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	)	
	)	
	)	
	)	

DECLARATION OF ALFRED E. KAHN AND TIMOTHY TARDIFF SUBMITTED IN SUPPORT OF THE COMMENTS OF THE VERIZON TELEPHONE COMPANIES

STATEMENT OF QUALIFICATIONS

1. My name is Alfred E. Kahn. My business address is 308 N. Cayuga Street, Ithaca, NY 14850. I am the Robert Julius Thorne Professor of Political Economy, Emeritus, Cornell University and Special Consultant with National Economic Research Associates, Inc. (NERA). I received my A.B. degree summa cum laude from New York University and my Ph.D. from Yale University, in 1942. I served as Associate Economist with the Antitrust Division of the U.S. Department of Justice in 1941-42; came to Cornell University as Assistant Professor in 1947 and have served successively as Chairman of the Department of Economics, Robert Julius Thorne Professor of Political Economy, member of the Cornell Board of Trustees and Dean of the College of Arts and Sciences. I have been Chairman of the New York State Public Service Commission and of the (U.S.) Civil Aeronautics Board; and in my capacity as Advisor to President Carter on Inflation, I participated actively in the successful efforts of his Administration to deregulate both the trucking industry and the

railroads. I am the author of the two-volume *The Economics of Regulation*, reprinted in 1988 by MIT Press, *Letting Go: Deregulating the Process of Deregulation*, published in 1998 by Michigan State University Institute of Public Utilities, *Whom the Gods Would Destroy or How Not to Deregulate*, published in 2001 by the AEI-Brookings Joint Center for Regulatory Studies, *Lessons from Deregulation: Telecommunications and Airlines after the Crunch*, published by the same AEI-Brookings Joint Center last month (November 2003), and have written and testified extensively in the area of direct economic regulation and particularly of the public utilities Of especial relevance to my statement here, I am the co-author of *Fair Competition, The Law and Economics of Antitrust Policy*, was a member of the Attorney General's National Committee to Study the Antitrust Laws and the National Commission on Antitrust Laws and Procedures in the Eisenhower and Carter Administrations, respectively; I have served as consultant with both the Antitrust Division of the Department of Justice and the Federal Trade Commission; I was recently a member of the National Research Council – Transportation Research Board committee charged with reporting to Congress on the state of competition in the airline industry; and I have published numerous articles, particularly in recent years, on the requisites of efficient competition in regulated and previously regulated industries. I attach a copy of my full resume as Attachment A.

2. My name is Timothy J. Tardiff. My business address is One Main Street, Cambridge, MA 02142. I am a Vice President at National Economic Research Associates, Inc. (NERA). I have specialized in telecommunications policy issues for over 20 years. My research has included studies of the demand for telephone services, such as local measured service and toll; analysis of the market potential for new telecommunications products and services;

assessment of the growing competition for telecommunications services; and evaluation of regulatory frameworks consistent with the growing competitive trends. Since the passage of the Telecommunications Act in 1996, I have participated in interconnection arbitrations, unbundled element cost proceedings, universal service investigations, and applications by incumbent local exchange carriers for authorization to provide interLATA long-distance pursuant to the Telecommunications Act of 1996, in over 20 states. Most recently, I have filed testimony in state proceedings implementing this Commission's *Triennial Review Order* I have published articles in the regulatory economics literature, which in recent years have focused on policies for the increasingly competitive telecommunications industry. I attach a copy of my full resume as Attachment B.

INTRODUCTION AND SUMMARY

3 The FCC's NPRM[1/] instituting a review of its total element long-run incremental cost (TELRIC) rules presents an important opportunity to establish a more economically sound basis for setting the prices that incumbent local exchange carriers (ILECs) must charge for the unbundled network elements (UNEs) they are required to offer to their competitors. By asserting its tentative opinion that TELRIC should more closely take into account the actual routing and topography of the ILEC's existing network[2/] and by seeking comments on whether critical cost-determinants such as fill factors should similarly be grounded in the ILECs' actual experience, the *TELRIC NPRM* offers the prospect of a fundamental reform that will better achieve the objective of the 1996 Telecommunications Act—to promote free and efficient competition.

[1/] Notice of Proposed Rulemaking, *Review of the Commission's Rules Regarding the Pricing of Unbundled Network Elements and the Resale of Service by Incumbent Local Exchange Carriers*, WC Docket No. 03-173, FCC 03-224 (rel Sept 15, 2003) ("*TELRIC NPRM*")

[2/] *TELRIC NPRM* ¶ 52

4. The need for this reform is intensified by the rapid development of *intermodal* competition in the telecommunications industries. Today, ILECs and competitive local exchange carriers ("CLECs") alike face significant competition from wireless carriers, providers of cable telephony, voice over IP, and other sources. This intermodal competition already constrains incumbents' prices and creates pressures to innovate and offer new services. As a result, the Commission need no longer be concerned about artificially "jump starting" competition for telecommunications services. Instead, in determining a pricing method for UNEs, it should focus on ensuring that those prices send correct economic signals and create investment incentives so that both ILECs and CLECs can compete—both with each other and with intermodal competitors—on fair and efficient terms.

5 As we explain in greater detail below, the Commission should do so by grounding its prescribed charges for UNEs more firmly in the actual forward-looking costs of the ILECs and by so doing, establish the basis for efficient competition, both intra- and inter-modal. Rather than the assumption of perfect competition that implicitly underlies current TELRIC rules, proper recognition of the competitive environment in which ILECs operate, the incentives that environment already provides to perform efficiently, and of how competitive firms operate when their capital is long-lived and subject to rapid technological advancement would improve the signals that UNE prices provide with respect to efficient entry, investment, and retail pricing decisions by CLECs and ILECs alike.

6. We have on numerous occasions explained why current TELRIC rules and their implementation by regulators have produced estimates of costs well below economic levels—i.e , below the actual marginal costs of their suppliers. In the rest of this declaration we (1) describe why the growth in "intermodal competition" in

telecommunications means that the reform of TELRIC promised by the *TELRIC NPRM* is necessary to facilitate efficient competition in the telecommunications industry, (2) explain why continuation of (or superficial changes in) current TELRIC rules cannot produce economically correct UNE prices and costs, and (3) explain how the FCC's ratification of its tentative conclusion on realistically representing the ILECs network routing and topology and adoption of other reforms that would limit TELRIC more closely to the ILEC's investment and operating decisions can produce more economically sensible cost estimates and be more conducive to efficient competition.

I. TELRIC'S FLAWS HAVE BECOME EVEN MORE HARMFUL BECAUSE OF THE RAPID GROWTH OF INTERMODAL COMPETITION.

7. One of the fundamental failings of the FCC's TELRIC pricing rules is that—contrary to the explicit instruction of the 1996 Act—they set prices on the basis of regulators' *predictions* of competitive outcomes rather than by emulating the competitive *process*. Under such a process, the UNE prices would be the *starting point*, the reactions to which by ILECs, CLECs, and intermodal competitors would determine the structure and performance of the industry, rather than a *prediction* and prescription of the prices that the competitive structure assumed by a cost model would produce. The attempt instead to predict and prescribe the outcomes has produced inherently implausible results. For example, we have observed that (1) TELRIC has produced costs that are only a fraction of the incumbents' current costs and regulatorily prescribed rates, and (2) some regulators have sharply lowered UNE loop and UNE-P rates from initial levels, despite the fact that there have been no obvious technological improvements that would justify such reductions.[3/]

[3/] Alfred E Kahn, AEI-Brookings Joint Center for Regulatory Studies, *Lessons from Deregulation. Telecommunications and Airlines after the Crunch*, Nov. 2003

8. While the emphasis on facilitating a competitive process, rather than predicting competitive outcomes is generally proper, it becomes even more important as firms compete intermodally—i e., with different and ever changing types of technologies and entry strategies. Consistently with the objective of the 1996 Telecommunications Act, competition in the offering of local telecommunications services has grown significantly over the last few years. ILECs today face increasing competition from not only "intramodal" competitors (e.g., facilities-based competitive local exchange carriers and CLECs that use UNEs), but also, and increasingly, "intermodal" competitors. As Verizon explains in detail in its comments, cable telephony providers, wireless carriers, and voice over IP providers have all gained increasing numbers of subscribers, and a large amount of traffic that previously rode over ILEC networks now travels on the facilities of these and other intermodal competitors. In addition, service from one or more of these intermodal competitors is an available alternative for most current ILEC customers.

9. This growth in intermodal competition has a number of important implications for the regulatorily-dictated pricing of UNEs. First, it undercuts the rationale of the FCC for setting UNE rates below the incremental costs of the ILECs—namely, to "jump start" competition: the underlying assumption—that competition needs to be "jump started" is mistaken. Instead, such competition is already here and constrains the decisions (including pricing) of ILECs and CLECs alike. In this respect, the telecommunications industry is much like certain transportation industries, such as railroads and trucking, that face significant intermodal competition. For example, when AMTRAK determines the routes on which it offers service, the prices at which it will offer service, and numerous other decisions, it clearly must account for the fact that passengers can also travel by car or plane.

Thus, the price at which it can offer service from Washington D.C. to New York is constrained by the prices for airline shuttle service between the two cities. Similarly, the price for wireline DSL service is constrained by the availability of cable modem service and the price for wireline telephone service is constrained by the rate for wireless service. In view of those competitive constraints form intermodal sources, the Commission need not—and indeed should not—be concerned with setting UNE rates "low enough" to ensure CLEC entry. In these circumstances, requiring the ILECs to price some of their basic services below their actual incremental costs both distorts and dilutes that competition.

10. Second, and relatedly, because of the incentives created by competitive pressure from intermodal sources, as well as price cap regulation, there is every reason to believe that ILECs have made, and are making, efficient choices in terms of technology deployment, network configuration and the like. As a result, the costs of their existing networks are the most reliable measure of the "efficient" costs of providing UNEs.

11. Third, intermodal competitors already have significant competitive advantages and larger market shares in certain segments of service (e.g., cable modem v. DSL), and forcing ILECs to subsidize a certain group of competitors (through below-cost UNE rates) will mean that ILECs are not competing on a level playing field. The flip side is, of course, also true. To the extent that CLECs can obtain UNEs at rates that are below the actual costs of using those facilities, they will gain an artificial competitive advantage against all competitors, including in particular intermodal competitors. Thus, with intermodal competition, the need for prices to be at economic levels (i.e., based on the incumbent's actual forward-looking costs) becomes more pressing if that competition is to be efficient.

12. Fourth, as a result of the growth of intermodal competition, basing "predictions" of what levels competitive prices would ultimately reach on the real or hypothetical network structure of any particular firm or firms (as TELRIC tries to do) becomes increasingly problematic and, perhaps more important, impossible to validate. The industry structure that is emerging with the growth of intermodal competition departs far from the perfectly competitive model that TELRIC assumes, with standardized services offered by numerous homogeneous firms. Trying to predict the network configuration and mix of technologies—and therefore the costs—of a hypothetical "most efficient" firm is already difficult even assuming such homogeniety. It is a hopeless task when firms must react to, and take into account, the actions of intermodal competitors that use a range of different types of networks and technologies.

13. Fifth, as a result of intermodal competition, the incumbents are losing both customers and minutes from their networks. While an incumbent would prefer to keep the end user as its customer and collect the resulting retail revenues, it clearly would rather collect the revenue generated by having the wholesale traffic on its network than forfeit this revenue *entirely* because that traffic ends up on alternative facilities of an intermodal competitor. As a result, absent the artificial below-cost rates resulting from TELRIC, incumbents and CLECs alike would have a market-based incentive to create rational, voluntary wholesale arrangements at compensatory rates Indeed, as Winston—author of the most comprehensive analyses of the effects of deregulation in the transportation industries—observed, in contrast with the contentious experience in telecommunications since the

passage of the Act, firms in the transportation industries were apparently able to negotiate interconnection arrangements among themselves.[4]

II. EXISTING TELRIC RULES ARE BASED ON UNREALISTIC ASSUMPTIONS ABOUT HOW COMPETITION WORKS

14. Even if trying to establish UNE rates emulating the prices that would be produced through competition were sensible, it could be accomplished only by utilizing realistic competitive assumptions. TELRIC fails to do this As the *TELRIC NPRM* recognizes, we have been consistent critics of TELRIC.[5] By substituting its own normative standard of efficiency for the collective outcomes of incumbents' previous business decisions, in general, and its "blank-slate" assumption of instantaneous replacement, in particular, TELRIC almost by

---

[4] Clifford Winston, "U.S Industry Adjustment to Economic Deregulation," *The Journal of Economic Perspectives*, Vol. 12, No 3, (Summer 1998)

[5] *TELRIC NPRM* ¶ 31 n.67, ¶ 50 n 98 Our fundamental criticisms of TELRIC, which generally flow from its instant replacement, "blank slate" approach to cost estimation, predate the FCC's adoption of it in 1996 One of us (Kahn) pointed out the unrealistic nature of blank slate costing many years before·

> The purest case of LRDC [long-run decreasing costs] prevails when a firm begins with an absolutely clean slate and faces a `planning curve' demonstrating the unit costs of different planned levels of output, each in a plant constructed in order to produce <u>that</u> output at minimum cost But most firms carry with them into new investment decisions the consequences of investment decisions made in the past. They also face an LRDC situation when and if additional output would reduce ATC [average total cost] (entirely apart from changes in technology) or involve lower unit costs the greater the addition to output Alfred E Kahn, *The Economics of Regulation*, Vol. 1 at 124, The MIT Press (1988)

And over 12 years ago in a filing before the FCC on competition for local transport, one of us distinguished the long-run additional or incremental cost standard pertinent to regulatory price-setting from the concept of long-run marginal cost in pure economic theory

> In strict economic terms, the concept of long-run marginal costs relates to a hypothetical situation in which all inputs are variable, and a supplier confronts the possibility of installing entirely new facilities, in effect from the ground up And the 'marginal' relates to the incremental cost of a single unit of output The concept of long-run incremental cost, in contrast, is more pragmatic it takes a firm's past history as given, does not assume that it is writing on a blank slate, but recognizes that it will ordinarily be planning the installation of new capacity, at whatever that additional investment will cost given its current situation, and it spreads the costs over either the total output of that additional capacity - in that sense it is a kind of average incremental cost - or over the additional output that is likely to be induced by a price reduction under consideration (or curtailed in response to a price increase) (Affidavit of Alfred E Kahn, "The Necessary Conditions of Effective Competition for Local Transport," filed in *Expanded Interconnection Between Local Telephone Facilities*, CC Docket No. 91-141, at 22 (Aug 6, 1991))

design is guaranteed to produce costs lower than the incumbents' own forward-looking costs.

15. A TELRIC process that produces below-cost UNE charges provides an incentive for excessive entry into the segment of the industry relying on the incumbent's facilities and a concomitant diversion of investments from other potentially more productive areas. In telecommunications, the arbitrarily low charge for UNE-Ps has diverted investments away from competing network facilities and into activities such as customer acquisition (more firms chasing after customers) and/or "cooperating" with other firm (i.e., securing access and interconnection arrangements) [6]

16. Most of the economic criticisms of the implementation of the current version of TELRIC boil down to the fact that it mixes in unrealistic ways different types of "competitive" structures. For example, TELRIC explicitly seeks to provide the scale and scope economies of a firm that supplies the major portion by far of the industry's output (a virtual monopolist), whose costs are heavily weighted by long-lived capital assets while at the same time assuming other characteristics more typical of a highly competitive industry (i.e., instantaneous ubiquitous entry) or even, at the other extreme, some lingering aspects of a regulated firm.[7]

---

[6] Hassett et al claim in a recent paper that continued availability of UNE-P would generate billions of dollars in telecommunications investment. In fact, scrutiny of their calculations reveals that what they count as investment is for the most part payments for one-time activities such as customer acquisition, rather than for acquiring durable network facilities Kevin A Hassett, Zoya Ivanova, and Laurence J Kotlikoff, "Increased Investment, Lower Prices — the Fruits of Past and Future Telecom Competition," September 2003

[7] Quite properly, both the *Triennial Review Order* and the *TELRIC NPRM* have since clarified that the cost of capital and depreciation values used in the cost study should be consistent with the competitive assumptions used to estimate investments and operating costs—e g , the cost of capital should reflect the same business risks that are assumed in other aspects of the model *See* Report and Order and Order on Remand and Further Notice of Proposed Rulemaking, *Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers*, CC Docket Nos 01-338, 96-98, 98-147, FCC 03-36, ¶ 680 (rel. Aug 21, 2003) ("*Triennial Review Order*"); *TELRIC NPRM* ¶ 83

17. While improper mixing and matching of competitive assumptions can produce an apparently "best of all possible worlds" for buyers, it clearly at the same time would produce totally unrealistic UNE prices, bearing no resemblance to anything that competition would or could produce. In our very early commentaries on the then-emerging TELRIC rules, we commented on one particularly troublesome example of such mixing and matching—that the assumption of instantaneous replacement in the face of persistent technological advance was inconsistent with how competitive firms operate; therefore, a model that at the same time assumes regulated (or even, typically, competitive) rates of return on and of capital would produce costs and prices substantially below what a market consistent with TELRIC's assumptions would demand and produce.[8/]

18. The competitive model on which TELRIC is based is also unrealistic—the blank slate assumption of current TELRIC rules effectively produces an understatement of prices of equipment that is undergoing technological advancement. We discussed this in our earliest filing in the proceeding that resulted in TELRIC[9/] and take the liberty of summarizing our arguments here:[10/]

> In a world of continuous technological progress, it would be irrational for firms constantly to update their facilities in order *completely* to incorporate today's lowest-cost technology, as though starting from scratch, the moment those costs fell below prevailing market prices. Investments made today, totally embodying the most modern technology available currently, would instantaneously be

---

[8/] Our admonition essentially repeated an observation made by Fellner many years ago, which one of us described in a book originally published almost 35 years ago. (Kahn, *op Cit.*,at 119-120, n.91) Jerry Hausman made a similar observation· that costs of capital sufficient to accommodate the risks implicit in *instant replacement models* would be two to three times cost of capital rates used in typical regulatory proceedings (Jerry A Hausman, "Valuing the Effect of Regulation on New Services in Telecommunications," Brookings (1997))

[9/] Declaration of Alfred E Kahn and Timothy J Tardiff, attached to the Reply Comments of Bell Atlantic, *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, filed in CC Docket 96-98, (May 30, 1996)

[10/] Alfred E Kahn, *Letting Go. Deregulating the Process of Deregulation*, MSU Public Utilities Papers, 91-92 (footnotes included) (1998)

outdated tomorrow and, in consequence, fail over their lifetime to earn a return sufficient to justify the investments in the first place. For this reason, as Professor William J. Fellner pointed out many years ago,[11] firms even in competitive industries would systematically practice what he termed "anticipatory retardation." In other words, they would adopt the most modern technology only when the progressively declining real costs had fallen sufficiently below currently prevailing prices to offer them a reasonable expectation of earning a return on those investments over their economic lives.

Two other ways of putting this proposition would be that:

- competitive prices will in such situations typically exceed TSLRIC-BS[12] (or, in the case of a single-product firm, the average total costs of a new production facility) by a substantial margin;[13] or
- firms would incur the heavy sunk costs of investing in totally new facilities, embodying the most recent technology from the ground up, only if prevailing market prices were high enough to provide rapid depreciation of those costs and rates of return that Jerry Hausman has estimated would have to be two to three times current costs of capital.[14]

20. Our previous commentary focused primarily on the fact that the inability of the incumbent to replace its entire stock with the latest vintage of equipment causes TELRIC to understate the economic costs faced by the incumbent. A related issue is that even when the incumbent actually replaces or updates certain parts of its network, e.g., as part of its ongoing capital budgeting program, its choices are constrained by the need to maintain compatibility with other parts of the network. For example, efficient inventory

---

[11] William Fellner, "The Influence of Market Structure on Technological Progress," *Readings in Industrial Organization and Public Policy*, American Economic Association (1958)

[12] TSLRIC-BS is Professor Kahn's label for those versions of total-service long-run incremental cost (TSLRIC), in which the firm in question is assumed to build from a blank slate (BS). The FCC's TELRIC fits Kahn's definition

[13] This would be so entirely apart from the necessity, in the case of multi-product producers, for markups above incremental costs, in the presence of economies of scope, in order to permit recovery of total costs

[14] Comments of USTA, filed in CC Docket No 96-98, May 16, 1996 *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, filed in CC Docket No. 96-98, May 16, 1996 See also Richard Schmalensee and William E. Taylor, "Economic Aspects of Access Reform: A Reply," Attachment 3 to the Reply Comments of USTA, filed in CC Docket No. 96-262, Feb. 14, 1997 In its 1996 *Local Competition Order*, the FCC, in terms that could be characterized only as grudging, recognized the possibility that it would be necessary to incorporate higher-than-customary rates of depreciation and return in these calculations for this very reason First Report and Order, *Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 FCC Rcd 15499 ¶ 686 (1996) ("*Local Competition Order*").

considerations may result in only a limited number of alternative equipment types being maintained, certain components such as switches may be compatible with only a limited number of other possible network components, etc. In these circumstances, the incumbent could not economically deploy incompatible components, even if they may be cheaper than the compatible equipment available to it. Consequently, a blank slate approach that assumes no such incompatibilities necessarily understates economic costs.[15/]

21. In its brief to the Supreme Court,[16/] the FCC suggested that the problems we identified could be rectified by selecting depreciation rates that adjust for the putative obsolescence induced by the blank slate assumption. While this statement has some theoretical merit, we offer two responsive observations First, determining the proper depreciation adjustment would itself require hypothetical (and difficult to verify) predictions that could be very data intensive.[17/] Second, neither state nor federal regulators have seen fit to make such determinations. Indeed, in its recent clarifications of TELRIC rules in its *Triennial Review Order*, the FCC declined to choose between regulatory and financial reporting depreciation lives.[18/]

22. Moreover, even if depreciation rates were set correctly, TELRIC still would not result in an accurate estimate of cost. The relevant costs depend not only on the "market values" of each of the individual components of the network, but also the *quantity* of specific items of

---

[15/] Because no realistic firm would have the luxury of instantaneous deployment of all new equipment to serve the totality of an ILEC's current demand, competitive telecommunications firms would all face compatibility constraints similar to what the ILECs experience

[16/] Reply Br of Petitioners United States and the Federal Communications Commission, *Verizon Communications, Inc v FCC*, 535 U S 467 (2002), at 10-11

[17/] For example, Professor Hausman's approach requires information on the expected rates of change in equipment prices and demand, as well as estimates of the uncertainty in input and output prices, all of which are needed for an indefinite future period *See* Hausman, *supra* n.8.

[18/] *Triennial Review Order* ¶ 688 And even the generally shorter financial lives reflect actual competitive conditions, *not* the more rapid depreciation implied by the hyper-competitive blank slate assumption

network equipment, e.g , the number of telephone poles, lengths of cables of particular sizes, central office switches, etc. needed. The cost models currently used in TELRIC studies produce estimates of quantities based on the putative characteristics of a hypothetical "efficient firm " The propensity of current TELRIC rules to underestimate the necessary quantities has consequences similar to its tendency to understate the unit costs of such equipment. For example, as suggested by the *TELRIC NPRM*'s tentative conclusion that more realistic route structures be represented in future TELRIC studies,[19] if because of a combination of assuming unrealistically short routes and overoptimistically small amounts of spare capacity, a TELRIC study understated the amount of copper cable by 25 percent, the impact on investment would be the same as assuming that technological progress had reduced the copper cable price by 25 percent but that the amount of cable were the same as actually deployed. The FCC's tentative conclusion to more closely represent the ILEC's current route structure and topology would mitigate the problems that such underestimations of quantities introduce

23. Similar conclusions hold true for numerous other inputs. For example, as Professor Shelanski explains in greater detail, the ILECs' costs of providing switching functions depend on the mix of initial equipment (typically sold at lower unit prices) and add-on and replacement equipment (available at smaller discounts, because the ILEC is "locked in") that they expect to deploy. As a result, assuming that an "efficient firm" can deploy a greater proportion of equipment purchased at initial equipment prices not only would understate economic costs, but would also overlook the fact that in order to remain viable, the vendors supplying the switches would have to change the relative prices of initial and

[19] *TELRIC NPRM* ¶ 52

add-on equipment if the firms purchasing that equipment change their mix of initial versus add-on installations.

24. Finally, the emerging picture of actual competition among telecommunications firms—both "intra-" and "intermodal"—that deploy different technologies and different network configurations actually exacerbates the flaws of TELRIC. As discussed above, TELRIC's assumptions concerning how and when firms replace existing facilities and deploy new technologies are wholly unrealistic. That is even truer in a world where the incumbent is competing with firms using different modes of technology and types of facilities. Because such a market is fraught with even greater uncertainty and complexity, the risks involved in investing in new technologies and facilities are even greater, and the assumption that prices will reflect instantaneous and ubiquitous deployment of the newest technologies even less valid.

III. CORRECT MEASUREMENT OF THE ECONOMIC COSTS OF NETWORK ELEMENTS

25. The *TELRIC NPRM* states objectives for network element pricing that would, if properly implemented, be consistent with the Act's emphasis on the competitive process. According to it, UNE prices should (1) encourage efficient entry and (2) facilitate investments in telecommunications infrastructure.[20/] We have consistently contended that for these purposes it is the ILECs' own forward-looking costs that should be used as the basis for network element rates.[21/] For example, rather than posit the network design and operating characteristics of what an "efficient" ILEC might attain in the "long-run," as the *TELRIC*

[20/] *TELRIC NPRM* ¶¶ 2-3

[21/] See for example, Kahn, Alfred E , Timothy J Tardiff, Dennis L. Weisman "The Telecommunications Act at Three Years an Economic Evaluation of its Implementation by the Federal Communications Commission,"

NPRM has tentatively concluded, a cost model should more properly start with a realistic representation of the ILEC's current network and the economic costs that it incurs in offering UNEs with that network

26 Considerations of economic efficiency and efficient competition *require* that the prices charged to competitors be based upon the LECs' *actual* costs, including depreciation rates and costs of capital realistically reflecting both the dynamism of telecommunications technology and the radical changes in their regulatory environment. To the extent competitors can provide these inputs more efficiently than the LECs, this will fully preserve their incentive to do so and thereby promote efficient facilities-based entry.[22/]

27. As we have already pointed out, this is particularly true given the striking growth in intermodal competition. In light of this competition, there is certainly no need to subsidize CLEC entry simply to create additional providers: cable telephony providers, wireless carriers, and voice over IP providers are already capturing customer and traffic from incumbents and have generated the efficiency-enhancing incentives that facilities-based competition produces. To continue to set UNE prices at levels below the incumbents' actual forward-looking costs will only distort and impede the development of efficient competition.

28. Our discussion of how economic costs can be properly measured starts with two propositions that follow from our earlier discussion. First, the economic costs that a firm will incur in providing a service, e.g., a certain quantity of network elements, will be the

---

Information Economics and Policy (1999) We rely on this source for some of the discussion that follows in this section

[22/] Among other considerations, the fact that other than cable telephony, facilities-based CLEC lines have declined since UNE-P lines started to grow rapidly, *see* Kahn *supra* n.3, *Triennial Review Order*, Separate Statement of Chairman Michael K Powell, suggests that the current rules lately have not been conducive to investments in facilities

result of *business decisions* on how its capital assets will be deployed (accounting for any investments necessary to accommodate growth and fluctuations in demand) and out-of-pocket expenses incurred to meet that increment of demand and that these decisions may be constrained by the firm's past decisions. Second, the growth of competition and the long history of incentive regulation have provided incentives for incumbents to operate efficiently These propositions imply that the quantities and prices of the network components represented in a cost study be obtained from measuring certain characteristics of the incumbent's current operations and/or foreseeable business plans and not from a representation of a putatively more efficient hypothetical firm.

29. In unregulated markets, prices tend to be set on the basis of the actual costs of incumbent firms, and they should be. The economic purpose of prices set at cost is to inform buyers—and make them pay—the cost that society will *actually* incur if they purchase more or would *actually* save if they reduced their purchases, entirely or partially. These can only be the costs of the supplier whose prices are being set, not some hypothetical ideal producer. Moreover, such prices give challengers the proper target at which to shoot—the proper standard to meet or beat and the proper reward if they succeed. If they can achieve costs lower than that, they will enter and *in the process* (which the FCC's current pricing rules short-circuit) beat prices down to efficient levels. In contrast, TELRIC-based charges—which are lower than rates based on the telephone companies' actual incremental costs—would actually discourage competitors coming in and building their own facilities, which it was the clear intention of the 1996 Act to encourage.

30 Instead, then, of trying to predict the UNE prices that a competitive market would produce using a model network such as that in TELRIC, the FCC should reform TELRIC so that it

determines UNE rates based on the ILECs' actual forward-looking costs. The efficient entry and investment incentives that sound regulatory policy (and the *TELRIC NPRM's* objectives) seek to facilitate must be the product of business decisions by which competitive firms respond to consumer demand by investing in facilities, offering competitive and innovative products and services, and pricing those offerings.

31. It is the cumulative impact of business decisions over time that determines the configuration and vintages of the firm's capital assets. Because of the durability of many components of networks in the telecommunications industry, new business decisions in the industry will typically be constrained by the accumulation of previous decisions. Consequently, neither the network configuration of a *competitive* telecommunications firm nor the vintages of its capital assets could resemble that of a *hypothetical* firm that is assumed to have the luxury of configuring an entire network and purchasing the latest equipment to serve the totality of demand at a single point in time. The *TELRIC NPRM's* tentative conclusion that the ILEC's actual routing and topology by used in a TELRIC study and, as we explain below, realistic choices of the equipment deployed in that network would bring TELRIC in closer alignment to these realities.

32. Even if incumbents' networks were not efficient, the objective of facilitating a competitive process and allowing that process to determine prices would be superior to attempts to ascertain how an efficient competitive firm would look. This appears to be the case even in the relatively uncomplicated situation in which the only competitors would be intramodal ones that employed network elements obtained from ILECs. Attempting to emulate an "efficient firm" approaches hopeless speculation when apparently rapidly converging

competitive technologies, such as wireless and VoIP, are making noticeable inroads into the local exchange business.[23/]

33. As Professor Shelanski explains in detail, there are two alternative ways to measure the characteristics of the existing network for the purpose of establishing economic costs: (1) estimate the replacement cost of the current network, accounting for the amounts of equipment and the mix of vintages that it contains[24/] and (2) observe the investments and costs associated with foreseeable plans that accommodate anticipated increments of demand. While the details of the alternative approaches differ in some respects, there are some measurements that would be common to both. For example, the amount of necessary spare capacity and the types of equipment that are compatible with the existing network should be the same with either approach.

34. A number of the specific cost model parameters for which the *TELRIC NPRM* seeks comment, e.g., fill factors, sharing support structures, and operating costs, would be used similarly in the alternative approaches. And in conformity with the foregoing propositions, we recommend that current levels of such inputs are, at a minimum, the proper starting point for developing reasonable values for such inputs. For example, we understand that levels of spare capacity have been reasonably stable over the recent past. Because these represent the responses of incumbents to the incentives they have to operate efficiently, assertions that a hypothetical firm could get by with less spare capacity are mere unsupported speculations Similarly, because incumbents have had incentives to share

---

[23/] The deceleration and even reversal in the growth of local exchange volumes has received considerable attention recently *See, e g* , Seth Schiesel, "The Bells Struggle to Survive a Changing Telephone Game," *The New York Times*, (Nov 24, 2003)

[24/] In particular, Professor Shelanski describes an approach similar to the replacement cost alternative, which adjusts the current mix of facilities for changes anticipated over a reasonable planning horizon *See TELRIC NPRM* ¶ 54.

structures such as telephone poles and conduits when it is cost-effective to do so, there seems to be little basis for assuming that competition would produce appreciably greater amounts of such sharing.

35 The first approach measures the total quantities of network components required by the incumbent's existing network (taking into account how it is actually expected to evolve over a reasonable planning period) and estimates the respective values of these components.[25/] Because this approach essentially starts with an estimate of the replacement cost of the existing network, it is similar to the current TELRIC rules, which likewise start with an estimate of the "replacement cost" of a network (albeit completely hypothetical and almost totally unconstrained by real-world realities and previous decisions that serve to constrain future actions) capable of providing the full gamut of network elements. Likewise, the annual or monthly costs of service for particular network elements are the sum of (1) a proper return on the value of the underlying capital, (2) compensation for loss in value of that capital during the period in question (depreciation), and (3) the out-of-pocket expenses associated with the network components in question.

36. The second approach is similar to the practical definition of forward-looking incremental costs long advocated by one of us (Kahn). It identifies expected volumes of demand anticipated over a certain business planning period and the investments and operating costs anticipated to satisfy that demand. Because such measurements would be based on actual business plans, the quantities and particular types of the necessary components, their prices and associated operating costs would be dictated by the characteristics of the network that actually provides them As such, such a calculation identifies the economic resources

[25/] Taking into account the mix of vintages that the network includes

(capital and operating) that will be expended in producing the volume of network elements in question.[26]

37 Finally, in light of the uncertainty and complexity that characterizes the telecommunications industry, particularly with the growth of intermodal competition, cost models, which are essentially designed to assess the economic value of an ILEC's network, should eschew speculative "long-run" forecasts of factors such as the proper mix of different types of available technologies (e.g., the mix of all copper versus fiber-fed subscriber loops) and instead limit such deployment forecasts to reasonable planning horizons—e.g., approximately three years.[27]

38. This concludes our declaration.

---

[26] Strictly speaking, the costs produced by this approach are long-run incremental costs, which may exclude some of the shared costs that must be reflected in competitive prices and which current TELRIC rules capture in network element prices Professor Shelanski describes how such costs could and should be added to the long-run incremental costs

[27] Professor Shelanski discusses the planning horizon issue in greater detail We note that long-run cost approaches, such as TELRIC, have over the years been motivated, in part, by practical considerations such as administrative feasibility and rate stability These considerations suggest the same types of practical planning horizons as we suggest here. (See, for example, Kahn, *op. cit*, Vol. I, pp. 107-108)

Declaration of Alfred E. Kahn

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

Executed this 15th day of December, 2003.

Alfred E. Kahn

Declaration of Timothy Tardiff

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

Executed this 12th day of December, 2003.

Timothy Tardiff