"In designing measures of individual states' magnitude of required USF support for non-rural carriers, one could calculate the difference between the state's average total required non-rural carrier USF support per loop, and the national average amount of such support."[39] Unfortunately, like the Ad Hoc Plan, state-wide averaging detracts from the ability of a plan to target specific supra high-cost areas in the state and to direct federal support to the areas and carriers where it is needed most.

U S WEST commends the Colorado PUC Staff for agreeing with U S WEST's analysis that the 25/75 Plan would provide insufficient federal support for supra high-cost areas in a state and would force the state commissions to impose unreasonable surcharge levels on intrastate services in an attempt to fund their 75% share of the support obligation. However, U S WEST does not believe that the Colorado PUC Staff's proposal is structurally designed to channel support directly to the supra high-cost areas in a state, because the Plan relies extensively on state-wide averaging.

VIII. A FIXED PORTION OF THE FEDERAL HIGH-COST FUNDS SHOULD BE USED TO PARTIALLY OFFSET LINE EXTENSION OR CONSTRUCTION CHARGES ASSOCIATED WITH ESTABLISHING SERVICE TO LOW-INCOME CUSTOMERS

The Arizona Corporation Commission ("ACC") has proposed that a fixed portion of the funds in the federal universal service fund be used to provide assistance for establishing local service to low-income customers in rural areas who

[39] Id. at 3.

are presently without local service.[40] The ACC identifies a very real problem, i.e., the inability of customers located in unserved rural areas to obtain telephone service, because they cannot afford to pay the line extension or construction charges necessary to extend facilities to their homes.

As the ACC says: "These Americans are in reality the essence of what a 'universal telephone service' fund should be all about."[41] What makes this challenging is the fact that "no one is aware of the true extent of this problem."[42] The ACC suggests that the Joint Board and the Commission gather information and data to determine the extent of the problem on a national level. It also suggests that the Joint Board have initial responsibility for establishing the guidelines and criteria for distribution of funds for this purpose.[43]

U S WEST supports the ACC's recommendation that the Joint Board and the Commission allocate a fixed amount of federal universal service funds to be used to partially offset the line extension or construction charges associated with establishing universal service to customers who are presently without service.

The ACC has identified a problem that the Commission should take under consideration, specifically will there be dollars available to provide new construction to high-cost areas that are not presently served or to upgrade facilities that

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[40] Proposal Of The Arizona Corporation Commission For Distribution Of Federal USF Funds To Establish Service To Low-Income Customers In Unserved Areas, Or In The Alternative, For Amendment Of The May 8, 1997 Report And Order To Provide For Federal USF Distribution For This Purpose, filed Apr, 28, 1998.

[41] Id. at 2-3.

[42] Id. at 7.

presently do not meet universal service standards today. In our December 19, 1996 Comments, U S WEST recommended the Commission incorporate into the federal funding mechanism upfront recovery of construction costs necessary to provide facilities to unserved customers or to upgrade existing facilities to meet universal service definitions in high-cost areas.[44] In the attached paper, Funding and Distributing the Universal Service Subsidy, prepared by Dr. Alfred Kahn and Timiothy J. Tardiff and filed with the Commission in a March 17, 1997 ex parte, the authors state:

> The U S West proposal responds to the risk inherent in the new competitive environment, therefore, by relating the subsidy payments to initial investment outlays rather than to annual costs or revenue requirements. It envisions competition among LECs to qualify for those up-front subsidies and would confine subsidies thereafter, if any were required, to the recovery of operating expenses. Only such a subsidy program could, in a world in which competitors would thereafter be in a position to win subscribers away from whatever carrier incurred the costs of the initial investment, could provide the synchronization of cost incurrence and subsidy payments necessary to elicit the required investments, whether by incumbent telephone companies or their competitors.[45]

In its Universal Service Order, the Commission acknowledged U S WEST's proposal:

> Further investigation is needed to determine whether there are special circumstances, such as the need to attract carriers to unserved areas or to upgrade facilities, in which it may or may not be reasonable to compensate one-time costs with one-time payments. Because we believe this issue should be examined further, we will consider this proposal in a future proceeding.[46]

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[43] Id. at 8.

[44] Response of U S WEST, Inc. to Recommended Decision, CC Docket No. 96-45, filed Dec. 19, 1996 at 8-16.

[45] Attachment A at 19.

[46] Universal Service Order, 12 FCC Rcd. at ¶ 231.

U S WEST encourages the Commission to move forward as promised with its proposed proceeding to investigate compensation of one-time construction costs with one-time, upfront payments.

IX. CONCLUSION

The Commission should adopt the IHCAP for distributing high-cost support to non-rural LECs. The IHCAP is specifically designed to target support to those areas which need additional federal assistance to preserve and advance universal service. It maintains the states' role in sharing responsibility for funding universal service. Finally, it can easily be implemented by January 1, 1999.

Respectfully submitted,

U S WEST COMMUNICATIONS, INC.

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May 15, 1998

ATTACHMENT A

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Glenn Brown
Executive Director-
Public Policy

USWEST

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OFFICE OF SECRETARY

EX PARTE

March 17, 1997

William F. Caton, Acting Secretary
Federal Communications Commission
1919 M Street, NW, Room 222
Washington, DC 20554

RE: CC Docket No. 96-45, Universal Service

Dear Mr. Caton:

On March 14, 1997, Bill Johnston, Executive Director, U S WEST; Drs. Alfred Kahn and Timothy Tardiff of NERA and the undersigned met with Regina Keeney, Chief, Common Carrier Bureau; Kathy Levitz, Deputy Chief, Common Carrier Bureau; Jeanine Poltronieri, Chief, Universal Service Branch and Pat Degraba, Chief Economist, to discuss Universal Service issues. The attached document was used during the presentation.

In accordance with Section 1.1206(a)(2) of the Commission's rules, the original and one copy of this letter, with attachment, are being filed with your office for inclusion in the public record.

Acknowledgment and date of receipt of this submission are requested. A copy of this letter is provided for this purpose.

Please call if you have any questions.

Sincerely,

Attachment
cc w/o Attachment
Alfred Kahn
Timothy Tardiff
Regina Keeney
Kathy Levitz
Jeanine Poltronieri
Pat Degraba

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Consulting Economists

STATEMENT OF ALFRED E. KAHN AND TIMOTHY J. TARDIFF

Funding and Distributing the Universal Service Subsidy

Prepared for U S West

March 13, 1997

Consulting Economists

STATEMENT OF ALFRED E. KAHN AND TIMOTHY J. TARDIFF

Funding and Distributing the Universal Service Subsidy

I. INTRODUCTION AND SUMMARY

We have heretofore sought to encourage universal subscription to telecommunications service by holding basic residential rates below economically efficient levels and, correspondingly, setting the prices for other services, most prominently toll and carrier access, well above such levels. The Telecommunications Act of 1996, as well as the Federal Communications Commission and state regulators, have acknowledged that this traditional scheme of internal subsidization is incompatible with full competition in all telecommunications markets, underpriced and overpriced alike. The purpose of this statement is to evaluate from an economic perspective the particular reform of universal service funding that U S West Communications has proposed.

That proposal and this statement in support of it differ in some respects from specific portable subsidy proposals that we have supported in other forums,[1] reflecting, we believe, an enhanced appreciation of the complexities of attempting to continue universal service subsidies in the face of growing competition. Our main conclusions in those earlier presentations remain unchanged, however:

- The best way to assure universality of subscription from an economic perspective would be, first, fully to rebalance rates to economically efficient levels and then to supplement them with targeted subsidies, if necessary.
- To the extent rates are not fully rebalanced and targeted subsidies are required, those subsidy levels should be calculated on the basis of the actual forward-looking costs of the incumbent local exchange carriers (ILECs) themselves, not on the basis of the estimated, hypothetical costs of some assumed new, hyper-efficient entrant.

[1] Kahn and Tardiff, "Preserving Universality of Subscription to Telephone Service in an Increasingly Competitive Industry," Prepared for Pacific Bell for filing with the California Public Utilities Commission, Rulemaking and Investigation on Universal Service, R.95-01-020 and I.95-01-021, September 1, 1995. Tardiff, (continued...)

- The ILECs continue to be entitled to an opportunity to earn a fair return on and of inadequately depreciated assets and they alone would be entitled to compensation for any shortfalls out of whatever explicit funding mechanism is established for that purpose.
- The mechanisms for raising and distributing the universal service funds must be competitively neutral.

Our conception of the problem has changed in two ways. First, our experience with the process of attempting to set up portable subsidy programs has caused us increasingly to appreciate the superiority of a modest, phased rebalancing of rates over trying to make good the entire deficiency in the present basic residential service charges through a newly constituted universal service fund. The process of setting up and administering such a fund is likely to be highly contentious and cumbersome. The more modest the stakes—if, for example, it was designed only or preponderantly to support rates in rural areas that, all parties are likely to agree, are at present far below cost by any measure—the less contentious and cumbersome it is likely to be. Such a resolution would offer the additional promise that the need for the fund might prove to be only temporary, as new technologies (possibly wireless) opened up the possibility of dramatically reducing the cost of providing dial-tone service to new subscribers in those areas of the country. In these circumstances, a gradual rebalancing of rates, combined with a clearly linked, phased reduction in the present inefficiently large markups on such bottleneck services as carrier access, may be a more efficient way of managing the transition.[2]

The second is that our previous conceptions of the "benchmark price" on the basis of which the requisite subsidy would have to be calculated—and the conceptions of all the other commentators of which we are aware—have run in terms of current or ongoing costs and prices. Our exposure to U S West's considerations of this problem have caused us to recognize that this conception not only overlooks the distinctive nature of the cost of providing telephone

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(...continued)
"Universal Service With Full Competition," presented at the 11th Biennial Conference of the International Telecommunication Society in Seville, Spain, June 1996.

[2] We recognize that Section 254 of the Telecommunications Act calls for continued geographic rate averaging. The language does not appear, however, to rule out rate rebalancing among services or more targeted universal service subsidies.

service—specifically its high capital intensity and the relative permanence of telephone plant—but would in effect perpetuate a form of rate base/rate of return regulation, which it is the central thrust of regulatory reform and competition to abandon. Subsidies based on current operating and capital costs (depreciation and return on investment)—analogous to using a daily lease rate for a rental car to approximate the purchase price of a new car—in effect perpetuate the discredited system of asking the companies to put up the investment funds in exchange for regulatory IOUs. The logical way of getting away from rate base/rate of return regulation and future squabbles, like the ones now in process, over the continuing entitlement of companies to have those IOUs honored would be to subsidize the purchase price itself—the investments themselves—up front.

II. DEFINITION AND MEASUREMENT OF THE UNIVERSAL SERVICE FUNDING REQUIREMENT

A. Why Some Prices Exceed Incremental Cost

There are three distinct reasons why rates for services other than basic residential access have had to be priced far above incremental costs in order to afford telephone companies a fair opportunity to recover their regulatorily-determined revenue requirements or entitlements.

First, basic local residential service to a large fraction of subscribers is priced below its incremental cost: in strict economic terms, this is the only sense in which a service may be said to be subsidized.

Second, because economies of scale and scope are pervasive in telecommunications, prices set at bare marginal or incremental cost would not recover total economic costs—that is, costs reckoned on an ongoing (current and future) basis only. Since basic residential service rates unquestionably fall far short of incorporating the requisite economically efficient markups toward the recovery of these joint and common costs, the prices of other regulated services incorporate correspondingly inefficiently large markups for this purpose.

Third, ILECs have accumulated an historical legacy of past or sunk costs, legitimately incurred in fulfillment of their public utility obligations to offer service ubiquitously. Under traditional regulation, as has been practiced by most U.S. regulatory commissions,[3] the utility companies have the right to a reasonable opportunity to recover all of these costs, including a return on the net book value of their assets, even though—as is typical in the telephone industry today—this requires pricing services in the aggregate farther above their respective marginal or incremental costs than would otherwise be necessary. If their plant is now overvalued—that is to say, if its net book value exceeds what its value would be under a regime of effective competition—that is merely another way of saying that the depreciation that regulators have permitted the companies to recover in the past have failed fully to reflect the decline in economic value of their assets. As we explain more fully below, the historical difference between the extent to which investments have been recovered and the decline in their economic value is equivalent to a loan from the utility to its customers.

The resulting inflation of the prices of non-basic services has of course invited competitive entry: it was no accident that challengers sought first to enter the long-distance market, then to provide access directly to customers rather than via the local telephone companies and now offer direct dial tone service to business customers in concentrated metropolitan areas. Those entries have in turn imparted a powerful impetus to the quest for alternative methods of making good the underpricing of basic residential services and recovering those sunk costs.

B. The Proper Measure of Incremental Cost for Determining the Universal Service Funding Requirement.

Suppose society chose to subsidize a particular service that was being provided in a competitive market. The first measure of the subsidy required would then be the amount by

[3] Whatever the present differences of opinion about the propriety of perpetuating that entitlement, it continues to be reflected in present rates, as we will further point out in Section C, below.

which the target, subsidized price would be below the competitive levels.[4] The competitive price would cover (1) the incremental cost that firms incur in producing the subsidized product and in industries with scale and scope economies, (2) an efficient markup to contribute toward recovery of shared and common costs.[5] Efficient markups would, as a general proposition, vary inversely with the elasticities of the demands for the several services: this would minimize the inefficiencies consequent on the necessity of setting prices above marginal cost.

Turning to the first component, while economists agree that forward-looking economic costs are the proper basis for establishing efficient prices, there is considerable disagreement over whose incremental costs are the proper benchmark. Incumbent firms and new entrants are likely to have different product mixes and incremental cost structures and levels for particular products.[6] In these circumstances, the proper basis for calculating the requisite subsidy will be the incremental cost of the incumbent telephone company, reflecting the economic reality it actually confronts.[7] Regulators are not writing on a blank slate. Telephone companies already

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[4] We reserve for Part V, below, the question raised by the U S West's application of whether subsidy payments out of a universal service fund would best be made in the form of a supplement to price, on an ongoing basis, or in the form of a contribution up front to investment costs, to the extent they would not be expected to be recovered in regulated prices of these basic services in the form of depreciation and return on net assets.

[5] The inclusion of the "efficient markup" would seem to conflict with strict economic principle, to which we have already alluded, that a service may be said to be subsidized only to the extent its price fails to recover its incremental costs alone: only to that extent would its provision impose a burden on other services. No company or industry could continue to provide service, however, if it did not in one way or another recover the total ongoing and future costs of operating; and in an industry such as telecommunications this would require markups above incremental cost sufficient to permit recovery of total costs. The "competitive levels" of the several prices would therefore necessarily incorporate efficient markups, varying in accordance with what the respective markets would bear.

[6] Incremental costs cannot have a single definitive measure when services are supplied jointly or in common: their level will vary depending upon whether the basic service offering—for example—is hypothetically grafted upon or accompanied by the offer of video, wireless or long-distance services or is supplied from a competitive land-based or wireless telephone access network.

[7] In 1991, one of us characterized the choice between this measure of actual incremental costs and the hypothetical costs of constructing a new supply capability from scratch in the following terms:

> 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

(continued...)

have ubiquitous networks serving their entire franchise territories and are constantly providing service to new customers within those territories, at rates evidently below efficient levels. That is the gap that must be filled, most efficiently by rebalancing rates but, if not, then by offering the requisite subsidy. Moreover, prices (plus subsidy) equated to the costs of the incumbent telephone company are the proper target for competitors: if and to the extent they can provide the service more efficiently than that, they should be rewarded (in the rates they charge plus the subsidies they receive) by the difference between their costs and those of the incumbents.

In its consideration of alternative cost proxy models (as well as in its discussion of total long-run incremental costs of unbundled elements (TELRIC),[8] the FCC has raised the question whether, instead, the requisite universal service subsidy should be calculated not from the actual incremental cost of the incumbent telephone company but—defining "long-run" in the abstract economic sense as applying to a situation or time perspective over which all costs are variable—the minimum incremental costs of providing the subsidized service by a supplier starting from scratch or writing on a blank slate, using today's most efficient technology.[9] We submit that this is not the measure of the cost that should be used in order to serve either of the

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(...continued)

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, Before the Federal Communications Commission, In the Matter of Expanded Interconnection with Local Telephone Company Facilities, CC Docket No. 91-141, August 6, 1991.)

The late Professor William Vickrey, the latest Nobel Laureate in economics, long ago defined the relevant time or planning horizon and incremental output for pricing purposes in the same way (Testimony in FCC Dockets 16258 and 15011, *In the Matter of American Telephone and Telegraph Company*, Networks Exhibit No. 5, July 22, 1968, mimeo., 23-24), as quoted and cited in Kahn, *The Economics of Regulation: Principles and Institutions*, New York: John Wiley & Sons Inc., 1970 and 1971, reprinted by MIT Press, 1988, Vol. I, p. 108.

[8] First Report and Order, *In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, CC Docket No. 96-98; Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, CC Docket No. 95-185*, Adopted August 1, 1996, Released August 8, 1996 (Interconnection Order), pars. 679-693.

[9] The FCC's definition of total element long-run incremental cost (TELRIC) in the Interconnection Order contemplates a brand new network, constrained only by the location of the incumbent's switches.

two major purposes of constituting a Universal Service Fund—(1) to subsidize the incumbent's continued provision of the underpriced basic residential service, so as to enable it to continue to recover its total costs in the face of correspondingly reduced prices of such subsidizing services as carrier access and toll and, (2), by making that same subsidy available to potential competitors, to put them on the same competitive plane as the incumbent and thereby ensure that the carrier or carriers with the lowest incremental costs will prevail. For both these purposes the only proper measure of incremental cost is that of the incumbent itself. The economic purpose of having prices set at incremental cost is to inform buyers—and make them pay—the actual cost that society will incur or save in these several circumstances: these can only be the costs of the supplier whose prices are being tested.[10]

III. THE ECONOMIC CASE FOR REBALANCING RATES

Even in a proceeding premised on the need for constituting a universal service fund, there are all sorts of reasons for restating at the outset the preferability of a full rebalancing of rates as the superior alternative:

- The costs to society of pricing certain telephone services well above their incremental costs to subsidize the availability of other services to all purchasers, regardless of need, is enormous: Crandall and Waverman estimate the consequent net social welfare loss at $30 billion a year.[11]

- In market economies, we do not generally try to make what we regard as essential parts of a decent standard of living universally available by holding their prices to all purchasers below cost. Certainly telephone service is no more important in this

[10] There is no necessary conflict between this elementary rule for allocative efficiency and the possibility that regulators might find, under traditional practice, that some of these costs were being imprudently incurred and were therefore not properly chargeable to customers. The solution would be to reduce the markups above incremental cost required to provide a return of and on historically invested capital: the consequent reduction in the gross returns to shareholders, denying them recovery of some portion of their sunk costs, would relieve customers of the burden of imprudently incurred costs while not violating the principle of prices recovering truly marginal or incremental costs. See Kahn and Shew, "Current Issues in Telecommunications Regulation: Pricing," *Yale Journal on Regulation*, Vol. 4 , Spring 1987, pp. 191, 227-29.

[11] Robert W. Crandall, Leonard Waverman, *Talk is Cheap*, Washington, DC: The Brookings Institution, 1995.

respect than food and medical care, yet we permit those necessities to be sold at market prices and ensure their widespread affordability by providing targeted subsidies to poor people.

- We depart from that rule for telephone service only because we happen to subject this industry to full-blown economic regulation. But we are in a position to do so only because, in the absence of competition, regulation has been necessary to protect consumers generally from exploitation by what we have generally conceived to be natural monopolies, and the rationale of that regulation is, therefore, to emulate the results that competition would produce if it were feasible. Those results would not entail pricing some services far above economic costs and others far below.

- To the extent that regulators explicitly subsidize basic service out of a universal service fund—that is, apply an external subsidy—it is essential to bear in mind that no tax levied to support that fund can ever be wholly "competitively neutral." While it would clearly be an improvement over the present reliance primarily on internal subsidies, financed by inflated toll and carrier access charges if the tax applied to competitive supply sources as well, we are aware of no method that has been proposed that would explicitly tax services privately provided, and competitive suppliers would have strong incentives to seek out ways of so structuring their operations as to avoid falling within the regulatory definition of entities subject to the tax.[12]

- There is convincing evidence, from what happened when, after the dissolution of AT&T, the FCC partially substituted a direct subscriber line charge for the markup in carrier access charges, that subscription to telephone service is influenced at least as much by the level of long-distance rates as by the basic monthly charge.[13] What this means is that further rebalancing may not at all conflict with maintenance of the present almost universal subscribership. If this is true it undermines the entire rationalization for the present still unbalanced structure of prices.

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[12] For example, the Joint Board Decision requires that carriers providing interstate telecommunications services be required to contribute to the fund. Firms that manage to structure their operation so as to not fall under the definition of providing interstate services would, therefore, not be subject to the requisite tax. Before the Federal Communications Commission, Recommended Decision, In the Matter of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, November 7, 1996, par. 784. ("Joint Board Decision")

[13] Hausman, Tardiff and Belinfante found that the rate rebalancing entailed by that charge, which produced large reductions in long-distance prices associated with the increase in basic service charges, had the effect of increasing telephone subscribership. "The Effects of the Breakup of AT&T on Telephone Penetration in the United States," *American Economic Review*, Vol. 83, 1993, pp. 178-184.

We recognize of course the political obstacles to full rebalancing, particularly if it were to be concentrated in a brief period of time. On the other hand, imposition of a new tax to finance a USF would surely encounter similar resistance. A gradual phased rebalancing, with appropriate emphasis by the responsible governmental authorities on the benefits of a phased reduction in the prices of currently overpriced services—and with average prices also reflecting reasonably anticipatable improvements in productivity—might be at least as feasible politically as the initiation all at once of a universal service fund of the required dimensions; and consumers in the aggregate would surely fare better from the superior efficiency of the result it would produce.[14]

IV. PORTABLE SUBSIDIES

Having emphasized the superior efficiency of rebalancing and the fact that recourse to a universal service subsidy is only second-best, we proceed to consider the sources and uses of such a fund.

A. Raising the funds

Once the decision has been made to support universal service with an explicit subsidy, the least bad way of financing it would indeed be by a proportionate surcharge assessed on the broad range of services provided by the broadest possible base of telecommunications providers. Such a tax would eliminate the present distortion of competition inherent in imposing the burden solely on the services supplied by the incumbent telephone companies, to the extent that it encompassed all alternative methods of supply (a goal that, we have suggested, is unlikely to be wholly attainable, particularly as it applies to privately provided telecommunications services). It would avoid or minimize the productive inefficiencies consequent on the substitution—artificially induced under our present system—for overpriced

[14] While rate rebalancing reduces the size of the subsidy requirement (by in effect raising the benchmark price), the decision of Congress to require continued geographically-averaged rates means that rates in certain high cost areas would not offer the proper incentives for new investment. In Section V, we describe a method of remedying that deficiency.

inputs supplied by regulated telephone companies of alternatives that bear no such burden under the present system. And while economic efficiency would dictate higher taxes on services the demand for which is relatively inelastic and lower on those whose demand is elastic, at least a flat proportional tax would avoid the gross inefficiency of the present system, which tends perversely to tax the more elastic services more than the less elastic.

B. Distributing the funds[15]

The Universal Service-Fund would provide the incumbent LEC with a new method of compensation for its continued obligation to provide basic residential service at rates below economically efficient levels and for fulfilling its other public utility obligations as carrier of last resort superior to the overpricing of services in the provision of which it faces increasing competition. And for the LEC's competitors, it would offer equivalent compensation, to the extent they assume corresponding burdens, which would enable them to compete on an even plane—i.e., it would remove the major impediment to local service competition posed by the present system's requirement on the incumbents to set those prices below competitive levels.

Distributing the subsidy to the several carriers on a per customer basis seems to us entirely reasonable. It must be recognized, however, that the costs of serving customers will vary substantially, particularly from one geographic location to another; therefore, the amount of the per-customer subsidy should, in principle, be based on the differences between the cost of serving each one of them and the regulatorily-mandated rate. This proposed arrangement would conform with the principle of subsidizing all competitors to the precise extent of the cost of whatever service obligations they choose to assume that they are not permitted to recover in price. In practice, it would prove necessary to estimate those cost differences, which would in turn be the basis for the subsidy, by geographic areas, with their several estimated costs refined down to the smallest practicable area; and all carriers willing to serve customers in whatever territory (i.e., assume the requirements of a COLR)—as always, with service meeting stipulated

[15] Our recommendation regarding carriers eligible to receive universal service subsidy payments is consistent with the Joint Board's definition. (Joint Board Decision, par. 155)

quality standards—would receive subsidy payments for all customers served equal to the difference between price and economic costs.

The arrangements would certainly not totally eliminate the possibility of competitive cream-skimming: to the extent that the proxy cost estimates that provide the basis for the subsidies are based on cost averages—even if refined down to very small separate territories—entrants would have the opportunity to choose to serve those customers within the group whose costs were below that average and still receive the subsidy based on the average. This consideration suggests that if the proxy costs are calculated for any territory or market area, however small, the LECs' competitors would be entitled to a subsidy only to the extent that they agreed to serve any customers in that territory on equal terms.

C. Treatment of the legacy

One of the greatest obstacles to our moving at once to a system of full-blown competition in telecommunications (as it is in electric power) is the historical legacy of a huge total of sunk costs: certainly that is the main reason that the interim, transitional negotiations and regulatory decision-making processes are so contentious.

There is room for conscientious differences of opinion about the dimensions of equitable settlements, but we suggest no one can honestly deny that we have indeed inherited and to this day continue to operate within a regulatory system in which the LECs have some sort of entitlement, explicit or implicit, to recovery of those historically incurred costs. This is true not just in the (large) minority of state jurisdictions that still practice something like full-blown rate base-rate of return regulation. It is true also in the states whose rates are either frozen or subject to indexed ceilings—most obviously where the formulas provide also for sharing of excess profits or revenue deficiencies but also where the caps or indexation formulas are in principle to be unchanged for some stipulated number of years and then re-evaluated. In the latter cases, the freezes or formulas typically begin with some sort of regulatory determination that the beginning rates are "just and reasonable" and the formula is, explicitly or

implicitly, designed to be compatible with the recovery of those costs, under conscientious management.[16]

The correct treatment of the legacy starts from a recognition that it represents, in effect, the unpaid balance of a loan from the incumbent utility company to its customers, the accumulation of deficiencies in the annual depreciation expenses that it would already have recovered had it been permitted to charge efficient prices, reflecting its true economic costs. Accordingly, the payments (really repayments) should not be part of the subsidy payment for retaining old subscribers or attracting new ones. That payment should be equal only to the difference between the suppressed price of basic service and the incumbent LEC's economic (incremental) costs—i.e., current and forward-looking costs alone, including efficient depreciation. (Once again, we reserve for Part V, below, consideration of whether the payments should come in the form of supplements to make up the difference between current revenues and ongoing costs or direct supplements to investment outlays.) That combined payment or subsidy should, in combination with regulated rates, be sufficient to compensate incumbents and equally efficient competitive entrants alike, without need for additional cross-subsidy from other, overpriced services.

So while the recovery of the book values of inadequately depreciated company plant is not the proper function of a universal service fund, that recovery might well be financed in the same way as the universal service subsidy: the broadly-based tax used to finance the underpricing of basic service might represent the best pragmatic approximation to the principle of levying the costs of past underdepreciation on its beneficiaries. But the distribution of this portion of the funds would not be to incumbents and entrants alike on a per-customer basis. Its purpose is not to compensate the various rival LECs for the regulatorily-required underpricing of the basic residential service relative to the incumbent's true economic costs, so as to equalize competition among them. It is, rather, to pay back the loan to the incumbent LECs, to make good their entitlement to recovery of those underdepreciations in the past. If it were distributed the same

[16] As the FCC has itself observed, "The cost showing contemplated by the price cap rules is, in essence, a traditional, embedded cost rate case." (Docket 96-488, par. 235)

way as the universal service subsidy, the newly qualifying COLRs would be receiving a windfall unnecessary to enable them to compete successfully if their economic costs were equally low. Since recovery of the legacy would in this case be tied to success in obtaining local exchange customers, competition would be distorted, because the incumbent LEC's rivals would find it in their interest to reduce their rates below efficient levels, because their reward for securing additional customers would be the price plus their windfall share of the incumbent companies' legacy.

D. Updating the subsidy payments

Sizing the universal service fund in terms of current economic costs raises the question of how the competition that the program is designed to promote can succeed in driving down costs and giving customers the benefit of these efficiency improvements. A properly designed portable subsidy program can achieve these purposes in two ways: First, the subsidies could, like regulated price caps, be either unchanging or indexed according to an initially prescribed formula for some number of years. Like price caps, they would in this case give both the incumbent LECs and their challengers strong incentives to reduce their costs—incentives they would not have if they were regulated on a pure-cost plus basis. Incorporating the "X" or productivity factor in the formula for the subsidies, if such a provision for their decrease in real terms over time were justified, would be superior to incorporating it in the price caps for the basic services themselves, i.e., in the prices paid directly by the customers. By permitting corresponding reductions in the tax on all other services required to generate the subsidies, rather than in the price of the already underpriced basic services, it would automatically distribute the benefits of reasonably anticipatable productivity improvements in such a way as to rebalance rates in their respective efficient directions rather than perpetuate the underpricing of basic service and the corresponding overpricing of the subsidizing services.

Second—and, in a sense, alternatively—increasing competition at the local level would be expected to exert downward pressure on the incremental costs that determine the size of the subsidy. Whether incorporated in the original subsidization formula or upon subsequent periodic recalculations, those compressed incremental costs would dictate a reduced subsidy. Such future reviews would not be costless, however. Just as in the case of establishing the

program in the first place, updating what amounts to the market price benchmark would require repeated, technically challenging and politically charged estimations of incremental costs and the size of the economically efficient mark-up. Consequently, approaches that avoid the need for such future regulatory redeterminations, such as a scheduled progression to fully rebalanced rates or the auction approach proposed by other parties[17], and, of course, unregulated competition, when and if it developed, would be far preferable. Even if the Commission proceeds to design a Universal Service Fund, if it must, it should bear in mind the preferability of conceiving of it as an only transitional expedient—not by planning to phase it out arbitrarily but by pressing forward with more fundamental reforms that would render it unnecessary.

V. SUBSIDIZING INVESTMENT OUTLAYS RATHER THAN CURRENT COSTS

The U S West proposal differs from previous conceptions of portable subsidies in that it would in effect (following our previous analogy to the rental or purchase of a car) use as its "benchmark price" not the monthly rental value—in this case the operating plus carrying costs of basic service—but the purchase price or investment cost (plus associated operating expenses) of the facilities needed to provide it. What U S West is saying here is that the proposals based on a monthly benchmark, such as that of the Joint Board, would perpetuate the historical system of continuously increasing regulatory IOUs, under which the ILECs or CLECs would be expected to invest now and be repaid later out of the combination of regulated monthly rates and annual disbursements out of the fund to service and recover those sunk costs.

It might seem, on first consideration, that the Company is asking for more protection than investors in unregulated markets enjoy: businesses in unregulated industries invest today in expectation of recovering their costs plus profits over time. Wouldn't the alternative system proposed by U S West, which would compensate investors up front, be incompatible with the spirit of the competitive system, in which investors are supposed to bear the risks? The answer is yes, but we are dealing here with a part of the system in which, concededly, unsubsidized

[17] See, for example, Joint Board Decision

investments would be uneconomic, because the services would have to be sold at regulated rates intentionally held below proper levels, and under which, if the system were honestly administered, investors would in any event have to be made whole (and no more than whole), whether or not up front or on an IOU basis.

The guaranteed up-front payment to provide investment incentives is not without historical precedent. For example, the federal tax codes have from time to time provided investment tax credits that confer immediate benefits on investing firms. Like the US West proposal, receipt of the tax credit and reward for investment is not dependent on and subject to the uncertainty of future developments in the marketplace.

Whatever its pros and cons, the IOU system—that is, the system under which costs were capitalized and recovered over time—was perfectly sustainable under franchised monopoly. The joker in its retention in a regime of free consumer choice—under which consumers could confer their vouchers on successful competitors—would be the prospect that it opens of inducing the ILECs to incur the investment cost up front but have their reward at risk of being taken away by competitors that have not incurred those costs.

Indeed, the temporal mismatch between incurrence of cost and receipt of reward would seem in these circumstances to encourage inefficient competition: the later CLEC, unburdened by the investment costs historically incurred,[18] could presumably offer a lower bid to induce consumers to shift their patronage to it, while the incumbent, obliged in the interest of its shareholders to recover as much of its sunk costs as possible, would be tempted to hold a price umbrella over the market, even at the cost of a loss of market share.

From an economic perspective, the U S West proposal responds to two fundamental characteristics of telephone service—capital intensity and permanence of investment—the

[18] These include both the underdepreciation of currently existing assets and any additional costs associated with the incumbents' historical obligations as carriers of last resort. That is, just as the carryover of those sunk and ongoing costs in the rates of incumbent LECs have encouraged—and continue to this very day to encourage—inefficient competitive entry, so would a system under which the universal service subsidies compensated investors on a rental or IOU basis rather than up front.

relationship of which to the contemplated scheme of explicitly subsidized underpricing of services the supply of which is expected to be subject to competition has been essentially overlooked. The proportion of the total cost of telephone service that is accounted for by investment is high and once that investment is in place, it is difficult if not impossible to use it in other locations for other customers. These inherent characteristics of telephony raised no problems under regimes of rate-base-regulated, franchised monopoly. But they create a severe mismatch between the incurrence of costs and prospect of recompense in a regime of competition for subsidies. Consequently, a provider of telephone facilities would confront financial risks considerably greater than are faced by firms providing goods and services (a) produced by less capital-intensive, permanent production processes and (b), whether capital-intensive or not, under conditions of unsubsidized competition.

The special riskiness of capital-intensive investment in a system of competition for subsidy-conferring vouchers is in effect ignored by the models that the FCC and other regulators are employing to establish rates for both unbundled network elements and universal service support. Cost models that produce TSLRIC (or TELRIC) estimates have as critical inputs such parameters as the cost of capital, depreciation rates and the amount of spare capacity required by an efficient supplier. While typically treated as exogenous, these types of inputs into the cost-estimation process will in fact be highly sensitive to the kind of competitive environment the ILECs are likely to face in offering unbundled elements to their competitors and universal access to ultimate customers. These models have often assumed, explicitly or implicitly, that the critical inputs can reasonably be approximated by the conditions that have prevailed under regulated monopoly conditions. But a monthly price benchmark for universal service would, under the conditions of competition intended by the Telecommunications Act and the FCC's implementation of it, clearly increase the inherent risk faced by the ILECs. Basing monthly universal service subsidies on assumptions derived from the experience under franchised monopoly would deny the ILECs a fair shot at recovering their legitimately-incurred forward-looking costs. By so doing it would discourage them from undertaking the requisite investments; and if government sought to secure them by regulatory compulsion, it would violate the entire spirit of our new national telecommunications policy and purpose of the

universal service subsidy—namely, to establish the conditions for voluntary, competitive offering of service.

The U S West proposal explicitly responds to the risk inherent in the new environment by relating the subsidy payments to initial investment outlays rather than to annual costs or revenue requirements. In this regard, the proposal is similar to the use of long-term contracts, which the FCC has recognized as a means of mitigating the increased risk faced by ILECs.[19] In effect, the up-front payment would be a long-term contract between the ILEC (or other qualifying carrier-of-last-resort) and the regulator.[20]

Is there any contradiction between the scheme proposed by U S West and the way in which other subsidy schemes, such as food stamps, work? Recipients of those stamps or vouchers have the option of taking them to any competitive grocer. The difference in the two cases is that neither the grocer nor the manufacturer will have previously incurred heavy, uneconomic sunk costs. The inflated costs of handling and redeeming the stamps are current or variable costs, for which the successful competitors for that business—the grocers who receive the vouchers—are correspondingly compensated: the incurrence of the costs and the compensation are synchronized in time.

U S West's proposal seeks to effect a similar synchronization. It envisions competition among LECs to qualify for the up-front investment subsidies and would confine the subsidies thereafter, if any were required, to the recovery of operating expenses.[21] It would not permit a second LEC to qualify for a second, duplicative subsidy for a duplicative facility.

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[19] Interconnection Order, par. 687.

[20] Failure to recognize the risk associated with capital intensity in a technologically advancing industry would be analogous to allowing consumers to lease a computer at a monthly price based on a low discount rate and then allowing them to break the lease when a lower-priced computer appeared in the market. And this risk would not depend on whether the customer paid the full amount up front or financed it with a loan. Similarly, if the regulator chose to implement the U S West proposal with periodic payments rather than a lump sum up front, continuing receipt of those payments should not depend on or be subject to future marketplace developments.

[21] The U S West proposal has focused on the investment component of basic service. To the extent that prices failed to recover fully operating expenses as well, some such mechanism as monthly vouchers would also be needed.

It might appear, on first consideration, that confining the subsidy to the winner of the right to make the first investment denies later facilities-based competitors the reward that they would receive in a competitive market. The answer, it seems to us, is that efficient competition requires that CLECs enter markets only if their full incremental costs are lower than those of the ILEC at the time of their possible entry and they should be rewarded only to the extent of that difference. The fact that the former costs may exceed the latter at some future time because they may reflect the need for greater investments thenceforward than the ILEC confronts is a mere reflection of the fact of life that duplicative investments may be inefficient.

The pertinent marginal costs of the incumbent and challengers will differ depending upon whether the possible substitution of one for the other occurs at the time of the initial investment or after. In either event or situation, it will be the carrier with the lower LRIC that will and should prevail. If the initial investments have not yet been made and the CLEC can provide the service at lower incremental (including investment) cost than the incumbent, it will prevail. Under a system such as we have recommended, under which the requisite subsidy would be based on the costs of the incumbent, the more efficient CLEC could, armed with such a subsidy, offer subscribers lower rates and so earn the pertinent vouchers. Under the alternative system, under which the size of subsidies would be based on the investment cost of a hypothetical lowest-cost provider, it would again prevail, because the subsidy would suffice for it—although just barely, if the hypothetically calculated cost were correct—but not justify the investment by the incumbent. Correspondingly, <u>after</u> the pertinent investments were made and the investment subsidy ceased to be available, challengers whose total incremental costs (incremental investment plus operating) were lower than those of the incumbent would be able to enter and prevail. If they were unable to do so because they would confront investment costs associated with their entry that the incumbents would no longer confront, then efficiency would require that the incumbents continue to serve the market.

VI. CONCLUSION

Any consideration of how to reconcile the exposure of our comprehensively regulated telecommunications industries to competition with continued virtual universality of