that LECs serve new demand only by installing *new* switches. In fact, LE^ frequently buy additional lines for their already *installed* switches, and those additional lines cost more than lines on new switches.

6. The Hatfield Model connects customers in different Census Block Groups (CBGs) to the nearest central office. This sometimes results in households within a CBG being assigned to a wire center other than the one actually serving them. This happens in large part because the Model ignores topographical barriers (e.g., bodies of water, hills, etc.) or institutional constraints (e.g., rights-of-way) that a real network has to deal with.

7. HCM 2.2.2 apparently assumes that each CBG in a given density class is served by the same number distribution cables.[7] Again, if the assumption is untrue, serious underestimation of cost can occur. In addition, because the Model works with CBGs, rather than the actual distribution areas served by LECs, it is quite possible for the Model to assign larger cable sizes (and, therefore, to experier greater economies of scale) to a densely-populated CBG than the cable sizes *actually* deployed by LECs in their largest distribution areas.

Q. IN WHAT RESPECTS HAS HCM 2.2.2 (SUBMITTED IN THIS PROCEEDING) EVOLVED OVER HCM 2.2.1?

A. Any definitive answer must await a comprehensive examination of HCM 2.2.2 and its accompanying documentation. Because I have not yet had the opportunity to fully review it, I can only react to the modifications that AT&T claims have been made. It appears that HCM 2.2.2 may allow greater control over input parameters (particularly input prices) by the user, although the cost "results" submitted by AT&T are probably

[7] HCM 2.2.1 used exactly four distribution cables. HCM 2.2.2 apparently varies the number of cables by density class, although the document describing the differences between HCM 2.2.1 and HCM 2.2.2 did not include specific numbers of distribution cables per CBG.

based on AT&T-selected input values, which Mr. Hearst and Mr. Raley demonstrate are unrealistically low.

Also, HCM 2.2.2 separates structure costs from the cost of cable and disaggregates expense factors through separate treatment of underground and buried cable expenses. In addition, HCM 2.2.2 changes the default assumption of a 12,000 foot loop length as the cross-over point between copper and fiber cable to 9,000 feet for the feeder portion alone.

AT&T's submission in this proceeding suggests other changes as well. For example, in applying the HCM 2.2.2 to SWBT, a 10.01% cost of capital is used. SWBT witness Dr. Avera discusses why this factor is too low. Depreciation lives are also somewhat lower than those originally assumed by HCM 2.2.1. For example, loop plant lives are reduced to 20 years (depreciation rate of 5%) and end-office switch lives are reduced to 14.3 years (depreciation rate of 7%). Apart from these obvious changes, it is currently not possible to judge whether HCM 2.2.2 introduces other modifications.

Q. DO THE FOREGOING MODIFICATIONS IN HCM 2.2.2 SIGNIFICANTLY AFFECT THE RESULTS IN THE MODEL?

A. No. There is surprisingly little change in the Model results given the apparent substantial change in critical inputs such as the cost of capital[8] and depreciation.[9] The following Table compares costs estimated from HCM 2.2.1 and HCM 2.2.2.[10]

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[8] For example, the original 1994 Hatfield Model report stated that a 175 basis point difference increases the cost per line by 11%. Thus, moving the Model's 8.91% cost of capital in HCM 2.2.1 up to 10% (in HCM 2.2.2) would increase costs by about 7%, which would increase the total cost of all elements to $18.15. Hatfield Associates, "The Cost of Basic Universal Service," prepared for MCI Communications Corporation, July 1994. These sensitivity tests are primarily illustrative.

[9] The 1994 Hatfield Report indicates that changing depreciation from an average 20 year life (5 percent rate) to 15 years (6.7 percent rate) would increase basic service costs by 13 percent. Applying this relationship to the change in the depreciation rate between HCM 2.2.2 and HCM 2.2.1 (weighted by the cost of network elements, the rate increases from 4.8 percent to 5.9 percent) would increase cost per line by 8.5%, which would increase the total cost of all elements to $18.40.

Element	*HCM 2.2.1 Unit Cost*	*HCM 2.2.2 Unit Cost*
Loop Distribution	$8.69 per month	$6.78 per month
Loop Feeder	$0.57 per month	$2.53 per month
Loop Concentration	$2.30 per month	$2.39 per month
Total Loop	**$11.55 per month**	**$11.71 per month**
End-Office Switching: Port	$1.16 per line/month	$1.11 per line/month
End-Office Switching: Usage	$0.0023 per minute	$0.0018 per minute
Signaling elements: Links	$41.64 per link/month	$15.30 per link/month
Signaling elements: STP	$0.0004 per message	$0.00006 per message
Signaling elements: SCP	$0.0008 per message	$0.00075 per message
Transport elements: Dedicated	$12.72 per DS-0 equiv/month	$3.62 per DS-0 equiv/month
Transport elements: Switched	$0.0013 per minute	$0.00036 per minute
Transport elements: Common	$0.0014 per minute/leg	$0.00055 per minute/leg
Transport elements: Tandem Switch	$0.0018 per minute	$0.0018 per minute
Total: All Elements	**$16.96 per line/month**	**$16.24 per line/month**

This cost comparison is very instructive. First, given that the basic approach of the two Models, and a number of assumptions embodied in them, are similar, it still appears that both sets understate the costs of the two cost categories, "total loops" and "total cost: all elements." Of course, I have not yet been able to fully review HCM 2.2.2 software.

Second, there is very little change in purported costs of those two all-important categories despite what appear to be substantial modifications in crucial assumptions and inputs such as the cost of capital and depreciation rates. However, the all-important fill factors for feeder and distribution loops remain pegged in HCM 2.2.2 at the levels selected for HCM 2.2.1. These fill factors are 50-75% for distribution loops and 65-80% for feeder loops. These *assumed* fill factors are unrealistically high. For

(...continued)

[10] Source: Hatfield Associates, Inc., *Update of the Hatfield Model 2.2, Release 1*, prepared for AT&T Corporation and MCI Telecommunications Corporation (for HCM 2.2.1 results) and AT&T submission in this proceeding (for HCM 2.2.2 results).

example, the Commission has adopted fill factors of 40 percent and 72 percent for distribution and feeder loops, respectively. The high – and unchanging – fill factors in the two models keep the loop cost estimates unrealistically low.

Third, while the unit cost of feeder loops increases in HCM 2.2.2 by $1.96 per month, that increase is almost exactly offset by a $1.91 per month decline in the unit cost of distribution loops. With a very minor change in the monthly unit cost of loop concentration, that leaves the monthly unit cost of *total* loops almost unchanged. Whatever impact the changing financial assumptions (depreciation, cost of capital) may have had appears to have had a minimal influence on the unit cost of loops. This *is* surprising in light of what is known about how much costs change in the BCM-I loop investments module when either the depreciation rate or the cost of capital changes.[11]

Fourth, I observe significant *reductions* in HCM 2.2.2 in the unit costs associated with switching, signaling, and transport elements. These could be attributed to the changes in model assumptions made by HCM 2.2.2 for these elements. The *magnitude* of those changes, however, is quite remarkable. Despite a $0.16 increase in the monthly unit cost of total loops in HCM 2.2.2, the total monthly unit cost of all elements actually declines by $0.72, triggered mainly by the lower costs for the central office and inter-office facilities. One example of the sharp decline is Signaling Links for which the unit monthly cost falls from $41.64 in HCM 2.2.1 to $15.30 in HCM 2.2.2 (a 63% decline). HCM 2.2.2 actually raises the depreciation life of Signaling Links to 19 years from 14 years in HCM 2.2.1. This 26% reduction in the depreciation *rate* may explain some of the observed decline in the monthly unit cost for that element. HCM 2.2.2 documentation contains no explanation for assumption changes of this nature.

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[11] See notes 12 and 13, *supra*.

Other potential sources of cost underestimation exist in HCM 2.2.2. For example, HCM 2.2.2 assumes that the cost of 4 DS3 terminations is $52,000. Because there are 4*24*28 = 2688 DS0 terminations in all, that implies a cost of $19.34 per DS0 termination. Judging by historical trends, this average cost is very low for SWBT. In addition, HCM 2.2.2 states that 720 ports are already installed on each Signaling Transfer Point (STP). While this is the *maximum possible* number of ports that can be installed, the actual number of ports per STP is usually quite a bit less (an average of about 50 in SWB STPs), especially in low-density zones. As explained by Mr. Raley, it appears that the actual cost of STP investment is quite a bit higher than that computed by HCM 2.2.2 on the assumption of maximum installation.

Q. WHAT OTHER FACTORS IN HCM 2.2.2 MAY OR MAY NOT HAVE BEEN MADE THAT CAUSE THE MODEL TO CONTINUE TO UNDERSTATE THE COSTS OF NETWORK ELEMENTS?

A HCM 2.2.2 does not employ an adequate adjustment to account for topographic characteristics (such as bodies of water or hills) or institutional barriers (such as rights-of-way). Simply scaling airline distances up (or using rectangular distances) to account for possible topographical or institutional barriers may not suffice to capture the true additional costs or to correctly assign the CBGs to SWBT wire centers. Further, although the depreciation rates and cost of capital calculations are not as unrealistic in HCM 2.2.2 when compared to HCM 2.2.1, they do not reflect what actually occurs in a competitive market. In fact, the FCC's *Local Competition* Order (¶ 686) and this Commission agree that economic depreciation lives should be used to determine pricing for unbundled elements.

Q. GIVEN THAT HCM 2.2.2 APPEARS TO HAVE MADE MODIFICATIONS THAT ARE RESPONSIVE TO SOME OF THE CRITICISMS OF HCM 2.2.1, ARE THERE STILL ISSUES THAT REMAIN TO LIMIT THE USEFULNESS AND APPLICABILITY OF THE HATFIELD MODEL?

A. Yes. While HCM 2.2.2 appears to be a modest improvement over HCM 2.2.1, there are still problems with modeling *philosophy* that severely restrict its usefulness. First, all incarnations of the Hatfield Model are based on the principle that the "costs that incumbents actually expect to incur" do not matter. Second, some of the policy implications for any deviation (by SWBT or any LEC) from the hypothetical "optimal" model results are very troubling. Third, the Hatfield Model remains very schizophrenic about the role of monopoly and competition in conditioning the costs of an actual network.

Q. PLEASE EXPLAIN WHY A NETWORK'S ACTUAL CIRCUMSTANCES SEEM NOT TO MATTER IN THE HATFIELD MODEL, IRRESPECTIVE OF VERSION.

A. The sponsors of the Hatfield Model have openly acknowledged the Model's orientation toward a *hypothetical* network.

> *The Model simulates the construction and operations decision-making of an efficient local service provider that must create and operate a new network to meet current and reasonably forecasted demand levels* for narrowband telephone services. In simulating the construction of these *hypothetical* networks, the Model incorporates realistic assumptions concerning the LECs' ability to adopt and implement efficient, cost minimizing production techniques.[12]

Q. WHAT ARE THE POLICY IMPLICATIONS OF PRICING NETWORK ELEMENTS BASED ON COST ESTIMATES SUCH AS THOSE PRODUCED BY ANY VERSION OF THE HATFIELD COST MODEL ?

A. Costs estimated for the so-called *average* or hypothetical network that presently does not exist are *not* sufficient to inform public policy deliberations about the pricing of an *actual* network's unbundled services or the *actual* costs of its universal service obligations. If the hypothetical costs *were* regarded as suitable inputs for policy decisions, *any* departure of an incumbent LEC's costs from those hypothetical costs could be read as *prima facie* evidence of inefficiencies in the LEC's operations.

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[12] *Hatfield Model, Version 2.2, Release 1*, at 2. Emphasis added.

1 Nothing could be more unrealistic or unfair than such a conclusion. Yet, there have
2 been attempts in the past to discredit LEC estimates of the size of the universal
3 service program by declaring the spread between the lower estimate of that size
4 (produced by hypothetical costs) and the higher estimate (produced by actual costs)
5 as simply an estimate of LEC waste and inefficiency.

6 I believe a model such as the Hatfield must be judged by two criteria:

7 • how well can its assumptions and cost estimates represent or reproduce those
8 of an *actual* network? and
9 • how easily can it accommodate a network's historical circumstances, future
10 technology and operational choices, and actual input prices, given the
11 increasing uncertainty about demand engendered by greater market
12 competition and reduced regulation?

13 Hatfield falls short on both accounts.

14 A second troubling implication is that the scorched node approach as used in the
15 Hatfield Model pretends that the costs produced by the Model must have *universal*
16 validity – for the entrant, for the incumbent LEC, and, indeed, for any LEC
17 (regardless of its prior history) that can continually re-optimize its network. A *single*
18 cost figure is expected to apply, going forward, to any and all LECs regardless of their
19 individual circumstances. If, indeed, the incumbent LEC and the entrant – both
20 operating as efficiently as possible – differ in their network design, technology, and
21 strategy choices, how can a *single* cost estimate (produced by the Hatfield Model)
22 serve as a basis for comparing those choices? Further, would it make sense to judge
23 the relative efficiencies of the different competitors by a cost estimate that only
24 pertains to a hypothetical network? The answer to both questions is an emphatic
25 "No."

The hypothetical network that the Model adopts corresponds to the network of a mythical new entrant that completely displaces the incumbent LEC. Thus, *no* facilities-based local exchange provider will enjoy costs as low as those produced by HCM 2.2.2. This remains *the* fundamental problem with all versions of the Hatfield Model, including HCM 2.2.2.

Q. HOW DOES THE HATFIELD COST MODEL FAIL TO CONSIDER THE IMPACT THAT COMPETITION WILL HAVE ON COSTS?

A. The Model's continued use of the incumbent LEC's *total* demand to calculate the incremental costs clearly builds in the effect of economies of scale that are only possible under monopoly supply. Those assumed economies of scale would tend to generate unrealistically low cost estimates for a competitive market with multiple service providers. In such a market, the multiple providers will each serve demand segments that are smaller than the entire market. As a result, the scale economies possible under monopoly supply will simply not be available. Therefore, the costs that would be experienced by multiple competitors that share the total market demand would be *larger* than the costs of a monopoly serving the entire demand. This is a fundamental problem with the Hatfield Model's approach, which assumes that the increment of demand to use in the Model is the total demand faced by a sole provider of switched network elements in its serving area.

Further, the lower cost of capital and somewhat longer depreciation lives and different capital structure also contribute to lowering the costs reflected in the Hatfield Model.

Q. PLEASE SUMMARIZE YOUR ASSESSMENT OF THE HATFIELD MODEL.

A. Although available documentation has not permitted a comprehensive analysis of HCM 2.2.2, there are numerous examples of bias built into the Hatfield Model assumption and input structure. Despite claims that the Hatfield Model is likely to produce "conservatively high" cost estimates, there is serious built-in potential for underestimation of the actual costs of a network as extensive as SWBT's.

1 The fundamental problem with basing unbundled network element prices on cost
2 estimates that are too low is that facilities-based local exchange competition may be
3 stopped in its tracks as a result. New entrants will be inhibited by artificially low
4 prices and the incumbent LECs will not have proper incentives to improve their
5 networks. The likely result is monopoly supply of network elements, not as a result of
6 underlying cost and demand characteristics, but as a deleterious result of improper
7 prices imposed by regulators.

Remarks to Western NARUC
Scott McClellan
June 10, 1996
Snowbird, Utah

Thank you, Joan (Smith)

And thank you, Richard (Welsh) for sharing with us the FCC's current thinking on implementing Sections 251 and 252 of the Telecommunications Act.

We're now four months into the new Act. From some initial uncertainty about how certain provisions were going to be interpreted and implemented, we're beginning to see some clarity. From a U S WEST perspective, we're concerned. We don't like what we see.

Our first concern is the way these issues are being distorted by "new entrants" -- led by AT&T -- who are defaming the former Bell companies at every opportunity. Their goal is to obtain orders from regulators requiring U S WEST to give them services below cost.

This group stormed the Regional Oversight Committee this past April in Denver and tried to turn it into a media event. And I think it's a safe bet that whenever you regulators get together in a meeting such as this, AT&T and MCI will lead an orchestrated chorus of allegations against U S WEST.

For example, it's no coincidence AT&T filed a request just last Thursday asking the Washington Commission to mediate its negotiations with U S WEST. AT&T's strategy is clear: They want to stall negotiations by making unreasonable demands that U S WEST

Communications subsidize them. and then mislead regulators into granting their demands.

They also want the former Bell companies to be ordered to do things that can't technically be done for years, and then, only at great expense. Of course, this is really a ploy to keep the RBOCs from competing with them in the long distance business.

What these companies don't explain is why it would make sense for them to be able to use the telephone network at below cost rates. They want to be able to use the network to serve a select, few high-profit customers, leaving the rest of the customers -- those they choose not to serve -- to subsidize their operations.

U S WEST Communications is committed to negotiating in good faith and reaching interconnection agreements that comply with the '96 Act. We cannot get into the long distance business until we do so. However, that does not mean we will capitulate to any extreme demand made by competitors. To do so would either drive up our customers' rates to pay these competitor subsidies, or, result in a dramatic disinvestment in the public switched telephone network.

Having said all that, I want to respond very directly to AT&T's petition of last Thursday. And the response is this: Come on ahead, plug in, let's get going. U S WEST is today inviting AT&T to immediately interconnect to our local service network in Washington under the interim bill and keep tariff that has been approved by the Washington Commission. We've already successfully interconnected with Electric Lightwave, MCI Metro, Teleport and NextLink in Washington....and we're ready and willing to add AT&T to that list.

If AT&T is serious about competing in the marketplace instead of in the media and the hearing room, that competition can begin almost immediately. U S WEST Communications stands ready to facilitate their entry -- just as we have for other competitive local service

providers in Washington – and help bring the benefits of competition to our customers.

So that should address a first set of concerns. Additionally, U S WEST has some concerns about where the FCC seems to be headed. Under the law, the FCC was given six months to develop an initial set of competitive principles. U S WEST had hoped that the Commission would take a streamlined, common sense approach. Many of the states either have adopted or are well on their way to adopting acceptable plans to introduce competition into the local exchange. Our expectation was that the FCC would reaffirm these same plans or some reasonable variation thereof.

Apparently, that's not to be. The April Notice of Proposed Rule Making makes it clear that the FCC intends to preempt the states, opting for federal micromanagement of virtually every detail of the process.

We find that alarming. The new Act plainly envisions company-to-company private sector negotiations on these complicated competitive issues. And it further calls for state arbitration if the parties can't agree.

But the FCC's NPRM runs the risk of destroying this statutory negotiation/arbitration mechanism. It seems obvious that if government signals from the outset that it is prepared to give one side everything it wants, in effect the negotiation requirement of the law is repealed.

We had hoped that the Commission would adopt rules that encourage such negotiations and keep government out of an intense involvement from the outset in complex issues best handled by network engineers.

We still hold out that hope, Richard. Given the choice between a streamlined, common sense approach and preemption and

micromanagement. the Commission still has the opportunity to choose the former.

As I said, U S WEST is concerned about overly intrusive FCC micromanagement. AT&T, on the other hand, is obviously pleased that things seem to be moving in that direction.

In a March 18th ex parte, AT&T told the FCC to preempt the states. Specifically, and I quote:

> "First, the Commission should, and we submit must, resist any suggestions that it defer to states either on the interpretation of Section 251 of the Act or on the establishment of the specific regulations or obligations that are required to implement it."

The FCC seems to have taken that suggestion to heart. Indeed, AT&T has had a pretty good run with the FCC of late. The Commission recently agreed that it is non-dominant and it's now seemingly agreeing with AT&T on the need to preempt the states on interconnection policy.

However, it seems obvious that someone has to take a look at how the decisions that are being contemplated are going to affect the average telephone customer. If we're assuming that what's good for AT&T is good for the country, we're going to have problems.

In case you've lost track, this newly non-dominant AT&T remains the world's largest communications giant -- roughly eight times larger than U S WEST. It's free to provide long distance, local telephone and video services, in combination with its wireless services, which, of course, are also the world's largest.

As it recently announced in Illinois, AT&T is also free to give away local toll service. (Can you imagine the hue and cry if U S WEST were to make a similar free service offer?)

First of all, interstate access charges are cost based. They're based on costs that have been allocated to the interstate jurisdiction under the FCC separations rules. If those rules allocate too many costs to the interstate jurisdiction, then the responsible solution is to change the separations rules -- not to simply say the costs don't exist.

AT&T chooses to attack LEC costs because as a local reseller, it's hoping to buy LEC services at the retail price less avoided costs. In other words, the new Act gives long distance companies an overwhelming incentive to keep retail prices low.

U S WEST's advocacy on interconnection and resale prices is very straight forward. Price needs to cover cost -- and that's actual cost, not some theoretical, hypothetical, "fantasy cost" of the type put forward by AT&T.

Anytime AT&T, or MCI, or someone else takes a cost position, I think a reasonable question for policymakers to ask is: Can you build a ubiquitous local telephone network for that? And if the answer is "yes," they ought to be ordered to do so.

AT&T's approach to local network costs is a little bit convoluted. At the federal level, AT&T has told the FCC that it would cost $150 billion to replicate the existing local telephone network, an investment of $1,255 per line. It makes that claim to convince the Commission that competition will only come about via resale of LEC services; therefore, the FCC must preempt the states to promote resale.

However, when AT&T testifies in state rate proceedings, for example, here in Utah, it submits studies estimating U S WEST's statewide average loop investment is $361.

In other words, at the federal level, AT&T's costs of constructing local facilities are so high as to justify AT&T's refusal to invest in local networks and instead enter the local markets as a reseller. But at

the state level, U S WEST's costs are so low as to justify ridiculously low resale rates. Well, which is it? $1,255 or $361? You can't have it both ways.

Some state commissions have been quick to agree with AT&T's cost model, the Hatfield model, because it generates very low rates. But let's do the math on the $1,255 per loop investment figure that AT&T gave the FCC.

At a 10 percent cost of capital, the capital carrying costs alone on that investment are $125 per year, or just over $10 a month -- cash paid out to investors. Rates set at a $10 level generate about $6 cash, after taxes, thereby not even recovering the cost of capital, i.e., the interest on bonds and dividends on stock. Needless to say, $10 rates don't put a dent in recovering the capital itself, or in paying expenses of installers, repair people, operators, service reps, support systems, etc.

The fact of the matter is, AT&T can't justify building local networks where prices don't cover the cost. Neither can U S WEST.

Yet when we propose a closer to compensatory price for interconnection, as we did a little over a week ago in Colorado, AT&T screamed "foul." "A bunch of monopolists trying to gouge the struggling new entrants," or so AT&T would have you believe.

I know you've heard this before, but I don't know how else to say it: Unless we're able to recover the costs of providing service, we're not going to be able to continue to invest in the local network. And neither will other facilities based competitors.

Getting back to the Hatfield model, U S WEST is willing to stipulate that if you use lowball inputs, you'll get lowball results every time. Let me tick off six flaws in the Hatfield model:

1. It uses network utilization fill factors that in some categories

are double those that exist in U S WEST's network. This manipulation alone reduced the 1FR cost by $4.25 per month. Let's all understand what this adjustment would mean if U S WEST actually tried to operate with this dramatically increased fill factor. It would mean that there would be far less spare capacity to meet the growth in demand. It would drive held orders to a level totally unacceptable to the Utah Commission.

2. It uses depreciation methodologies which are not what our competitors use or even what NARUC recommends.

3. It uses maintenance expense for cable in conduit when the vast majority of U S WEST's buried cable is not in conduit, which means it's much more costly to maintain.

4. It excludes all real estate costs other than central offices and does not include any investment in vehicles, like trucks. Apparently, all our operators, service reps and other non-central office based employees should work outside and our installers and repair people should walk to the customer premise to do their work.

5. It simply cuts the prices we actually pay to suppliers for digital loop carrier equipment by over 60 percent. Is AT&T willing to supply us this equipment at this price?

6. It uses a Bell Labs study of transport and signaling costs for long distance networks, assuming similar economies of scale are attainable in local exchange networks.

In short, the AT&T/MCI-sponsored Hatfield model uses absurd assumptions and inputs at every opportunity. I would urge you to rigorously review and scrutinize that model. And until it has been subjected to the same level of scrutiny as our costs studies, it should not merit consideration in regulatory proceedings.

Let me reiterate: If Dale Hatfield, AT&T, MCI or anyone else can build local networks for the kind of costs they're throwing around in state regulatory proceedings, order them to build. U S WEST will resell their services.

What I'm asking for is a little realism in this process. A local provider like U S WEST cannot, simultaneously:

- Meet unprecedented growth for service in our western states.

- Provide service everywhere as a provider of last resort in our vast, sparsely-populated region.

- Do so at averaged rates which in many cases don't cover costs.

- Continue to attract investor capital when we have unrecovered reserved deficiency for prior investments of $3 billion.

- And bankroll giant new competitors like AT&T and MCI.

That scenario simply will not work.

We continue to hope that the states will be allowed to play a meaningful role in making the decisions that will bring about competition in this industry. You are uniquely qualified to interject that much needed realism into this process.

Unfortunately, it seems that AT&T is steering national policy, through FCC preemption, in a way that will simply allow it to recreate its national monopoly -- only this time serving only the lucrative, high volume customers. The local telephone companies and state commissions will be forced to deal with the rest -- the rural, the unprofitable.

That is not sound public policy. And we ought not to be shy about saying so.

Thank you. I look forward to any questions the audience may have.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA
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Rulemaking on the Commission's Own Motion to Govern Open Access to Bottleneck Services and Establish a Framework for Network Architecture Development of Dominant Carrier Networks.	R.93-04-003
Investigation on the Commission's Own Motion into Open Access and Network Architecture Development of Dominant Carrier Networks.	I.93-04-002

REBUTTAL TESTIMONY OF DR. TIMOTHY J. TARDIFF

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Exhibit:
Witness: Dr. Timothy J. Tardiff
Date: July 10, 1996

1 GTE CALIFORNIA INCORPORATED

2 REBUTTAL TESTIMONY OF DR. TIMOTHY J. TARDIFF

3 Q. Please state your name and business address.

4 A. My name is Dr. Timothy J. Tardiff. I am a Vice
5 President at National Economic Research Associates (NERA),
6 1 Main Street, Cambridge, Massachusetts 02142.

7 Q. Are you the same Timothy J. Tardiff who submitted
8 opening testimony on behalf of Pacific Bell on the subject of
9 imputation on June 14, 1996?

10 A. Yes.

11 Q. What is the purpose of your testimony?

12 A. GTE California Incorporated (GTE) has asked me to
13 respond to Dr. Mercer's testimony, which introduces the
14 Hatfield Model into this proceeding.

15 Q. How is your testimony organized?

16 A. Because the bulk of Dr. Mercer's testimony consists
17 of the documentation of the Hatfield Model that
18 AT&T Communications of California (AT&T) and
19 MCI Telecommunications Corporation (MCI) provided to the
20 Federal Communications Commission (FCC) on May 16 and 30 of
21 this year, I have attached a copy of my report that evaluates
22 the Hatfield Model as described in that documentation. My
23 report, entitled "Economic Evaluation of Version 2.2 of the
24 Hatfield Model" is attached to this testimony as Attachment 1.
25 GTE Telephone Operations had originally engaged me to prepare
26 this evaluation upon reviewing the submissions to the FCC, and
27 expanded the scope of that engagement upon submission of the

1 Hatfield Model in this docket.

2 Q. Please summarize your findings.

3 A. A concise summary of the findings from my evaluation
4 is contained in the Executive Summary of my report. The
5 Hatfield Model violates this Commission's consensus cost
6 principles, is inconsistent with sound economics, and produces
7 results that greatly understate the cost of producing local
8 exchange carrier services and unbundled network elements.

9 Q. Does this conclude your testimony?

10 A. Yes.

ECONOMIC EVALUATION OF VERSION 2.2 OF THE HATFIELD MODEL

by

Timothy J. Tardiff, Vice President

National Economic Research Associates
One Main Street
Cambridge, MA 02142

Prepared for GTE

July 9, 1996

EXECUTIVE SUMMARY

Version 2.2 of the Hatfield Model is fundamentally flawed, and therefore does not provide reasonable estimates of the costs of incumbent local exchange carrier (ILEC) network elements Particular shortcomings of the model include the following.

- The assumption that all volumes currently served by local exchange carriers will be served by a brand new entrant that instantly materializes is inconsistent with both reality and sound economics. Accordingly, costs based on such a model will *not* be representative of the costs incumbent LECs incur providing services and unbundled networks components.

- The model employs approximations that produce serious inaccuracies when the relationships upon which these approximations are based depart from their historical relationships. For example, the model estimates the costs of installing cable facilities as well as the structures for cable facilities by using multiplicative factors applied to the price of the cable itself. As a result, the model has the undesirable property that a reduction in the cable price itself causes the total cost of cable-related investment to fall proportionately.

- The inputs (e.g., central office equipment prices) are consistently lower than what local exchange companies actually pay.

This report evaluates a number of specific shortcomings of the model, including (1) the use of multiplicative factors to estimate the cost of installation and structures for loop plant, (2) the use of Census Block Groups to represent distribution plant, (3) utilization (fill) factors, (4) the understatement of local switching costs, and (5) the understatement of the cost-of-capital and the rates of depreciation that will prevail under competitive conditions when network elements are offered on an unbundled basis. The cumulative impact of these various effects is that the Hatfield model understates the cost of loop plant by at least 50 percent and the cost of local switching by at least one-third. Stated on a per line per month basis, the Hatfield model understates loop and local switching costs by about $8.00.

Of course, the ultimate concern is how network elements are unbundled in a way that promotes competition. Basing prices on costs that no real-world provider could hope to meet is *anti-competitive*, because it would stifle, not promote the most effective type of competition—facilities-based. In addition, requiring incumbent LECs to sell inputs at non-compensatory rates would have the deleterious effects of forcing whatever captive customers that may remain to subsidize the below-cost input prices and/or severely handicapping firms that represent a substantial proportion of this dynamic industry.