BEFORE THE
COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY
BOSTON, MA 02110

IN THE MATTER OF

PHASE II OF

THE DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

ORDER ON ALTERNATIVE REGULATION

D.T.E. 01-31

REBUTTAL TESTIMONY

OF

PROFESSOR DAVID GABEL

ON BEHALF OF THE

OFFICE OF ATTORNEY GENERAL

COMMONWEALTH OF MASSACHUSETTS

SEPTEMBER 18, 2002

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1 EXECUTIVE SUMMARY

Based on a review of other comments submitted in this proceeding, the Office of Attorney General avers that:

- Claims That Prices Are Efficient Require Good Knowledge Of Costs And Whether Revenues Cover Those Costs (Section 4.1);
- Claims That Prices Are Efficient Require Better Knowledge Of Elasticities Than Currently Provided (Section 4.2);
- Increasing the Price Of Residential Service May Well Further Slow Penetration And Undermine Meeting Universal Service Obligations (Section 4.3);
- Due To Sunk Costs And The Current Crisis In Telecommunications, Competitive Entry Into The Residential Market Is Not Easy (Section 4.4);
- Neither Verizon Nor At&T Has Shown That Raising Residential Rates Would Enhance Efficiency Or Promote Competition By Encouraging Efficient Entry (Section 4.5);
- The Necessary Conditions For Efficient Competition Do Not Require That Price Covers Cost On Every Component Of Service And Do Not Require That Real Prices Are Held Constant Or Increase (Section 4.6); and
- The Five Percent Annual Price Increases In Dial-Tone Rates Recommended By Verizon Cannot Be Justified Based On The Expected Rate Of Inflation (Section 4.7).

2 INTRODUCTION

Q. Please state your name.

A. My name is David Gabel.

Q. DID YOU PREVIOUSLY FILE TESTIMONY IN THIS PROCEEDING?

A. Yes. My direct testimony was filed with the Department on September 4, 2002, on behalf of the Office of Attorney General of the Commonwealth of Massachusetts.

3 PURPOSE OF TESTIMONY

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond specifically to the testimony filed on behalf of Verizon, New England, Inc. by Ms. Paula L. Brown and Dr. William E. Taylor, in order to point out some of the limitations of their testimony. In addition, I will also draw on the answers to my Discovery Questions that were prepared by Dr. Taylor on behalf of Verizon, Inc. on August 26, 2002. Finally, I also comment on the testimony of Professor John W. Mayo on behalf of AT&T Communications of New England.

4 SUMMARY REVIEW OF VERIZON AND AT&T COMMENTS

Q. Can you succinctly summarize the positions of Verizon and AT&T as stated in the testimony of their expert witnesses?

A. Yes. AT&T believes that prices should go up by as much as 10% per year for the next three years because they believe current prices are too low. Yet, it offers no cost data to suggest that prices are too low.[1]

Verizon's presentation is more subtle. Verizon' s main point is that efficiency will improve if prices are raised, and it argues that this is consistent with the prior findings of the DTE.[2] However, efficiency is determined by considering the relevant demand elasticities and cost data. As I describe below in my rebuttal testimony, Verizon does not present the cost data nor the demand data necessary to indicate that a price increase would be efficient. The data that they

[1] Testimony of Professor John W. Mayo on behalf of AT&T Communications of New England, August 28, 2002.

[2] Testimony of Dr. William E. Taylor, Page 3, Lines 3-6, August 28, 2002.

rely on for costs, as I discussed in my direct testimony, is from the mid-1980s, while the demand data is even older and from the mid-1970s.

As Dr. Taylor aptly points out, telecommunications markets are fundamentally different today than they were a few years ago.[3] One consequence of his insight is that data from the 1970s and 1980s should not be used to determine efficient prices. Verizon's reliance on stale data implicitly implies that the Company believes that such fundamental changes as the development of alternatives to Verizon's wireline products, rebalanced prices, new technologies, or economies of scope and scale do not have any impact on the development of efficient prices.

Q. Can you succinctly summarize the findings and recommendations of your rebuttal testimony?

A. Yes. The Office of Attorney General has reviewed the testimony provided on behalf of Verizon and AT&T. These companies contend that the price of residential service should be raised in order to make the market more efficient and competitive. Neither company provides any data that shows that residential customers are being either subsidized or purchasing services at inefficiently low levels, or that the increased prices would be welfare enhancing.

One of the primary objectives of regulation is to insure that customers obtain regulated services at prices that are comparable to what would be obtained if a market were competitive.[4] Verizon and AT&T propose to stand regulation on its head – they propose that prices be raised to supra-competitive levels so that there is more competition. This likely will make the market less like a competitive one and lower efficiency. The Department should reject Verizon's and AT&T's request to permit them to establish inefficiently high prices.

4.1 Claims That Prices Are Efficient Require Good Knowledge Of Costs And Whether Revenues Cover Those Costs

Q. Do Verizon and AT&T claim that price increases would be efficient?

A. Yes.[5] However, in making this claim, no reference was made by either of the respondents to any current cost or elasticity of demand data -- even though it

[3] Testimony of Dr. William E. Taylor, Page 3, Line 21 to Page 4, Line 15.

[4] See, for example, Charles F. Phillips Jr., The Economics of Regulation: Theory and Practice in the Transportation and Public Utilities Industries (Homewood, Illinois: Richard D. Irwin, Inc., 1965), p. 19.

[5] Testimony of Ms. Paula L. Brown (Page 9, Lines 5 to 9 and Page 13, Lines 15 to 17) and Dr. William E. Taylor (Page 3, Lines 10 to 13 and Page 13, Lines 25 to 27). Testimony of Professor John W. Mayo, Page 12, Lines 4 to 10.

is necessary to know the values of these parameters in order to evaluate the efficiency of any pricing regime.

Q. Can a claim be made, that efficient[6] prices or efficient Ramsey prices[7] are being implemented, without reference to or without good knowledge of costs?

A. No. Efficient prices cover total costs but do not exceed them. If total costs are not known there is no way that a judgment can be made as to whether a set of proposed prices are efficient. They may under or over-recover costs, and hence are inefficient (prices that do not cover costs lead to over consumption and inefficient incentives for investment; prices that over-recover cost lead to too little consumption). Similarly, Ramsey pricing, as a regulatory approach, can only make sense when prices are set so that total revenues sum to total costs. If prices are marked-up above marginal cost without reference to total costs, then costs may be under or over-recovered.

In either case, prices are not efficient. For example, a monopolist selling more than one output affects prices that have the characteristics of Ramsey prices,[8] as these maximize its return. However, such prices, in general, exceed costs, and hence are not efficient. One would expect a profit-maximizing firm, if it thinks can get away with offering prices without reference to costs, to set prices that over-recovered total costs even if these were consistent with Ramsey principles or any principles (other than that total revenues must equal costs) set by the regulator.

Q. What is the difference between a monopolist's prices which have the characteristics of Ramsey prices and the Ramsey prices of a regulator?

A. A regulator seeks prices that allow the regulated firm to achieve cost recovery, but which at the same time minimize inefficient distortion of consumer choice. Minimizing choice distortion requires keeping prices as close as possible to marginal cost subject to the cost-recovery constraint. Where a mark-up above marginal cost is necessary, prices are marked-up according to Ramsey principles, but only the minimum mark-ups necessary to achieve cost recovery.

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[6] "Efficient" here means a situation where total consumer and producer welfare is higher than before the change is implemented.

[7] Under Ramsey pricing principles, joint and common costs are recovered from services in a way that minimizes efficiency losses. For example, when service demands are independent the mark-up is inversely proportion to the demand elasticity of the particular services -- the argument being that it is more "efficient" to recover costs from services with lower demand elasticities since the distortionary effect of any price changes/taxes/subsidies on the quantity demanded is smaller.

[8] For example, a monopolist able to only set linear prices and facing independent demands for its various outputs would set prices marked-up inversely proportional to demand elasticity. Jean Tirole, The Theory of Industrial Organization (1988), p. 66. "Efficient Ramsey prices" mean efficient prices derived by applying Ramsey principles.

In contrast, a monopolist marks-up prices to make as much money as possible so that revenues are typically far more than total costs. Application of Ramsey principles allows this, but monopoly prices are much higher than efficient cost-recovering prices. The similarity between efficient and monopoly prices is that the relative mark-ups across the monopolist's prices are the same as the relative mark-ups of the efficient prices.

Q. In your view has AT&T or Verizon provided evidence that would enable a reasonably accurate estimate of Verizon's relevant total cost of telecommunications provision in this case?

A. No, I do not believe a reasonably accurate estimate of Verizon's total costs can be gleaned from the evidence presented by AT&T and Verizon since there is no evidence that these costs have been quantified based on the testimony provided.

Q. Can a claim be made that efficient prices or efficient Ramsey prices are being implemented without good knowledge of the degree to which the proposed prices actually result in cost recovering revenues?

A. No. If it is not known whether a proposed set of prices results in revenues that match total costs, no claim can be made that such prices are efficient.

4.2 Claims That Prices Are Efficient Require Better Knowledge Of Elasticities Than Currently Provided

Q. Can a claim be validly made that efficient prices or efficient Ramsey prices are being implemented, without good knowledge of demand elasticities?

A. No. The basic principle of Ramsey pricing is that price mark-ups should be higher for those services that have lower demand elasticities since the distortionary effect of price mark-ups on quantity demanded is smaller the lower the demand elasticity. Thus, without knowing the relevant elasticities of the different services, no credible evaluation of the efficiency of pricing is possible.

The elasticity estimates provided by Verizon vary widely, are out of date, and are not useful for ascertaining whether or not pricing policy is efficient in Massachusetts. Dr. Taylor provides limited and very old elasticity information (see pages 8-9 below) yet makes assertions that the proposed prices are efficient on the basis of cost recovery occurring on the least elastic of services[9] (a

[9] For example, Dr. Taylor's response to AG-VZ 1-6, "…prices would be efficient in Massachusetts if the own-price elasticity of demand for one service were extremely small relative to the own-price elasticities of demand of all other services."

use of a Ramsey principle). It is also the case that the elasticity data provided by Dr. Taylor are insufficient to determine whether current or proposed prices are efficient or Ramsey efficient. Ms. Brown does not present any demand elasticity information at all. Furthermore, Verizon acknowledges that it has no elasticity of demand estimates that are specific to Massachusetts based on its replies to the Discovery Questions submitted by the Office of Attorney General.[10]

On this basis, Verizon cannot calculate efficient or Ramsey efficient prices, and no claim can be made that current prices are efficient or Ramsey efficient or that subsequent price increases would result in efficient or Ramsey efficient prices.

Q. Assuming we had accurate estimates of demand elasticity, would it be possible to ascertain a range within which efficient prices would fall?

A. It might be possible. Dr. Taylor and I agree that the DTE was wrong when it concluded that prices are efficient whenever they fall between incremental and stand-alone costs.[11] However, I do not concur with Dr. Taylor that this means that Verizon's prices are currently below efficient levels since there is not a shred of empirical evidence that this is the case.[12] Similarly, in testimony regarding prices which lie between incremental and stand-alone costs, Professor John W. Mayo states on behalf of AT&T Communications of New England that: "…while not providing specific or precise guidance on pricing, the bounds suggested by the Department are appealing."[13] This is not correct -- the upper-bound on prices set by stand-alone costs and the lower-bound set by incremental costs does not guarantee that all prices in this range are efficient -- it only guarantees that all prices outside of this range are inefficient.[14]

Q. In its response to the Discovery Questions, Verizon provides industry level estimates for the price-elasticity of demand. Why are these inadequate?

A. These data are inadequate because: (i) the data and elasticity estimates are too old to be reliable; and (ii) the data indicate a wide variation in elasticity estimates – suggesting that they are not reliable for determining the efficiency of local telecommunications pricing policy.

[10] See response to AG-VZ 1-1, August 26, 2002.

[11] See response to AG-VZ 1-7, August 26, 2002, and page 16 of my previously filed testimony in this proceeding.

[12] Testimony of Dr. William E. Taylor, Page 12, Lines 17 to 20 and Page 14 Lines 16 to17.

[13] Testimony of Professor John W. Mayo, Page 16, Lines 20 to 21.

[14] Testimony of Professor David Gabel, Page 16, Lines 20 to 30.

In response to AG-VZ 1-1, Verizon provided data at the industry level, but even this data was quite spotty with virtually all of the data table entries listed as "not available." Moreover, the data that was noted in this response were from the 1970s but for one study that extended to 1983 (see page 9 below). Finally, in response to AG-VZ 1-6, Verizon confirms that it has no company specific elasticity data to support the proposition that it is efficient to price all services at marginal cost and collect the residual revenue from the dial tone charge.

Dr. Taylor and Verizon assert that the response to AG-VZ 1-1 suggests that the data support recovering all shared, common, and joint costs from the price of dial tone. However, to arrive at this conclusion, Dr. Taylor is relying on studies from the 1970s which estimate industry level elasticities that have no relevance today in light of the changes in the telecommunications sector that have occurred.

To illustrate the difference in today's elasticities, Dr. Taylor reports in AG VZ 1-1 that the elasticity of intra-LATA call minutes prior to 1984 was -0.75. However, in the same response, data that are more current suggest that it is in the range of -1.9. This illustrates that the data do change over time, and that the old data are no longer relevant.

Q. Are the estimates of price elasticities for access lines presented by Dr. Taylor in AG-VZ 1-1 meaningful?

A. Dr. Taylor provided a number of elasticity estimates for access lines in his response to AG-VZ 1-1. These values appear on pages 280 and 294 of a book by Lester Taylor[15] in a section entitled: "The Pre-1980 Empirical Literature on Telephone Demand: Access, Local Service, and Interstate Toll." All of the elasticity estimates presented in AG-VZ 1-1 are pre-divestiture values. The one study published post-1980 is associated with footnote 4 of Verizon's response to AG-VZ 1-1, but Lester Taylor points out that this study is based on data from 1977 through 1983.[16]

It is paradoxical that Dr. Taylor would spend so much time telling the DTE about how the industry has changed,[17] but at the same time rely on studies with underlying data that are 19 years old or older. Of course, when these studies were conducted, there was no competition for customer access from cable or wireless telephones.

[15] Lester D. Taylor Telecommunications Demand in Theory and Practice, Kluwer Academic Publishers, 1994.

[16] Ibid., Page 134.

[17] See, for example, Testimony of Dr. William E. Taylor, Page 4, Lines 1 to 7: "Technological changes have transformed the industry. Today, fixed voice communications traditionally provided by Verizon MA are but one of a wide variety of fixed and mobile telecommunications services currently in demand."

Q. How useful is the Verizon estimate of price elasticity of –1.9 for business and residential service in Maryland?

A. In response to AG-VZ 1-1, Dr. Taylor reports that Verizon Maryland concluded that the overall intra-LATA price elasticity of demand (business and residential) was -1.9. However, he casts doubt on the usefulness of these numbers in Massachusetts when he states that:

> "Because these estimates were developed using data and service characteristics of business and toll services provided by Verizon MD, they may, or may not, be applicable to services provided by Verizon MA."

This estimate of -1.9 is way out of line with the values that Verizon used in this proceeding. In their Massachusetts study, Verizon presumes that the demand elasticity for intra-LATA toll is -0.3 -- or about 1/6 of the value they contend is applicable to Maryland.[18] Assuming that the Maryland elasticity is applicable to Massachusetts, its use of the lower price elasticity of demand in Massachusetts leads to an understatement of the additional traffic that will be generated by the access rate decrease. Substituting the Maryland value for the Massachusetts value leads to the conclusion that the access price reduction will increase toll revenues by $231m, rather than the $80m reduction claimed by Ms. Brown.

I point this out for the purpose of highlighting that not only is Verizon advocating rebalancing and further residential price increases based on outdated information, but furthermore, when presented with more recent data, they ignore the information because the more current data leads to an outcome that is contrary to its financial interests. It is paradoxical that Verizon suggests that data from Maryland may not be relevant to Massachusetts, but then chooses to rely on basic exchange demand elasticity studies from such jurisdictions as Connecticut, Canada, and New York, and not one Massachusetts specific study.

4.3 Increasing the Price Of Residential Service May Well Further Slow Penetration And Undermine Meeting Universal Service Obligations

Q. Ms. Brown asserts, "The Residence Dial Tone Line rate increases from 1990 to 1994 greatly exceeded 5 percent per year. During the same period, the FCC reported residential subscriber penetration in Massachusetts remained at about the same level (96.6 percent in 1990 and 96.5 percent in 1994). The increases moved the Residence Dial Tone Line rate… without negatively impacting residential subscriber penetration and created an environment to encourage competitive entry." This seems like

[18] Testimony of Ms. Paula L. Brown, Attachment III, Line 10.

evidence of minimal demand elasticity for Residence Dial Tone Lines. Do you agree?

A. Not at all, and for several reasons. First, it is important to note that Ms. Brown has selected a particularly narrow time period to report on the impact of price rises on demand. This is unusual since price effects are usually felt over a longer period. Second, subsequent data show a different effect, so it appears Ms. Brown made a poor selection from available data. Third, Ms. Brown completely fails to take account of several other effects that occurred simultaneously with the increase in Residence Dial Tone Line rates. The effect of these changes would be to conceal the real impact of the price rise on household penetration.

Q. You mentioned three problems with Ms. Brown's discussion of the effect of Residence Dial Tone Line rate increases on household penetration. Can you begin by explaining the first -- the time it takes for the effects of price changes to be felt?

A. People cannot immediately respond to price changes and it is their longer-term responses that are important from the perspective of understanding the true impact of price changes. There are at least two reasons for the delayed response: first, people are not perfectly rational and fully informed and so it may take some time for a person to realize the new prices are too expensive for them; and second, for various reasons they may have committed to the service not expecting such price rises, and until these commitments have been unwound, they will maintain service. As a result, adjustment to new prices is more substantial the longer the time allowed for consumers to adjust and, of course, it is this longer run response that reflects the full impact of the price change.

This is illustrated by evidence from Dr. Taylor who states that the price elasticity of demand for bundled access lines and local usage is -0.02.[19] While not indicated by Dr. Taylor in his response, the -0.02 elasticity is a short run price elasticity. The long-run elasticity from the same study was -0.21. That is, as is typical of all elasticities, long run elasticity indicates more responsiveness to change. In this case, the long run demand elasticity was ***an order of magnitude*** more elastic than short run demand.[20]

[19] See response to AG-VZ 1-1, August 26, 2002.

[20] In seeking to minimize efficiency losses by reference to demand elasticity information, including Ramsey prices, long run rather than short run estimates are what is relevant. This is because short-run elasticities are not terribly informative about the impact of a departure from marginal cost pricing. As with many other goods and services, the demand for all telecommunications products is quite inelastic in the short-run.

The long-run elasticities cited by Verizon do not support recovering all shared costs from basic exchange service. The elasticity of demand estimates fall in the range of -0.08 to -0.21. It uses a toll elasticity of demand value of -0.30 in its filing. The elasticity estimates provided by Verizon

In summary, the period Ms. Brown chose to examine were the years in which the actual price changes took place. It is hardly likely that the full effect of these changes would be observed in such a short period.

Q. Your second concern with Ms. Brown's discussion of the effect of Residence Dial Tone Line rate rises on household penetration was that subsequent data showed a different result. Please elaborate.

A. Ms. Brown's data only runs through to 1994, when the last price increase in Massachusetts occurred. Yet, if one looks at subsequent years, the picture is not so robust. For example, from 1997-2001, the penetration rate for local residential service was unchanged in Massachusetts at 95.9% compared to an increase of 0.5% (from 94.0% to 94.5%) for the United States as a whole.[21] In fact, in Massachusetts, the penetration rate for local service gradually declined from a high of 97.4% in 1993 to a low of 94.0% in 2000 -- before rebounding to 95.9% in 2001.[22]

Q. Why is this significant for this proceeding?

A. It is significant since any increase in local residential rates could further slow penetration of local service in Massachusetts, which we have already seen has declined over the past decade. While Ms. Brown of Verizon states that the DTE does not have to worry about raising the price of basic exchange service, her analysis is based on data only up until 1994 when the last price increase in Massachusetts was passed. The Office of Attorney General believes that the DTE should be concerned about the lack of increased penetration in Massachusetts despite steady prices for the past eight years – especially in light of the fact that the rest of the nation has experienced a statistically significant increase in household penetration since 1997.

For comparison, the FCC report on penetration rates[23] notes that neighboring New Hampshire has the highest penetration rate in the nation at 98.1%, but yet the difference between New Hampshire and Massachusetts cannot be attributed

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provide no economic support for the proposition that shared costs should only be recovered from dial tone or basic exchange service.

[21] Alexander Belinfante, Telephone Penetration by Income by State, April 2002, Industry Analysis and Technology Division, Wireline Competition Bureau of the Federal Communications Commission, Table 2, Page 8 and Table 3, Page 9.

[22] Ibid., Table 4, Page 16. The same document shows that Massachusetts has the dubious honor of being one of five states that experienced a decline in the rate of household penetration rates between 1984 and 2001. The decline is not statistically significant, unlike the statistically significant increase of 3.3% experienced by the nation. Ibid., Table 2, page 8.

[23] Ibid., Table 2, Page 8 and Table 3, Page 9.

to differences in income distribution between the states. For four out of the five income groups, the penetration rate is higher in New Hampshire than in Massachusetts (Table 1). Neither is the difference due to the treatment of wireless service, which is included in the FCC data.[24]

Table 1

Percentage Distribution of Income and Percentage of Households with Telephone Service in Massachusetts and New Hampshire in March of 2001, By Income Level

Total Household Income in March 1984 Dollars	Percentage Distribution of Households by Income Level (Massachusetts)	Percentage Distribution Of Households by Income Level (New Hampshire)	Percentage of Households with Telephone Service (Massachusetts)	Percentage of Households with Telephone Service (New Hampshire)
$9,999 or less	19.7	13.7	91.3	94.3
$10,000-$19,999	19.1	22.0	93.6	96.9
$20,000-$29,999	14.8	15.9	97.7	98.9
$30,000-$39,999	13.5	14.4	99.0	98.3
$40,000 or more	32.8	34.1	97.8	100.0
Total	**100.0**	**100.0**	**95.9**	**98.1**

Source: Alexander Belinfante, Telephone Penetration by Income by State, April 2002, Industry Analysis and Technology Division, Wireline Competition Bureau of the Federal Communications Commission, Pages 16, 18, 44, and 46.

Q. Your third concern with Ms. Brown's discussion of the effect of Residence Dial Tone Line rate rises on household penetration was that she failed to take account of other changes that occurred in this period. Please explain further.

A. Elasticities can only be estimated holding all other things constant (one of the more basic lessons in Economics 101).[25] In the case Ms. Brown discusses,

[24] Ibid., Page 2, Footnote 4.

[25] This is referred to by the Latin phrase, "ceteris paribus".

at least three other factors changed which would likely increase demand for Residence Dial Tone Line, thereby concealing the effect of the rate rise. These are that:

1) other usage rates were lowered at the same time;[26]
2) demand shifts due to the development of email and then the world-wide web, that is, an access line became more valuable over the period; and
3) increased income over that period.

The Company's toll elasticity of demand models have recognized that demand, contrary to the suggestion of Ms. Brown's testimony, is a function of not only the price of the product. For example, the Company's submissions to the Department have also taken into account the price of other goods and services, and the level of employment, income, and population.[27] In short, without appropriate accounting for these factors, very little can be deduced from Ms. Brown's penetration data.

Furthermore, as I discussed above, an analysis of data from 1990 provides limited insights into the characteristics of today's demand curve for basic exchange service because of the fundamental changes that have transpired in the past twelve years.

Q. What might be the impacts of Verizon's proposed rate increases on low-income consumers and universal service obligations?

A. Professor Mayo, in his testimony on the behalf of AT&T Communications of New England, Inc. states the following in response to a question concerning whether the proposed Verizon Plan would erode the commitment to universal service:

> "Household subscription to telephone service in Massachusetts is quite high and is in no danger of eroding in the face of moderate price increases, should they occur."[28]

Professor Mayo provides no support for this claim and it is a rather odd statement in light of the fact that from 1997-2001 penetration rates for local residential telephone service for low-income households in Massachusetts declined by 0.3% while they increased in the United States for low-income

[26] Testimony of Ms. Paula L. Brown, Page 10, Lines 17 to 18.

[27] NET Response to A.G. R.R. #75, September 16, 1993, Massachusetts D.P.U. Docket 93-125.

[28] Testimony of Professor John W. Mayo, Page 22, Lines 7 to 10.

households as a whole by 1.6%.[29] Clearly, low-income households have not benefited from the steady rates for local residential service over the past eight years in Massachusetts, and comparing the results in Massachusetts to the rest of the country gives good reason to believe that AT&T's and Verizon's proposed increases would exacerbate this difference – further undermining universal service obligations.

Q. Are you saying that pricing policy over the past decade in Massachusetts has harmed universal service?

A. No. I am agnostic on this point. Much more careful analysis—preferably econometric—is needed to determine whether Massachusetts prices have harmed or whether the proposed prices are likely to harm universal service. Of course, this also means that the DTE should also not conclude that its pricing decisions have not harmed the provision of universal service based on the analysis presented by Ms. Brown and Professor Mayo. A more comprehensive analysis needs to be undertaken in light of the decline in household penetration in Massachusetts.

Q. What are you recommending then with respect to universal service?

A. The Office of Attorney General believes that the Department should err on the side of caution in light of the fact that Massachusetts has had sub-par performance in penetration for low-income households (and overall penetration) in comparison to the rest of the country from 1997-2001. The DTE should not approve any rate increases for basic service until it has a better understanding of why subscription levels are decreasing in Massachusetts. It is very costly for the Commonwealth when over 4% of all households cannot reach emergency services due to lack of a network connection.

In his testimony, Professor Mayo states that:

> "As residential local exchange rates are permitted to increase, a wise step by the Department would be to follow this Phase II proceeding with an investigation of how the Department might efficiently pursue the goal of maintaining universal service as the Commonwealth transitions to a competition-enabling regulatory framework."[30]

[29] Alexander Belinfante, Telephone Penetration by Income by State, April 2002, Industry Analysis and Technology Division, Wireline Competition Bureau of the Federal Communications Commission, Table 2, Page 8 and Table 3, Page 9.

[30] Testimony of Professor John W. Mayo, Page 23, Lines 1 to 5.

In light of the FCC data above on penetration rates in Massachusetts for low-income households, the investigation proposed by Professor Mayo and AT&T Communications of New England should take place. However, local residential rates should not be increased in parallel while this analysis is being carried out.

4.4 Due To Sunk Costs And The Current Crisis In Telecommunications, Competitive Entry Into The Residential Market Is Not Easy

Q. Can you summarize Dr. Taylor's position on the existence of competition in the provision of local residential telephone service in Massachusetts?

A. On page 4 of his testimony, Dr. Taylor discusses at length the changes in the telecommunications industry since 1996, and the fact that he believes the market is competitive for most services. He notes that telecommunications markets have changed dramatically, are open to a number of providers, and that legal and regulatory barriers to entry have been eliminated. In the case of Massachusetts, he states that he believes entry is relatively easy:

> Insofar as entry into Massachusetts' retail telecommunications markets is comparatively easy, the need for a regulatory constraint is supplanted by the constraint of competitive market activity on retail prices for all services in all geographic areas.[31]

Q. What do you think of Dr. Taylor's comments that competition will discipline Verizon, and constrain its ability to increase prices as one might expect from an incumbent provider with significant market power?

A. I think Dr. Taylor puts too much faith in competition that does not exist. He offers no empirical observations on the level of competition in Massachusetts or penetration by CLECs into the market, but he states that:

> "… in addition to the current facilities-based and resale competition in Massachusetts, the additional threat of further entry from large, well-known telecommunications firms presently supplying other services to Massachusetts customers effectively disciplines Verizon MA's retail prices even if there were little current competition on the ground."[32]

[31] Testimony of Dr. William E. Taylor, Page 4, Lines 20 to 23.

[32] Testimony of Dr. William E. Taylor, Page 4, Lines 23 to 27.

> "… because imperfect competition treats customers far better than imperfect regulation, where regulation is not required to discipline prices, it should be eliminated."[33]

Eliminating regulation at this time would be a very risky course for regulators to follow in light of the meltdown experienced in the telecommunications industry over the past two years. The evidence of the past few years is for contraction in the industry leading to a smaller number of firms since at least 63 companies in the telecommunications sector have filed for bankruptcy since 2000.[34] Absent regulatory intervention, oligopolistic behavior and higher prices (not competitive behavior and lower prices) is likely to be the norm. As noted by Professor Eli Noam of the Columbia University Business School.

> "Going forward, we'll see consolidation and the emergence of oligopolies with higher prices…"[35]

Finally, substantial sunk costs in customer acquisition and operation support systems must be incurred to enter the dial-tone access market, even when entry is undertaken on a resale or UNE-P basis. Sunk costs limit entry and prevent the threat of entry from constraining an incumbent.

It is for these reasons that the DTE must not just rely on market forces to establish reasonable prices.

Q. You Say There Are There Important Sunk Costs Associated with Customer Acquisition. Can You Elaborate?

A. Yes, there are. Dr. Taylor presumes that there are essentially no sunk costs when resale or the UNE-P is used.[36] This ignores the fact that when a company enters a market, it incurs substantial sunk costs that are not associated with tangible assets. Customer acquisition costs for local telecommunications service vary from anywhere between $200-$400 per customer. Clearly, this is not an insignificant number.

Other estimates suggest customer acquisitions costs lie in the high end of this range. A Communications Week article stated, "A CLEC's cost position is

[33] Ibid., Page 8 Lines 18 to 20.

[34] Peter S. Goodman, "Telecom Sector May Find Past Is Its Future: Giant Phone Companies Offer Stable, Well-Funded Option," Washington Post, July 8, 2002, Page A1.

[35] Ibid. Higher prices are not inherently improper. They are improper here because there has been no showing that residential service is subsidized or below efficient levels.

[36] Testimony of Dr. William E. Taylor, Page 5, Lines 18 to 20, and Page 16, Line 23 to Page 17, Line 13.

further eroded by the need to promote its services. Without an established brand name or clear technical advantages, CLECs must spend much more on sales and marketing. Customer acquisition costs for CLECs, on average, have been $390 per net line added, more than twice the $185 spent by ILECs."[37]

Q. When a competitive local exchange carrier uses resale or UNEs to supply local telephony do they face any other important sunk costs?

A. An entrant must additionally incur substantial and sunk operational support systems (OSS) costs when it enters a market. The entrant's OSS must interconnect with the ILEC's OSS, connect with or develop a billing system, advertise, and train customer representatives.

OSS costs are substantial. For example, Time Warner estimated that its telecommunications OSS would cost approximately $50m.[38]

A substantial portion of the money spent entering a market is sunk. The resale value of the software is small because it would have been designed to be compatible with the marketing needs of the individual firm. The cost of training customer representatives is sunk because individuals are trained to work on systems that may be specific to a firm and because a failing firm does not own its workers. Consequently, it cannot sell the customer representatives to another CLEC. The advertising expenditures are sunk because the advertisements are specific to the firm and are not of value to other CLECs.

Q. Can you explain the implications of Dr. Taylor's failure to recognize these significant sunk costs?

A. Substantial sunk costs create an important barrier to entry. Such barriers handicap the process of entry, and prevent the threat of entry from constraining incumbents.

Dr. Taylor's failure to recognize these significant sunk costs is the same error that economists made when the airline industry was deregulated.[39] Common wisdom thought that the airline market was contestable because capital was on

[37] Rob Fisher. "Rescuing the CLECs," Communication News, June 6, 2001 http://www.comnews.com/stories/articles/c0601guest.htm.

[38] Time Warner Telecom LLC, SEC 10-k filing for fiscal year ending December 31, 1998, Page 22.

[39] See for example, Elizabeth Bailey's modification of her earlier view that the airline industry had no sunk costs and hence was contestable: Elizabeth Bailey and Jeffrey R. Williams, "Sources of economic rent in the deregulated airline industry," Journal of Law and Economics 31 (April 1988), 173-202.

wings. However, Michael Levin did a good job of explaining why that thinking was flawed:

> "Contrary to the assumptions of the perfect contestability model. …[entry] cannot occur instantaneously or costlessly…[A]n airline seeking to offer service to the public must commit non-recoverable resources in the form of the aircraft time necessary to operate for a trial period as well as advertising and other marketing costs to make the public aware of its existence."[40]

4.5 Neither Verizon Nor At&T Has Shown That Raising Residential Rates Would Enhance Efficiency Or Promote Competition By Encouraging Efficient Entry

Q. In their testimony do either Dr. Taylor, Professor Mayo, or Ms. Brown contend that local residential telephone service is currently subsidized or that such subsidies might impede competition in the provision of local residential telephone service?

A. No, not where subsidy is defined in the traditional economic sense of prices being below incremental costs.[41] Ms. Brown states that: "Current prices exceed marginal costs and the Department's price floors relevant to Residence Basic services.[42] Hence, there is no claim that residential service is subsidized.

Professor Mayo, in his testimony on the behalf of AT&T Communications of New England regarding promotion of competition, states that "prices that do not -- at a minimum -- recover the incremental cost of providing a service will simply fail to encourage any other parties to consider entry into the market." However, he offers no empirical evidence that prices are below incremental costs, and thus offers no evidence that local residential service is currently subsidized.

Professor Mayo's argument that "the Department may wish to modify the retail residential price escalator cap to, say, 10 percent per year for the next three years"[43] is specious since it is based solely on theoretical considerations and his presumption that prices are too low and below economic costs -- and not empirical facts which are needed to substantiate that current prices are too low.

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[40] Michael Levine, Yale Journal on Regulation, "Airline Competition in Deregulated Markets: Theory, Firm Strategy, and Public Policy", 1987, Pages 393-494, at note 163.

[41] The Department has also used the term subsidy in the context of "fairness", where rates fail to cover full embedded costs, D.P.U. 1731.

[42] Testimony of Ms. Paula L. Brown, Page 9, Line 23 through Page 10, Line 2.

[43] Testimony of Professor John W. Mayo, Page 19, Lines 4 to 6

The DTE should base its pricing policy decisions on empirical facts and the underlying economic theory, and not on nice academic treatises which focus solely on the latter.

Q. You stated that Professor Mayo did not present any evidence to support his claim that residential rates are too low. He also contended that the residential prices needed to be increased in order to promote entry into the market. Are there publicly available data that Professor Mayo could have relied upon to get an indication of the profitability of residential service?

A. Yes. For example, UBS Warburg reports that the average residential retail revenue available over the UNE platform is $37.42 in Massachusetts. It estimates that the corresponding UNE-P monthly cost is $15.09, leaving an estimated monthly margin of $22.33.[44] This publicly available data hardly supports Professor Mayo's proposition that it would be just and reasonable to raise the price of residential exchange service by as much as 30% in the next three years.[45]

Q. Did Verizon present any data regarding the profitability of entry using the UNE-P?

A. Not directly. Dr. Taylor argued that entry into the market was "difficult or impossible" because the prices were falling in real terms and "below the

[44] UBS Warburg, "How Much Pain from UNE-P: Analysis of UNE-P Economics for the Bells," page 14, August 22, 2002. The cost estimate reflects an assumption of 1,000 minutes of use per line.

[45] I have not analyzed the accuracy of the UBS Warburg estimates. I present them to illustrate the point that there are publicly available data that are consistent with the finding I made in my direct testimony -- residential service is self-supporting.

AT&T's margin analysis, which was submitted to the FCC during the 271 proceeding, identifies statewide margins of $3.78 and $1.52, respectively, for services sold a la Carte and bundled. For zone one, AT&T identified a margin of $14.81 and $13.56, respectively, for services sold a la Carte and bundled. Professor Mayo has not explained why it would be efficient to allow residential rates in zone one to increase by thirty percent given his client's claim that a margin of $14.81 or $13.56 is already available. AT&T *Ex Parte,* CC Docket No. 00-176, November 30, 2000, Declaration of Michael Lieberman, Paragraph 20.

There are not a substantial number of residential subscribers in zone one. The same cannot be said of zone two. AT&T identified a margin of $6.48 and $5.82, respectively, for services sold a la Carte and bundled. Neither did Professor Mayo explain why it would be efficient to allow residential rates in zone 2 to increase by up to thirty percent given his client's margin estimates for these residential subscribers.

As with the Warburg values, I have not analyzed the reasonableness of the AT&T UNE-P estimates. I have observed that Verizon and AT&T greatly disagree about the cost of the UNE-P. Where AT&T claimed that the UNE-P rate was $28.43, Verizon contended it was only $20.30. Id. and Verizon's *Ex Parte*, CC Docket No. 00-176, November 21, 2000, Page 6.

competitive market level." Unfortunately, he does not provide an estimate of what constitutes the competitive market level.[46]

Q. Does Verizon offer an additional reason why the retail price of service should be increased?

A. Yes. Verizon witness Dr. Taylor states that "Entrants that may have been previously excluded from the market because they could not profitably compete against the market price while paying the wholesale price for UNEs could now compete profitably…"[47]

Q. Has Verizon previously addressed the issue of whether an entrant can profitably compete against Verizon using the UNE-P at the current retail rates?

A. Yes, Verizon submitted the following statements to the United States Court of Appeals for the District of Columbia on the topic of the profitability of the UNE-P:

> Verizon submitted [to the FCC] detailed evidence demonstrating that the UNE rates in Massachusetts provided competitors with an ample margin for entry…When Verizon filed its [271] application, competitors were serving a proportionately greater number of residential lines than was the case in any other 271-approved state, at the time applications were filed in those states. The record thus establishes that the Massachusetts UNE rates were not a barrier to entry.
>
> Worldcom's well-publicized UNE-based entry into Massachusetts further belies appellants' claim here that the Massachusetts UNE rates foreclose competitive entry.[48]

Later in the same brief Verizon stated its evidence regarding the number of residential customers served through the UNE-P "makes it impossible to conclude that Verizon's UNE rates precluded competition."[49]

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[46] Testimony of Dr. William E. Taylor, Page 15, Lines 10 to 12.

[47] Testimony of Dr. William E. Taylor, Page 16, Lines 3 to 5.

[48] In The United States Court of Appeals for the District of Columbia Circuit, No. 01-1198 et al., WorldCom, Inc., Association of Communications Enterprises, and Thomas F. Reilly, in his capacity as the Attorney General for the Commonwealth of Massachusetts, Appellants, v. Federal Communications Commission, Appellee. Brief for Intervenors Verizon New England, Inc., Bell Atlantic Communications, Inc., NYNEX Long Distance Company, and Verizon Global Networks Inc., in support of Appellee, Page 10, filed July 10, 2002.

[49] Id., p. 23.

Q. How do you reconcile Verizon's claim that there is no prize squeeze with Dr. Taylor's statement that if retail rates are raised, there will be more entry?

A. It is axiomatic that if you raise the price in a market, the likelihood of entry increases. Dr. Taylor is effectively proposing that the retail price be raised so that new entrants begin to serve the market. Dr. Taylor makes no claim that the new entrants will be efficient competitors. It would have been hard for him to make that claim given that Verizon has already claimed that price is not a barrier-to-entry. Therefore it appears that Verizon and Dr. Taylor believe that regulation should be used to induce inefficient entry into the market, or Verizon is reversing its prior position that there currently is not a price squeeze in the residential market.

4.6 The Necessary Conditions For Efficient Competition Do Not Require That Price Covers Cost On Every Component Of Service And Do Not Require That Real Prices Are Held Constant Or Increase

Q. Assuming, for argument's sake only, that the price of local residential telephone service is below cost, do you believe that this will necessarily discourage entry into the market and impede competition?

A. Not necessarily. Continuing the current price regime may well have no impact on entry into the market for local residential telephone services in Massachusetts.

Professor Mayo points out that:

> "[P]rices that are held below cost in the subsidized sector will tend to discourage all entry, even efficient entry. This latter effect tends to have a self-perpetuating influence on regulation in the affected industry. Specifically, because entry is artificially restricted through the below-cost price realized in the subsidized segment of the market, the incumbent firm will tend to maintain a monopoly in that market, thereby justifying continuing regulation. That regulation, in turn, tends to maintain the cross-subsidy, which prevents the entry, which justifies the continuing regulation. Consequently, not only is competition incompatible with cross-subsidies, but cross-subsidies tend to distort the competitive process and delay the time when competition arrives."[50]

However, Professor Mayo is only partly correct. Firms do not make their entry decisions based on the balance sheet associated with individual items (the small

[50] Testimony of Professor John W. Mayo, Page 13, Line 19 through Page 14, Line 2.

picture), but rather based on the profitability of the services associated with the investments (the big picture). For example, a wireless carrier is willing to give away a free telephone because of the wireless services that it will sell from the telephone. Similarly, a razor company is willing to offer a razor at a low price in order to make the profits it earns on blades. Professor Mayo fails to recognize that a firm bases its decisions not on individual prices, but on the profitability of the market.

Q. Do you agree that if the real price of dial-tone fell in each of the last seven years, then "[t]hat outcome was contrary to the Department's objective to achieve efficient rates and foster competitive entry."?[51]

A. No, the conclusion does not necessarily follow if the term "efficient rates" is intended to mean cost-covering prices as suggested by the DTE's rate structure goals.[52] The same answer also applies if it is efficient and competitive entry that the DTE wishes to foster. The reason for this is that prices should reflect costs, and real price movements are not necessarily related to costs. Assume that dial-tone rates currently are below their incremental cost (which is not the case as argued in my original testimony) and efficient rates would be higher. Now allow that real dial-tone rates are expected to decline. Dr. Taylor asserts that this is "contrary to the Department's objective to achieve efficient rates and foster competitive entry", but this need not be so if real dial-tone costs fall by more than real dial-tone prices. In these circumstances, price would, over time, become increasingly reflective of costs and eventually would exceed costs. This would certainly encourage entry (though if price were allowed to exceed costs it would also encourage inefficient entry). In the present context, moreover, real price declines may bring prices into alignment with costs even when prices

[51] Testimony of Dr. William E. Taylor, Page 15, Lines 7 to10. The full quote reads:

> "Changes in the Consumer Price Index (CPI) provide an indication of how prices for all goods and services change over time. If prices for Verizon MA's residential basic services do not change by at least the rate of inflation then the real price of basic telephone service falls. Under the previous price cap regime in Massachusetts, for example, residential dial-tone line rates have been frozen for seven years and thus their prices fell in real terms. That is, relative to the price of all other goods and services in the economy, the price of dial-tone lines fell in each of the last seven years. That outcome was contrary to the Department's objective to achieve efficient rates and foster competitive entry. It is difficult or impossible to enter a market where the price of the incumbent's service is below the competitive market level and falls each year. In summary, the 5 percent constraint on basic residential service price increases is reasonable."

[52] "Economic efficiency means that the rate structure should reflect the cost of providing the service and therefore furnish an accurate basis for consumers' decisions about how best to fulfill their needs." Intra-LATA Competition, DTE 1731, p. 19 (1985).

are originally less than costs. Costs in telecommunications typically decline more quickly than costs do for the economy as a whole.

Q. What would happen to prices in a competitive industry if costs declined faster than the average cost of the general economy?

A. Real prices would fall. This illustrates that a fall in real prices has no bearing on whether prices reflect costs.

Q. Do you agree that "It is difficult or impossible to enter a market where the price of the incumbent's service is below the competitive market level and [the real price] falls each year."[53]?

A. I do not, for the reason outlined in my answer to the last question. Real prices may fall, but prices, even if they started out below costs (which does not describe current dial-tone prices) may still be moving into line with costs. Once prices come into line with costs, the incentives for entry would be efficient.

I also do not agree with this for the reasons given earlier, that in effectively competitive markets it is not uncommon for firms to "under-price" one component of consumption and "overprice" another. Access is more commonly "under-priced" than "overpriced" in unregulated, competitive markets.

4.7 The Five Percent Annual Price Increases In Dial-Tone Rates Recommended By Verizon Cannot Be Justified Based On The Expected Rate Of Inflation

Q. In previous price cap filings before this Department, what was the range of inflation estimates used by Verizon?

A. In its six previous price cap filings submitted to this Department, Verizon's estimates of the annual CPI ranged from 1.6% to 3.0%.[54]

Q. Dr. Taylor argues, based on historic data, that a five percent per annum price increase is a good estimate of how the general Consumer Price Index is likely to change over the next several years.[55] Do you agree?

[53] Testimony of Dr. William E. Taylor, Page 15, Lines 10-12. For the entire paragraph see footnote 51.

[54] See response to AG-VZ 2-6, September 5, 2002.

[55] "Following the Department's tentative conclusion, basic residential service rate increases are capped at 5 percent per year in the Company's proposal thus assuring that real rate levels are unlikely to rise." [Dr. William E. Taylor's Testimony, Page 14, Lines 6 to 8.]

A. This estimate seems excessive in light of the Consumer Price Index's (CPI) recent history, and the estimates used by Verizon in its previous price cap filings. For example, the annual CPI rate of inflation for the years 1997-2002 was 2.3%.[56] Indeed, the average annual inflation rate of the last twenty years was considerably less than five percent. It exceeded five percent only twice (5.4% in 1990 and 6.2% in 1982).[57]

Q. Do you think that future growth in the Consumer Price Index is likely to average around five percent over the years 2002 to 2006 inclusive?

A. Estimates of several reputable forecasters suggest the inflation rate is likely to be lower than this as Table 2 below indicates.

Table 2

Forecasted Annual Percentage Change in the Consumer Price Index

Source[58]	2002	2003	2004	2005	2006	2007
Office of Management and Budget (OMB)	1.8	2.2	2.3	2.4	2.4	2.4
Congressional Budget Office (CBO)	1.8	2.5	2.5	2.5	2.5	2.5
Blue Chip Forecast	1.4	2.4	2.7	2.7	2.8	2.8
International Monetary Fund (IMF)	1.4	2.4	1.4	1.9	2.5	2.4

I am not aware of any estimates that suggest per annum rates of five percent are likely. In fact, a recently released survey of professional forecasters expects the annual average rate of change in the Consumer Price Index over the next 10

"Five percent was chosen because it is 'less than the percentage price increases approved by the Department in the rate-rebalancing process started with D.P.U. 89-300 (1990), and is roughly comparable to the historic annual change in the Consumer Price Index.'" [Dr. William E. Taylor's Testimony, Page 14, Lines 20 to 22. Material in single quotation marks from the DTE Phase I Order, Pages 102-103.]

[56] "This value was derived by using data available at the Bureau of Labor Statistics (BLS) web site: ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt"

[57] Id.

[58] The CBO, OMB and Blue-chip forecasts are from The Current Resolution on the Budget Fiscal Year 2003 Report of The Committee of the House of Representatives To Accompany H. Con. Res. 353, House of Representatives Report 107-376, March 15, 2002, at p. 12. The IMF data is from the Euromonitor Global Market Information Database, available from Euromonitor International, at http://www.euromonitor.com.

years to be 2.50 percent. The middle range of forecasts from this survey was 2.40 percent to 2.70 percent while the maximum was 3.50 percent.[59]

Q. Based on these estimates of inflation, what will happen if prices go up to the ceiling level proposed by Verizon or 10% per year as proposed by AT&T?

A. There will be a significant real increase in prices that is inefficient because it would not reflect true cost levels, trends in the industry, or the relatively low historical inflation rates recently experienced in the economy and which are projected to last into the foreseeable future. Such inefficient price increases would harm residential ratepayers, and would likely interfere with achieving efficient prices and promoting universal service.

Q. How do you recommend that the Department address the issue of adjusting rates for inflation in this proceeding?

A. As I stated earlier (Page 22), the real price of telephone service does not have to increase in order for prices to be efficient. I recommend that the Department institute a price freeze since there is no evidence that the costs of providing local residential telecommunication service have increased at the rate of inflation, or that the estimates of inflation provided by the other respondents are realistic. In light of the historical data on inflation, it would be neither efficient nor fair to raise rates by the CPI index – especially in an industry such as telecommunications that is actually characterized by declining costs with no evidence that changes in its costs follow general inflation.

Does this conclude your testimony?

A. Yes.

[59] Survey of Professional Forecasters: Third Quarter of 2002, Federal Reserve Bank of Philadelphia, August 22, 2002, at Page 12. The report is available at http://www.phil.frb.org/files/spf/spfq302.pdf.