 5), such facilities-based competition is the long-term, preferred outcome under the 1996 Act and Commission policy. As Chairman Powell has made clear repeatedly, the Commission's goal is for CLECs, "[w]herever and whenever possible [to] build facilities."[7] Indeed, the Chairman just recently reiterated that while "other methods of entry are useful interim steps to competing for local service, . . . Commission policy should provide incentives for competitors to ultimately offer more of their

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(September 19, 2001) ("Pennsylvania § 271 Order"); Memorandum Opinion and Order, In the Matter of Application by Bell Atlantic New York for Authorization Under 271 of the Communications Act to provide In-Region, InterLATA Service in the State of New York, 15 FCC Rcd 3953 (Dec. 22, 1999) ("New York § 271 Order"); Memorandum Opinion and Order, Joint Application by SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc d/b/a Southwestern Bell Long Distance Pursuant to Section 271 of the Telecommunications Act of 1996 to Provide In-Region, InterLATA Services in Arkansas and Missouri, 16 FCC Rcd 20719, 20749 ¶ 59 (rel. Nov. 16, 2001) ("Arkansas-Missouri § 271 Order").

[6] Reply Brief for Petitioners WorldCom, Inc., et al. *WorldCom, Inc., et al. v. Verizon Communications, Inc.*, et al. at 5-6 (July 23, 2001) ("WorldCom Reply Brief").

[7] FCC Commissioner Michael K. Powell, "Local Competition. . .CLECs In the Midst of An Explosion" before the Association of Local Telecommunications Services, Las Vegas, Nevada (Dec. 2, 1998).

own facilities. . . . This would . . . provide the means for truly differentiated choice for consumers, and provide the nation with redundant communications infrastructure."[8] Without a doubt, the value of a reliable network, the concern for diversity of infrastructure, and the need for independent facilities-based carriers have taken on even increased significance and urgency in recent months.[9]

Nonetheless, in contrast to Verizon VA's approach, AT&T/WorldCom expressly assert that the real-world efficient rate of network replacement and expansion is "irrelevant" to the determination of Verizon VA's costs, and they instead devise an approach aimed exclusively at producing lower costs, regardless of their validity. (AT&T/WCom Ex. 11 at 17-18.) Their cost methodology is based on an idealized, scorched-node network that is instantaneously and successively rebuilt from scratch every few years and that takes a static view of technology and demand so as not to have to account for the inevitable uncertainties resulting from those

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[8] FCC Chairman Michael K. Powell, "Digital Broadband Migration" Part II, Press Conference (October 23, 2001). The Commission made this same point before the Supreme Court, noting that Congress understood UNE-based competition to be a bridge to facilities-based competition, so that new entrants could "develop the expertise, capital, and customer base that they might need in order to support *extensive construction of new facilities*." FCC Reply Brief at 9 n. 6 (emphasis added).

[9] Chairman Powell's remarks on the need for redundancy reflect in part the fact that when Verizon's facilities were damaged on September 11th, the numerous CLECs that use Verizon's West Street facilities likewise were affected. Thus, only facilities-based carriers that were not dependent on those Verizon facilities were in a position to provide service to disconnected customers. *See* "Exposed Wires: Trade Center Attack Shows Vulnerability of Telecom Network," by Shawn Young and Dennis K. Berman, *The Wall Street Journal* (Oct. 19, 2001) at A1; "U.S. Recovery: Telecoms Forge Ahead with Restoration at Damaged Sites," by Jennifer Jones, *InfoWorld.com* (Sept. 18, 2001) (describing impact on CLECs from Verizon outage); "Telecom Shudders, Survives, Looks Ahead," by Jerry LaMartina, Jill Bradley and Mark H. Reddig, *The Ipsite.com News* (http:/www.theipsite.com/NewsJump.asp?Show Preview+Y&top+Y&contented=21474499510/19/2001) (noting that since the 11th, "the move toward redundancy has become a central one . . . .it would have been easier if we had further redundancy . . . carrier and network diversity.").

variables. As Verizon explained at the hearing and in its testimony, this extreme version of TELRIC is economically incorrect and does not represent the long run, cost-minimizing strategy any real world carrier would use in designing its network. Indeed, Petitioners concede that their interpretation is entirely divorced from the "entirely rational," efficient decisions that Verizon VA would make in designing and operating its network in Virginia in the future.

Moreover, the AT&T/WorldCom MSM, while producing ostensibly lower costs than Verizon VA's model, does so *not* because the network it models is any more "forward-looking;" for example, the MSM network assumes far more copper, and less fiber, than Verizon VA's model assumes. Rather, the low UNE rates produced by the MSM result from various inconsistent and indefensible input assumptions and methodological approaches. For instance, while AT&T/WorldCom's approach is generally premised on the existence of a hyper-competitive market in which new entrants can instantaneously enter with ubiquitous networks, they inexplicably assume a monopoly environment when calculating the cost of capital and depreciation lives. Petitioners' own economist conceded that this obvious inconsistency was unjustified. (Tr. at 3202.) Even apart from this its inconsistency, the MSM entirely fails to account for the drastic impact on cost of capital and depreciation that would be involved in the successive wholesale network replacement model it hypothesizes.

In fact, for *each* of the key inputs that drives costs, Petitioners used hypothetical figures and assumptions that appear to have been selected based on one criterion only: whether they produce lower costs. Validity, in contrast, was apparently not a constraining consideration. Thus, with respect to line counts, structure sharing, plant mix, utilization, and loop investment — to name but a few of the more critical inputs — Petitioners used values that drastically reduce the calculation loop costs, but bear no relationship to the reality of a functional network. When these

and other inputs and assumptions are corrected, the MSM begins to produce costs that are similar to, or even higher than, those in Verizon VA's studies.[10] Clearly then, the key is to ensure that the inputs used in modeling UNE costs reflect reality to the extent possible under TELRIC; regardless of the model, fantasy inputs will, not surprisingly, produce fantastic results.

It is critical that the Commission determine the values for these key inputs correctly. Relying on the inputs used in the MSM notwithstanding a complete absence of factual support or validation produces vastly understated and intrinsically flawed costs that bear no relationship to the costs that any carrier would or could incur to operate a real network capable of serving customers in Virginia. Indeed, the MSM produces costs so low that no plausible story can be told to explain how even a hypothetical carrier in Virginia could *ever* achieve them. For example, while Verizon VA invested about $2.3 billion in its plant between 1996 and 2000 alone, the MSM calculates that it would require only $2.9 billion — *i.e.*, just $600 million more — to construct Verizon VA's *entire* network from scratch on a forward-looking basis. (VZ-VA Ex. 108 at 39.) The MSM's costs reflect not efficiency, but hyperbole.

Ultimately, Verizon VA's studies alone present the only appropriate basis in these proceedings for estimating TELRIC costs for a forward-looking local exchange network in

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[10] For example, correcting the MSM's line counts so that only narrowband demand is considered when costing out the narrowband network would raise the costs produced by the MSM by over 40%. Correcting the unrealistic and unattainable structure sharing assumptions in the MSM to reflect even the Commission's standard inputs, and changing the per pole investment to Verizon's experienced Virginia-specific value, would raise the MSM's average loop cost by 22%. Using Verizon VA's outside plant structure mix, which is an aggressive, lower cost mix than any new entrant could achieve today, would increase the MSM's average loop cost by 14%. And changing the MSM's utilization factors to reflect achievable, efficient levels of utilization would increase the MSM's average loop cost by 8%. (*See* VZ-VA Ex. 204.) Myriad other inputs and assumptions in the MSM, which similarly lack any grounding in reality, likewise undermine the validity of the model's results for estimating TELRIC UNE costs for Verizon VA.

Verizon VA's territory. While a TELRIC study cannot produce true forward-looking costs, it should at least produce costs that reflect some measure of reality. The MSM fails this test. The Commission should reject it and rely on Verizon VA's studies and its more informed inputs in deciding the UNE rates in these proceedings.

II. ECONOMIC PRINCIPLES

A. To the Extent Possible Under TELRIC, Verizon VA's Model Assumes Rational and Efficient Forward-Looking Behavior.

Verizon VA and AT&T/WorldCom have presented two starkly different visions of TELRIC. Verizon VA's study methods are designed to comply with the most economically appropriate interpretation of TELRIC — one that is, to the extent possible, rooted in the rational choices that Verizon VA, acting efficiently over the long run, would make going forward.[11/] Verizon VA's model "reconstructs" the network with a hypothetical forward-looking technology mix that goes beyond what will actually be in place in Verizon VA's network at any point in the foreseeable future. At the same time, Verizon VA's model assumes network characteristics and inputs that reflect the most efficient possible operation of its network given the technological and demand uncertainties a real-world carrier must face and the constraints of TELRIC principles. Although Verizon VA's model *understates* its true forward-looking costs in order to comply with TELRIC, setting UNE prices based on Verizon VA's model will send more appropriate economic signals to CLECs as to when to rely on UNEs and when to invest in their own facilities than the model proposed by Petitioners.

[11/] This issue is discussed throughout Verizon VA's testimony, including VZ-VA Ex. 101, VZ-VA Ex. 102, VZ-VA Ex. 110, VZ-VA Ex. 111, VZ-VA Ex. 117.

Indeed, AT&T/WorldCom have advanced what can only be characterized as an extreme version of TELRIC. Under Petitioners' vision, each time TELRIC is applied, the Commission would imagine a brand new network built instantaneously and ubiquitously using the most recently developed technologies without regard to either rational investment decisions made in the past *or* future possibilities for additional technological change. Indeed, AT&T/WorldCom expressly argue that what they concede to be "entirely rational" choices by Verizon VA are "irrelevant" to the determination of its forward-looking costs. (AT&T/WCom Ex. 11 at 17.) Moreover, while their own economic witness, Terry Murray, admitted in testimony that a TELRIC-compliant model should make consistent assumptions concerning the state of competition (Tr. at 3202), AT&T/WorldCom do precisely the opposite: while they purport to justify their assumptions concerning instantaneous and ubiquitous deployment of new technologies as reflecting the conditions of a competitive market, when it comes to estimating the cost of capital and depreciation lives, they switch back to assuming a monopolistic world. As a result, Petitioners fail to account for the risks in a competitive market, let alone the regulatory risks inherent in TELRIC.

Ultimately, only Verizon VA has interpreted and applied TELRIC in the most economically appropriate manner. While AT&T/WorldCom insist that their approach is mandated by the Commission's TELRIC rules, the Commission has recently said otherwise.[12/] Of the two interpretations presented to the Commission here, Verizon VA's position is unquestionably more economically correct and should be adopted.

12/ *See, e.g.*, FCC Reply Brief at 4 (TELRIC is intended to be "the best approximation of an incumbent's forward-looking cost of providing network elements to itself and others, if the incumbent acted rationally in a competitive market.").

1. Verizon VA's Studies Are Aggressively Forward-Looking.

Verizon VA's cost studies are forward-looking because, within the constraints of TELRIC, they estimate the costs that Verizon VA would incur if it expanded and replaced its entire network over time. Indeed, Verizon VA's recurring cost studies are significantly *more* forward-looking than economic principles would require and therefore understate its forward-looking costs: Verizon VA bases its recurring cost estimates not on the network configuration that *will* be in place at the end of a foreseeable planning period, but the technology mix that *would* be in place if its forward-looking engineering guidelines for the deployment of new facilities had been fully implemented network-wide. (*See, e.g.*, VZ-VA Ex. 101 at 21-23; VZ-VA Ex. 102 at 17-19; VZ-VA Ex. 117 at 22-23.) Given inevitable changes in technology and demand, this snapshot of an "ideal" network likely will never actually be achieved.

For example, as described below in Part IV, below, Verizon VA assumed that its entire network would be "reconstructed" so that fiber feeder were used in place of the existing copper feeder in those instances in which fiber would be the cost optimizing approach for new construction (*i.e.,* on longer or more concentrated routes). This analysis and the replacement assumption were made without any regard to the existing loop plant in Verizon VA's network; indeed, there is simply no realistic prospect whatsoever that Verizon VA would achieve the copper-fiber mix that it assumes for its "model network." Nonetheless, Verizon VA's cost studies assume that the current loop facilities, which are primarily copper-fed, do not exist and assesses costs as if the more efficient fiber systems were in place. So even though Verizon VA's network has only 33% fiber-fed loops today and is expected to have 37% at the end of a three-year planning period, the study assumes that the forward-looking network would have 82.3%. (*See* VZ-VA Ex. 101 at 22-23; VZ-VA Ex. 122 at 76, 84.)

In addition, rather than assuming its existing technology mix with respect to its fiber-fed loops, Verizon VA generally estimated the technology mix that would be deployed on a going-forward basis when it incrementally builds new facilities or replaces existing ones. Verizon VA determined what mix of technologies it would deploy in these situations, taking into account its recent deployment experience, current engineering guidelines, and anticipated technology and other trends over a three-year study period. Then it developed costs under the assumption that this mix is deployed *network-wide* (even though that will not in fact be the case in any foreseeable period). In this sense, Verizon VA's model does use a "reconstructed local network."[13/] Once again, the difference from Verizon VA's expected forward-looking network is dramatic: although Verizon VA has only 23% integrated digital loop carrier technology today (none of which is GR-303) and expects to have 26% at the end of a three-year planning period, the studies assume 57.6% of this technology (including 10% GR-303). (*See infra* Part IV.)

Moreover, there is every reason to believe that Verizon VA's technology choices and engineering guidelines for *new construction* — which inform the technology mix assumed in Verizon VA's studies — are efficient. (*See* VZ-VA Ex. 101 at 25; VZ-VA Ex. 117 at 25-26.) Verizon VA has been subject to both state and federal price cap regulation since 1994, as well as other efficiency incentives such as those resulting from the steady increase in competition,

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[13/] This approach is consistent with the Commission's mandate that TELRIC studies be based on the most efficient technology currently being deployed in the incumbent's network. First Report and Order, *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 FCC Rcd 15499, 15848-49 ¶ 685 (1996) (*"Local Competition Order"*). Indeed, as the Commission recently explained to the Supreme Court, TELRIC is intended to model costs based on "equipment that carriers are already using to upgrade and expand their networks." FCC Reply Brief at 6. That is precisely the approach Verizon has taken here.

particularly in advanced and data services. Indeed, AT&T/WorldCom concede that Verizon VA's choices may well be "*entirely rational.*" (AT&T/WCom Ex. 11 at 17.)

AT&T/WorldCom assert, however, that even if Verizon VA's plans are rational and efficient for itself, they do not reflect the allegedly more efficient choices a new entrant building a ubiquitous network could make today.[14/] (AT&T/WCom Ex. 11 at 17-18.) This response fails on at least two levels. First, Verizon VA's investment decisions can only be deemed "entirely rational," as Petitioners concede they are, if they are the most cost-minimizing and efficient. (*See, e.g.*, VZ-VA Ex. 117 at 12-13.) And, in "constructing" the forward-looking network, Verizon VA's choices include those available to the hypothesized new entrant, such as buying a new technology to replace or upgrade an existing facility or to use in new construction. If Verizon VA has rationally chosen not to exercise such options, that is because its alternative choice is more efficient.[15/] (VZ-VA Ex. 117 at 15-16.) Second, *Verizon VA's* efficient costs going forward are the economically correct basis for determining UNE prices.[16/] Basing UNE

[14/] Of course, as discussed below, in positing that new entrants would have lower-cost options than Verizon VA's rational choices, AT&T/WorldCom conveniently ignore the significantly higher costs of capital and depreciation associated with their assumption of instantaneous, ubiquitous entry — as well as the higher construction, right-of-way, and other such costs that a new entrant building an instantaneous or even incremental network would face today.

[15/] AT&T/WorldCom's argument that Verizon VA's consideration of compatibility with other network equipment affects its investment choices (AT&T/WCom Ex. 11 at 25-26), while true, does not render its decisions any less rational or efficient. The forward-looking costs of providing UNEs cannot be legitimately determined by considering each facility in isolation. If use of one facility would increase the costs of a related facility, that is a factor that a rational, efficient carrier necessarily must take into account. Indeed, the Commission itself noted that TELRIC bases prices on "technology that is compatible with the existing infrastructure." *Local Competition Order* at 15848-49 ¶ 685.

[16/] *See, e.g.*, *id.* ("This benchmark of forward-looking cost and existing network design most closely represents the incremental costs that incumbents actually expect to incur in making network elements available to new entrants."); *id.* at 15813 ¶ 622 ("With respect to prices

prices on those costs is the only means of sending the right economic signals to the CLECs — if they can invest in their own facilities at less than Verizon VA's efficient costs of providing those facilities, they should do so. (*See* VZ-VA Ex. 101 at 5; VZ-VA Ex. 102 at 6-8; VZ-VA Ex. 110 at 1-2.) Thus, the "entirely rational" decisions of Verizon VA are the economically correct touchstone for determining the UNE rates.

AT&T/WorldCom's charge that Verizon VA's studies are based in part on embedded costs (AT&T/WCom Ex. 11 at 16) is similarly unavailing. First, using an existing facility instead of buying a new one does not render the costs of that facility embedded. As Dr. Shelanski explained, "[i]t is important to distinguish embedded costs of the existing network from the costs of using existing network facilities on a forward-looking basis." (VZ-VA Ex. 101 at 20.) So long as continued use of an existing facility is efficient, the costs of using that facility (including its cost of capital and depreciation) are forward-looking, not embedded. (VZ-VA Ex. 101 at 20-21.) Second, the fact that Verizon VA's cost model incorporates some existing network characteristics such as routes, fill factors, and structure types does not make its methodology embedded because, as explained in greater detail below, these characteristics are decidedly efficient and are inherently forward-looking. In fact, there is every reason to believe that these characteristics represent the best possible representation of how a carrier could efficiently provide service in Virginia, taking into account real-world constraints that an entirely

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developed under the forward-looking, cost-based pricing methodology, we conclude that incumbent LECs' rates for interconnection and unbundled elements must recover costs in a manner that reflects the way they are incurred."); FCC Reply Brief at 6 ("The costs measured by TELRIC are . . . those of the incumbent itself.").

hypothetical model cannot hope to capture.[17] (*See* VZ-VA Ex. 102 at 15-16, 23-25; VZ-VA Ex. 117 at 25-26, 28-32.)

AT&T/WorldCom's fundamental premise appears to be that if a facility or network characteristic is the same as in the existing network, it represents an embedded approach. That is simply wrong. So long as that facility or characteristic is the product of efficient investment in and operation of the network going forward, modeling its costs is entirely consistent with a forward-looking approach.

2. Verizon VA's Studies Model Long-Run Costs.

Verizon VA's studies model long-run costs in a manner that, to the extent TELRIC permits, accords with economic principles. While *allowing* for the possibility that all inputs (except wire center locations) might be varied, Verizon VA did not assume that all inputs would *in fact* be instantaneously varied. Instead, Verizon VA made judgments based on cost analysis, experience, and other factors as to whether it would be efficient to vary a particular input. AT&T/WorldCom, by contrast, turn the concept of a long-run study "upside down" by assuming mandatory, immediate deployment of new technology rather than allowing long-run cost minimization to determine when facilities should be replaced. (VZ-VA Ex. 117 at 11.) While such an approach may minimize costs in the very short-run in a hypothetical static world and thereby further Petitioners' goal of obtaining the lowest possible UNE costs in this proceeding, it would ironically cause a real-world carrier to incur much *higher* costs over the long run. As Dr. Shelanski explained:

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[17] Ironically, Verizon VA's use of existing characteristics actually lowers costs by, for example, giving CLECs the benefit of the rights-of-way costs Verizon VA incurred in building its network as compared to the *higher* costs of securing such rights-of-way today.

> There is no input beyond wire centers that is constrained and impermissible for consideration for change in Verizon's model. That's what defines the long run, not that the inputs actually change. But that the analysis permits for the possibility that they change and for a calculation be able to be made, that either we change or we don't change, depending on what is most efficient. The goal of the long run economic analysis is to see what is efficient over time, not to see how much you can change over time.

(Tr. at 2899-900; *see also* VZ-VA Ex. 101 at 8; VZ-VA Ex. 117 at 7-11.)

Thus, AT&T/WorldCom are fundamentally mistaken when they assert that a long-run study requires Verizon VA to "*assume away[]*" its existing facilities and instantaneously replace them all with today's least-cost technologies. (AT&T/WCom Ex. 8 at 46.) Rather, existing facilities are "part of your choice set going forward." (Tr. at 2907 (Shelanski).) "Before an existing input is varied, the firm must be able reasonably to predict *how* that input should be assumed to change in the model; *i.e.*, it must be able rationally to calculate what an input should vary *to*." (VZ-VA Ex. 101 at 8.) Contrary to AT&T/WorldCom's apparent belief, the answer to that question is not simply for a firm to assume that all of its current inputs are replaced with what appears to be the best or least cost technology today, even if such an approach might produce lower short-run costs in a hypothetical static world. Indeed, as Dr. Shelanski explained, a model that just assumes a carrier's network is completely replaced with the newest technologies is "not a long run analysis at all. That's slices of sausage. Those are extreme sequential short run analyses. A long run analysis looks over time. The pace of replacement is very important to a long run analysis, and you're always moving towards the efficient optimum." (Tr. at 2905-06.)

In a dynamic industry like telecommunications, uncertainty about future demand and technological developments mean that instantaneous and ubiquitous replacement is *not* the cost-minimizing strategy over the long run. A carrier such as Verizon VA must take into account that

future changes in technology or demand conditions could render today's investments — even if they consist of deploying the most up-to-the-moment technology — obsolete sooner than anticipated. Accordingly, a carrier minimizes its costs over the long run through incremental changes and investments, taking appropriate account of its existing facilities. An efficient firm accordingly is likely to employ a number of technologies of differing vintages and characteristics at any given point in time. (*See* VZ-VA Ex. 101 at 6-12; *see also* Tr. at 3049 ("[E]xisting firms have assets in place that have forward-looking value, and you throw them away, and you act inefficiently, and you have higher long run costs if you ignore them.") (Shelanski).)

Thus, for example, although the switches assumed in Verizon VA's study reflect the latest available switching equipment that Verizon VA expects to deploy, Verizon VA does not attempt to estimate the cost of an instantaneous, one-time replacement of all of the switches in its network with only new switches perfectly-sized to current demand. Rather, Verizon VA's recurring cost study methodology is designed to capture the costs of *incrementally* deploying throughout its network the mix of switching technology that Verizon VA expects to deploy going forward, including growth additions and other incremental upgrades. This approach reflects a long-run and realistic approach to the deployment of switching plant. (*See* VZ-VA Ex. 101 at 24-25; VZ-VA Ex. 102 at 21-22; VZ-VA Ex. 117 at 32-34.)

AT&T/WorldCom are also incorrect in suggesting that Verizon VA's use of a three-year planning period is inconsistent with a long-run study. As explained above, Verizon VA used the three-year planning period to determine a forward-looking mix of some technologies, but then assumed that mix was deployed network-wide. The three-year period also was used to determine productivity and inflation adjustments. Verizon VA's choice of a three-year period was eminently reasonable. Uncertainty concerning factors such as changes in technology and