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Via Hand Delivery

September 23, 1998

Ms. Blanca Bayo
Director, Division of Records and Reporting
Florida Public Service Commission
2540 Shumard Oak Blvd.
Tallahassee, FL 32399-0850

Re: In re: Fair and Reasonable Residential Basic Local Telecommunications Rates
Special Project No. 980000A-SP, Docket No. 980733-TL (Discovery)

Dear Ms. Bayo:

Enclosed for filing in the above-captioned matter is an original and fifteen copies of the American Association of Retired Persons ("AARP")'s preliminary written comments for the October workshop, titled "Quality Service at Just, Reasonable and Affordable Rates: Public Policy Principles to Achieve the Consumer Goals of the Telecommunications Act of 1996."

Please acknowledge receipt of these documents by date stamping the extra copy of this letter and returning the same to me.

If you have any questions regarding this matter, please feel free to contact me. Thank you for your assistance processing this filing.

Very truly yours,



David M. Frank

encls: as stated

cc: parties of record (reg. mail)

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**PUBLIC SERVICE COMMISSION
STATE OF FLORIDA**

**QUALITY SERVICE AT JUST, REASONABLE AND
AFFORDABLE RATES:**

**PUBLIC POLICY PRINCIPLES TO ACHIEVE THE CONSUMER GOALS
OF THE TELECOMMUNICATIONS ACT OF 1996**

PREPARED FOR

THE AMERICAN ASSOCIATION OF RETIRED PERSONS

PREPARED BY

DR. MARK N. COOPER

**PRELIMINARY DRAFT SUBMITTED
IN DOCKET NO. 980000A-SP**

SEPTEMBER 24, 1998

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[FORTHCOMING]

I. INTRODUCTION

Many of the issues raised in the Florida statute that governs this proceeding¹ derive from the new legal structure established by the Telecommunications Act of 1996 (hereafter TA96 or the Act).² Therefore, it is useful to base our response on the principles of economic analysis and universal service laid down in that Act. Moreover, it is important to identify the full structure of principles that govern rates under the Act. To present this overall picture, the analysis is divided into three parts.

Part I presents the public policy position that I have presented on behalf of the American Association of Retired Persons (AARP) in a number of states across the country as well as the position taken by AARP on these matters at the federal level. It covers policies on universal service and policies on just and reasonable rates.

Part II presents a discussion of the methodology of cost estimation, cost allocation and cost recovery that best accomplishes the goals identified in Part I.

Part III presents empirical estimates specific to the State of Florida. These analyses will be provided as soon as all of the data is received from the telephone companies.

¹ FIST. section 364.025

² Telecommunications Act of 1996, Public L. No. 104-104, 110 Stat 56(1996), 47 U.S.C. S. 254 (b)(1).

PART I:

**POLICIES TO PROMOTE QUALITY SERVICE AT JUST, REASONABLE
AND AFFORDABLE RATES**

II. UNIVERSAL SERVICE

A. THE ENLARGED ROLE OF UNIVERSAL SERVICE UNDER THE ACT

The Communications Act of 1934 had one sentence dealing with universal service.³ The Telecommunications Act of 1996 has fifteen paragraphs (see Figure 1). The key goal is set out in two subsections of section 254 that require rates to be just, reasonable and affordable for all Americans. The first principle of universal service stated by the Act in section 254 (b)(1) is that “Quality services should be available at just, reasonable, and affordable rates.” Section 245 (i) restates this principle and extends the obligation to the states – “Consumer Protection – The Commission and the States should ensure that universal service is available at rates that are just, reasonable and affordable.”

Congress had never used the word affordable before, nor had it identified specific groups or areas for specific support in ensuring universal service as it did in section 254 (b)(3).

Access in rural and high cost areas – Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunication and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

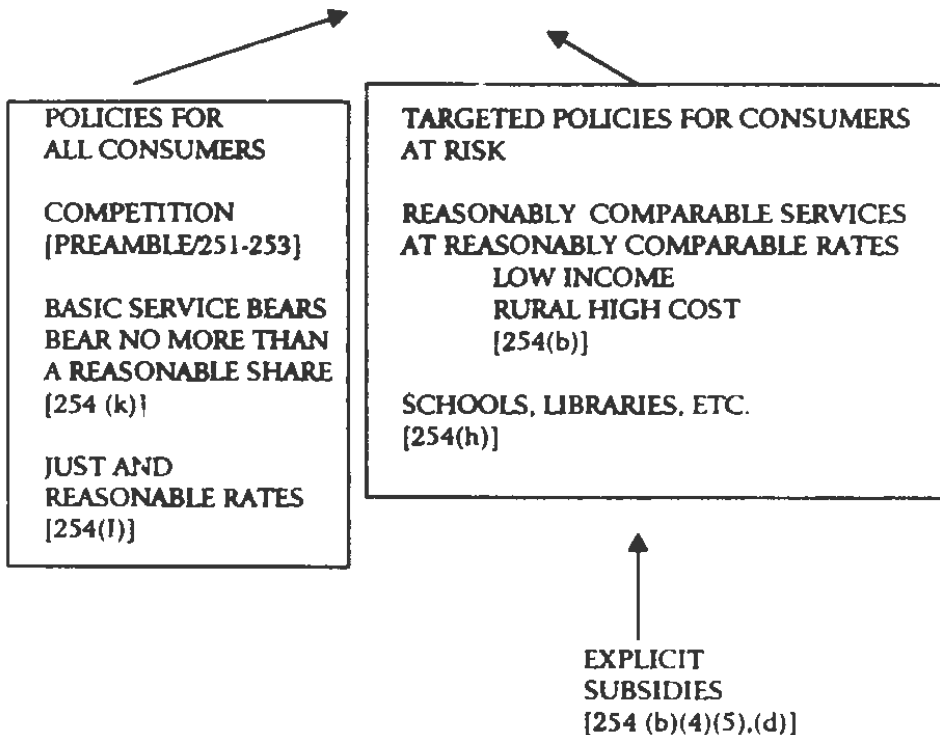
The universal service goal includes both basic service and access to advanced services.

³ 47 U.S.C. s.

FIGURE 1

UNIVERSAL SERVICE UNDER
THE TELECOMMUNICATIONS ACT OF 1996

QUALITY SERVICES AVAILABLE AT
JUST, REASONABLE AND AFFORDABLE RATES
[254 (b)1(1), (i)]



Congress was also more specific than it had been in the past about how rates were to be kept just, reasonable and affordable for the purposes of achieving universal service. In addition to the general requirements of section 254 (b) (1) and 254 (l), the law also requires in section 254 (k) that rates for service deemed to be part of universal service bear only a reasonable share of joint and common costs.

Subsidy of Competitive Service Prohibited – A telecommunications carrier may not use services that are not competitive to subsidize services that are subject to competition. The

Commission, with respect to interstate services, and the States, with respect to intrastate services, shall establish any necessary cost allocation rules, accounting safeguards, and guidelines to ensure that services included in the definition of universal service bear no more than a reasonable share of the joint and common costs of facilities used to provide those services.

Congress intended that to the extent subsidies were necessary to achieve universal service, they should be explicit.

As a succinct definition we offer the following:

Universal service is the ability of all subscribers to have and use telecommunications services at rates, terms and conditions that do not cause them serious consequence or detriment and do not yield profits for service providers that are excessive.

Of utmost important is the fact that the law goes farther than merely requiring affordability of service. Charges for telecommunications services cannot be increased simply because they would remain affordable; they must also be just and reasonable. Thus, the Congress clearly rejected the notion of pricing telephone service up to whatever the market will bear.

Consistent with the first universal service principle, there are two pillars on which universal service stands under the law.

Universal service in high cost areas and for low income households is to be ensured through targeted subsidies.

Universal service for other subscribers is to be assured by the requirement that rates be just and reasonable.

Given the clear public policy on how the costs of the network should be shared and the universal service goal, another principle should guide the Commission in this proceeding.

Ensuring that all services share the costs of facilities that they use and all revenues are taken into account in determining the level of subsidies necessary to achieve universal service are the keys to accomplishing the dual goals of just and reasonable rates and affordable service.

Several years before the passage of TA96 AARP recommended precisely this balancing of the aspects of universal service as follows (American Association of Retired Persons and the Consumer Federation of America, Universal Service Requirements for the Information Age, 1994, pp. 2-3).

EXPAND AFFORDABLE AND UNIVERSAL BASIC SERVICE

Policy makers should make a commitment to lower the price of basic communications service in order to reaffirm the commitment to universal service found in the 1934 Communications Act. The following principles must be adhered to if basic service is to remain affordable for everyone in the information age:

- a. As revenues from video, data, and other non-basic services expand, they should be made available to lower the price of basic service, since these new services piggy-back on the existing infrastructure;
- b. Basic customers should be protected from bearing inappropriate risk associated with entry into new, competitive businesses. Protections should include separate subsidiaries, separate capital structures, and payments for the value of intangible assets flowing from monopoly customers;
- c. Users of service which require expensive upgrades and investments should bear the primary burden of these upgrades.

The implications of this view of universal service for all consumers regardless of size or customer class, will be to make basic service ever more affordable. As the uses of the telecommunications network expand, the joint and common costs of the network, which are substantial, will be spread across an expanding array of services. Prices for basic service should decline.

B. AFFORDABILITY

Universal service is the ability of all households to have and use a phone at rates that do not strain the household budget. I believe that a broad definition of universal service policy must be adopted. The definition of universal service has three components -- (1) access to and (2) use

of telecommunications services at (3) affordable rates. Access has traditionally been defined as the dial tone -- having the telephone in the home. Use of the phone is defined as the actual placing of calls and activation of other functionalities embedded in the network. Affordability of the phone is frequently measured by estimating the percentage of income that households spend on telephones and the percentage of households with telephone service.

1. A BROAD DEFINITION

A narrow definition of universal service as simple access to the phone should be rejected because the telephone is a necessity and people will cling to it. Even if households do not drop off the network, we must still ask whether they are able to use the phone as the basic means of communication in the last quarter of the twentieth century. For the past half-century we have woven the phone into the fabric of daily life. We have let decisions about where to live, where to locate services, how to acquire information, and how to allocate our time be fundamentally influenced by the ease of access to unlimited local calls. The telephone has become the mainstay of daily communications. While it is easy to conceive of a way of life in which the telephone does not play this vital role, it is not the way of life we live in this country.

At the same time that we ask whether households are able to use the phone, we must also ask whether the cost of having and using the phone places a strain on the household budget. It does not suffice to say that if a household has a phone it is be affordable, regardless of how much of a burden it places on the household budget. Affordability is more complex than that. In this context the test of affordability is not simply whether or not people keep the phone, or whether or not they use it, but how much of a burden a normal level of consumption of this vital necessity

places on the household budget.

Households will continue to subscribe to the network because the phone is a necessity, but if they are forced to pay more for this necessity and reduce their consumption of other necessities, then the phone is not truly affordable. It is seriously diminishing the living standard of the household.

These observations on the nature of the telephone and its use can be briefly summarized by a familiar economic measure -- the elasticity of demand. This gauges the rate at which demand changes in response to a change in price. The elasticity of demand is measured as the percentage change in demand that occurs in response to a one-percent change in price. Demand elasticities are generally negative. When prices increase, demand decreases (conversely, when prices decrease, demand increases).

Telephone demand elasticities are small. A one percent increase in price will cause a reduction in demand that is less than one percent. In the case of the telephone, it is considerably less than one percentage point. It has become widely acknowledged that the elasticity of demand for access (availability) is very low. Increases in price elicit very small reductions in demand ⁴

It turns out, however, that the elasticity of demand for use is also quite low. The demand response to usage price increases is somewhat larger than those for access but still quite small. People do not want the telephone as an alarm box. They apparently want it as a means of communications that requires being able to use it. It can be generally concluded that the long run elasticity of demand for access is in the range of -0.01 to -0.2 and the long run elasticity for use is

⁴ See generally Lester Taylor, Telecommunications Demand: A Survey and Critique (Cambridge Massachusetts: MIT press, 1994).

about in the range of -.2 to -.4. That is, all other things being equal, a ten- percent increase in the price of access results in about a one- percent decrease in demand for access. A ten- percent increase in the price of use results in about a three- percent decrease in the demand for use. Lower income households have been found to have considerably higher elasticities of demand.

2. AFFORDABILITY IS A RELATIVE CONCEPT

The low demand response to price increases for both access and use means that one cannot analyze the third aspect of universal service -- affordability -- with reference only to the reduced access charge. One must recognize that households will struggle to keep and use the telephone at levels fairly close to the average in order to have a level of communications commensurate with a decent standard of living.

Assessing affordability in this context means that the test of affordability is not simply whether or not people keep and use the phone, but how much of a burden a decent level of consumption of this vital necessity places on the household budget. For this reason, making access and use more affordable for poor households that already have service should be considered a part of the goal of universally affordable service.

Dictionary definitions support this view. Webster's cites a relative concept as the primary definition of affordable --

(1) (a) To manage to bear without serious detriment; (b) To manage to pay for or incur the cost of.⁵

⁵ Webster's Third New International Dictionary, Philip Babcock Grove (Ed.), (Merriam-Webster Inc., Springfield Mass, 1986), p. 36).

Random House provides a similar definition.

(1) To be able to undergo, manage, or the like without serious consequence; (2) to be able to meet the expense of or spare the price of⁶

The first definition ("bear the cost of without serious detriment" or "consequence") is relative in the sense that the burden imposed is qualified by the term "serious detriment or consequence." If it hurts a lot to pay for telephone service, telephone service is not deemed to be affordable, even though the subscriber continues to pay for it. The second definition ("to manage to bear," "be able to meet the expense of") is an absolute concept in the sense that there is no qualifier. No matter how much it hurts, if a subscriber continues to pay for telecommunications service, telephone service is deemed by implication to be affordable.

Thus, the relative connotation of affordability seems to be the primary connotation. The standard is not whether one can pay the price, but whether that price causes serious detriment or consequence.

The available econometric evidence is consistent with the interpretation of the telephone as a necessity. The formal econometric analysis of elasticities can be interpreted to make the point that we are dealing with a necessity. We have observed that demand elasticities are low. It turns out those income elasticities -- the response of demand for telephone service to changes in income -- are generally positive, small, but larger than the price effects. As income increases, telephone use increases. A ten percent increase in income leads to less than a ten percent increase in consumption.

This gives the telephone the price and income elasticities we expect from a necessity.

⁶ Random House Webster's College Dictionary (Random House, New York; 1995), p. 24.

Because the price elasticity is low, consumers have difficulty substituting for this commodity when its price increases. Yet, because the income elasticity is high relative to the price elasticity, it indicates a large decrease in utility with a price increase.

When substitution effects are large relative to income effects, consumers can substitute away from goods whose prices have risen with little loss in utility. However, when income effects are large relative to substitution effects, an increase in price means a relatively large decrease in utility. Since the income effect is indicated to be large relative to the substitution effect in the price elasticity of demand for access for households with low income, particularly if they are young, the welfare of these households may be significantly decreased by increase in the price for basic service.⁷

C. QUALITY SERVICE

1. BASIC SERVICE

AARP generally supports the FCC definition of services to be included in the core for universal service support. This affords consumers dialtone and some local usage, white page listings, and the other elements that generally constitute basic service today.

There is one area where we believe that the Commission's definition of service is inadequate, given the current state of the network and telecommunications services. Above all the FCC and the commission should include Use/Flat Rate Service

As noted, over the past half century, our society has woven telecommunications service into the fabric of daily life. The ease of access to unlimited local calls has fundamentally influenced our decisions about where to live, where to locate services, how to acquire information, and how to

⁷ Lester Taylor, Telecommunications Demand: A Survey and Critique (Cambridge Massachusetts: MIT press, 1980), p. 82).

allocate our time. In short, telecommunications has become the mainstay of daily communications. Flat rate telephone service, which provides subscribers with unlimited local calls, is by far the service utilized by the great majority of subscribers in this country, even where measured service is available as an option. Consumers, given the choice between local measured and flat rate service, consistently and overwhelmingly choose flat rate service.

2. ADVANCED TELECOMMUNICATIONS AND INFORMATION SERVICES

For the purposes of the Act, all services and functionalities available in urban areas that are not included in the definition of basic service should be considered advanced services. Our concern is more focused on how services move from the advanced category to the universal service category.

As stated in Section 254(b)(7) of the Act, the FCC and the Joint Board should articulate a framework for consideration of additional functionalities for inclusion in universal service. The FCC points out in its Universal Service Order that the four criteria set out in the law for deciding when a service should be included in the definition of universal service are not precisely defined and are only considerations. The Notice states:

[t]he Joint Board in recommending, and the Commission in establishing, the definition of the services that are supported by Federal universal service support mechanisms shall consider the extent to which such telecommunications services

(A) are essential to education, public health and public safety;

(B) have, through the operation of market choices by customers been subscribed to by a substantial majority of residential customers;

(C) are being deployed in public communications networks by telecommunications carriers;

and

(D) are consistent with the public interest, convenience and necessity. (para. 9, p 6)

The state has the authority in section 254 to expand the FCC's definition of universal service. We urge the commission to adopt these four principles, as well as several additional principles to ensure that the expansion of universal service meets broad public needs and does not raise the cost of universal service unnecessarily.

In addition to considering some or all of the above four criteria, we believe that the following additional characteristics are indicative of a basic and necessary functionality and should be used by the Commission to determine whether an additional functionality should be added to the definition of universal service:⁸

The service must be a communications service that connects each to all;

The service must be a "mass market" service, which is most economical when sold in large volume;

The Commission should conduct all proceedings on the expansion of the definition of universal service in open and public forums so that the needs and preferences of all users can be considered.

These principles are intended to ensure that functionalities are added to the universal service definition in a manner that meets the needs of the broad public without significantly raising the cost of universal service.

3. REASONABLY COMPARABLE

This section of the Act must be read with a common sense view. Reasonably comparable services and reasonably comparable rates are not terms of art with long histories in the case law of

telecommunications services; they are every day words of the real world and should be taken in their everyday meaning. Congress intended for people in urban and rural or high cost areas or those with low incomes to pay pretty much the same amount for services that are pretty much the same. Generally available services at the price generally available in urban areas are the standard for comparison.

Common sense principles are easy to apply. For example, the Commission cannot, as a matter of law, nor should it as a matter of public policy, restrict high cost support to primary lines.

Nor can it impose higher prices on non-supported service in high cost areas to make up for subsidies to supported services.

Efforts to restrict this comparison to a small subset of services (thereby making many services not available or not available at reasonably comparable rates) are misguided. Efforts to compare rates in some way other than what people are actually charged (thereby allowing people to be charged higher rates in non-urban areas) violate the spirit and the letter of the law.

There are several key public policy issues that have arisen in the definition of basic service, for purposes of determining what services should be supported and what rates should be charged. The Commission cannot, as a matter of law, nor should it as a matter of public policy, restrict high cost support to primary lines. TA 96 seeks to ensure that reasonably comparable services are available at reasonably comparable rates and to promote use of the telecommunications network for advanced services (section 254(b)(3)).

To discriminate against residential and small business customers in rural areas by requiring them to pay a much higher price for second lines than their urban brethren is directly contrary to

the goal of "reasonably comparable" services at "reasonably comparable" rates. To the extent that second lines have become associated with use of information services, rural households would be severely discriminated against in access to advanced services.

Even if the statute could be interpreted to suggest that the universal service language in TA96 covers only primary lines, attempting to determine which line is a primary line and which is a secondary line presents an administrative nightmare. Multi-family households would be required to share lines. Large families would be at a disadvantage compared to small. Married couples would pay more than unmarried partners would.

Recent testimony by GTE in Hawaii makes a number of points similar to these observations.⁹

Why should second lines be supported?

There are several reasons. First, it maintains a reasonable price relationship between first and second lines. Our customers generally expect that if you buy a second line from us, they will pay no more for the second line than they did for the first. This is a reasonable expectation; in most markets, the per unit price declines if you buy more of something. It also correctly reflects the relative cost of providing first and second line. It will be very difficult for us to explain to our customers why, if the first line costs nineteen dollars and 80 cents, the second line should cost 40 dollars or 100 dollars...

Second, there is no good policy reason for distinguishing between primary and additional lines for universal service reasons. Underlying this policy proposal is the implicit assumption that there is a unit, a "household", that has a unique need for basic telephone service. But this is clearly not the case. Different households have different patterns of consumption, for perfectly good reasons. Consider, for example, two different households. They live on the same block, and have similar incomes. One household has a single child; the other household has ten children. If the two families go to the grocery store, we do expect them to buy the same

⁹ "Rebuttal Testimony and Exhibits of Dennis Weller Chief Economist, GTE Hawaiian Telephone Co. Inc. Subject: Universal Service Fund, In the Matter of Public Utilities Commission Instituting a Proceeding on Communications, Including an Investigation of the Communications Infrastructure of the State of Hawaii, Docket No. 7702.

amount of milk?..

Third, in order to limit support to second lines, we would need to define them. Since, as I have already explained, the proposal is not based on any clear concept, there is no clear basis for defining the lines to be included or excluded. In the recent California proceeding, for example, one witness suggested that one line should be supported per household; it was suggested that the company should inquire about the family relationships among the people sharing a living arrangement. Another witness proposed that one line should be provided per dwelling; he suggested that the company should consult the local plant maps in each town to make this determination. Whatever criterion is adopted, the one thing that is clear is that this idea would be difficult to administer...

Fourth, when we attempt to administer a distinction between first and second lines, there will be unintended effects. Some screening procedure will be put in place, and no such procedure is ever perfect. For every wealthy family whose second line is screened out, there'll also be some other family who will be denied access to an affordable first line...

Today, customers call us and we provide the services they request. We don't ask whether they deserve the services; we don't ask about their families or their living arrangements. We assume that customers can make their own decisions about where to live and about what services they need.

Residential and small business customers who would be the victims of the policy to discriminate against second lines would be protected from that discrimination, if the Commission accepts my recommendation.

The failure to support all multiple residential lines and an effort to distinguish between small business and residential lines creates a host of problems. The following issues were identified by the Washington Utility and Transportation Commission.

If you propose that USF support less than all lines, should the support vary by class of customer (e.g. small and large business)? *

If you propose support for one primary line, particularly for only one residential primary line, how do you propose this be administered?

Could a family of three (two parents and a minor child) order three primary lines? Order

two, one for each adult?

How many primary lines could be ordered for a residence occupied by a group of college students? By persons who share an apartment?

Could a residential customer order a primary residential line and a primary business line? *

If you propose support for only one business primary line, how do you propose this be administered?

Could a partnership order a primary line for each partner?

Would, for example, a real estate broker who had individual agents order their own line be receiving service through many primary lines? In this example, if the lines rolled over to any other line would any or all of the lines be primary lines?

If a business or residential customer orders one line from each of three companies, would each be a primary line?

If not, which of the three would be the primary line?

Who would make the determination? Who would verify it? *

Please estimate the cost, in detail, of administering a program which supports less than all lines.

Vertical services should be treated in a nondiscriminatory manner as well. They should be priced the same in rural and urban area. They should be priced the same for low income and non-low income households.

Generally, the costs of these services do not vary greatly on a geographic or market basis. Moreover, pricing these services the same meets the requirement that rates be reasonably comparable between rural and urban areas for reasonably comparable services. Finally, it is important to underscore that the purpose of universal service is to promote access to the network, not punish people for living in high cost areas.

5. QUALITY

Standard should be imposed to ensure quality of service. General goals and specific standards for quality and reliability should be established. This should include the traditional concepts of maintaining availability of dialtone service and the emerging issue of making new functionalities available through the deployment of upgraded infrastructure.

The advent of competition increases the need for reliable information about service quality--from all providers. A key requirement of competitive markets is the existence of sufficient information to permit customers to make knowledgeable choices. Therefore, all providers should be required to provide data relevant to their market on a comparable basis. The standards should cover the major areas of service including

BUSINESS OFFICE PERFORMANCE

OPERATOR RESPONSE

NETWORK PERFORMANCE

These three sets of factors determine the quality of service that consumers receive--how well the network performs technically, how well their needs are met when operators are necessary, and how well their transactions are handled.

In each of the above areas the commission should develop specific minimum standards to which service providers should adhere. The goals should reflect current levels of quality, historical trends of improvement, and the demands of future network functionality. The standard setting process should be ongoing.

All providers should make comparable service quality data publicly available, including outage history and data on noise, kept appointments, etc., for two reasons. First, since telecommunications is

an interconnected network, it is difficult to know precisely where a "failure" of the system occurs. Aggregate statistics compiled on a comparable basis would alert the Commission to potential problem areas.

Second, in an emerging competitive situation, consumers lack experience in dealing with alternative suppliers. Quality control information, collected and published according to uniform procedures overseen by the Commission, provides consumers with reliable information they would have difficulty gathering on their own.

An example from the airline industry comes to mind here. For a number of years after deregulation, consumers would find themselves at airports waiting for planes that were late or consistently getting to their destination well past the scheduled arrival time. A hue and cry went up about delays and the Department of Transportation began publicizing on-time performance. The airlines actually changed their schedules--flying times got longer, so to speak--so they would have better on time records. In truth, the consumer was simply given better information on which to base his or her travel plans.

D. TARGETED GROUPS

1. LOW INCOME

The definition of low income arises primarily in the context of eligibility for lifeline and link-up programs. Self-certification of eligibility, with periodic auditing of recipients, is cost-effective for administering the program.

Vigorous efforts to promote program participation should be carried out.

Keeping in mind that the goal of the program is to maximize the size of the network and relieve the burden that having a phone places on household budgets, the program should be targeted to households who are currently enrolled in or eligible for any of the major public assistance programs – Federal public housing assistance or Section 8, Supplemental Security Income, Food Stamps, Low Income Home Energy Assistance program or Medicaid – should be eligible for the lifeline program. Enrollment in any of these programs should automatically trigger enrollment in the lifeline program.

These programs cover the major general assistance programs for young and older households, as well as the major commodity specific assistance programs.

Households eligible for these programs are obviously low-income households. The empirical evidence indicates that low-income households are the households who are most likely to drop off the network as a result of rising prices.

Making households with incomes below 125 percent of poverty eligible for the lifeline program would make over one-half of all households without telephone service eligible for the lifeline program. Up to 125 percent of poverty, the households are disproportionately without telephone service.

Self-certification coupled with partial auditing would be the most cost-effective mechanism to determine eligibility. Administrative costs associated with excessive verification unnecessarily incurred are a waste of resources that detract from the program. Stigma associated with onerous reporting or verification requirements may prevent eligible households from seeking to enter the program, thereby reducing the significant social and economic benefits that a lifeline program would provide. The program benefits are small and they are not in the form of cash.

The incentives to cheat are also consequently small.

It is generally felt that certification and verification requirements can have an impact on participation. Onerous requirements are potential barriers. For purposes of auditing, the company can periodically compare the names of those enrolled in the lifeline program to the public assistance rolls. The costs of such a comparison are extremely small -- typically a few cents per enrollee. A small sample of those claiming low income, but not enrolled in any of the criteria programs can also be audited for eligibility.

Given the fact that participation in assistance programs is considerably less than 100 percent of those who are eligible, it is necessary to conduct outreach efforts, especially for a new program. Media-based approaches that rely on television or radio are associated with lower levels of participation. Inserts and brochures (not prepared by telephone companies) are associated with higher rates of participation. The participation rate for programs that include written promotion is higher than those that rely on radio and TV only.

2. HIGH COST

An area should be considered "high cost" in Florida if the forward looking economic cost of service in that area exceeds the revenues generated in that area by rates that are just, reasonable and affordable. Thus, a finding of high cost entails a comparison between costs and revenues; it is not an absolute cost calculation.

The public policy embodied in TA96, as described below, requires that the Commission recognize the multi-product, integrated nature of the telecommunications network. The cost figure should be the efficient cost of basic service with a reasonable share of joint and common

costs allocated to basic. The revenue figure should include a reasonable projection of revenues from services that use shared facilities.

III. JUST AND REASONABLE RATES

Although a great deal of attention has focused on the details of cost models, the most important public policy issue that the Commission faces is not how to calculate the cost, but what to do with shared costs and the various streams of revenue that the network produces. Including a reasonable projection of revenue from all services sold on the network, or excluding shared costs which should reasonably be allocated to non-basic services is central to arriving at a universal service policy that will accomplish the multiple goals of the Act.

A. A COMMON SENSE VIEW OF NETWORK ECONOMICS

The local exchange companies (LECS) in Florida and across the nation insist that the Telecommunications Act of 1996 requires policymakers, legislators and Commissions, to ensure that each and every line in the state is profitable. Not only must every line cover its costs, which the companies define as every penny of historic embedded costs, but they also insist that it must do so on the basis of the revenue garnered from basic monthly service only. In the LEC view of the network the biggest public policy problem has always been the need to raise basic service rates over the objection of residential ratepayers, who do not want to see their local rates go up about \$10 per month on a national average basis.

This view of the Act would compel the legislature and the Commission to either create a huge universal service fund or to radically raise basic service charges.

This conclusion is based on the faulty view of the network as a POTS only enterprise in which none of the common costs could be attributed to other services and none of the other

revenues generated by the network could be used to support it. In the consumer, economic view of the network, the biggest public policy problem is to ensure that as the network is used for more and more services there is a reasonable sharing of common costs and the need to squeeze out inefficiencies in the embedded network over the objection of local exchange companies.

The LEC view of the 1996 Act is wrong. It is wrong on the economics, wrong on the law and wrong on the constitution. The Commission must adopt a cost and pricing methodology that recognizes the fundamental economics of the modern telecommunications network. This approach involves a number of areas of analysis -- (1) the analysis of the telecommunications network as a multi product undertaking exhibiting strong economies of scale and scope; (2) the treatment of loop as a common cost, and (3) reasonable understanding of competitive market behavior.

- When the true economic basis of the network is understood and the firm legal grounds to apply that analysis are grasped, the massive subsidy problem that the LECs claim is diminished. The Commission is confronted with a need to engage in modest reform of access charges and to build a relatively small high cost fund, while competition drives rates down to efficient levels.

1. ECONOMICS

Competitors do enter markets that are inherently multi-product in nature and enjoy substantial economies of scale and scope on the basis of the profitability of only one-quarter of the products that can be produced. They cannot succeed with such an entry strategy because others who price their output in recognition of the multiple products they are selling would pick them apart.

The economic evidence that the telecommunications network is a multi product enterprise

enjoying economies of scale and scope is overwhelming on both the supply-side and the demand side of the market.

On the supply-side we observe the following:

- all long distance calls use the network exactly the same way local calls do;
- vertical services (like Call Waiting, Call Forwarding and Caller ID) are supported by all parts of the network;
- new services, like high speed data (xDSL) will utilize the loop and other joint and common costs;
- basic service account for about one-quarter of total revenues generated per line.

On the demand side we observe the following:

- customers expect to receive long distance service when they order telephone service;
- vertical services are strong complements of basic service – if a provider sells basic to a customer, competitors are very unlikely to sell that customer Call Waiting;
- companies are desperate to sell local service and long distance bundled together.

Integrated products sold in one-stop shopping is all the rage. In such a bundle, why is local the cost causer, as the LECs claim?

Those who argue for allocation of the loop to basic service assert, in essence, that the consumer intends to buy local service only, when he or she decides to purchase service.

According to this view, if the customer wanted only local service, local service must be the cost causer for the costs of loop (even though it is a shared facility). The intention in the decision cannot be known, however, since customers may just as well think they are purchasing all services (i.e. local, long distance and vertical services) when they buy telephone service. Assigning costs on the basis of a guess about the intention of ratepayers when they make a purchase is not a sound

basis for economic analysis.

In addition, the loops also provide services that are ordered by long distance companies (access services). Loops allow the receipt of service (terminating access) not ordered by the end-user.

2. THE "SERVICE PAYS" PRINCIPLE

Because the economic and physical use of the network is similar between services and the facilities are equally necessary to deliver each of these services, and because consumers view telecommunications as an intertwined bundle of service, a reasonable basis to determine the allocation of shared costs is to analyze the facilities and functionalities necessary and actually used in the production of goods and services. In order to produce a long distance call one needs distribution plant, as well as switching plant and transport plant. Instead of basing economic analysis on a guess about what consumers really wanted when they purchased a bundle of services, the Commission should rely on a "service pays" principle. That is, services that use facilities should be considered to cause or benefit from the deployment of those facilities and every service that uses a facility should help pay for it.

Historical analysis of why investments were actually made shows that most technologies were deployed for and used by business customers first (hence it is more reasonable to assume that they caused the investment). History shows that the integration of the long distance network into the local network (they actually started as two separate networks) raised the cost of the integrated network. Since the integrated network costs more as a result of the addition of long distance, it is reasonable to assume that long distance causes costs in the integrated network. For

over half a century the courts, most state commissions, and recently the FCC have all taken this view, although they have consistently overallocated shared costs to local service. Attachment A presents a study AARP commissioned to examine this historical process of cost causation and allocation.

Although historical analysis helps to show that assumptions that attribute loop costs to basic local service only are a baseless metaphysical assertion, it is clear that efforts to unravel the network into cost causation categories are difficult. For that reason, the analysis of costs should be based on the only footing on which sensible economic analysis can be launched -- an assessment of the product, not the psychology of the customer. We must analyze the facilities and functionalities necessary and actually used in the production of goods and services. We rely on a service pays principle. That is, services that use facilities should be considered to cause the deployment of those facilities. Assumptions about prime movers are arbitrary. Every service that uses facilities is a cost causer.

- As a matter of economics, costs for joint and common facilities should be recovered on the basis of the nature and quality of use that each service makes of those facilities.
- As a matter of public policy from a universal service perspective, recovery of joint and common costs should be structured in such a way as to promote universal service by keeping basic service affordable.

Now that the companies are falling all over themselves to sell bundles of services, the fiction that local service causes the loop should be put to rest once and for all. In truth, since the first decade of this century, the network, including the loop, has been consciously designed to serve local and long distance. Long distance was not an afterthought; it was always a

forethought, included in the design, development and deployment of the network. Vertical services have been included in economic analysis of network design and architecture for well over a decade.

B. THE LAW

1. THE TELECOMMUNICATIONS ACT OF 1996

Modern telecommunications networks provide a vast array of services and no one would deploy the current network to sell basic service only. The Telecommunications Act of 1996 certainly understood the economics of the industry and sought efficient entry across a broad range of services.

- It took as its goal "deployment of advanced telecommunications services and information technologies" and insisted on a sharing of joint and common costs.
- It repeatedly recognizes that advanced services and basic service are linked.
- It recognizes that competitive and non-competitive services will be commingled on the network.
- Its purpose is to advance this multi product network.

The law directly addresses the revenue responsibility of these various services.

Competitive services are not to be cross subsidized and they are required to make a contribution to joint and common costs. Basic service is to pay no more than a reasonable share of joint and common costs. The Conference report went out of its way to state that basic service could even pay less than a reasonable share of joint and common costs.

The cross-subsidy and joint cost language of 47 USC 254 (k) addresses this point. It recognizes two distinct steps that are necessary to have fair and efficient pricing in the emerging,

partially competitive environment -- a strict prohibition on below cost pricing and a reasonable recovery of joint and common costs across services that share facilities. The Conference Report states this principle more vigorously. The Conference Committee Report clarifies the standard for cost allocation by adopting the Senate report language --

The Commission and the states are required to establish any necessary cost allocation rules, accounting safeguards, and other guidelines to ensure that universal service bears no more than a reasonable share (and may bear less than a reasonable share) of the joint and common facilities used to provide both competitive and noncompetitive services.¹⁰

In pursuit of universal basic service, this language establishes a reasonable share of joint and common costs allocated to basic service as an upper limit.

The foresight of policy makers in adopting these principles cannot be underestimated. They recognized the difficult economic and equity problems presented in reforming a century-old monopoly. Congress knew that monopolists, faced with the growing threat of competition, are inclined to shift costs onto their most captive customers. Monopoly providers will subsidize their competitive services, if they can, and they will certainly maximize the recovery of joint and common costs from those customers with the fewest options. This approach protects their revenue stream and gives the monopolists the greatest leverage against potential competitors. Such an approach is in the monopoly's interest, but not necessarily in the best interest of the public in general.

Even without an explicit subsidy, incumbents who have continuing market power over significant product or geographic markets gain an unfair advantage by allocating joint and

¹⁰ Conference Report, p. 129, *emphasis added*).

common costs away from the most competitive market segments. The result is anti-competitive and unfair: 1) New entrants and competitors who do not have the luxury of recovering costs from captives are placed at a disadvantage; and 2) captive customers are forced to bear an unfair share of joint and common costs, while incumbents gain an unfair competitive advantage.

2. RATE REBALANCING IS NOT REQUIRED UNDER THE ACT

Nowhere does TA96 say anything about rate rebalancing. Not one member of Congress stood up on the floor and said that basic service rates would double, as the industry has tried to impose in a number of states, in order to promote competition.

The companies have tried to bootstrap the requirement in the Act that support for universal service be specific, predictable, sufficient and explicit into a broad requirement for rate rebalancing, but this effort misinterprets the Act.

The recovery of joint and common costs across all services that share the underlying facilities certainly does not violate this prescription. Claims that revenues from vertical service are not predictable are contradicted by decades of rate making. Most of the vertical service revenues come from services that are at least strong complements of basic service. They have been included in rate making even though they have a much higher elasticity of demand than basic service. The certainty that companies seek in their revenue stream is far beyond current regulatory practice and beyond anything contemplated by the Act.

The Commission should include revenues associated with all services that share joint or common facilities in the estimation of universal service funds requirements. This parallels the FCC's universal service decision. It accomplishes the ultimate protection against misuse of

universal service funds. By including all costs and revenues for services that share significant joint and common costs in the universal service analysis, there could no abuse of universal service funds. The cost of improperly allocated plant might still be recovered incorrectly from ratepayers in rates they pay for individual services, but no universal service funds would be used to subsidize those rates. The Commission must also include incremental cost of the services that share joint and common costs.

To the extent that we propose to recover legitimate joint and common costs from these services, those joint and common costs will not disappear with the advent of competition. They will not disappear because the competitors must incur such costs if they seek to provide facilities of their own. Competitive markets allow the recovery of efficient joint and common costs.

Of course, if the competitors are more efficient they will recover a lower level of joint and common costs. The incumbents may have to become more efficient too (that is, lower their prices). This is not the "fault" of universal service policy. The margin goes down, not because the incumbent was saddled with universal service obligations but because it was bloated with inefficiencies or excess profits.

The failure to take legitimate joint and common costs into account would frustrate the purposes of the 1996 Act. Allowing incumbents to recover joint and common costs excessively from basic service would not promote efficiency and it would frustrate competition, allowing incumbents to price more competitive services at an artificially low level. Allowing incumbents to recover an unreasonable share of joint and common costs from basic service (either directly in the price for basic service through rate rebalancing or indirectly by creating a large universal service fund, which is tied to the provision of basic service), insulates incumbents unfairly from market

forces undermining the basic premise of TA96.

There is yet another reason that the Act does not provide a basis for extensive rate rebalancing. It can be readily interpreted to mean that the mandate placed on the states to provide specific, predictable and sufficient support for universal service applies only to instances in which the state mandates additional definitions and standards of universal service beyond the federal definition.¹¹ Washington can declare current rates just, reasonable and affordable and under the statute it need do no more.

The companies have misstated the legal requirements under the Telco Act. The language from the law in pertinent part is as follows:

254 (d.) TELECOMMUNICATIONS CARRIER CONTRIBUTION -- Every telecommunications carrier that provides interstate telecommunications services shall contribute, on an equitable and non-discriminatory basis, to the specific, predictable, and sufficient mechanisms established by the Commission to preserve and advance universal service...

(e.) UNIVERSAL SERVICE SUPPORT -- After the date on which Commission regulations implementing this section take effect, only an eligible telecommunications carrier designated under section 214 (e) shall be eligible to receive specific federal universal service support. A carrier that receives such support shall use that support only for the provision, maintenance, and upgrading of facilities and services for which the support is intended. Any such support should be explicit and sufficient to achieve the purposes of the section...

(f) STATE AUTHORITY -- A state may adopt regulations not inconsistent with the Commission's rules to preserve and advance universal service. Every telecommunications carrier that provides intra state telecommunications services shall contribute, on an equitable and non-discriminatory basis, in a manner determined by the state to the preservation and advancement of universal service in the state. A state may adopt regulations to provide for additional definitions and standards to preserve and advance universal service within that state only to the extent that such regulations adopt additional specific, predictable, and sufficient mechanisms to support such definitions or standards that do not rely on or burden

¹¹ 254 (d)(e)(f).

federal universal service support mechanisms.

If the state so chooses, it could adopt a mechanism to augment the FCC's universal service fund. It is not compelled to do so. If it adopts additional definitions or standards, it must adopt additional specific, predictable and sufficient mechanisms. There is nothing in the law that compels the Commission to engage in the radical rate rebalancing proposed by the companies.

What many parties claim as subsidies are, in fact, differential mark-ups on various non-basic services. These differential mark-ups do not violate the just, reasonable and affordable language of the statute. The most fundamental protection against unreasonable rates would be to ensure that the profit earned by incumbent LECs is held to reasonable levels. The present lack of competition for most services means that the Commission must continue to exercise close oversight over rates and profits until competition is fully effective and capable of preventing excess profits.

3. THE CONSTITUTION

Not only does TA96 clearly support viewing the network as a multi product undertaking, but also there is no constitutional obstacle to the resulting cost allocation.

The local exchange companies claim that if they are left to recover costs from uncertain sources, such as Call Waiting, or intraLATA long distance, their property is being taken in violation of the "takings" provision in the constitution. They argue that in a competitive market they might not be able to sell as much as they need to cover their costs. The law does not contemplate such insulation from competitive forces; it seeks to create them. Because the law starts from just and reasonable rates and recognizes the multi-product nature of the firm, the

opposite is the case. There is nothing in the constitutional prohibition on "takings" that requires rate rebalancing or a huge universal service fund.

Here in Florida, as in most other jurisdictions, just and reasonable means utilities are allowed only an opportunity -- not a guarantee -- to recover costs that are used and useful.

- Prudence is not a guarantee of recovery in the marketplace or under regulation.
- Rates that are just and reasonable are required to provide service that is economically efficient.
- Individual cost elements are not the stuff of constitutional takings cases for utilities.
- Companies have no claim to imprudent costs, excess profits or double compensation of risk.
- They can be required to reallocate costs to the services for which they were incurred particularly where there is unreasonable, excess capacity or unnecessary, excessive functionality.
- The new revenue opportunities opened by the Telecom Act to the LECs must be included in any discussion of adequate compensation, especially where those opportunities are related to basic service on either the supply-side (by sharing facilities or costs) or demand-side (by being sold in packages).

Utilities frequently cite the *Duquesne Light and Power Company v. Barasch* case to support their claims. One thing the utilities omit in summarizing the case is the fact that they lost.¹² The court did not order the return of the millions of dollars of costs the utility alleged had been illegally taken. *Duquesne* teaches us the exact opposite of what the LECs claim and the lessons are directly relevant to a universal service proceeding.

- That case involved a regulatory switch. That is, the state of Pennsylvania had switched from a prudence standard to a used and useful standard, trapping costs that were denied recovery.

¹² 488 U.S. 299 (1989).

- The case turned on the observation that the consideration of a specific cost item was inappropriate when the overall return of the utility should be considered.
- The disallowance of costs also did not cause the utility severe financial distress and so it stood.

The Commission should take great heart from *Duquesne* in the context of the current proceeding. Here we have the utilities trying to cost out the piece parts of the network, refusing to count other revenues, and ignoring a wide range of new revenue opportunities, with bottom lines that are among the fattest in the nation. A universal service fund based on forward looking economic costs that includes costs allocated to services and revenues derived from all services that share facilities will easily pass constitutional muster when the LECs sue (as we well know they inevitably will). They will lose this case, too, just as they lost *Duquesne*.

C. CURRENT PRACTICE

The FCC, the states and the courts have found consistently and repeatedly that the loop is a common cost. The courts recognized this almost three quarters of a century ago in Smith v. Illinois.¹³ Many of the states have formally recognized this in comments in federal proceeding,¹⁴

¹³ 282 U.S. 133 (1930).

¹⁴ Two of the Regional Bell Operating Companies takes this point of view (Bell Atlantic and NYNEX), as do a number of state regulators. State of Nebraska Public Service Commission, the State of New Hampshire Public Utilities Commission, the State of New Mexico State Corporation Commission, the State of Utah Public Service Commission, the State of Vermont Department of Public Service and Public Service Board, and the Public Service Commission of West Virginia" In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996 (hereafter Maine, et al.), p. 18; "Comments of the State of Maine Public Utility Commission, the State of Montana Public Service Commission. Virtually all other Consumer Advocate Commentors share this view in their initial comments. "Comments of the Idaho Public Service Commission" In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996 (hereafter Idaho), p. 17); "Comments of the Public Utility Commission of Texas" In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996 (hereafter Texas), p. ii; "Initial Comments of the Pennsylvania Public Utility Commission to the Notice of Proposed Rulemaking and Order Establishing Joint Board" In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC

and in their own cost dockets.¹⁵

In a series of recent rulings to implement the 1996 Telecom Act, the FCC has constructed a comprehensive paradigm that starts from the fundamentally correct premise that the loop is a shared cost. There should be no doubt that this is the correct treatment of loop costs and alternatives should be clearly and loudly rejected.

The FCC began in the local competition docket by recognizing that the loop is a common cost of local, long distance and the other services that use the loop.

As discussed in greater detail below, separate telecommunications services are typically provided over shared network facilities, the cost of which may be joint or common with respect to

96-93, CC Docket No. 96-45, April 12, 1996 (hereafter Pennsylvania), p. 7.; Florida, p. 22; "Initial Comments of the Virginia Corporation Commission," In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996 (hereafter Virginia), p. 5; "Comments of the Staff of the Indiana Utility Regulatory Commission" In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996 (hereafter Indiana), p. 9.

¹⁵ "Report of Glenn P. Richardson, Senior Hearing Examiner," Application of GTE South Incorporated For Revisions to Its Local Exchange Access and IntraLATA Long Distance Rates, Commonwealth of Virginia State Corporation Commission, Case No. PUVC950019, March 14, 1997, p. 84; Application of the Mountain States Telephone and Telegraph Company doing Business as U.S. West Communications, Inc., for Approval of a Five-Year Plan for Rate and Service Regulation and for a Share Earnings Program, Colorado Public Utilities Commission, Docket Nos. 90a-665T, 96A-281T, 96S-257T, Decision No. C97-88, January 5, 1997, pp. 42-43; "Decision and Order Rejecting Tariff Revisions," Washington Utilities and Transportation Commission v. U.S. West Communications Inc., Docket No. UT-950200, April 11, 1996, pp. 83-84; Department of Utility Controls' Investigation Into the Southern New England Telephone Company's Cost of Providing Service, Department of Public Utility Control, Docket No. 94-10-01, June 15, 1995, pp. 24-25; "Report and Order," In Re: US West Communications, Inc., Utah Public Service Commission, Docket No. 95-049-05, November 6, 1995, p. 95; "Final Decision and Order," In Re US West Communications Inc., Iowa Utilities Board, Docket No. RPU-95-10, May 17, 1996, p. 295, 306; "Final Decision and Order," In Re US West Communications Inc., Iowa Utilities Board, Docket No. RPU-94-1, November 21, 1994; In the Matter of the Application of GTE Southwest Incorporated and Contel of the West, Incorporated to Restructure Their Respective Rates, New Mexico State Corporation Commission, Docket NO. 94-291-TC, Phase II, December 27, 1995, pp. 11, 14-15; New England Telephone Generic Rate Structure Investigation, New Hampshire Public Utilities Commission, March 11, 1991, DR 89010, slip, op., pp. 39-40; "Order No. 18598," Re: Investigation into Nontraffic-Sensitive Cost Recovery, Florida Public Service Commission, 1987; Docket No. 860984-TP, pp. 258, 265-266; "Order No. U-15955, Ex Parte South Central Bell Telephone Company," Docket No. 1-00940035, Louisiana Public Service Commission, September 5, 1995, p. 12; In Re Formal Investigation to Examine and Establish Updated Universal Service Principles and Policies for Telecommunications Services in the Commonwealth, Docket No. 1-00940035, September 5, 1995, p. 12; In the Matter of a Summary Investigation into IntraLATA Toll Access Compensation for Local Exchange Carriers Providing Telephone Services Within the State of Minnesota, Minnesota Public Utilities Commission, Docket No. P-

some services. The costs of local loops and their associated line cards in local switches, for example, are common with respect to interstate access service and local exchange service, because once these facilities are installed to provide one service they are able to provide the other at no additional cost.¹⁶

The FCC followed that decision with its proposed rulemaking on access charge reform, in which it reaffirmed the observation that the loop is a common cost.

For example, interstate access is typically provided using the same loops and line cards that are used to provide local service. The costs of these elements are, therefore, common to the provision of both local and long distance service.¹⁷

The FCC applied this conclusion in its decision to convert the Common Carrier Line (CCL) charge into a flat rate charge to cover loop costs.

We reject claims that a flat-rated, per line recovery mechanism assessed on IXC's would be inconsistent with section 254 (b) that requires "equitable and nondiscriminatory contribution to universal service by all telecommunications providers." The PICC is not a universal service mechanism, but rather a flat-rated charge that recovers local loop costs in a cost causative manner.¹⁸

In the reform of the separations process, the FCC has stated the economic reasoning and analysis which underpins this treatment of the loop.

Nearly all ILEC facilities and operations are used for multiple services. Some portion of costs nonetheless can be attributed to individual services in a manner

999/CI-85-582, November 2, 1987, p. 33.

¹⁶Federal Communications Commission, First Report and Order: Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, para 678.

¹⁷Federal Communications Commission, In the Matter of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charges: Notice of Proposed Rulemaking, CC Docket Nos. 96-262, 94-1, 91-213, 95-72, para. 237.

¹⁸Federal Communications Commission, In the Matter of Access Charge Reform, Price Cap Performance Review for Local Exchange Carriers, Transport Rate Structure and Pricing, End User Common Line Charges: First Report and Order, CC Docket Nos. 96-262, 94-1, 91-213, 95-72, para 104.

reflecting cost causation. This is possible when one service, using capacity that would otherwise be used by another service, requires the construction of greater capacity, making capacity cost *incremental* to the service. The service therefore bears a causal responsibility for part of the cost. The cost of some components in local switches, for example, is incremental (i.e. sensitive) to the levels of local and toll traffic engaging the switch. Most ILEC costs, however, cannot be attributed to individual services in this manner because in the case of joint and common costs, cost causation alone does not yield a unique allocation of such costs across those services. The primary reason is that shared facilities and operations are usually capable of providing at least one additional service at no additional cost. In such instances, the cost is *common* to the services. For example, the cost of a residential loop used to provide traditional telephony services usually is common to local, intrastate toll, and interstate toll services. In a typical residence, none of these services individually bears causal responsibility for loop costs because no service places sufficient demands on capacity to warrant installation of a second loop. Another reason why a relationship may not exist between cost and individual services is that some shared facilities or operations provide services in fixed proportion to each other, making the cost *joint* with respect to the services. ILEC billing costs, for example, tend to be joint with respect to local, state toll, and interstate toll services. For the majority of bills rendered, billed charges always include all three services. The fixed combination of services makes it impossible for one service to bear responsibility for billing costs...

Both incremental cost and stand-alone cost (which are usually expressed per unit of output) are greatly affected by the way we choose to define the increment and the service class. The incremental cost of carrying an additional call from residences to end offices, for example, is zero if the residences are already connected to end offices, but the incremental cost of establishing such connections is the cost of the loops.¹⁹

Moreover, the importance of getting loop allocation correct cannot be overemphasized.

As the FCC notes, the proper identification of loop costs is critical to telecommunications pricing, since loop constitutes almost half of all costs of local exchange carriers.²⁰ For example, ARMIS data indicates that loop plant investment in 1996 was 49% of total plant investment.

¹⁹Federal Communications Commission, In the Matter of Jurisdictional Separations Reform and Referral to the Federal-State Joint Board. Notice of Proposed Rulemaking, CC Docket No. 80-286, November 10, 1997 (hereafter, Separations NPRM), pp. 14..15.

²⁰Separations NPRM, p. 16

Most importantly, the FCC's methodology for estimating costs of basic service for purposes of identifying high cost areas carries this logic through. Two of the ten criteria it establishes for specification of a cost model require similar treatment of joint and common costs:

(2) Any network functionality or element, such as loop, switching, transport, or signaling, necessary to produce supported services must have an associated cost...

(7) A reasonable allocation of joint and common costs must be assigned to the cost of supported services. This allocation will ensure that the forward-looking economic cost does not include an unreasonable share of joint and common costs for non-supported services.²¹

Administratively, the FCC has declared its intention to compare the cost of basic service on a national average basis to the revenues earned per line. The reference price includes revenues from a number of sources. As the Joint Board recommended, the revenue benchmark should take account not only of the retail price currently charged for local service, but also of other revenues the carrier receives as a result of providing service, including vertical service revenue and interstate and intrastate access revenues. Failure to include all revenues received by the carrier could result in substantial overpayment to the carrier.²²

The FCC ties the inclusion of revenues directly to the sharing of costs.

We include revenues from discretionary services in the benchmark for additional reasons. The cost of those services are included in the cost of service estimates calculated by the forward-looking economic cost models that we will be evaluating further in the FNPRM. Revenues from services in addition to the supported services should, and do, contribute to the joint and common costs they share with supported services. Moreover, the former services also use the same facilities as the supported services, and it is often impractical, if not impossible, to allocate the costs of facilities between the supported services and other services. For example, the same switch is used to provide both supported services and discretionary

²¹FCC, Universal Service Order, para 250.

²²FCC, Universal Service Order, para. 200.

services.²³

The FCC has constructed a paradigm that starts from the fundamentally correct premise that the loop is a shared cost. It follows that up with a cost principle that requires costs to be recorded for all facilities used by all services. It concludes in the universal service proceeding by recognizing that all costs included for the estimation of a set of services that share common facilities must be matched by the revenues generated by those common facilities.

Although theoretical economists chafe at the thought of recovering shared costs across a range of products, common sense, real world experience demonstrates that this is the way markets work. For example, one of the Regional Bell Operating Companies made this argument in the federal universal service proceeding.

The Telecommunications Act of 1996 does not require the Commission to replace any, or all, of the contributions to joint and common costs in the interstate access charge system with universal service funding...

They do not require the Commission to eliminate all, or even a major portion, of the contributions to joint and common costs in the interstate access charge system with a universal service funding mechanism, if those contributions do not preserve or advance universal service...

As a practical matter, the Commission must construe Section 254 in this way because it is neither possible, nor desirable, to create a rate structure for telecommunications services that reflects the "true" economic cost of serving each customer. The costs of service for a particular customer vary by the type of facilities provided, the customers' location, the volume of service, the short run and/or long run effect on capital deployment, and a host of other factors that change constantly. For this reason, a carrier defines a class of customers and develops averaged rates for the entire class. Even if the carrier disaggregates its rates by geography, time of day, or volume, the rate level is the same for the group of customers in the disaggregated category. This means that some customers in the category will pay more than the cost of service and the excess revenues from these customers subsidize other customers that are paying rates that do not recover their costs. Moreover, marketing considerations often dictate that rates for some services will directly subsidize rates for other services. For

²³FCC, Universal Service Order, para. 261.

instance, supermarkets do not charge customers for parking, but recover the cost of parking in the price for groceries. They do this because it is a more effective way of encouraging customers to shop...

Thus, even in a perfectly competitive market, variable amounts of contribution to joint and common costs, and cross-subsidies between services, will always exist. Such pricing practices are not inconsistent with Section 254 unless they represent direct subsidies for universal service.²⁴

In a similar proceeding in Texas, one of the potential competitors made exactly the point that a common sense understanding of economic behavior requires the recovery of costs across all services that share facilities.

In response to comments filed by MCI, Sprint and SWBT, TCG reiterates its strong support of the Commission's recommendation to calculate the subsidy requirements as the difference between total revenue per line and the forward-looking cost of those services rather than the difference between basic service rates and the cost of basic service. Such an approach is simply common sense and recognizes the fact that telephone subscribers buy much more than basic service and generate far more revenue for their local service provider than the rates for basic service and the subscriber line charge. Indeed, to the extent that rates for basic service do not cover the cost of basic service (forward-looking or otherwise), the shortfall may be more than overcome by profits from discretionary services. The basic service rates, therefore, are no more than a loss leader for the provider, used to attract the customer so that the provider can sell him other, more profitable products and services.

It is also important to realize that discretionary services (e.g., call forwarding, call waiting, call answering) and access to a long-distance provider can be provided to that customer only the customer's basic service provider. That is, once a customer selects a local service provider, that provider captures the *exclusive* right to sell that customer additional services. The Commission has correctly recognized, therefore, that subscribers to basic service are much more valuable to their carriers than the rates for basic service would imply, and that such revenue opportunities should be taken into account when calculating the support requirement.

Including such revenue in the benchmark both prevents a windfall from accruing to the ILECs and allows the marketplace to establish cost-based rates for all services including access. The windfall is prevented because a higher benchmark produces a smaller universal service fund,

²⁴ "NYNEX Comments," before the Federal Communications Commission, In the Matter Of Federal-State Joint Board on Universal Service, CC Docket No. 96-45, April 12, 1996, pp. 3,4,5.

adjusted automatically for the revenue from access and vertical services. Cost-based rates will result from competition among local service providers for the entire package of services. It is important to realize that the telecommunications industry is extremely dynamic and costs will continue to decline. Competition will only accelerate this trend of declining cost reducing the need for universal service support. Moreover, because a competitive marketplace is the only real guarantor of cost-based prices, there is no need for the commission to intervene to "guess" at what costs ought to be.²⁵

To the extent that we propose to recover legitimate joint and common cost from these services, those joint and common costs will not disappear with the advent of competition. They will not disappear because the competitors must incur such costs if they seek to provide facilities of their own. Competitive markets allow the recovery of efficient joint and common costs.

²⁵ "Reply Comments of Teleport Communications Houston, Inc. and TCG Dallas Concerning Proposed Rules on Universal Service Fund Issues," before the Public Utility Commission of Texas, Investigation of Universal Service Issues, Project No. 14929, October 10, 1997.

PART II:

DETERMINING JUST AND REASONABLE RATES,
IDENTIFYING SUBSIDIES,
AND ALLOCATING JOINT AND COMMON COSTS

IV. A PROPOSED METHODOLOGY

The Commission must adopt a rigorous methodology for identifying the costs and benefits of the multi product network. The methodology should be divided into two steps: cost analysis and cost recovery (pricing).

The Commission should adopt specific, operational principles for each step; it should not leave the companies with the discretion to define costs or to decide their allocation. Cost causation is just a starting point of cost analysis; how to determine cost causation must also be stipulated. While it is easy to say that incremental costs should constitute the price floor, that says little if you do not define what the increment is.

A. STATEMENT OF PRINCIPLES

With respect to cost analysis we recommend the following.

- 1) Cost causation should be analyzed and be defined by
- 2) the necessary functionalities and capacities for specific services projected on
- 3) a forward-looking basis for those services which are intended to be offered over the network.
- 5) Incremental costs for all services should be calculated for
- 5) the long term on
- 6) a total service basis (TSLRIC).
- 7) Stand-alone costs (SAC) should be calculated.
- 8) All costs should be estimated on a forward looking, least cost basis (TELRIC).

- 9) **Costs must be analyzed consistently across all major services and proceedings using the same cost methodology with individual functionalities or specific capacities having similar costs across services.**

With respect to cost recovery we recommend the following.

- 10) **All users should pay for all functionalities utilized.**
- 11) **Prices should be subsidy free (above TSLRIC and below SAC).**
- 12) **Within the limits set by other policies (e.g. universal service) prices should promote efficiency.**
- 13) **Prices should be based on predictable rules that allocate shared costs across categories in proportion to a measure of cost or use.**
- 14) **Finally, the allocation of shared costs should minimize the burden on captive ratepayers.**

B. COST ANALYSIS

1. Cost Causation

Regulators must engage in cost causal analysis for the multi-product firm selling a mixture of competitive and utility services.

2. Cost Causation defined by the Functionality and Capacity Necessary to provide a Service.

In order to identify the costs associated with a use or service, regulators should analyze the functionalities and capacities necessary to provide the services intended to flow from the deployment of an asset.

3. Intended Uses

The intended use of assets is also crucial to determining cost causation: For what purposes was the asset deployed? Since most assets have multiple purposes, what specific functionalities were necessary to provide each specific service? Less demanding uses should not be saddled with the costs of higher order functionalities and capacities. The relevance of this principle to the multi product network is straightforward. If POTS does not require the massive capacity of a broadband network, then the costs incurred to deploy that capacity could not have been incurred to meet POTS needs.

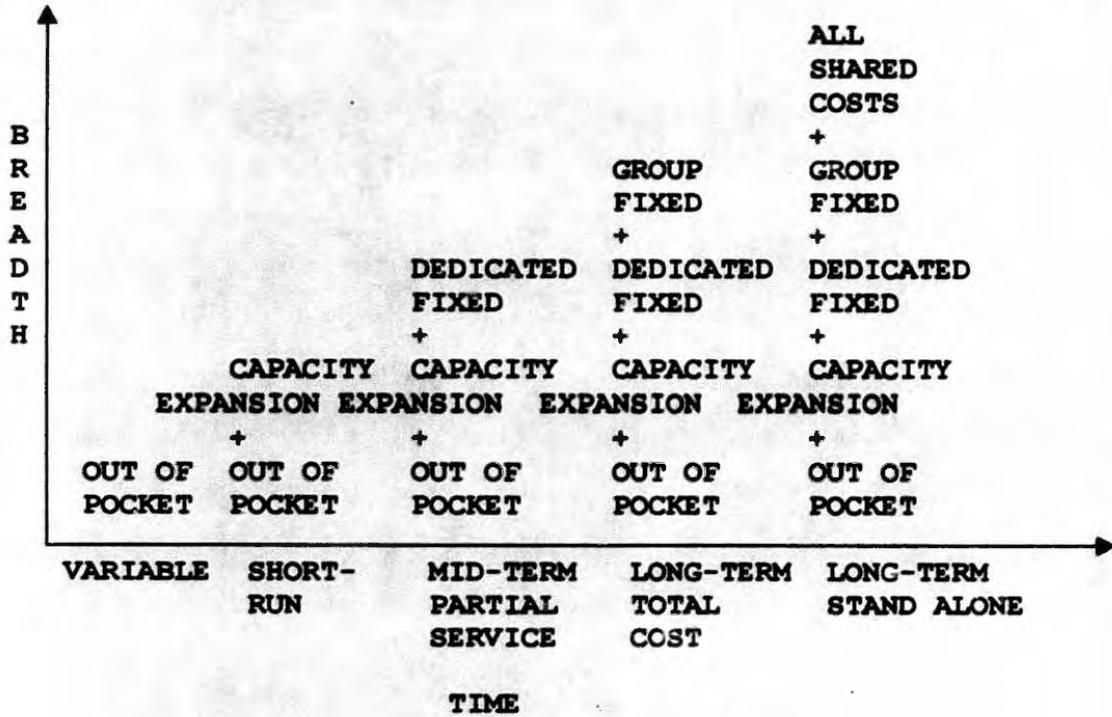
Historically, a great deal of attention in telecommunications policy has focused on the loop, but there are other categories of cost that deserve more careful analysis. For example, when industry analysts complain that switch-based services, like Call Waiting are over priced, they invariably are comparing the total revenue generated by the service to its incremental cost. Typically, telephone companies fail to allocate the costs of the high powered switches, which make these possible, to the services. Typically, the costs include advertising and royalties for software use, but never a share of the hardware costs.

4. Incremental Cost

In order to explain the other recommended principles for cost analysis, it is necessary to examine the debate over incremental cost. Simply stating that prices should be above incremental costs resolves little in the effort to protect consumers and competition, if we do not have a common understanding of what we mean by "incremental cost".

As it turns out, defining - not to mention measuring - incremental cost is no simple matter. There are a variety of definitions of incremental cost, each of which may be appropriate for a different regulatory function. Figure 2 attempts to summarize the different concepts of

**FIGURE 2:
VARIOUS COST CONCEPTS**



incremental cost.

In brief, the concept of incremental cost varies according to the time frame used and the breadth of costs included.

In a competitive industry under stress, short-term out-of-pocket costs are the relevant concept for the firm. This can never be an appropriate basis for long-term analysis, since the firm never covers its fixed costs.

A somewhat longer term view adds small increments of capacity to the out-of-pocket costs, but will not allow new technologies to enter into the calculation. In this approach, current sunk costs are taken as given. Many telephone company methodologies use this concept.

Some companies include certain dedicated fixed costs in the calculation of incremental costs. This approach does not look forward far enough to make capital costs variable.

Potential competitors include a broader range of costs. I refer to these as "group fixed" costs (defining the precise costs to be included requires empirical analysis). This approach captures more fixed costs in two ways: First, it treats the entire service as incremental in the long term. Second, if functionalities (or costs) are significantly utilized by a service or group of services, they would be captured by total service long run incremental cost (TSLRIC).

Finally, we have stand-alone costs. This concept adds in the increments of shared costs which are not captured by the total service incremental cost (TSLRIC) concept. It also is long term, in the sense that it must be the least cost technology.

5. Long Run Costs

Incremental costs for the multi-product, mixed competitive/regulated firm, should be calculated on a long term basis, where all costs are variable.

In a monopoly context with rate of return regulation in place, it might have been appropriate to use shorter term concepts for designing an incremental cost test to prevent cross-subsidy. There was no competition to be damaged by an unrealistically low floor price and the revenue constraint was effective. Artificially low incremental costs might have had the effect of transferring wealth between classes of customers, but they did not result in excess profits. Since competition was not allowed, they did not cause supply-side inefficiencies (although there may

have been demand side inefficiencies).

In the context of emerging competition, with the revenue constraint of rate of return regulation relaxed, these flaws inherent in a short term concept of incremental cost can no longer be tolerated.

6. Total Service Cost

The long term increment to be studied must be total service, since that is variable in the long term. Looking at a small increment of the service would allow pricing at the margin that would not recover the costs associated with earlier increments of the service. In the long term, such pricing is not viable. From the point of view of designing an incremental cost test in a transition to competition, for an industry with significant economies of scale resulting from a long period of franchise monopoly, total service costs are the appropriate measure, since potential unrecovered costs are very large.

7. Stand-Alone Cost

Stand-alone cost is another key cost concept. As the name suggests, it refers to the cost of providing the service on its own, without any other services with which to share costs. Calculation of stand-alone cost is the second step necessary to ensure the prevention of cross-subsidy.

8. Least Cost

The importance of measuring stand-alone cost on a least cost basis must be underscored. In the long term competitive market, all costs are variable and only the efficient, least cost technologies survive. Moreover, if least cost technology is not analyzed, then the door is opened to cross-subsidy. Here I do not mean efficient at the embedded cost level, where decades of

monopoly inefficiencies are embedded in the cost structure. I do not mean efficient at the cost model level we have recently sunk to, where uneconomic assumptions about network architecture are imposed on the cost estimate to quiet political and legal threats. I mean efficient in a forward looking sense, where, over time, every decision that affects cost will have to stand a direct economic test in the marketplace. Universal service policy will fail miserably if it insulates incumbents from that economic test. Flowing from the forward looking efficient cost principle, high costs funds should be built up from specific estimates of efficient costs to provide service.

9. Cost Consistency

All major services should be subject to cost analysis using similar methodologies and similar capacities or functionalities provided by specific facilities should have similar costs for all services.

C. COST RECOVERY

If cost analysis is done properly, we should have identified the long run total service incremental costs (LRTSIC) associated with any particular service. Prices should cover those costs and make a contribution to the shared costs. Because shared costs will have to be allocated arbitrarily, the purpose of rigorous cost analysis is to diminish as far as possible the category of shared costs. In a network with significant shared costs, such as the multi product telecommunications network contemplated by the statute, the task of allocation is large and extremely important.

10. "User Pay" Principle

A key concept in telecommunications pricing is "user pay". All users of the advanced

telecommunications network should pay for all functionalities that they use in reasonable proportion to the costs associated with those functionalities. Where there are joint and common costs, over-recovery of revenue (excess profits) cannot be allowed, but this does not negate the fundamental principle that all services should pay for all functionalities they utilize.

11. Subsidy Free Prices

Subsidy-free pricing is the economic efficiency standard that must be met. However, subsidy-free pricing only establishes a range of prices that are reasonable (between TSLRIC and least cost, stand-alone cost). Floor prices (e.g.: TSLRIC) and ceiling prices (e.g.: least cost, stand-alone service cost) should be identified to prevent cross-subsidy and to establish the range of acceptable prices.

12. Efficient Cost Recovery

Cost recovery should be efficient, where possible. Costs should be matched with cost causers. Patterns of cost recovery should be matched with patterns of cost causation. However, regulators must do the analysis carefully. The current effort to recover loop costs in fixed charges is a case in point. Transforming part of the current access charges into a more fixed recovery of a fair share of loop costs makes sense. I say "more fixed" because there are aspects of loop costs that are not as fixed as they seem.

When a loop is designed and deployed, the costs are not fixed. They are variable with respect to the services that will utilize the loop. If certain services require higher levels of functionality or capacity in the loop, then they should bear the cost responsibility. Once the loop is deployed there is a tendency to spread the costs around without remembering why the costs were incurred and how the loop is used.

More importantly, while the costs may be fixed, the revenue opportunity is variable. Different service providers may occupy the loop and thereby exhaust its revenue opportunity. For example, when the primary carriers are asked to pay for a share of the loop, they bristle at the thought that dial-around competitors will avoid that charge. The solution, of course, is that the total amount to be recovered should be fixed, but the burden should be spread according to use.

13. Predictable Price Rules

Within the range of subsidy free prices, specific, predictable price rules (e.g.: equal mark-ups above direct costs or equal mark-downs below stand-alone cost) should be applied to ensure that competitors are not placed at a disadvantage and that consumers are compensated for the costs of facilities used to provide competitive services.

14. The Allocation of Shared Costs Should Minimize the Burden on Captive Ratepayer

Where flexibility in pricing exists, pricing methodologies should minimize prices to captive ratepayers for basic service. As discussed above, this principle both protects captive ratepayers and promotes competition.

The burden of joint and common costs placed on basic access should be minimized. As a matter of social policy and in recognition of the economic value of having more people on the network (i.e.: the network externality), basic service should be a low mark-up service.

Where there are unallocable common and joint costs in enterprises selling a combination of competitive and monopoly services, the contribution from competitive services should be maximized. Because captive ratepayers have no alternatives, regulatory mechanisms must protect them from excessive burdens. Minimizing the burden on ratepayers and maximizing the contribution of competitive services also protects competitors from unfair competition because

competitors do not have access to a captive, monopoly core business to absorb costs.

D. APPLYING A CONSISTENT METHODOLOGY TO HIGH COST ESTIMATION

The above principles must be applied in a consistent manner across geographic areas and companies.

1. MATCHING COSTS AND SUPPORT

First, the forward-looking economic costs and the sum of the unbundled network elements (UNEs) should be equal. The whole should equal the sum of the parts in this cost analysis. Failure to achieve this equality would either allow the incumbent to over recover costs (if UNEs exceed costs) or entrants to be the recipient of the implicit subsidies (if forward-looking efficient costs exceed UNEs). As long as the costs are forward looking and efficient, they should be the basis for both UNEs and universal service calculations.

With the efficient forward-looking costs identified, the principle should be that the subsidy goes with the responsibility to maintain the underlying facilities. If the unbundled element is priced at its full cost (as calculated with a forward looking, most efficient methodology) then the purchaser of the UNE should get the subsidy. If the UNE is not priced at its full cost, then the subsidy should stay with the entity selling the UNE. If the subsidy goes to the seller of the UNE and it is priced at its full cost, there would be a double recovery.

2. MATCHING UNE AND USE AREAS

The unit of analysis should be consistent across analyses. That is, if UNEs are offered

over a specific area, e.g. urban areas, then the Universal Service Fund (USF) should be estimated over the same area. Failure to use a consistent unit of analysis will create opportunities for overrecovery of costs and will impede competition. If the USF is calculated on an exchange-by-exchange basis, but UNE prices are calculated on a larger unit of analysis, companies will receive support for loops whose prices are below the cost-based UNE rate. Companies will sell many low cost UNEs that are priced "too" high due to the state-wide averaging. They will collect universal service support for high-cost UNEs whose price is too low due to statewide averaging. Administrative efforts to prevent over recovery of costs due to the disconnect between UNE areas and USF areas will be problematic at best.

The FCC has recognized the need for consistency, in general, and the fact that USF areas should be consistent with UNE areas, in particular, in its initial universal service decision.

We also encourage a state, to the extent possible and consistent with the above criteria, to use its ongoing proceedings to develop permanent unbundled network element prices as a basis for its universal service cost study. This would reduce duplication and diminish arbitrage opportunities that might arise from inconsistencies between the methodologies for setting unbundled network element prices and for determining universal service support levels. In particular, we wish to avoid situations in which, because of different methodologies used for pricing unbundled network elements and determining universal service support, a carrier could receive support for the provision of universal service that differs from the rate it pays to acquire access to unbundled network elements needed to provide universal service. Consequently, to prevent differences between the pricing of unbundled network element and the determination of universal service support, we urge states to coordinate the development of cost studies for the pricing of unbundled network elements and the determination of universal service support.²⁶

The FCC has not shown that it is planning to implement the federal universal service fund on this basis. At the time of the initial order, the Commission did not have much information

²⁶ Universal Service Order, para. 251.

about how UNEs would be defined. The majority of states have now acted on UNEs and the Commission can now run its cost models at levels of disaggregation consistent with UNE zones. This is how the states have defined the telecommunications market and it is entirely consistent for the Commission to adopt these areas in calculating universal service support.

3. MATCHING ANALYSIS WITH ACTUAL ECONOMIC BEHAVIOR

The Commission should reject the choice of the Census Block Group (CBG) as the unit of analysis. Although the FCC seeks a smaller unit of analysis than the current study area and identifies census block groups as one possible unit of analysis, the census block group does not drive the network architecture, nor are telecommunications services marketed at this level. In determining the unit of analysis, the key point is the efficient targeting of support and a reasonable representation of economic behavior in the deployment of facilities and the marketing of services.

The census block group does not represent a market segmentation that is reasonable for a new entrant. It is virtually impossible to deploy facilities, to advertise, and offer service by census block groups. The economic unit on both the supply-side and demand-side is larger.

Choosing an excessively small unit of analysis creates an unnecessarily large universal service fund, since it eliminates the actual averaging of costs that inevitably goes on in the marketplace. Virtually no producers of goods and services price discriminate down to the census block level, when there are joint and common costs and economies of scale and scope in production.

The issue is not simply one of targeting subsidy payments, but getting the costs right. If a very granular unit of analysis is used, economies of scale and scope are underestimated. As a

result, support payments will be overestimated. Recent testimony of Ameritech in a universal service proceeding in Indiana has argued exactly this point.

Ameritech Indiana proposes that the exchange, as defined by the ILEC's current exchange boundaries, should be used to define a service area for a high-cost subsidy program. Such a definition strikes a balance between an overly large area (such as a statewide study area or even a LATA) and an overly small area such as a CBG. Using CBGs as a service area would be administratively burdensome and would not comport to real world areas in which telecommunications companies seek to offer service.

Defining a service area in as granular level as a CBG has no bearing on competition since it is unlikely that an ALEC [Alternative Local Exchange Company] or an ILEC would make its competitive entry plans on the basis of a CBG... Further, the size of the service area will not adversely affect the capital requirements of an ALEC because an ALEC can always use the resale alternative to meet its universal service obligation in a service area. The interconnection, unbundling, and resale provisions of TA96 ensure that the scale economies of the ILEC are available to the ALEC. Therefore, there's no more capital strain on ALECs to serve a given service area than there is on ILECs.

CBGs obviously do not correspond to how the telecommunications network is presently laid out, or how ALECs are likely to build their own networks. CBGs do not correspond to how telecommunications services are marketed to market segments.²⁷

Ameritech is not the only company to have recognized the fact that CBGs are alien to the telecommunications industry. Although Southwestern Bell supports the use of CBGs for purposes of USF payments (even though it has not significantly deaveraged its UNEs), it does admit that CBGs have nothing to do with the way the network was deployed.

In order to receive support for a line an ETP [Eligible Telecommunication Provider] will need

²⁷ Rebuttal Testimony of Bruce A. Hazzlet on Behalf of Ameritech Indiana, "In the Matter of an Investigation on the Commission's Own Motion into Any and All Matters Relating to Access Charge Reform and Universal Service, Including, but Not Limited To, High-cost or Universal Service Funding Mechanisms Relative to Telephone and Telecommunications Services Within the State of Indiana, Pursuant to: IC, 8-1-2-51, 58, 59, 69; 8-1-2-2.6 Et Seq., and Other Related Statutes, as Well as the Federal Communications Act of 1996 (47 U.S.C. 151 Et. Sec.), Cause No. 40785.

to identify the CBG in which the customer is located. No smaller geographic area is appropriate for support distribution. The CBG is a geographic area that has previously been totally unrelated to the local exchange telephone business and consequently does not exist in telephone company records.²⁸

²⁸ Reply Comments of Southwestern Bell Telephone Company, Texas Public Utility Commission, Project 14929, p. 27, October 10, 1997.

VI. COST ALLOCATION ON THE MULTI PRODUCT NETWORK

A specific and informative debate over cost allocation on multi product networks has been raging in the U.S. for several years in the FCC video dialtone proceeding. Local exchange companies want to minimize the size of investment attributed to the non-basic services on the multi product network and treat video investments as incremental. By doing so, they seek to attribute few if any shared costs to the video side. On the other side are potential competitors and consumers. They argue that this allocation creates at least a strategic price advantage, if not a cross-subsidy, for the local exchange company's competitive services. It also improperly burdens ratepayers.

With the recent decision of the Regional Bell Operative Companies (RBOCs) to embrace ADSL technology to deliver high speed data over existing copper lines, this debate is likely to be directly relevant to the next round of cost allocation in the states.

In this section, the debate around cost estimates is reviewed. Two examples of hypothetical cost structures and cost allocations that have been offered by witnesses in this debate are analyzed, illustrating the necessity for principles along the lines of those proposed herein. Although the original proposals were made with respect to sharing of video and telephony, the issues apply equally to local and long distance as well as telephone and data.

A. THE ECONOMICS OF INTEGRATED NETWORKS

In this section, the economics of video dialtone in the American context are analyzed.

1. What Are the Costs of Integrated Hybrid Fibre/Coax Networks?

Table 1 presents a series of estimates of costs for telephony only, video only and

TABLE 1
COMPARISON OF COST ESTIMATES FOR DIGITAL LINE CARRIER
AND HYBRID FIBRE/COAX VIDEO SYSTEM
(Investment dollars per home passed)

	C. O.	RDU/ FEEDER	DISTRIB-	DROP	CUSTOMER	TOTAL		
DLC TELEPHONY								
Reed (A)	3	240	46	175	106	126	696	
Hatfield (B)	45		251		309		743	
Selwyn e	190		225	100	0	320	835	
BROADCAST CABLE								
Reed Coax	12		19	26	182	82	103	424
Reed Hybrid Bus	15		307	104	150	106	126	772
INTERACTIVE VIDEO								
Reed Hybrid SCM	329		299	34	170	82	103	1017
Bell Atlantic (D)	103		144	36	165	49	?	497
U.S. West (E)	208		195	107	127	?	637	

SOURCES AND NOTES

- A) Reed, Residential Fibre Optic Networks: An Engineering and Economic Analysis (Artech House, Boston, 1992), Tables 5.3 and B.8.
- B) Hatfield, The Cost of Basic Universal Service, July, 1994. Table 4 presents bottom up engineering costs for a variety of density classes. The three middle density classes, which are ideal candidates for digital line carrier, all fall in the range of \$726 to \$764.
- C) Economics and Technology, Inc./ Hatfield Associates, Inc., The Enduring Bottleneck, 1994. Table 3.2 presents the cost of adding telephony to cable which relies on digital line carrier.
- D) Bell Atlantic, In the Matter of the Application of: The Chesapeake and Potomac Telephone Companies of Maryland and Virginia for authority pursuant to section 214 of the Communications Act of 1934, as amended to construct, operate, own and maintain, facilities and equipment to provide a commercial video dialtone service within a geographic territory defined by the Maryland and Virginia portions of the Washington Local Access Transport Area (LATA), Exhibit 3A, and Bell Atlantic's Response to Inquiries, December 16, 1994, Exhibit 3, for common costs. Feeder, Distribution and Drop are separately identified in the application. Video serving office equipment is treated as equivalent to Reed's central office equipment. All other costs are treated as pedestal/interface.
- E) U.S. West, In the Matter of the Application of U.S. West Communications, Inc., for Authority Under Section 214 of the Communications Act of 1934, as Amended to Construct, Operate, Own, and Maintain Facilities and Equipment to Provide Video Dialtone Service in Portions of the Colorado Springs Service Area, Exhibit 3A. Feeder, Distribution and Drop are separately identified in the application. Video serving office equipment is treated as equivalent to Reed's central office equipment. All other costs are treated as pedestal/interface.

integrated systems. The variety of estimates is necessary because there are serious questions about the cost estimates.

All of the costs are presented in terms of capital cost per home passed. For the purpose of this table, the HFC network is assumed to be ubiquitous -- i.e.: all potential homes are passed. It is important to note, however, "all homes passed" does not mean that the investment can be recovered from all subscribers. The starting point of "all homes passed" is used to create an equivalent basis for comparison purposes only.

The LEC cost estimates come in at about half the level of publicly available figures. Moreover, the most thorough figures from Reed actually assume half as many remote units and fifty percent more TV penetration. Therefore, the cost differences are even larger than they appear in the following Table. U.S. West's figures are closer, but still lower by a substantial amount.

- o Cost causative analysis (Principle 1) will be crucial here to ensure that telephone ratepayers do not pick up costs associated with either video dialtone or the integration of video and telephony.

Cable industry experts argue that this is simply an underestimation of costs, particularly in electronics. LECs argue that this reflects dramatic decreases in cost experienced over the past few years. LECs have been claiming for some time that the cost of fibre is falling rapidly. The cost of digital switches has fallen by approximately 75 percent in the past few years. Bell Atlantic's numbers would suggest that the cost of electronics is plummeting. Between one half and three quarters of the difference between the LEC estimate and the Hybrid-SCM estimates is accounted for in the central office and remote distribution unit categories.

The remainder of the difference appears to be the lack of customer premise costs.

Whether this results from my categorization of costs which were not clearly identified by Bell Atlantic or U.S. West, or from a "free ride" being given to video dialtone at the customer premise, is not clear.

- o Analysis of the use of the hook up at the customer premise (Principle 10) is important to determine a fair rate to be charged to the video dialtone service for use of that hook-up.

Finally, we have what appear to be fairly well agreed upon costs for feeder and distribution.

2. What Does it Really Cost to Serve Broadband (Video) Customers?

The assumption that costs can be spread across all homes passed is crucial to the relatively low estimated cost in Table 2. The cost of these HFC networks appears low only if spread across all subscribers. For example, Bell Atlantic's VDT system only looks "cheap" if the network construction costs are spread over all homes passed. In fact, the page, which shows "Video Dialtone Network Investments", identifies all potential end users. In the Washington D.C. area, for example, if the costs are spread over 1.25 million potential end-users, then the cost per home passed is only \$500.

However, Bell Atlantic claims that in ten years it will capture only 40 percent of the video market. In order to capture this share of the market, Bell Atlantic will likely have to deploy its video dialtone network in a ubiquitous fashion. But, if Bell Atlantic can only recover these costs from the 40 percent of households who subscribe to video service, **the cost per home served is \$1250** - much more consistent with Reed's figures.

Bell Atlantic claims it will use the video dialtone network to provide telephony, but the application before the Commission insists that no costs have been allocated to telephony yet and none would be until telephony is actually cut over to the VDT network. Without a cost allocation mechanism in place, regulators must evaluate the economics of VDT applications based only on VDT subscribers.

- o The spreading of video costs to non-video subscribers raises serious question about the presence of cross-subsidies (Principle 11).

3. Which Loop Costs are Common?

The companies identify a large part of these costs as common. In the case of Bell Atlantic, common costs are 60 percent of total costs. In the case of U.S. West, it is 71 percent. All of the feeder, distribution and drop facilities are treated as common. A small part of the central office facilities are treated as common. Simply put, the loop is treated as a common cost of telephony and video. A figure of \$400 for a loop is quite remarkable. Even if we were to add about \$100 for the separate telephone drop that splits from the video, the cost is quite low.

However, the assertion that these loop costs are common must not be taken at face value. Digital line carrier for telephony and hybrid fibre/coax systems for video are similar architectures. They involve pulling fibre through the network to a point where it connects to a remote distribution unit. Bit streams are intertwined until they arrive at this pedestal. Another transmission medium is then used for distribution plant: DLC uses copper; Fibre/Coax systems use coaxial cable. Bits are delivered to a network interface unit, which then feeds them to a piece of customer premise equipment. Because the basic architecture is the same, integrated delivery of

telephony and video is an attractive prospect.

Just because the basic architecture is the same does not mean that each of the two uses are equally causative of the same costs. Proper cost allocation principles require that the necessary functionalities and capacities be considered.

- o In fact, designing the system to deliver video is much more expensive than designing it to deliver telephony. More fibre is needed between the central office and the pedestal. More electronics are needed on that fibre. More amplifiers are needed. Fewer lines can be served from a given pedestal. Engineering cost analysis may be necessary to assure that cost causers are identified and bear their burden (Principles 2 and 3).

For example, the Bell Atlantic and U.S. West VDT applications are based on 600 homes per remote distribution unit. In contrast, digital line carrier for telephony can be designed at 2,000 homes per pedestal. Therefore, VDT requires between three and seven times as many remote distribution units as DLC telephony.

Second, the technology to deliver intermingled streams of telephony and video is simply not available. What their costs will be is unclear. They would not be incurred on a telephony-only network, but they will be defined as shared costs on the integrated HFC network.

- o If these costs are for the primary purpose of achieving additional capacity, functional richness, network speed, video capability and multi-tasking activity, it is crucial to identify the costs being incurred in pursuit of these goals and to ensure that they are not improperly imposed on telephony customers (Principle 3).

B. COST ANALYSIS AND COST RECOVERY METHODOLOGIES

With unresolved questions about the nature of total and common costs, the debate moves on to the details of cost analysis and cost recovery. For the purposes of this analysis, two examples, one offered by a telephone company witness²⁹, and one offered by a cable company witness³⁰, are considered.

1. Isolating Incremental and Common Costs

Table 3 shows the results of the primary examples used by these witnesses. Both of these are hypotheticals. Neither witness claims that the actual numbers are reflective of actual costs, although it is clear that they believe that they are.

TABLE 2

HYPOTHETICAL COST STRUCTURES OF VIDEO/TELEPHONE NETWORKS

	HARRIS	JOHNSON
INTEGRATED SYSTEM	\$1000	\$1650
VIDEO ONLY	700	1400
TELEPHONE ONLY	900	800
INCREMENTAL COST OF VIDEO	100	850
INCREMENTAL COST OF TELEPHONE	300	250
COMMON COSTS	600	550

²⁹ Robert G. Harris, Video Dialtone Cost Allocation: The Position of Pacific Bell, October 28, 1994, hereafter "Harris". Although this particular example has not, to my knowledge, been filed with the Federal Communications Commission, the first footnote in the paper notes that Harris has testified in support of the Pacific Bell application for a video dialtone license.

³⁰ Leland L. Johnson, Designing Safeguards Against Cross-Subsidization in Video Dialtone Service, CC Docket No. 87-266, October 3, 1994, submitted on behalf of Adelphia Communications Corporation, Cablevision Industries, Comcast Corporation, and Cox Enterprises, Inc., hereafter "Johnson".

The analysis involves calculating stand-alone costs (Principle 11) for video, telephony and an integrated network.

- o By subtracting the stand-alone costs (SAC) of each system from the costs of the integrated system, we derive an estimate of the incremental costs (IC) (Principle 5, 6, 7) of adding the other service.

$$\text{SAC}(\text{integrated}) - \text{SAC}(\text{service I}) = \text{IC}(\text{Service II})$$

For each of the services the incremental cost will be calculated as follows:

$$\text{SAC}(\text{Integrated}) - \text{SAC}(\text{video}) = \text{IC}(\text{telephone})$$

$$\text{Harris: } \$1000 - 700 = 300$$

$$\text{Johnson: } \$1650 - 1400 = 250$$

$$\text{SAC}(\text{Integrated}) - \text{SAC}(\text{telephone}) = \text{IC}(\text{video})$$

$$\text{Harris: } \$1000 - 900 = 100$$

$$\text{Johnson: } \$1650 - 800 = 850$$

Common costs (CC) are the obverse of Incremental costs:

$$\text{SAC}(\text{Service I}) - \text{IC}(\text{Service I}) = \text{CC}(\text{Service I})$$

For each of the services, the common costs will be calculated as follows:

$$\text{SAC}(\text{telephone}) - \text{IC}(\text{telephone}) = \text{CC}(\text{telephone})$$

$$\text{Harris: } \$900 - 300 = 600$$

$$\text{Johnson: } \$800 - 250 = 550$$

$$\text{SAC}(\text{video}) - \text{IC}(\text{video}) = \text{CC}(\text{video})$$

$$\text{Harris: } \$700 - 100 = 600$$

$$\text{Johnson: } \$1650 - 850 = 550$$

Before we begin the cost allocation exercise, it is interesting to note the cost structure in the two examples. First, note that Harris, the telephone company witness, uses an example in which the cost of an interactive video system is less than the cost of an interactive telephone system. This is, at the very least, counter-intuitive. Johnson, on the other hand, shows a cost for an interactive video system that is almost twice that of a telephone system. The empirical evidence suggests that it should be higher, but perhaps not that much higher.

Second, although common costs are of similar magnitude in both analyses, they appear to be a much larger percentage of total costs in the Harris example and the Johnson telephone case. In the Harris example, they are 67 percent of telephone costs and 86 percent of video costs. In the Johnson telephone case, they are about 69 percent of telephone costs, but only 38 percent of video costs. This difference stems from fundamentally different assumptions about the cost of building a stand-alone video system.

2. Subsidy Free Prices

Using these numbers, we can calculate the range of subsidy-free prices for each of the services on the integrated network.

- o Telephone subscribers must be charged at least their incremental costs and no more than their stand alone costs (Principle 11).

Their rates would be at least \$300 in the Harris example. If that is all they are charged, then video subscribers must be charged \$700, in order for all costs to be covered. Conversely, video subscribers must be charged at least \$100. If that is all they are charged, then telephone subscribers must be charged \$900, in order to cover all costs. Thus, telephone subscribers can cover between \$300 and \$900 of the total costs, while video subscribers can be charged

between \$100 and \$700, without incurring any subsidy.

In the Johnson example, telephone subscribers must be charged between \$250 and \$800, while video subscribers must be charged between \$850 and \$1450. Johnson sums the situation up as follows:

As long as video subscribers pay no less than the video incremental cost of \$850, telephone subscribers would pay not more than \$800 -- no more than they would be obliged to pay in the absence of video. Thus, cross-subsidization of video would not arise. If video were assigned no common costs, telephone users would enjoy none of the benefits of the integrated network (though they should be no worse off than with a separate telephone network). Conversely, if video were assigned all the common costs, video users would be no better off, nor worse off, than if they were confined to a separate video network. Any particular assignment, then, determines how the benefits of joint network use are shared between telephone and video users (Johnson, p. 4).

It interesting to note here that Congress did not allow basic service to be put in the situation of being "no worse off" from cost allocation, through a failure to allocate costs to non-basic service.

- o Video must bear a share of common costs and basic can bear no more than a reasonable share (Principle 14).

3. Problems Posed by the Existing Network

The above examples consider only new networks being built. The difficulty of identifying costs is compounded by the existence of the current network.

Harris adds a wrinkle to this analysis when he assumes that the stand-alone cost of the

new telephone network is lower than the current costs of delivering telephone service. In his example, current telephone costs are \$1200, compared to only \$1000 of the new stand-alone network (Harris, p.7).

Harris then argues that the cost comparison should be between the existing network and the new network.

If SAC (Voice) is less than SAC (Present Method of Operation) and the price of video is greater than IC (video), then basic ratepayers are better off in the long run with the new network investment (Harris, p.7).

In essence, Harris suggests that a price ceiling of the present method of operation is all that must be met. This cannot be correct for purposes of long run pricing, however. Harris is comparing a sunk historical cost to a long run stand alone cost. In a competitive market, the current cost could never be collected if it were above the cost of some available alternative, since competitors with the new technology would enter and put the incumbent out of business.

The difference between the current method of operation and the Least Cost, Stand-Alone new system cost must be considered a monopoly rent (protected by some barrier to entry) and it must not be collected by the incumbent. This is a fundamental flaw in the companies' proposal

- o Costs must be estimated and prices set no higher than the forward looking, efficient level. (Principle 8).

Although Harris' comparison between stand alone costs for the present method of operation and future stand alone cost is questionable, it underscores the need to conduct stand alone cost analysis is clear. As Harris points out, one needs the stand alone cost calculations to isolate incremental, joint and common costs and to identify proper price ceilings

The "total service long-run incremental costs" of video and telephony services can be estimated by a stand-alone approach, in which one designs and estimates the stand-alone costs (SAC) of three networks...

One of the benefits of the stand-alone cost approach is that SAC (Voice) can be compared to the cost of the present method of operations (SACpmo), to demonstrate that the proposed network provides a lower cost means of providing voice telephony services (Harris, p. 7).

Although I disagree with Harris' conclusion about how the benefits of cost lowering technology should be distributed, it is clear in both his analysis and Johnson's that estimating stand-alone costs is crucial to preventing cross-subsidy and allocation costs in a multi-product environment with substantial shared costs. Forward looking economic costs are crucial to the analysis.

Not surprisingly, Johnson, the cable company witness, pushes the example in the opposite direction. Instead of showing that consumers are getting a good deal on the integrated network (because new technology is less costly), he suggests that integration may be masking a bad deal.

What if adding new functionalities to a telephone-only network costs less than providing them through an integrated network?

[I]f we assumed that a \$200 capital expenditure on the existing telephony network would give it the same capability as the telephony portion of the proposed integrated network. Consideration of the existing network shows stunningly different results from those previously. (Johnson, p.8)

In this case, failure to take the existing network into account results in a cross-subsidy. The analysis that takes the existing network into account costs less than the analysis that includes telephone functionality in an integrated system.

If the company were permitted to proceed on the basis of the figures [ignoring the existing network], and even if it proposed that video cover all the common cost (\$550) in addition to incremental (\$850), it would still fall short of covering the true video incremental cost of \$1450 -- posing again the prospects of cross - subsidization (Johnson, p.9).

- o The ability to impose these costs stems from market power. Competitors cannot deploy networks that match the current price plus upgrade (Principle 8).

4. Implications of Large Common Costs

In these examples, we note that the incremental cost floor for video is extremely low compared to its stand-alone cost. We must ask ourselves whether competition could possibly survive such a radical allocation of common costs. Video competitors would have to find someplace to park between 67.5 percent and 87.5 percent of their total costs. This is highly unlikely, to say the least. At the same time, Johnson points out that there are major equity issues raised.

The allocation of common costs, therefore, raises issues of fairness or equity between classes of users, not issues of subsidization of [one] service by another. Nevertheless, issues of fairness and equity are important since most would agree that all affected users of new technologies should share in whatever net benefits those technologies confer; that is, common costs should be allocated in some fair and reasonable way, reflecting national policy (Johnson, p.4).

Johnson here states the difference between the first and second sentences in section 254 (k) of the 1996 Act (Principle 14).

5. The Debate Over Cost Allocators

The large common costs in these examples result in a wide range of subsidy-free prices. This underlies the debate over cost allocators. Each of the authors and a number of other commenting parties have suggested a number of possible allocators (Principle 13).

Virtual Loops: Harris, for example, argues that if the regulators are uncomfortable with allowing the local exchange companies to allocate costs according to the market, they should use a virtual loop approach. This approach is a favorite of the local exchange companies. Since each

service requires one channel or loop, they advocate splitting common costs 50-50 without any cost causal analysis (Principle 1).

Two interim cost allocation rules can be used that would permit speedy approval of VDT service applications:

1. pre-Part 36, "regulated, not subject to separation," with common costs allocated by either the virtual loop or direct investment cost methods; or
2. under Part 36, using the virtual loop (or other reasonable) method of allocating common costs.³¹

Methodologies such as "the loop is a loop" approach appear reasonable since "a bit stream is a bit stream", but they are not actually based on cost causative analysis. As discussed above, the cost of a loop on a multi product network designed and engineered for video is greater than cost of a bit streams on a digital network designed for telephony. It has already been noted that the design characteristics and costs of the integrated network are driven by the demands of video. Therefore, "the loop is a loop" approach seriously underestimates the costs caused by video.

Cost causative analysis: The previous discussion identifies specific cost components that would be at least four times greater on the video network. This would attribute 80 percent of the common costs to the video portion.

Johnson uses an example in which 9 strands of fibre are pulled for a video service and one strand of fibre is pulled for telephone service (Johnson, p.14). Johnson's example would attribute 90 percent of the costs to video. Based on these observations, it seems clear that a video loop is causing more costs. A conservative estimate is that it should be weighted at least four times more heavily than a telephone loop.

³¹ Harris, p. 11.

Traditional usage allocators of common costs, such as minutes of use, have been shunned by local exchange companies. The reason is obvious: Americans watch a great deal of television. The loop would be in use on average about 420 minutes per day for video use. In contrast, it would be in use on average about 40 minutes per day for telephone use (local and long distance). Thus, a minutes-of-use allocator would require a 7:1 ratio of video to telephony.

This allocator would attribute 87.5 percent of common costs to video.

Ironically, the local exchange companies find the most alarming allocator to be an actual usage allocator. If we count the number of bits flowing over the network, we find that the weighting would be on the order of 800:1. Video usage is not only long in terms of time, it is wide in terms of bandwidth used (the information necessary to produce a picture is large compared to the information necessary to produce voice communications).

This allocator would attribute 99 percent of the costs to video.

Table 4 shows the results when the common costs from the earlier examples are allocated by these four different rules. The range of outcomes is quite large. Even the loop-is-a-loop approach

TABLE 4

**THE IMPACT OF ALLOCATORS FOR COMMON COSTS
ON COST RECOVERED FROM TELEPHONE SERVICE**

METHOD	RATIO OF VIDEO TO TELEPHONY	HARRIS COSTS COMMON TOTAL		JOHNSON COSTS COMMON TOTAL	
NO HARM DONE	NA	0	900	800	800
LOOP IS A LOOP	1:1	\$300	600	275	525
COST CAUSATIVE LOOP	4:1	120	420	110	360
MINUTES OF USE	11:1	50	350	21	271
BITS TRANSMITTED	800:1	6	306	3	253

lowers the cost of telephone service by one-third, as compared to the no harm done approach. This suggests the extreme importance of the second sentence in section 254 (k). As long as the Commission requires each of the services that share facilities to make contribution to common facilities, basic service ratepayers are protected. The Table makes it clear that once cost causation analysis enters the picture, basic service fares considerably better. An allocation methodology that shares common costs based on cost causation yields benefits to basic service that are equal to 55 to 70 percent of the "no harm done" approach. In this case, because the video service is the more demanding of the applications, any effort to understand the design and use characteristics of the network will attribute much more of the common costs of the network to video. That is why the local exchange companies have insisted that the broadband network is simply the "next step in telephony."

**VII. UNDERSTANDING THE DIFFERENCE BETWEEN CURRENT AND
FORWARD LOOKING, EFFICIENT COSTS**

a. THE COST OF LOCAL SERVICE

The LEC's own numbers from the video dialtone discussion suggest that the cost of building a local telephone network, even without taking into account common costs between local, long distance, enhanced services and video, appears to be in the range of \$600 to \$700 in capital costs. The embedded costs the LECs claim is in the range of \$1000 to \$1200. This gap served to raise questions about the cost claims of the LECs.

There are a variety of models for estimating the cost of providing telephone service, which have been utilized in recent federal and state regulatory proceedings.³² The dominant models are

³² The most frequently used models, and the ones that are being evaluated by the FCC are the Benchmark Cost Model: a Joint Submission by MCI Communications Inc., NYNEX Corporation, Sprint Corporation, U S West, Inc., CC Docket No. 80-286, December 1, 1995 and Hatfield and Associates, Hatfield Model: Version 2.2, Release 1, May 30, 1996, included as Appendix D to Reply Comments of AT&T, "Comments U S West Inc.," In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996, Schedule 3, presents a tabulation of loop costs according to company data.

Other models include David Gable, "Testimony of David Gable, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part Its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole Its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075; - "Testimony of David Gable," State of Maine Public Utilities Commission, Re: Investigation Into Regulatory Alternatives for the New England Telephone Company No. 94-123 and Frederic a. Pease, Et. Al. V. New England

the Benchmark Cost Model developed by a consortium of local and long distance companies and the Hatfield model that has been utilized by long distance companies, and the proprietary models employed by the LECs.

Table 5 shows comparisons between the claimed costs of the local exchange companies and the estimates of costs in a number of states. It is quite clear that substantial differences exist. Commission and third party estimates show differences on the order of \$15 to \$17 between embedded costs and efficient costs. This means the artificially high rates being charged today are unwarranted, could not be sustained in a competitive market, and should not be compensated for.

Telephone Company Requesting Commission Investigation of the Level of Revenues Being Earned by NET and Determination of Whether Toll and Local Rates Should be Reduced, Docket No. 94-254, December 13, 1994, Exhibit 2. Current Issues, 1995), p. 17.

**TABLE 5:
COST ESTIMATES FOR LOOP AND BASIC SERVICE**

STATE	1 COMMISSION DECISION	2 THIRD PARTY ESTIMATE(b)	3 LEC CLAIMED COST ^o	4 DIFFERENCE (3-1)
LOOP COST ONLY (a)				
COLORADO	18.00	10.44	35.72	17.72
CONNECTICUT	12.95	11.14	28.72	15.77
FLORIDA	17.28	11.06	30.32	13.09
ILLINOIS	10.93	10.05	30.65	19.72
MICHIGAN	10.03	12.25	32.87	22.84
OREGON	12.45	10.12	37.91	25.46
TOTAL BASIC SERVICE(d)				
WASHINGTON	14.00	17.02	33.40	19.40
FLORIDA	19.00	17.11	30.32	11.32
INDIANA		18.22(e) 16.63	30.50	12.28
IOWA	15.55	16.33	41.50	25.17

SOURCES:

(a) Federal Communications Commission, First Report and Order: Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, CC Docket No. 96-98, Appendix D.

(b) Hatfield and Associates, Hatfield Model: Version 2.2, Release 1, May 30, 1996, included as Appendix D to Reply Comments of AT&T, unless otherwise noted. This early version of Hatfield is used because it contains assumptions about full efficiency of forward looking costs. Later version began to incorporate inefficiencies dictated by regulators who were concerned about recovery of stranded costs. In a competitive marketplace, such costs would not be recoverable.

(c) "Comments U S West Inc.," In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996, Schedule 3, presents a tabulation of loop costs according to company data.

(d) Company claims and commission decisions are noted in the following:

FL - "Order No. PSC-95-1592-FOF-TP," before the Florida Public Service Commission, In Re: Determination of funding for Universal Service and Carrier of Last Resort Responsibilities, Docket No. 950696 - TP, December 27, 1995, p. 32, states that "The record demonstrates that Southern Bell's average cost for a residential line is "somewhat less than \$19 a month."

WA - "Fifteenth Supplemental Order: Commission Decision and Order Rejecting Tariff Revisions: Requiring Refiling," Washington Utilities and Transportation Commission v. U S West, Inc., April 10, 1996, p. 9 states, "USWC's own data show little cost difference between its rural and urban service territories. The Commission directs the Company to eliminate extended area service surcharges and establish a statewide residential rate of \$10.50 per month, the average I effect today. The \$10.50 rate covers the cost of local residential service and provides a substantial contribution to shared and common costs.

IA: "In Re: U S West Communications Inc.," State of Iowa, Department of Commerce, Utilities Board, Docket No. RPU-95-10, May 17, 1996, p. 26.

Ind : "Testimony of Trevor R. Roycroft, Public's Exhibit 1," pp. 134-136, in State of Indiana, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075. The final price was a stipulation.

(e) David Gable, "Testimony of David Gable, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part Its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole Its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075.

B. EXPLAINING THE GAP BETWEEN EMBEDDED AND EFFICIENT COSTS

a number of factors may be contributing to the differences between the LECs' claimed embedded costs and efficient costs including:

- Excess profits
- Strategic investment
- Inefficiencies
- Misallocated costs

The State commissions are not obligated to ensure or even allow the recovery of any of these costs. None of these costs deserves support from the universal service fund.

Table 6 presents two estimates of the importance that these factors play in explaining the gap between embedded costs and the cost of providing efficient telephone services. One estimate uses materials from a rate case in Indiana, which saw extensive evidence on cost analysis developed. That case was settled with a rate reduction for local service of approximately \$3.00 per month, including the elimination of the state subscriber line charge. The second estimate uses recent national numbers developed primarily for the FCC's universal service and local competition proceedings. Both show that the gap can be readily explained by four factors.

1. Excess Profits

Excess profits are a primary source of the problem. In the Indiana case, the company's underlying cost model relied on a cost of money of 12.67 percent. The People's Counsel estimated

**TABLE 6
RECONCILING EMBEDDED COSTS WITH EFFICIENT COSTS
LOCAL RESIDENTIAL TELEPHONE SERVICE**

	INDIANA	NATIONAL
1. EMBEDDED COST	^{a/} 30.25	^{b/} 33.00
2. EXCESS PROFIT	^{c/} 2.25	(d) 5.00
3. STRATEGIC INVESTMENT	^{c/} 3.00	^{e/ f/} 3.00
4. INEFFICIENCY	^{c/} 4.00	^{f/} 4.00
5. MISSALLOCATED TOLL	^{c/} 4.50	^{c/} 4.50
ENHANCED/BUSINESS	^{c/} 1.00	^{g/} 6.00
6. LOCAL RESIDENTIAL COST OF SERVICES 1-(2+3+4+5)	14.50	10.50
7. TSLRIC ESTIMATES	^{h/} 14.93 - 18.22	^{i/} 16.71 - 21.35
8. TSLRIC - ALLOCATION [7-5]	9.43 - 12.72	6.21 - 10.85
9. LOCAL RATES (NO TAXES)	^{a/} 15.35	^{i/} 16.80

SOURCES: See text for discussion.

(a) Converted to a Monthly per line basis from "Testimony of Trevor R. Roycroft, Public's Exhibit 1," pp. 134-136, in State of Indiana, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075

(b) "Comments of U S West, Inc.," In the Matter of Federal-State Joint Board on Universal Service, Before the Federal Communications Commission, FCC 96-93, CC Docket No. 96-45, April 12, 1996, Schedule 3.

• "Testimony of Harold L. Rees, Public's Exhibit No. 3," p. 44, both in State of Indiana, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075

(d) Mark N. Cooper, Milking the Monopoly: Excess Earnings and Diversification of the Baby Bells Since Divestiture, (Consumer Federation of America, February 1994)

(e) Lee Selwyn, Analysis of Incumbent LEC Embedded Investment (ETI, May 1996), Table 6; Kenneth C. Baseman and Harold V. Gieson, Depreciation Policy in the Telecommunications Industry: Implications for Cost Recovery by Local Exchange Carriers (MiCRA, December, 1995).

(f) Hatfield Associates, The Cost of Basic Network Elements: Theory Modeling and Policy Implications, March 1996, Table 5.

(g) Susan M. Baldwin and Lee L. Selwyn, The Cost of Universal Service: a Critical Assessment of the Benchmark Cost Model (ETI, April, 1996), p. 76, shows approximately 20 percent of operating expenses resulting from the acceleration of depreciation due to pursuit of competitive and business services and marketing expenses targeted at business services.

(h) David Gable, Current Issues in the Pricing of Voice Telephone Services (American Association of Retired Persons, 1995), p. 17, and "Testimony of David Gable, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part Its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole Its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075; BCM - Benchmark Cost Model: a Joint Submission by MCI Communications Inc., NYNEX Corporation, Sprint Corporation, U S West, Inc., CC Docket No. 80-286, December 1, 1995. Hatfield II - Hatfield Associates Inc., The Cost of Basic Network Elements: Theory, Modeling and Policy Implications, March, 1996.

(i) Hatfield: I - Hatfield Associates Inc., The Cost of Basic Universal Service, July 1994, p. 4; II - Hatfield Associates Inc., The Cost of Basic Network Elements: Theory, Modeling and Policy Implications, March, 1996. BCM - Benchmark Cost Model: a Joint Submission by MCI Communications Inc., NYNEX Corporation, Sprint Corporation, U S West, Inc., CC Docket No. 80-286, December 1, 1995.

(j) Industry Analysis Division, Common Carrier Bureau. Trends in Telephone Service (Federal Communications Commission, May 1996), Table 6.

the cost of money at less than 10 percent. At the national level, consumer advocates have documented excessive profits for local exchange companies on the order of \$5 to \$6 billion for the past several years.³³ Including tax effects, this equates to approximately \$5 per month.

2. Strategic Investments

Strategic costs are a second major component of the gap. These are assets deployed primarily to meet demand in competitive segments or non-telecommunications businesses. The FCC has recently recognized that this is a massive problem, with huge quantities of underutilized fiber and switching capacity deployed throughout the network.³⁴ In Indiana, the People's Counsel conducted a close review of the allocators used to assign costs to the residential class and found gross over allocation of plant to that category.³⁵ Among the major categories of strategic investment were technologies to enhance Centrex offerings (also identified at the National level as a problem), system signaling seven and ISDN costs primarily meeting business needs but assigned to residential, and switching costs allocated on the basis of average use, rather than peak use. These analyses demonstrate that between 10 and 20 percent of the total plant in service has

³³Consumer Federation of America, Milking the Monopoly, 1996; Money for Nothing, 1997.

³⁴ "Comments of the Consumer Federation of America," In the Matter of Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, CC Docket No. 96-112. Similar conclusions are reached in "Testimony of Richard Gable," Appendix VII, State of Maine, Public Utilities Commission, Re: Investigation Into New England Telephone Company's cost of Service and Rate Design, Docket No. 92-130

³⁵ "Testimony of Harold L. Rees, Public's Exhibit No. 3," p. 44, both in State of Indiana, Indiana Utility Regulatory Commission, In the Matter of a Petition of Indiana Bell Telephone and Telegraph Company, Incorporated, for the Commission to Decline to Exercise in Part its Jurisdiction over Petitioner's Provision of Basic Local Exchange Service, to Utilize Alternative Regulatory Procedures for Petitioner's Provision of Basic Local Exchange Service and Carrier Access Service, and to Decline to Exercise in Whole its Jurisdiction Over All Other Telecommunications Services and Equipment Pursuant to IC 8-1-2-6, Cause No. 39075.

been deployed for these strategic investments. This works out to between \$3.00 and \$4.00 per month.

a similar analysis has recently been conducted at the national level.³⁶ It estimates that 20 percent of network investment since 1990 cannot be explained by basic service needs.

3. Inefficiencies

The third major category of costs that fill the gap between embedded and efficient costs are inefficiencies. These are primarily made up of extremely large overhead loading assigned to residential and basic service (including marketing and general corporate expenses). Both the Indiana People's Counsel and the national estimates place this figure at approximately 15 percent of the claimed revenue requirement. This works out to roughly \$3.00 to \$4.00 per month.

4. Misallocated Costs

As previously noted, consumer advocates, state regulators, and some companies believe that there is another major problem of cost misallocation. Long distance and enhanced services utilize the network and must either have costs attributed to them or have their revenues included in the cost/revenue calculation. For instance, the Indiana People's Counsel claimed that 30 percent of total costs should be allocated to the toll market.

³⁶ Lee Selwyn, Analysis of Incumbent LEC Embedded Investment (ETI, May 1996), Table 6; Kenneth C. Baseman and Harold V. Gieson, Depreciation Policy in the Telecommunications Industry: Implications for Cost Recovery by Local Exchange Carriers (MiCRA, December, 1995).

Since most cost/revenue comparisons include the federal subscriber line charge, we believe that half of this number remains misallocated. That is, the costs associated with loop facilities used by interLATA long distance are included in the cost estimates for basic service. This is compensated by the fact that the revenue associated with the End User Common Line (EUCL) are generally included in the estimation of basic service revenues.³⁷ Thus, approximately \$4.50 should be taken into account either as a cost or as a revenue (CCL plus intraLATA long distance). This would be equal to the national average CCL charge of \$2.50, plus at least another \$2 for intraLATA toll use of the network.

Similarly, some of the costs of the network have been incurred to provide enhanced services. The Indiana People's Counsel identified at least \$1.30 of enhanced service revenues that should be attributed to local to offset these costs.

Including these as cost adjustments for comparison with the TSLRIC studies is appropriate since those studies include switching and transport costs that are appropriately sized for local traffic, not long distance. Although they include the full range of functionalities associated with all services that can be provided over the network (local, long distance and enhanced) they strive to exclude the marketing and other expenses (like billing and collection) associated with these services from the local telephone rate base.

C. CONCLUSION

³⁷ The Indiana People's Counsel points out that CCL revenues should also be included, since these cover the cost of the use of the loop (Rees).

Thus, we can easily chart the path from the claimed costs of the local exchange companies to the efficient costs of basic service as estimated by a number of Commission and third parties. The \$20 gap is made up of roughly equal parts of excess profits, strategic investments, inefficiencies and misallocated costs. In a competitive market, these costs would not be recovered from basic service customers. The excess profits and inefficiencies would simply be competed away. The strategic investments and misallocated costs would have to be recovered from customers of the services for which those costs have been incurred.