Exhibit _____ (WLF-T1)

BEFORE THE WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

In the Matter of the Continued Costing and Pricing of	))	DOCKET NO. UT-003013
Unbundled Network Elements And Transport and Termination	))	

DIRECT TESTIMONY

OF

WILLIAM L. FITZSIMMONS

MAY 19, 2000

TESTIMONY OF WILLIAM L. FITZSIMMONS

TABLE OF CONTENTS

I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. PLEASE STATE YOUR NAME AND POSITION.

A. My name is William L. Fitzsimmons. I am a Principal at LECG; my business address is 2000 Powell Street, Suite 600, Emeryville, CA 94608.

Q. PLEASE DESCRIBE YOUR PROFESSIONAL QUALIFICATIONS.

A. I hold a Ph.D. in Resource Economics from the University of Massachusetts, Amherst. My industry experience prior to joining LECG in 1994 includes two years of modeling demand for private line services for AT&T in New Jersey and six years as an economist and financial modeler for BellSouth in Atlanta. At LECG, my work is focused on the economic analysis and financial modeling of telecommunications issues.

During the past several years I worked extensively advising telecommunications companies on the construction of forward-looking cost models and testified in over twenty regulatory proceedings on cost models and economic policy issues. I also developed financial simulation models of incumbent local exchange providers and entrants for presentation to regulators and for internal use by incumbent telecommunications providers in the United States, Canada, and Australia. My curriculum vita is attached as Exhibit WLF-1.

WHAT IS THE PURPOSE AND STRUCTURE OF YOUR TESTIMONY?

My testimony describes the economic issues related to setting the price for dedicated use of the high-frequency spectrum of a loop. This testimony does not reargue the issue of whether or not spectrum on a physical loop meets the requirements of an unbundled network element (UNE). The fact remains, however, that by defining the high-frequency spectrum on a loop as a UNE, the FCC has created a pricing conundrum that does not lend itself to resolution using the total element long-run incremental cost (TELRIC) approach used in arbitrations and cost dockets over the past several years. Spectrum on a loop was declared an unbundled element, but it is a different kind of unbundled element. Establishing cost-based prices for physical elements is a difficult process, but at least physical elements lend themselves to systematic cost modeling. Unbundled elements, created by advances in electronics and sharing existing physical networks, do not readily accommodate systematic cost modeling.

In Section II, I describe the dedicated nature of the loop and highlight the fact that on a shared line there are two dedicated connections to a customer. This fact has important implications for the cost-based pricing of the use of the high-frequency spectrum. The loop cost is caused by the dedicated nature of the connections to the end user, not by how the connections are used.

Section III describes how line sharing renders TELRIC nearly useless for determining the portion of the loop cost to allocate to the high-frequency spectrum UNE. When a line is

shared between two dedicated uses, all, or nearly all, of the loop costs are common to these two uses. There is no clear cost basis for apportioning the common costs between these two dedicated uses of the loop. In a competitive market, setting the price of the high-frequency use of the loop would not depend on allocating these costs between the two dedicated uses of the loop. Regulators will also need to recognize the limitations of TELRIC in setting the price for this unbundled element.

Section IV describes pricing principles associated with setting a regulated price for the use of the high-frequency spectrum of a loop. The overriding principle is that regulated pricing should mimic competitive pricing to the extent that it is possible, while recognizing that the incumbent LEC is currently obligated to subsidize the public policy goals of universal service and low cost residential service. Regulated prices must preserve incentives for efficient investment, recognize pricing symmetry, and maintain competitive neutrality. Pricing should not favor one competitor over another or one mode of competition. Just as technology created the ability to provide high-speed access on the high-frequency spectrum of the loop, it is creating alternative modes of high-speed access, such as cable modem and broadband wireless services. Setting a low price for high-frequency spectrum on a loop may stimulate short-term consumer benefits from increased activity by xDSL providers, but a low price may lead to long term effects of deterring facilities-based investments in competing technologies and restricting capital formation by the incumbent local exchange carrier.

Q. WOULD YOU PLEASE SUMMARIZE THE RECOMMENDATIONS YOU PROVIDE IN YOUR TESTIMONY?

A. I recommend that the Commission take several steps to derive a reasonable cost-based price for the high-frequency spectrum UNE. First, the Commission should recognize that TELRIC is nearly useless for determining the portion of the loop cost to allocate to the high-frequency spectrum UNE. The fact remains, however, that this UNE is a dedicated connection that uses the loop, and, as such, it causes the loop cost along with any other dedicated connection. A cost-based price for use of this spectrum should, therefore, include a portion of the cost of the loop. I recommend that the Commission draw lessons from regulatory experience and competitive markets. The FCC, in its First Report and Order, recognized the need to add common costs to TELRIC estimates to provide the basis for cost-based prices. Common costs were also added to TELRIC in Washington in the generic costing and pricing proceeding.[1] It is clear that competitive markets set prices for jointly supplied products. At this time, there is no meaningful evidence that more or less than fifty percent of the loop cost should be allocated to the high-frequency spectrum UNE.

Second, line sharing creates a layer of network and operational costs. The price of the high-frequency spectrum UNE should include a portion of the loop cost plus the incremental facilities and operations costs caused by sharing the loop.

Third, when all of the evidence is presented, I urge this Commission to step back and consider what is best for the overall development of the local telecommunications infrastructure in Washington. Impacts from this pricing decision will extend far beyond xDSL providers. This decision will influence the build versus lease decisions for <u>all</u> CLECs, the financial viability of facilities investments in cable modem and wireless broadband services, and U S WEST's future investment decisions. The success or failure of xDSL providers is just one of several concerns the Commission should consider in reaching its pricing decision. With a reasonable price for this UNE, the winners and losers will surface or sink based on their performances in the market.

II. INTRODUCTION: ONE LOOP - TWO DEDICATED CONNECTIONS

Q. WHAT IS THE DISTINGUISHING COST CHARACTERISTIC OF THE UNBUNDLED LOOP?

A. The unbundled loops discussed in cost proceedings over the past several years are provided through the use of distinct, dedicated facilities. As such, the network of physical loops from ILEC central offices to end users lends itself to systematic cost estimation techniques. Facilities required to provide loops can be identified; the forward-looking, recurring cost for these facilities can be estimated; and expenses can be attributed to the loop based on the relationship between loop investment and overall investment. Loops are dedicated physical

links to customers, and, until the FCC declared high-frequency spectrum on a loop an unbundled element, most of the costs associated with this UNE were distinct from the costs of other UNEs. The TELRIC for providing an unbundled loop is a function of the cost of establishing a loop network and the number of physical loops provided to end users on that network. Non-dedicated uses of the loop, such as carrying toll calls, do not cause the cost of the loop.

WHAT ARE THE COST IMPLICATIONS OF THE DEDICATED NATURE OF A LOOP?

The first principle in cost estimation is cost causation. Costs that are caused by the construction and maintenance of a loop should be attributed to the loop. These costs are not caused by services that may or may not occur on a loop, such as switched access and toll usage; loop costs are associated with the dedicated nature of the loop itself. When I lease an automobile and drive it off the showroom floor, no one else can use that automobile without my permission. After driving off the lot, I can drive cross-country, not use it, park it on the street, or use it in any number of ways. The important point is that this car is dedicated to me, and I have to pay a lease price based on the full cost of the car. My phone line, like my car, is dedicated to me. I can park the car in the garage, but I will still have to pay Chrysler Corporation for the components, raw materials and labor required to build the car, whether I use it or not. When a customer is connected to the network with a loop, this loop is available for the exclusive use of the customer. If the customer chooses not to use the line, the line is, nevertheless, always available. When a line is shared, it provides two dedicated connections for the exclusive use of the customer. Even on a shared line, however, all loop costs are caused by the dedicated nature of the loop and not by non-dedicated uses of the loop.

Q. IS THE HIGH-FREQUENCY SPECTRUM ON A LOOP A DEDICATED CONNECTION TO A CUSTOMER?

A. Yes. In its recent Order, the FCC declared that the one physical loop can actually comprise dedicated connections from a customer to two different service providers.[2] The ability to have two dedicated connections on one loop is a function of the marvel of electronics; there is no real-world car analogy that hits the mark. Nonetheless, the high and low frequency spectrums on a shared line are each dedicated for use whether or not the customer uses the loop. Although the high and low frequencies are used on one loop, the spectrums are not shared. The high-frequency spectrum on a shared line is a dedicated connection between the xDSL provider and its customer. This is why the FCC recognized that, on any loop, only one provider can offer high-frequency access.[1]

Q. WHAT ARE THE COST IMPLICATIONS OF LINE SHARING?

Technology has made it possible to offer two dedicated connections on a single loop. At the present time, the loop can provide a dedicated voice connection and a dedicated data connection. In the near future the type of traffic on either of these connections can change. Covad Communications, for example, announced that it is on the brink of carrying voice and data traffic on the high-frequency spectrum of the loop. Regardless of how these connections are used, the important point for cost estimation is that the loop cost on a shared line is caused by two dedicated connections. Either connection, on its own, requires the loop, whether or not it is ever used by the customer. Assume that Mr. Jones moves into a new house and that his new line is a shared line on which U S WEST and an xDSL competitor each establish a dedicated connection. Which of these connections causes the cost of the loop? Perhaps Mr. Jones uses his wireless phone for his voice usage and is primarily interested in the xDSL connection, or, conversely, he may need a wireline phone for voice usage and only subscribed to xDSL as an afterthought. The truth is, the two connections jointly cause the cost of the loop. This Commission has already established the cost of a loop. It must now determine a reasonable amount of this cost to allocate to the high-frequency spectrum UNE on shared lines.

In summary, the underlying cost of loops does not change significantly because they support two dedicated connections. The change is that few of the loop costs on a shared line are attributable to a single dedicated connection. I return to the impact of this change in the following Section.

[1] FCC 99-355, Third Report and Order in CC Docket No. 98-147, Released December 9, 1999, Executive Summary, Line Sharing- Line Sharing Requirements, bullet 2.

III. LINE SHARING AND TELRIC

Q. WOULD YOU PLEASE REVIEW THE PURPOSE AND DEFINITION OF TELRIC?

A. The purpose of TELRIC is to estimate forward-looking, efficient costs that will form the basis for prices that will, in turn, promote efficient investment. Prices set on the basis of TELRIC must do two things. First, they must fairly compensate the provider of the network for the costs of building and operating an efficient network. Second, prices for unbundled elements must provide accurate pricing signals that will result in efficient build versus lease decisions.

Q. WHAT RELATIONSHIP DID THE FCC ORIGINALLY ESTABLISH BETWEEN UNBUNDLED ELEMENTS AND TELRIC?

A. In its First Report and Order, the FCC made it clear that the price for a UNE should be based on the element's TELRIC plus a reasonable share of common costs.

> "The Commission concludes that the prices that new entrants pay for interconnection and unbundled elements should be based on the local telephone companies' Total Service Long Run Incremental Cost of a particular element, which the Commission calls 'Total Element Long-Run Incremental Cost' (TELRIC), plus a reasonable share of forward-looking joint and common costs."[3]

Later, in the same Order, the FCC goes on to claim that:

> "Adopting a pricing methodology based on forward-looking, economic cost best replicates, to the extent possible, the conditions of a competitive market...Because a pricing methodology based on forward-looking costs simulates the conditions in a competitive marketplace, it allows the requesting carrier [of unbundled elements] to produce efficiently and compete effectively, which should drive retail prices to their competitive levels."[2]

In other words, to promote efficient investment, prices for unbundled elements are intended to mimic prices that would prevail in a competitive market. I return to this concept in the following section of my testimony.

---

[2] FCC 96-325, First Report and Order, Released August 8, 1996, CC Docket Nos. 96-98 and 95-185, Paragraph 679.

Q. DOES THE FCC RECOGNIZE THAT LINE SHARING DOES NOT LEND ITSELF TO COST ESTIMATION USING THE TELRIC METHODOLOGY DESCRIBED IN ITS FIRST REPORT AND ORDER?

A. Yes. In the Third Report and Order, the FCC states that:

> "[W]e must extend the TELRIC methodology to this situation and adopt a reasonable method for dividing shared loop costs…We conclude that…states may require that the incumbent LECs charge no more to competitive LECs for access to shared loops than the amount of loop costs the incumbent LEC allocated to ADSL services."[3]

In truth, the TELRIC methodology was not designed for dividing shared costs, and an extension of TELRIC is not likely to change this fact. The TELRIC methodology breaks down under the conditions imposed by line sharing. In the FCC's words, the issue is how to divide "shared loop costs." TELRIC was designed for estimating direct costs; it provides little guidance for allocating shared costs. Other than estimating the underlying cost of the loop and the incremental cost associated with line sharing, TELRIC does not offer a meaningful basis for the cost-based pricing of the high-frequency spectrum UNE.

Q. WHAT IS THE IMPACT OF LINE SHARING ON THE AMOUNT OF COMMON COSTS ASSOCIATED WITH THE HIGH-FREQUENCY SPECTRUM UNE?

A. With the high-frequency spectrum designated as a UNE, most of the loop costs for shared lines are recast as common costs. If there is only one dedicated customer connection, then this connection causes the cost. If there are two dedicated connections, then together these connections cause the cost of the loop. Providing two dedicated connections on one line drives the TELRIC toward zero for either connection, leaving virtually all of the loop costs common to both uses.

Q. HOW DID THE FCC TREAT COMMON COSTS IN THE CREATION OF ITS TELRIC METHODOLOGY?

A. In the First Report and Order, the FCC stressed the importance of minimizing the amounts of costs that are classified as common costs. The FCC stated that:

> "the amount of joint and common costs that must be allocated among separate offerings is likely to be much smaller using a TELRIC methodology rather than a TSLRIC approach that measures the costs of conventional

[3] FCC 99-355, Third Report and Order in CC Docket No. 98-147, Released December 9, 1999, Paragraphs 138-139.

> services. Because *it is difficult for regulators to determine an economically-optimal allocation of any such joint and common costs*, we believe that pricing elements, defined as facilities with associated features and functions, is more reliable from the standpoint of economic efficiency than pricing services that use shared network facilities." (emphasis added)[4]

High levels of common costs make it difficult to determine a cost-based price, because common costs must be allocated to network elements that share the costs, and often there is no sound cost basis for this allocation. In the case of a shared line, the costs of the loop must be allocated to the two dedicated connections on a single loop. Prior to the FCC's First Report and Order, cost models often classified large percentages of costs as shared and common. This was one of the major weaknesses of early long-run incremental cost models. Stressing the reduction of common costs was a positive contribution by the FCC. It is ironic that the FCC's designation of high-frequency spectrum on a loop as a UNE is relegating large amounts of costs into the allocation process that it sought to avoid. As a result, cost modeling does not offer much assistance to the process of apportioning loop costs to the high-frequency spectrum UNE.

Q. WHAT GUIDANCE DOES THE FCC PROVIDE REGARDING THE ALLOCATIONS AND RECOVERY OF SHARED COSTS?

A. In the First Report and Order, the FCC recognized that:

> "Certain common costs are incurred in the provision of network elements…some of these costs are common to only a subset of the elements or services provided by incumbent LECs. Such costs shall be allocated to that subset, and should then be allocated among the individual elements or services in that subset, to the greatest possible extent.…Because forward-looking common costs are consistent with our forward-looking, economic cost paradigm, a reasonable measure of such costs shall be included in the prices for interconnection and access to network elements."[5]

The FCC recognized that costs common to a subset of elements or services should be allocated to that subset. There is, however, no clear-cut solution to determining the proportion of the common loop cost to allocate to the high-frequency spectrum UNE.

---

[4] FCC 96-325, First Report and Order, Released August 8, 1996, CC Docket Nos. 96-98 and 95-185, Paragraph 678.

[5] FCC 96-325, First Report and Order, Released August 8, 1996, CC Docket Nos. 96-98 and 95-185, Paragraph 694.

Q. WHAT GUIDELINES EXIST FOR SETTING COST-BASED PRICES FOR A UNE WHEN MOST OF THE COSTS ARE COMMON COSTS?

A. This Commission is now faced with the challenge of determining cost-based prices for the high-frequency spectrum UNE when TELRIC provides limited guidance. The costing portion of this exercise includes the recognition that the price of this UNE should recover a portion of the underlying loop cost and the costs that are incremental to line sharing with an xDSL competitor (such as OSS, splitters, and line conditioning costs). A reasonable solution begins with the recognition that: 1) there is no TELRIC-like set of equations for allocating a portion of the loop cost to the high-frequency spectrum; and 2) in time, a competitive market will be judged better suited to determine the price of the high-frequency spectrum. Given these conditions, the simple solution is to define the interim cost for this UNE as the sum of a reasonable portion of the loop cost plus the incremental costs caused by line sharing.

Impacts from the price decision made in this proceeding will ripple far beyond xDSL providers. This decision will influence the build versus lease decisions for all CLECs, the financial viability of facilities investments in cable modem and wireless broadband services; and U S WEST's future investment decisions. The key question is: Given the cost of an unbundled loop and the incremental cost of line sharing, what price is consistent with the competitive solution and furthers the goals for pricing unbundled elements?

IV. THE CRITICAL ROLE OF PRICING

Q. WHAT ARE THE IMPLICATIONS OF EMERGING XDSL COMPETITION FOR PRICING THE LINE SHARING UNE?

A. Given the escalating demand for high-speed access, the rapid evolution of multiple technologies to compete for this demand, and the certainty that technological change will continue apace, this Commission should be adopting broad-based, forward-looking pricing policies. The Commission need not regulate for the distant future; it only need realize that the rules it adopts now will greatly affect the course of competition for years to come. If the Commission does not set a reasonable, cost-based price for the high-frequency spectrum UNE, harm to competition, efficiency, and investment in the telecommunications infrastructure will result.

Regulatory pricing policies should promote efficient investment by incumbents, entrants using the same facilities, and entrants with alternative technologies, such as cable modems and broadband wireless. Regulators also need to consider the impacts of pricing policies on the ability of U S WEST to support public policy goals such as universal service and low priced residential service.

Q. WHAT PRINCIPLES SHOULD GUIDE THE ALLOCATION OF LOOP COSTS TO THE HIGH-FREQUENCY SPECTRUM UNE?

A. The ability to carry high-frequency and low-frequency signals is inherent in a loop. From the perspective of the cost of providing the twisted copper pair, there is no clear method for separating the costs associated with offering dedicated low spectrum and high-frequency access. In a competitive market, the price of the high-frequency UNE would result from the traditional forces of supply and demand. Telecommunications is becoming steadily more competitive, and it is probable that market forces, rather than regulation, will provide a better mechanism for pricing the high-frequency UNE. Since the FCC declared that market driven pricing is not an option at this time, the overriding principle is that regulated pricing should mimic competitive pricing to the extent that it is possible, given that the incumbent LEC is obligated to subsidize the public policy goals of universal service and low priced residential service. Regulated prices must preserve incentives for efficient investment, maintain pricing symmetry, not stray from a policy of competitive neutrality, and, at least in the near term, provide U S WEST with the opportunity to generate subsidies required to fund its social welfare obligations.

Competitive Markets Price Outputs That are Produced Jointly

Q. DO COMPETITIVE MARKETS PRICE JOINTLY SUPPLIED GOODS?

A. Competitive markets set positive prices for jointly supplied goods. An economist at MCI Worldcom recently provided an analogy for line sharing that I will borrow for illustration.[4] He compared a chicken that has the natural property of including chicken wings and chicken breasts to the loop, which has the inherent ability to support low-frequency and high-frequency dedicated connections. While not an obvious analogy, it illustrates that competitive markets do price two products that are produced with one process. Let me state the obvious first - chicken producers do not provide either the breasts or the wings for free.

My illustrative extension of this analogy begins in a time before the invention of the finger-food known as Buffalo wings and assumes that, prior to Buffalo wings, there was almost no market for chicken wings.[6] Demand for other chicken parts was strong and growing, as many meat eaters began substituting chicken for other types of meat in their diets. In addition, chicken nuggets became a popularized, acceptable food. Wings were produced along with the remainder of the chicken, but they had little value. At that time, the cost of the chicken was recovered by successful producers by selling chickens with nearly valueless wings. Research and development efforts, however, were on the verge of a breakthrough that would create value from the wings. Now, move the clock forward. Due to the development of Buffalo wing sauce and the changing eating habits of Americans, chicken wings are now a very popular finger food.

Consider what would happen in this competitive market when competitors, who do not produce chickens but who have their own special sauces, come to the chicken producers to acquire chicken wings. The entrants do not want to produce chickens; they only want to sell Buffalo wings in competition with each other and the firms that produce chickens and sell chicken parts, including wings. In the competitive world of chicken parts, the entrants may want the chicken producers to give them the chicken wings for free, but this does not happen. If you want to sell Buffalo wings, you have to pay the price for chicken wings that is set in the market by the traditional forces of supply and demand. In his report on the history of Buffalo wings, Calvin Trillin "checked with the local poultry distributor and found that both John Young and Frank Bellissimo [two of the early developers of Buffalo wing sauce in Buffalo, New York] were buying a lot of chicken wings in the middle of the sixties."[7]

---

[6] According to Harmon, John E., "On the Wings of a Buffalo or 'Mother Teressa's Wings," Part of the Atlas of Popular Culture in the Northeastern United States (http:/www.geography.ccsu.edu/harmon/atlas/buffwing.htm), buffalo wings were "invented" or discovered in 1964.

Demand varies by market-based tastes of consumers and the availability of substitutes. Supply of wings varies with the supply of other chicken parts, which varies with tastes, incomes, and factors that effect the success of raising chickens.

Q. WOULD YOU PLEASE EXTEND THIS ANALOGY TO DISCUSS THE PRESERVATION OF INCENTIVES TO INVEST?

A. This analogy extends readily to a discussion of incentives to invest. Potential entrants in all industries face the *buy versus build* decision. This decision is influenced by the revenue and cost characteristics of the two options. When Buffalo wings were gaining in popularity, the extra revenue that was available from selling chicken wings could have resulted in the decision by entrants to invest in chicken production rather than buy parts. On the revenue side, this incentive would be diminished if the entrant would have to sell its chicken wings for a very low price. On the cost side, the incentive to produce chickens is reduced when wings are nearly free. Furthermore, if there is a regulation that forces chicken producers to sell their wings for a very low cost, even when there is a strong demand for wings, producers will think twice before investing in additional R&D to create other uses for chickens. Fortunately, competitive markets adjust to remove such aberrations.

In telecommunications, CLECs are investing very little in loop facilities to residential customers and small business customers outside of the major business centers. Setting artificially low prices for high-frequency spectrum use could have a negative impact on the incentives for CLECs to construct their own facilities to serve these customers. Low prices for use of the high-frequency spectrum on loops could also have a chilling effect on cable-based and wireless investments to provide high-speed Internet access in some geographic areas.

Like xDSL-based competitors, cable-based and wireless competitors are responding to the rising demand for high-speed access. A key difference is that these competitors are responding with facilities investments. High capacity access across the traditional landline network is in direct competition with cable modem and broadband wireless services, and this competition is expected to intensify. It is my understanding that cable-based voice service is already available in some locations in Washington.[8] It is as if cable companies have found a way to come at the chicken in reverse. First, they are producing chickens that are mostly tasty wings as they invest in the production of bigger and better chickens. It is not difficult to see how the incentives to make cable-based facilities investments may be dampened in

[7] Harmon, John E., "On the Wings of a Buffalo or 'Mother Teressa's Wings,'" Part of the Atlas of Popular Culture in the Northeastern United States (http:/www.geography.ccsu.edu/harmon/atlas/buffwing.htm).

[8] Rogoway, Mike, "AT&T will offer local phone service," *The Columbian* (Vancouver-Washington), page 1, April 6, 2000.

some geographic areas and customer segments if competitors can obtain high-frequency spectrum UNEs for a very low price.

Pricing Symmetry

Q. CAN YOU EXPLAIN WHAT YOU MEAN BY PRICING SYMMETRY?

A. Pricing symmetry means that the price should be set without regard for the initial use of the loop. If the loop is used to provide two dedicated "lines," the price for each "line" should not be determined by which line was provided first.

Returning to the chicken analogy, today's wholesale or retail prices for chicken breasts and chicken wings do not depend upon which was sold first. In the analogy presented above, chicken breasts were popular first. In another reality, it could happen that the spicy chicken wings were popular first. In this reality, when breasts became popular, wholesale and retail markets for breasts would have developed, along with wholesale and retail prices. Coming at the current market from either direction would result in prices for breasts and wings, and these prices would be determined based on the forces of supply and demand, just as they are today. Extending the analogy, in a competitive market it does not matter which became popular first, the chicken wing or breast or, by comparison, the low-frequency use or the high-frequency use of the loop.

Q. WHAT IS THE FLAW IN THE ARGUMENT THAT ALL OF THE INCREMENTAL COST OF THE LOOP IS CAUSED BY THE PORTION OF THE LOOP THAT PROVIDES DIAL TONE?

A. An argument that all of the incremental cost of the loop is attributable to the portion of the loop that provides dial tone relies on the timing of which use of the loop occurred first. The flip side of this argument is that the incremental cost of high-frequency spectrum use is nearly zero, and, therefore, the cost-based price should not cover any of the cost of the loop. On this point, noted economist Dr. Alfred E. Kahn observed that:

> "The same logic that would produce a close to zero total service incremental cost of providing access to the high-frequency spectrum when capacity to do so is added to a loop already providing dial tone, would produce a close to zero incremental cost for the latter as well, if that capacity were added to a system already in place capable of providing high-frequency spectrum."[5]

Given this logic, the only time both uses of the loop would have incremental cost would be when they are both introduced simultaneously. In truth, on a shared line, both dedicated uses of the loop cause the cost, and it is not a meaningful exercise to attempt to determine what

portion is caused by either use separately. Once both dedicated uses are established, from a long-run perspective, discontinuing either use would not change the underlying cost of the physical loop. Attempting to resolve the cost allocation issue with the TELRIC approach is pointless.

WOULD A COMPETITIVE SOLUTION RESULT IN A NEAR ZERO PRICE FOR USE OF THE HIGH-FREQUENCY SPECTRUM OF THE LOOP?

A. No. Clearly, producers of physical products, loops or chicken wings, set positive prices for products that have strong demand and limited supply. Because there is a limited supply and strong demand for use of the high-frequency spectrum of loops, a competitive market would result in a positive price for this new network element.

Q. IS THERE A MEANS OF DIFFERENTIATING THE VALUE OF THE SERVICES THAT CAN BE CARRIED BY THE TWO USERS OF A SHARED LINE?

A. No. Technology created the use of the high-frequency spectrum for high-speed Internet access, and technology can extend the use of this spectrum. DSL entrants expect to offer dial tone and voice services on their dedicated connections with their customers. The following quotes from Covad Communications demonstrate this point.

> "When we founded the company in 1996, our original vision was to deliver combined voice and data solutions...and this successful trial demonstrates our ability to deliver innovative products in the market. We hold a leading position in data and we intend to maintain that leadership in DSL voice."[9] (Covad Press Release, 6/7/99)

Covad expects to provide voice and data services on the UNEs that it buys from U S WEST. It may prove that the dedicated connection for high-frequency spectrum will provide far greater value than the dedicated connection for lower frequency use. A market solution would be responsive to this issue in a manner that is difficult to predict. Without resorting to the market, one can only guess at what the market price would be. It is clear, however, that we cannot presume that the market would value a dedicated connection for low-frequency use higher than a dedicated connection for high-frequency use, or vice versa.

[9] Covad Communications Company, Press Release: "Covad Successfully Executes Trials of Combined Voice and Data Over DSL", June 7, 1999.

Q. WHAT ARE THE DYNAMIC EFFICIENCY CONCERNS WITH SETTING THE PRICE OF THE USE OF THE HIGH-FREQUENCY SPECTRUM?

A. Dynamic efficiency relates to the rate of technological change, including the rate of innovation and the rate of adoption of innovations. One of the chief benefits of a market economy is that competition stimulates the development, introduction, and adoption of new technologies. Pricing can influence the direction and pace of technological change. If prices are set too low, competitors may not adopt better, lower cost technologies for providing the service in question. If prices are set too high, competitors may have an incentive to adopt less efficient technology, even though the cost of providing service is higher than the existing technology.

ILECs have few incentives to invest in technologies or innovations that would fuel dynamic efficiency if they cannot realize a return on their investment. Specifically, innovation in new technologies, such as the Internet, has become critically important as we move forward in the information age. Until now, the vast majority of Internet access was with fairly "slow" connections, frequently as slow as 14.4 to 28.8 kbps/sec. Only recently has the average Internet experience occurred at a speed of approximately 50 kbps/sec.[10] Because of these slow connections, Internet sites (or content providers) have had a "speed limit" on their content, relying mainly on text and still photos, as opposed to audio/video and other multimedia formats. As new telecommunication technologies (such as cable modems and xDSL) become more common, content providers will increase their "speed limit" to accommodate those high-speed users (possibly up to 1 million kbps/sec), and those users on a slow network will be left behind.[11] This makes it imperative that the ILECs who serve those without ready access to the most up-to-date technologies have the incentive, and indeed are able, to invest in new technologies so that their customers are not left behind.

Although it is difficult to predict how the technology available in the Internet, cable, and wireless industries will integrate into the lives and businesses of Washington's citizens, it is clear that the appropriate signals and incentives for investment are necessary to maintain the development of the state's strong telecommunications infrastructure.

---

[10] The speed of the average Internet experience is on the order of 50 Kbps. (http://www.zdnet.com/pcmag/insites/dvorak/jd970811.htm)

[11] Cable Datacom News publisher Kinetic Strategies, Inc. estimates the number of cable modem subscribers in North America passed the 250,000 mark July 1, 1998. The same report also estimated that cable modems are commercially available to more than 12 million homes, the equivalent of approximately 11 percent of all cable homes passed in North America. It is expected that the cable modem subscriber count will surpass the 400,000 mark by the end of 1998 and top 1 million by the end of 1999. Source: "Cable Modem Market Stats and Projections" Cable Datacom News, published by Kinetic Strategies Inc. (http://cabledatacomnews.com/cmic16.htm)

Competitive Neutrality

WHAT DO YOU MEAN BY COMPETITIVE NEUTRALITY?

A. U S WEST and the xDSL providers are competing with each other and with high-speed Internet access provided with cable and wireless technologies. Competitive neutrality means that the price of high-frequency spectrum should be set without special regard or treatment of any competitor or group of competitors.

Q. DOES THE FCC'S CONCLUSION THAT "STATES MAY REQUIRE THAT THE INCUMBENT LECS CHARGE NO MORE TO COMPETITIVE LECS FOR ACCESS TO SHARED LOOPS THAN THE AMOUNT OF LOOP COSTS THE INCUMBENT LEC ALLOCATED TO ADSL SERVICES"[6] PROTECT COMPETITIVE NEUTRALITY?

A. It is not clear exactly what the FCC meant by the word "allocated" when it concluded that "states may require that the incumbent LECs charge no more to competitive LECs for access to shared loops than the amount of loop costs the incumbent LEC allocated to ADSL services when it established its interstate retail rates for those services." If the FCC meant that the incumbent LEC is pricing above a price floor that contains the cost for the high-frequency spectrum, then I agree that this price will protect competitive neutrality. If the FCC meant that the maximum price of the UNE is fixed by an actual or accounting transfer of funds by U S WEST to its MegaBit[12] service, or the direct costs that the ILEC included in its rate filing, then I disagree.

On a shared line, the cost of the loop is common to the two dedicated connections; it is not part of the TELRIC for either connection. Following the FCC's guidance (discussed in Section III of my testimony), a portion of the common loop cost should be allocated to the high-frequency spectrum UNE. In the FCC's own words:

> "We conclude that, under a TELRIC methodology, incumbent LECs' prices for interconnection and unbundled network elements shall recover the forward-looking costs directly attributable to the specified element, as well as a reasonable allocation of forward-looking common costs."[13]

Whether or not common loop costs were explicit in ILECs' interstate rate filings, it is appropriate to include these costs when establishing a cost-based price for the high-frequency spectrum UNE.

Q. DO COMPETITIVE SELLERS OF PRODUCTS THAT ARE JOINTLY PRODUCED ALLOCATE COMMON COSTS TO EACH PRODUCT?

A. When chicken producers in my earlier example began selling wings, there would be no need for them to make an overt allocation of common costs of the chicken to the price of their wings. Dr. Kahn noted that:

---

[12] MegaBit Service is a high-speed data service provided by U S WEST.

[13] FCC 96-325, First Report and Order, Released August 8, 1996, CC Docket Nos. 96-98 and 95-185, Paragraph 682.

> "[I]n competitive markets sellers do not price on the basis of 'imputed' common costs when those costs must be recovered either in the form of fixed customer charges or on the basis of what the respective services produced with the aid of the inputs will bear. Competitive parity would therefore require that both sets of rivals bear the same loop costs, each recovering them in either of those two ways_not that one set of rivals be totally exempted from them, as proponents of what is labeled 'line sharing' would have it."[14]

For a regulated firm, it is common for regulators to protect competitive neutrality by preventing the incumbent from using its market power to subject competitors to a price squeeze. For U S WEST's MegaBit service, this could be achieved by setting the price floor equal to the incremental cost of providing the service, including the portion of the common loop cost that it allocates to the high-frequency spectrum UNE. It is my understanding that the price of U S WEST's MegaBit service fulfills this requirement.

Q. WHAT IS A PRICE SQUEEZE?

A. A price squeeze involves the use of market power to reduce the margin between prevailing wholesale and retail prices to the point where the integrated seller has a substantial competitive advantage over retail competitors that are not integrated. In the case of line sharing, the Commission should be concerned with ensuring that the incumbent does not use its market power to raise the wholesale price of the high-frequency spectrum above cost to the point that the margins between retail and wholesale prices for efficient competitors do not cover the costs (including reasonable return on investment) of providing the service. That result is met by requiring U S WEST to price its MegaBit service above a price floor that equals the incremental costs it incurs by providing the service, including the portion of the loop cost it allocates to the high-frequency spectrum UNE.

[14] Reply Declaration of Alfred E. Kahn in Response to Second Further Notice of Proposed Rulemaking, CC Docket 96-98, June 10, 1999, pp. 15-16.

Q. CAN A COMPETITOR FACE A "SQUEEZE" BETWEEN INPUT COSTS AND RETAIL REVENUES THAT IS NOT BASED ON THE USE OF MARKET POWER BY THE INCUMBENT PROVIDER OF THE WHOLESALE INPUT?

A. A competitor can face a "squeeze" any time its costs are greater than the costs of its competitors. In a market, such as the market for high-speed Internet access, where there are several approaches used to deliver service, a firm focused on one approach faces the risk that its competitors may achieve cost reductions that it cannot match. For example, if xDSL firms are able to obtain high-frequency spectrum UNEs for a very low price, it is foreseeable that the business plans of cable modem or broadband wireless firms will become significantly less attractive. If xDSL firms, with guaranteed low prices for high-speed access, lower their retail prices, cable modem and broadband wireless providers could experience a squeeze between revenues and costs. This effect would be the result of regulation that favors one group of competitors over others, rather than regulation that allows the market to search for the efficient solution. It would clearly not be the result of an exercise of market power by the supplier of inputs.

Q. CAN YOU EXPLAIN WHY AN XDSL PROVIDER USING ONLY THE HIGH-FREQUENCY SPECTRUM MAY CAUSE HIGHER COSTS THAN COMPETITORS THAT USE ALL OF THE LOOP?

A. An xDSL provider that chooses to use only the high-frequency spectrum on a loop causes incremental costs that are not caused by competitors that use all of the loop. These costs are not related to the cost of the underlying loop. For all of the reasons described above, users of the high-frequency spectrum on a loop should contribute to the cost of the loop. In addition to the cost of the loop, however, it is my understanding that xDSL providers that lease only the high-frequency spectrum of the loop, cause incremental costs associated with dividing the loop between two service providers. These incremental facilities and operations costs are discussed by U S WEST witnesses Jerrold Thompson, Robert Hubbard, and Barbara Brohl. The fundamental principle of cost causation dictates attributing the incremental costs caused by leasing only part of the loop to the xDSL firms that cause these costs. Competitors that use all of the loop (including U S WEST) do not cause these costs.

Q. IS U S WEST IN A POSITON TO OFFER TO COMPETITORS ALL OF THE ECONOMIES OF SCOPE RELATED TO PROVIDING DIAL TONE AND MEGABIT SERVICE ON ONE LOOP?

A. No, U S WEST cannot offer a price for the high-frequency spectrum UNE based on economies of scope that U S WEST is denied the ability to achieve. Related to this point, it is important to establish the clear relationship between the following two statements by the FCC:

> "Even if the line sharing is made available to competitive LECs, however, it will not promote competition unless it is priced in a way that permits competitive LECs to enjoy the same economies of scale and scope as the incumbent LECs."[15]

> "We find that incumbent LECs should recover in their line sharing charges those reasonable incremental costs of OSS modification that are caused by the obligation to provide line sharing as an unbundled network element." [16]

The first statement reaffirms the FCC's position that cost-based pricing of unbundled elements enables "entrants to share the economic benefits of efficiency in the form of cost-based prices."[17] A competitive LEC can lease unbundled loops at prices that reflect a ubiquitous provider's economies of scale. All loop cost models presented to this Commission over the past several years include the economies of scale of the incumbent provider. U S WEST also achieves economies of scope when it provides MegaBit service and dial tone on the same loop, and it is my understanding that these economies of scope are achievable by competitors that offer both services on the same loop. When an xDSL firm leases only the high-frequency spectrum, however, U S WEST is denied the ability to achieve the same economies of scope associated with providing dial tone and MegaBit service on the same loop. U S WEST cannot offer prices based on cost savings it cannot achieve. Cost-based prices need to reflect incremental costs that actually occur.

This brings us to the second of the FCC's statements. The FCC acknowledges that there are incremental OSS and facilities costs that are "caused by the obligation to provide line sharing as an unbundled network element." These incremental costs represent breakdowns in U S WEST's ability to achieve economies of scope that it achieves when it uses all of the loop itself or leases all of the loop to a competitor. The appropriate cost-based price of the high-frequency spectrum UNE includes a fair share of the underlying loop cost (which includes U S WEST's economies of scale) plus all incremental facilities and operations costs caused by providing the high-frequency spectrum on the loop to an xDSL provider.

---

[15] FCC 99-355, Third Report and Order in CC Docket No. 98-147, Released December 9, 1999, Paragraph 133.
[16] FCC 99-355, Third Report and Order in CC Docket No. 98-147, Released December 9, 1999, Paragraph 144.
[17] FCC 96-325, First Report and Order, Released August 8, 1996, CC Docket Nos. 96-98 and 95-185, Paragraph 11.

V. CONCLUSION

Q. WOULD YOU PLEASE SUMMARIZE YOUR FINDINGS AND RECOMMENDATIONS?

A. Line sharing introduces a number of new cost/price considerations. First, when a line is shared there are two dedicated connections on one physical loop. Loop costs are caused by the dedicated connections on loops. They are not caused by usage across these dedicated connections. On shared lines, loop costs are caused jointly by the two dedicated connections. In cost parlance, the underlying loop cost on a shared line is "common" to the two dedicated connections. TELRIC is only applicable to the estimation of direct costs. TELRIC, therefore, offers little guidance for determining loop costs associated with the high-frequency spectrum UNE. Second, line sharing creates a layer of network and operational costs that need to be addressed and resolved in regulatory hearings. The price of the high-frequency spectrum UNE should include a portion of the loop cost plus the incremental facilities and operations costs caused by sharing the loop. Third, the pricing issue is part of the overall system of contributions required to support universal service and low cost residential service.

The common nature of loop costs on shared lines leaves this Commission with a difficult task of determining a reasonable allocation of the underlying loop cost to the high-frequency spectrum UNE. Some guidance is derived from competitive market solutions in roughly analogous situations. It is clear that competitive markets set prices for jointly supplied products. Further guidance is derived from regulatory experience over the past several years. The FCC, in its First Report and Order, recognized the need to add common costs to TELRIC estimates to provide the basis for cost-based prices. Common costs were also added to TELRIC costs by this Commission in the recently completed cost proceeding. At this time, there is no meaningful evidence that more or less than fifty percent of the loop cost should be allocated to the high-frequency spectrum UNE.

When all of the evidence is presented, I urge this Commission to step back and consider what is best for the overall development of the local telecommunications infrastructure in Washington. Impacts from this pricing decision will extend far beyond xDSL providers. This decision will influence the build versus lease decisions for <u>all</u> CLECs, the financial viability of facilities investments in cable modem and wireless broadband services, and U S WEST's future investment decisions. The success or failure of xDSL providers is just one of several concerns the Commission should consider. With a reasonable price for this UNE, the winners and losers will surface or sink based on their performances in the market.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

[1] Docket Nos. UT-96 0369, August 1999.
[2] FCC 99-355, Third Report and Order in CC Docket No. 98-147, Released December 9, 1999, Executive Summary, Line Sharing- Unbundling Analysis.
[3] FCC 96-325, First Report and Order, Released August 8, 1996, CC Docket Nos. 96-98 and 95-185, Paragraph 29.
[4] "Line Sharing: Pricing the Loop", Presentation in Washington D. C., George. S. Ford, Senior Economist, MCI Worldcom, Inc., January 2000.
[5] Reply Declaration of Alfred E. Kahn in Response to Second Further Notice of Proposed Rulemaking, CC Docket 96-98, June 10, 1999, p.14.

[6] **FCC 99-355, THIRD REPORT AND ORDER IN CC DOCKET NO. 98-147, RELEASED DECEMBER 9, 1999, PARAGRAPH 139.**