Before the
Federal Communications Commission
Washington D.C. 20554

In the Matter of	)	
	)	
Review of the Commission's Rules Regarding	)	
the Pricing of Unbundled Network Elements	)	WC Docket No. 03-173
and the Resale of Service by Incumbent Local	)	
Exchange Carriers	)	
	)	
	)	
	)	

REPLY DECLARATION OF HOWARD SHELANSKI AND TIMOTHY TARDIFF SUBMITTED IN SUPPORT OF THE REPLY COMMENTS OF THE VERIZON TELEPHONE COMPANIES

1. We submit this reply declaration in further support of Verizon's comments in this proceeding and in response to the comments submitted by other parties. We previously submitted declarations in this proceeding, and our qualifications are set forth there.

2. In this reply declaration we respond to CLECs such as AT&T and MCI, which take the position that the Commission should largely retain its current TELRIC rules. The parties for the most part agree that UNE prices should be based on economic, forward-looking costs. The critical difference between them lies in how to estimate those costs: the CLECs propose a model that sets costs based on a hypothetical network that instantaneously and ubiquitously contains the newest technologies and the most efficient network configuration, while Verizon suggests a model that is based on the incumbent's existing network, taking into account how it is expected to evolve in a reasonable planning period. As we explain here, the arguments presented by the CLECs in support of the first approach are implausible and require making assumptions about the telecommunications market that are facially untrue. Conversely, the CLECs provide no basis to reject Verizon's proposed reform of the UNE pricing rules under which rates would be based

on the incumbent's actual forward-looking costs, determined by looking to its out-of-pocket expenses, the mix of facilities it will use to provide service, and the real-world characteristics of its operational network.

3. The Commission should adopt an approach for determining economic forward-looking costs that meets three basic criteria. First, any model must be based on realistic assumptions about how competition in the telecommunications market works and how rational efficient competitors will behave, taking into account that such markets are characterized by factors such as sunk costs, technological change, and demand uncertainty. Second, in order to ensure that the UNE rules permit the development of competition as a process and do not try to predict (or dictate) an assumed competitive end result, UNE prices should send correct economic signals that preserve efficient investment incentives for all carriers. This is particularly true given the rapid growth in intermodal competition. Third, and relatedly, UNE rates should fairly compensate incumbents for their actual forward-looking costs for providing UNEs. By these criteria, it is clear that TELRIC is fundamentally flawed and should be reformed so that UNE prices are based on the incumbent's actual forward-looking costs.

I. CONTRARY TO CLEC CLAIMS, TELRIC IS FUNDAMENTALLY FLAWED.

4. As we previously explained, TELRIC is flawed because it is based on a hypothetical network that is built from scratch (with the exception of the location of wire centers) and that contains only the most efficient technologies in an optimal configuration. Because no real-world carrier could achieve such efficiencies, TELRIC produces UNE rates that are lower than the forward-looking costs of an ILEC (or any other carrier). *See* Declaration of Howard Shelanski Submitted in Support of the Comments of the Verizon Telephone Companies ¶¶ 4-5 (Dec. 16, 2003) ("Shelanski Decl."); Declaration of Alfred E. Kahn and Timothy Tardiff Submitted in

Support of the Comments of the Verizon Telephone Companies ¶¶ 18-20 (Dec. 16, 2003) ("Kahn/Tardiff Decl.").

5. AT&T and MCI assert that this description of TELRIC sets up a "straw man."[1/] They allege that they never advocated that ILECs (or other firms) would instantaneously deploy completely new technology in an optimally designed network.[2/] But, they claim, the ILEC's forward-looking costs are the same as those of a carrier with such a putative network. In particular, they insist that "the advent of improved technology will cause older assets to be *revalued*" immediately, whether or not such a network could exist. AT&T Comments at 22 (emphasis in original); Declaration of Robert D. Willig on Behalf of AT&T Corp. ¶ 27 (Dec. 16, 2003) ("AT&T Comments, Willig Decl.); *see also* MCI Comments at 16-17. Professor Willig cites Professor Baumol's example in which a machine costs $100 and then a new machine with the equivalent functionality becomes available at a cost of $75. AT&T Comments, Willig Decl. ¶¶ 29-30; *see also Pricing Based on Economic Cost: The Role and Mechanisms of TELRIC*

[1/] Comments of AT&T Corp. at 22-25 (Dec. 16, 2003) ("AT&T Comments"); Comments of MCI at 15-17 (Dec. 16, 2003) ("MCI Comments"); Declaration of Michael D. Pelcovits on Behalf of MCI at 14-16 (Dec. 16, 2003) ("MCI Comments, Pelcovits Decl.").

[2/] *Id.* In fact, however, in asking the Commission to adopt TELRIC in 1996, the CLECs described their underlying theory as though a competing or entering carrier could have such a network:

> TSLRIC is based on the costs an *efficient, cost-minimizing* competitor would incur—i.e., the costs of assets that are optimally configured and sized with current technology and efficient operating practices . . . . Proper measures of TSLRIC also must exclude the costs of inefficient design or operations. This principle follows from the competitive standard because excess costs cannot be recovered in competitive or contestable markets. New entry in such markets can occur at any time, instantly, and in sufficient scale to capture all the incumbent's volume.

Comments of AT&T, Affidavit of William J. Baumol, Janusz A. Ordover, and Robert D. Willig, CC Docket No. 96-98, ¶¶ 9-10 (May 16, 1996) ("Baumol, Ordover, and Willig Affidavit").

(Dec. 2003), essay by William J. Baumol 6-7 ("AT&T Comments, Baumol Essay"). The CLECs assert that the value of the older machine is immediately reduced to $75. AT&T Comments, Willig Decl. ¶¶ 29-30. They then claim that this example applies to the costs of assets in a telecommunications network.

6. To explain why this would occur, the CLECs assert that telecommunications should be treated as a perfectly "contestable" market. AT&T Comments at 22-23; 90-91; AT&T Comments, Willig Decl. ¶¶ 24-31. AT&T describes this framework as resting on the assumption that the incumbent "faces the potential of instantaneous and frictionless entry by a potential competitor employing the most efficient technology." AT&T Comments, Willig Decl. ¶ 25; *see also id.* ¶ 23 (explaining that contestability assumes "costlessly reversible entry"). Thus, according to the CLECs' logic, when a new lower-cost technology emerges, a new entrant would be poised to enter the market instantaneously and costlessly with a ubiquitous network that utilizes this new technology, and the incumbent therefore would have no choice but to lower its price to match the costs of this newly optimal network.

7. We do not, of course, contest that the development of a newer technology can have a constraining effect on the value of an older technology. But we disagree with the CLECs' assumption that the value declines instantaneously and automatically to the cost of the newer technology, particularly where the issue is the cost of an asset that is an input to complex networks. The basic problem with this assumption is that it is not how the telecommunications market actually operates. Telecommunications is not a "perfectly contestable market" with costless entry and exit. To the contrary, it is characterized by long-lived capital assets, high fixed and sunk costs, and substantial transaction costs in a market with ever-changing technology and demand conditions. Thus, entry and exit from the telecommunications market are not

"costless" or "frictionless." Professor Willig's example could be applicable for firms with complex production processes only if the perfect competition or contestability assumption made by the CLECs holds. Only in such a theoretical market could a firm enter (or credibly threaten to enter) with a new network fully incorporating the new $75 machine (and compatible equipment in the rest of the network). Because the actual (or conceivable) competitive characteristics of the telecommunications market do not comport with a model of perfect competition or contestability, no firm would or could instantaneously enter with a new network containing the newest technologies in an optimal configuration. Rather, *all* carriers introduce new technologies gradually, accounting for, among other things, the extent to which they are compatible with existing configurations and operations, and they accordingly will have a mix of technologies of different vintages in their networks. Put another way, the mere availability of a new technology does not automatically and instantaneously lower the costs/prices of all goods or services that use that technology in the production process. Rather, any effect depends on when and how that new technology is incorporated into the production process.

8. This is evident from the fact that certain technological innovations, such as computers recently, and dynamos at the beginning of the 20th century, have taken longer than expected to be widely adopted and, therefore, make a significant impact on productivity and cost.[3/] An analysis of these historical phenomena provides insight into why the costs of real companies in network industries cannot be explained well by hypothetical models that assume the full

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[3/] This discussion is based on Timothy J. Tardiff, "Pricing Network Elements and the FCC's TELRIC Rule: Economic and Modeling Issues," *Review of Network Economics*, Vol. 1, at 132-146 (2002).

deployment of the latest technology. For example, Paul David[4/] discusses a number of reasons why the advent of the dynamo did not result in immediate widespread adoption and concomitant productivity gains, including (1) the durability of existing equipment and (2) the fact that adoption was greatest in industries with the highest growth (*i.e.,* demand was such to make rapid deployment economic). In an industry that does not have the prerequisites for rapid adoption (*e.g.,* it has durable existing equipment and demand growth is not rapid), firms will be unlikely to have fully deployed the latest and least cost technology at any snapshot in time. Consequently, the costs of a hypothetical firm assumed (contrary to fact) to have deployed such technology system-wide will not describe costs and prices in the industry.[5/] The result is that the actual forward-looking costs the incumbent incurs in a real-world competitive market will reflect the efficient mix of technologies that firms actually deploy, not a hypothetical, idealized network. While the threat of entry can constrain prices, it can do so only if that threat is realistic. And the threat the CLECs posit simply is not: no carrier stands ready to enter the market and instantaneously deploy a ubiquitous network with the most efficient technologies and none could do so. As a result, the cost of the incumbent's network would not decline immediately to the cost of such a network. In any case, as we discuss further below, an actual forward-looking cost study would reflect whatever constraining effect new technology has had on existing assets since it uses *current* market prices for these assets.

[4/] Paul A. David "The Dynamo and the Computer: An Historical Perspective on the Modern Productivity Paradox," *American Economic Review*, 80: 355-361 (1990) .

[5/] Regardless of whether any firm actually deploys the latest technology system-wide or firms only priced their outputs as if they did this, one would expect to see the productivity performance in industries with durable assets reflect such pricing behavior if the CLECs' position were correct. David's explanations show that firms in such industries neither literally replace assets nor price their outputs consistent with ubiquitous replacement models.

9. Finally, while the CLECs charge that one of us has "conceded" that TELRIC can send correct economic signals if it includes an "appropriate risk-adjusted cost of capital," AT&T Comments at 35, we have made clear that such a cost of capital would have to be extraordinarily high. *See, e.g.*, Shelanski Decl. ¶ 14. A market in which firms could enter at any time with ubiquitous networks employing the most efficient technologies clearly would pose extremely high risks for any investor, and the cost of capital would have to reflect those risks. The result likely would be prices higher than those that would be produced by an economically rational forward-looking cost approach. Rather than perpetuating the problems with TELRIC and trying somehow to "fix" them through the cost of capital (as well as depreciation and other adjustments that would be required), the better approach is to set new rules that are economically correct.[6/]

II. UNE PRICES SHOULD BE BASED ON THE ILEC'S ACTUAL FORWARD-LOOKING COSTS

10. As we described in our prior declarations, the UNE pricing rules should be reformed so that they are based on the incumbent's actual forward-looking costs. First, such an approach would send correct economic signals because it would tell the buyer (here, the CLEC) how much cost society would incur if it purchased a UNE. Second, the rapid growth in intermodal and intramodal competition and federal and state price cap regulation have provided strong incentives for ILECs to be efficient; thus, UNE prices based on the ILEC's actual forward-looking costs would be set at efficient levels. But even if that were not the case, UNE prices

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[6/] Another example of an inapposite citation to our previous statements is Professor Willig's quotation of one of us (Shelanski) and Professor Kahn in purported support of his incorrect attempt to defer current capacity charges to future customers. AT&T Comments, Willig Decl. ¶ 89. In particular, in the telecommunications industry, extra capacity needed to operate efficiently does not get "used up" as Professor Willig claims, but instead under price caps and increasing competition has remained relatively constant over time. Thus, the citation to Professor Kahn's power plant example is irrelevant, because unlike power plants, in which capacity does get "used up" over time, telecommunications facilities, on average, do not.

based on the ILEC's actual forward-looking costs would send the proper economic signals to CLECs: to the extent CLECs could provide service more efficiently using their own or other alternative facilities, they would have the proper incentive to do so. Third, such an approach would help to provide a more objective measure of costs because costs would be determined by looking to concrete and measurable facts about the incumbent's real-world network. *See generally* Shelanski Decl. ¶¶ 18-36; Tardiff/Kahn Decl. ¶¶ 25-37.

11. The CLECs respond by asserting that ILECs' actual forward-looking costs reflect gross inefficiencies because they allegedly are quasi-monopolistic, and price cap regulation is ineffectual. They are wrong on both counts. First, as Verizon has shown in its comments, ILECs today are subject to substantial and growing competition from wireless carriers, cable telephony providers, voice over IP, and CLECs. *See* Verizon Comments at 19-24.[7/] ILECs have already lost substantial numbers of customers and traffic to these competitors, and they clearly face even more such losses. These competitive pressures create strong incentives for ILECs to be as efficient as possible.

12. Second, the CLECs' claim that price cap regulation does not create substantial efficiency incentives is unsupported and incorrect. The CLECs variously assert, almost uniformly without corroboration or analysis, that (1) price cap regulation is inferior to competition,[8/] (2) price cap regulation does not differ substantially from rate-of-return

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[7/] In fact, in his arguments against a price adjustment mechanism, Professor Willig correctly observes that residential customers have substantially substituted broadband and wireless services for wireline service. AT&T Comments, Willig Decl. ¶ 157. Of course, this reality contradicts Professor Willig's earlier *assumption* that in establishing the cost of capital, one should assume that no facilities based competition exists. *Id.* ¶ 112.

[8/] *See* AT&T Comments, Willig Decl. ¶¶ 51-58.

regulation,[9] (3) price cap regulation allows ILECs to cross-subsidize services subject to competition by charging high prices for less competitive services,[10] (4) regulators have poorly implemented price cap plans,[11] and (5) productivity gains under price caps are disappointing.[12] As we describe in the following paragraphs, these allegations not only lack supporting evidence, they overlook the actual experience with price caps, and are consequently incorrect.

13. That a properly designed price cap plan offers strong efficiency incentives has long been recognized. Indeed, in collaboration with Gregory Sidak, Professor William Baumol (a frequent co-author of Professor Willig and affiant for AT&T), observed:

> ...[U]nder price caps, the firm whose productivity increase exceeds the norm might enjoy higher returns commensurate with its achievement, while the firm with poor productivity performance will automatically be penalized, correspondingly. That is all that has to be said about the price-cap approach to regulatory price ceilings, noting again that it *provides incentives much like those of the competitive market*.[13]

14. The reason for the strong incentive properties of price caps is simple. Because neither increases in operating cost nor expansions in the firm's capital stock can cause prices to

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[9] *See* MCI Comments, Pelcovits Decl. at 49-50; Declaration of Lee L. Selwyn on Behalf of AT&T Corp. ¶ 12 (Dec. 16, 2003) ("AT&T Comments, Selwyn Decl.").

[10] *See* AT&T Comments, Selwyn Decl. ¶ 22.

[11] *See* AT&T Comments, Selwyn Decl. ¶ 14. It is somewhat ironic that Dr. Selwyn faults the performance of regulators in implementing price cap plans, while at the same time he implicitly relies on them to exercise the considerably more intrusive judgments and determinations that TELRIC studies typically entail.

[12] AT&T Comments, Willig Decl. ¶ 158.

[13] William J. Baumol and J. Gregory Sidak, *Toward Competition in Local Telephony*, Cambridge: The MIT Press, at 90 (1994) (emphasis added).

increase, the firm increases its profits by reducing its costs.[14/] Further, to the extent that the price cap plan is "pure" — i.e., links to rate-of-return regulation, particularly earnings-sharing mechanisms have been severed[15/] — there is no incentive to price competitive services at below-cost levels. To do so would just be throwing away money. Thus, state regulators and federal courts have ruled that, contrary to CLEC claims, price cap regulation can be an effective safeguard against cross-subsidization and other such anti-competitive behavior.[16/] And, contrary

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14/ Indeed, the U.S. Supreme Court has noted this phenomenon: "[P]rice caps...give companies an incentive to 'improve productivity to the maximum extent possible,' by entitling those that outperform the productivity offset to keep the resulting profits." *Verizon Communications Inc. v. FCC*, 535 U.S. 467, 487 (2002).

15/ In fact, the federal price cap program and state programs no longer have earnings-sharing mechanisms. *See* Timothy J. Tardiff and William Taylor, "Aligning Price Regulation with Telecommunications Competition," *Review of Network Economics*, Vol. 2, at 338-354 (2003). Thus Dr. Selwyn's citation to a 1991 FCC Order that price cap regulation does not eliminate all incentives to shift cost because of the presence of earning sharing is badly out-of-date and essentially irrelevant. *See* AT&T Comments, Selwyn Decl. ¶ 18.

16/ For example:

> [A] well designed price cap plan insulates ratepayers from investment risk and subsidization of new ventures. *NYNEX Price Cap*, D.P.U. 94-50, at 121 (Mass. D.T. E. May 12, 1995).
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> A properly designed alternative regulation plan affords the opportunity not only for the Company to transition itself to a more competitive environment, but allows this Commission to implement safeguards and allocate risk in a fashion that protects the interests of all interested parties. 92-0448/93-0239 Consol., at 19 (Ill. Commerce Comm. October 11, 1994).
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> We find attractive many aspects of a pure price cap model for establishing revenue levels ....The utility and its shareholders would be completely at risk for their operational decisions, and incentives to cross-subsidize more competitive activities with monopoly profits from basic services would be greatly reduced. *Alternative Regulatory Frameworks for Local Exchange Carriers*, California Public Service Commission, Decision 89-10-031, at 172-73 (Cal. Pub. Serv. Comm. October 12, 1989).

to Dr. Selwyn's claim, this salutary feature of price caps does not depend on the particular level of the productivity target.[17/]

15. Against this backdrop of widespread recognition of the beneficial incentive effects of price cap regulation, Dr. Selwyn offers little more than assertions about alleged inadequacies in how state regulators have implemented price cap regulation (*e.g.*, claiming that they have established productivity targets lower than what he evidently believes are appropriate[18/]). Such a recitation offers no support for the sweeping conclusion that price caps are somehow not working.[19/] More important, the relevant question is not whether price caps in practice produce

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> [T]he FCC has taken specific affirmative steps designed to deter and detect cross-subsidization by introducing price caps as well as further strengthening its cost accounting rules. We conclude that with the implementation of these measures, the FCC ... has demonstrated that the BOCs' incentive and ability to cross-subsidize will be significantly reduced. *California v. FCC*, No. 92-70083 and Consolidated Cases, 39 F.3d 919, 926 (9th Cir. 1994).
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> [Price cap regulation] reduces any BOC's ability to shift costs from unregulated to regulated activities, because the increase in costs for the regulated activity does not automatically cause an increase in the legal rate ceiling. *United States v. Western Elec. Co.*, 993 F.2d 1572, 1580 (D.C. Cir. 1993).
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> "[P]rice caps...give companies an incentive to 'improve productivity to the maximum extent possible,' by entitling those that outperform the productivity offset to keep the resulting profits." *Verizon v. FCC*, 535 U.S. at 487.

17/ Again, the reason is simple. Regardless of the magnitude of the productivity target, and therefore the price level, below-cost prices would reduce profits, and unlike rate of return regulation, there is no mechanism for recouping such losses.

18/ AT&T Comments, Selwyn Decl. ¶¶ 23-26. In offering this criticism, Dr. Selwyn mischaracterizes price freeze programs such as what prevails in California (where the implicit productivity target equals the inflation rate) as one with no productivity target at all. *Id.*

19/ Some of the "problems" Dr. Selwyn cites are puzzling. For example, he claims (1) that packages that combine long-distance and local calling are a means to breach a price limit, despite the fact that such plans typically produce less revenue than when the packaged items are purchased separately, and (2) that such packages are unavailable to IXCs, when in fact his own

all the benefits that theory would predict, but whether any imperfections in implementation substantially attenuate such benefits. And on this score, all that the CLECs offer is Professor Willig's unsupported assertion that price cap regulation has not closed an alleged gap between embedded and forward-looking costs, *see* AT&T Comments, Willig Decl. ¶ 47 — a conclusion directly contrary to the Commission's own.[20/]

16. In fact, the information offered by Dr. Selwyn and Mr. Klick does not support their claim that ILECs' efficiency gains under price caps have lagged what other industries have achieved under competition. For example, Mr. Klick reports that real long-distance prices decreased by between 23 and 41 percent after deregulation. Declaration of John C. Klick ¶ 112 (Dec. 16, 2003) ("AT&T Comments, Klick Decl."). However, a substantial proportion of this reduction is attributable to the FCC's contemporaneous reduction in access charges. When this effect is removed, the resulting reduction in the real long-distance price (net of access charges) translates into an annual reduction of at most about 6 percent per year, which is comparable to Dr. Selwyn's representation that the proper productivity target for ILECs (which is equivalent to the expected annual reduction in real prices) is 6.5 percent. AT&T Comments, Selwyn Decl. ¶ 20.[21/] Similarly, Mr. Klick presents a number of comparisons of railroad statistics between 1980

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client offers just such packages in competition with ILECs for local and long-distance calling. AT&T Comments, Selwyn Decl. ¶¶ 21-22.

[20/] *See* First Report and Order, Implementation of the Local Competition Provision in the Telecommunications Act of 1996, 11 FCC Rcd 15499, 15909 ¶ 821 (1996) (rates set by carriers subject to price cap regulation are "disengaged from embedded costs" and "are currently at or close to economic cost levels").

[21/] Indeed, one of us (Tardiff) and Professor Alfred Kahn observed that prior to the entry of RBOCs into interLATA long distance:

> Most observers, even informed ones, would probably be startled to discover, however, that, if one takes account of the regulatorily-imposed shift in cost from

and 2000 that illustrate the efficiency gains in that industry. At the outset, whatever improved efficiency deregulated railroads were able to enjoy is very likely explained at least in part by the fact that the industry *reduced* its total track mileage by one-third, presumably shedding the least productive routes. In contrast, ILECs cannot decline to serve their unrenumerative areas. Even leaving that aside, Mr. Klick shows that real operating expenses per ton mile, which is the statistic closest to a real price change, declined by 64 percent over 20 years, implying an annual rate of about 5 percent, again comparable to Dr. Selwyn's recommended productivity target for ILECs. AT&T Comments, Klick Decl. ¶ 113, Table 1.

17. Ultimately, the CLECs' argument reduces to Professor Willig's suggestion that competition itself provides greater efficiency incentives than price caps. Whether or not that is true as a theoretical matter, it ignores the fact that ILECs are operating in an environment with *both* substantial competition and price cap regulation. In combination, those two forces create strong incentives for ILECs to be efficient, and the CLECs offer no contrary evidence.

18. The CLECs also suggest that using the incumbent's actual forward-looking costs will not be an improvement over TELRIC because ILECs allegedly do not have complete data about every single aspect of their networks. But the alleged incompleteness of ILEC data does not justify using a hypothetical approach instead. Rather, the more appropriate approach is to rely

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> toll to local prices represented by the federal subscriber line charges on first and additional residential lines, *local prices actually decreased more than interstate toll prices* (both adjusted for inflation), according to their respective consumer price indexes—indexes that according to the *Monitoring Report* fully reflect subscription to discount plans in recent years.

Public Interest Affidavit of Alfred E. Kahn and Timothy J. Tardiff, before the Federal Communications Commission, *Application of SBC Communications Inc., Nevada Bell Telephone Company and Southwestern Bell Communications Services, Inc. d/b/a Nevada Bell Long Distance for Provision of In-Region InterLATA Services in Nevada* (July 24, 2000) (Prefiled testimony in Docket 00-7031, before the Public Utilities Commission of Nevada).

on the available, objective data about the ILEC's network to the greatest extent possible and then, where necessary, use assumptions that account for real-world constraints and are based on actual engineering principles to fill in any gaps.

19. Finally, basing rates on the ILEC's existing network also will better account for real-world external (or exogenous) constraints such as geography (e.g., the presence of rivers and mountains), zoning restrictions, and the like. As the CLECs themselves argue, for practical reasons, a hypothetical network modeled from scratch cannot model and take account of all the relevant constraints imposed by the real world. But UNE pricing rules based on the incumbent's existing network can do so: that network already provides service in the real world and therefore by definition must take into account the numerous geographical, zoning, and other external constraints.

III. CONTRARY TO CLEC CRITICISMS, VERIZON'S PROPOSED APPROACH IS ECONOMICALLY SOUND.

20. In our initial declarations we described how to calculate the incumbent's actual forward-looking costs based on its existing network. As we noted, costs such as operating expenses and non-recurring costs should be determined based on the ILEC's actual out-of-pocket expenditures. We described two methodologies for calculating the investment upon which to base annual capital costs. The first — a form of replacement cost — would model the ILEC's existing mix of network facilities, technologies, and infrastructure using available information about the network and then adjust that network model to take account of changes that actually will occur in the incumbent's network during the forward-looking planning period. The second, which might be appropriate where carriers are deploying substantially new technology in place of a precursor technology, would estimate the long-run incremental costs the incumbent will incur by determining the average unit cost of the facilities mix the ILEC expects to add to the

network over a reasonably long-run period going forward. *See* Shelanski Decl. ¶¶ 19-36; Kahn/Tardiff Decl. ¶¶ 33-37.

21. The CLECs argue that any methodology used to estimate the incumbent's actual forward-looking costs would be "embedded," a discredited "reproduction" or "reproduction plus" approach, and/or "short run." *See, e.g.*, AT&T Comments at 42-47 ("short run" and "reproduction plus"); MCI Comments at 4, 19-20 ("short run" and "embedded"); Covad Comments at 8 ("short run"); CLEC TELRIC Coalition Comments at 70 ("short run"). These critiques either misunderstand the approach we advocate or simply amount to a preference for hypothetical assumptions over real-world costs.

22. The CLECs assert that basing UNE rates on actual forward-looking costs is not "forward-looking," but instead is "historical" or "embedded." *See, e.g.*, AT&T Comments at 44-47; MCI Comments at 4, 22. This is incorrect — the approach we advocate does *not* include the historical costs that Verizon actually incurred when it purchased its existing facilities. Rather, it looks to current or recent market prices for such facilities to determine the incumbent's forward-looking costs, which in many cases may be lower than what Verizon historically paid.

23. Moreover, while our proposed replacement cost methodology does start with the mix of facilities in the existing network, the only alternative is to assume (as TELRIC does) a network built from scratch with some hypothetical mix of facilities. It is not economically correct, at least in a market with characteristics such as high sunk and fixed costs and rapidly changing technology, to assume that the existing network will be replaced with a hypothetical, ideally efficient one, because, as we explain above, that does not reflect the costs of any real-world competitor, either the incumbent or a new entrant. Our replacement approach begins with the existing network and then includes whatever upgrades or other changes the incumbent

expects to make to its network over a reasonable planning period. We do not seek simply to reproduce the existing network; the incremental cost methodology we propose looks at the full range of deployments Verizon expects to make, including planned upgrades and replacements. It also is important to note that, because of the incentives created by price cap regulation and intermodal and intramodal competition, the incumbent *will* in fact deploy new technologies or facilities when it is efficient to do so, and our approach captures these new purchases over a reasonable planning period.

24. The CLECs suggest that this approach is nevertheless "embedded" because the facilities and technologies an incumbent will purchase going forward are necessarily affected by what it already has deployed. That is true, but it is true for *all* rational, real-world carriers in a competitive market. Every such carrier will consider issues such as compatibility with existing facilities in determining whether and to what degree to deploy new facilities. Thus, the CLECs' argument amounts to the same incorrect contention that UNEs should be priced based on the costs of a new network built from scratch.

25. The same flaw underlies the claim that an actual forward-looking cost approach is improper because it reflects the allegedly higher "unit costs" of upgrades and additions. *See* AT&T Comments 45-46. Efficient carriers in the real world do expand and upgrade their network incrementally and therefore incur the unit costs of such incremental investment. It is TELRIC that fails to reflect the incumbent's actual forward-looking costs by positing a network initially sized perfectly to serve all current and foreseeable demand rather than one that has grown and evolved through incremental purchases as any real network would.

26. The resulting distortion is evident in the CLECs' positions on various inputs. For example, they assert that switching costs should be based on a mythical (but totally unrealistic)

firm that has the resources to invest in capacity sufficient to serve *all* of an ILECs current volume, and then marginally expand that capacity with higher-priced add-on lines. As we explained in our opening comments, such investment is inconsistent with how real firms have (and can) invest in switching. Moreover, the prices that vendors must charge in order to remain viable would be very different from the deep discounts offered in current vendor contracts for a few new switches if the mythical firm somehow materialized.[22/] Similarly, the unrealistic assumption of immediate deployment of the entire network, followed by modest additions to the plant to accommodate growth, is the basis for Dr. Pelcovits' mistaken claim that ILECs' experience in purchasing and installing telephone poles should be ignored. MCI Comments, Pelcovits Decl. at 29. Any real-world firm would grow into a network that would evolve over time. And at each point in time, some of its pole installations would represent expansion into new areas and others would be replacements of existing poles.

27. The CLECs' next line of attack is the claim that the development of new technologies causes old technologies to be automatically revalued so that the costs of equipment of an older vintage are no higher than the costs of the newer vintage. *See, e.g.*, AT&T Comments at 22-26; MCI Comments at 16-17. As discussed above, this claim is based on assumptions about the telecommunications market that are facially untrue. By contrast, as noted above, our proposed approach realistically reflects whatever constraining effect a new technology might have on the value of an existing asset. Both of Verizon's proposed methodologies look to *current* or recent market prices when determining the value of network assets, whether they are already in the existing network or planned new purchases. Thus, to the extent that a new technology has

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[22/] Indeed, the use of current vendor contracts to estimate switching investments as AT&T and MCI propose constitutes an opportunistic mixture of an extremely short-run phenomenon (the contracts) with the extremely long-run (and unrealistic) perspective of the mythical firm.

reduced the value of an existing asset in the incumbent's network, that reduction will be reflected in the market price. In AT&T's example of a $100 machine for which there is now a functional equivalent that costs $75, if AT&T's theory of the constraining effect of the new machine were actually correct, the market price for the existing asset would be $75. If, on the other hand, the constraining effect does not work as AT&T posits, the market price for the older asset will reflect that as well. Thus, under our proposal, any reduction in market value that has been caused by the increased efficiency of new technologies will be reflected through lower depreciation expense and cost of equity for the assets reflected in the incumbent's network.

28. Finally, the CLECs argue that Verizon's approach to calculating actual forward-looking costs is "short run," or a hybrid of short-run and long-run. *See, e.g.*, AT&T Comments at 42-43; MCI Comments at 19-20. This is incorrect.

29. As an initial matter, we are *not* advocating a short-run incremental cost approach. Such a methodology would ignore all the investment and related costs for existing facilities that are used to provide UNEs. As even the CLECs seem to recognize, this would radically understate costs even more than TELRIC.[23/]

[23/] In any case, both Professor Willig and Dr. Pelcovits understate the degree to which Verizon continues to make investments in its network. *See* AT&T Comments, Willig Decl. ¶ 65 ("in any time period less than the long-run, the majority of the incumbent's capital assets remain fixed and sunk, and the incremental costs of providing service over them is near zero."); MCI Comments, Pelcovits Decl. at 48 ("The copper plant is already in the ground and has no other use, or opportunity cost, except as scrap metal. Therefore, these copper loops should be made available to the CLECs at their long run incremental cost, which includes only the continuing incremental cost of operating and maintaining this plant."). This characterization seems to assume that (1) facilities such as loop plant were placed some time in the past, (2) they can accommodate any foreseeable level of demand, and (3) no investment in such facilities is expected over the foreseeable future. Verizon's recent investment experience is entirely inconsistent with this proposition. Over the 13-year period from the beginning of 1990 through the end of 2002, Verizon invested an average of $1.5 billion per year in its cable and wire facilities — the "nuts and bolts" of its "legacy" network — in the Verizon-East states.

30. As we described in our declarations, Verizon instead is proposing that forward-looking investment costs be determined using a planning period that is long enough that it produces a realistic and representative picture of the ILEC's expected costs without distorting the picture with short-term or one-time events. At the same time, the planning period should not be so long that it is almost completely speculative, and thereby inaccurate. As we previously explained, the planning period should ideally be as long as the rates that are being set are expected to be in effect. A reasonable time frame, therefore, is approximately three years. *See* Shelanski Decl. ¶¶ 35-36; Kahn/Tardiff Decl. ¶ 37.

31. None of the ways in which this three-year time horizon would be used renders the resulting costs short-run. Under the replacement cost approach, the time horizon would be used to determine (1) changes to the characteristics of the ILEC network, *i.e.*, the types and quantities of equipment and (2) the prices paid for that equipment. In this sense, the approach differs from current TELRIC studies because it is based on reliable measurements from a real network and its operations and does not speculate about what an ideal network in a wholly unrealistic industry that assumes perfect competition or contestability might look like.[24/] Contrary to the CLECs' claims, such a planning period is entirely consistent with a "long-run" analysis. In practice, a

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[24/] AT&T and MCI's support of basing costs on a network they now admit will most likely never exist introduces a fundamental problem in validating the resulting costs. Rather than demonstrating that the alternative configurations are more efficient than the existing ILEC networks, the approach instead relies heavily on the opinions of engineers (e.g., routes could be more direct, spare capacity could be lower, etc.). Consequently, rather than being subject to a rigorous test, the cost model itself merely assumes the hypothesis that ILECs could be more efficient. In contrast, rather than being mere engineering opinions that are never tested in the real-world, the characteristics of existing networks are the result of numerous engineering decisions, executed under the strong incentives that price cap regulation and increasing competition provide.

long-run cost study must examine a limited time period because, given changes in technology, demand, and other factors, a carrier simply cannot make reasoned predictions beyond a certain time frame about how its network will change over time, what replacement technologies it will deploy, and what that technology will cost. Trying to model costs based on speculation beyond a time in which reasoned predictions are possible undercuts the value and reliability of a cost study. Therefore, even if an ILEC tries to make a cost study as long-run as possible, it has to look at some finite period to inform the inputs used in that study. And during that finite period, the ILEC will *not* replace all its facilities, so not *every* input used in the cost study will actually vary from the existing network. A long-run study does not require hypothesizing a so-called "long-run" mix of facilities that does not reflect what the incumbent's (or any other carrier's) network will *ever* look like, either in the short or the long run.

32. Under the incremental cost approach, the three-year planning period would look at the investments an ILEC would expect to make over that period to reflect changes in output, upgrades, and similar changes. As Professor Willig observed in his 1996 affidavit in the TELRIC proceeding:

> For services that are not in decline, and that are expected to show demand sufficient for new and replacement investment, economic costs are long-run costs that reflect forward-looking efficient investment, including a return on capital consistent with competitive capital markets . . . . In competitive markets, efficient decisions about market entry, exit, expansion, and contraction are made by comparing the anticipated revenue with the anticipated incremental costs of the contemplated change in output.[25/]

This is exactly what Verizon's second approach does: it measures the efficient "new and replacement" investment that the incumbent expects to make over a period that allows for

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[25/] Baumol, Ordover, and Willig Affidavit ¶¶ 6-7.

reasoned predictions about such purchases. Thus, neither of Verizon's approaches produce short-run costs.

Declaration of Howard Shelanski

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 30th day of January, 2004.

Howard Shelanski

Howard Shelanski

Declaration of Timothy Tardiff

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 29th day of January, 2004.

Timothy Tardiff