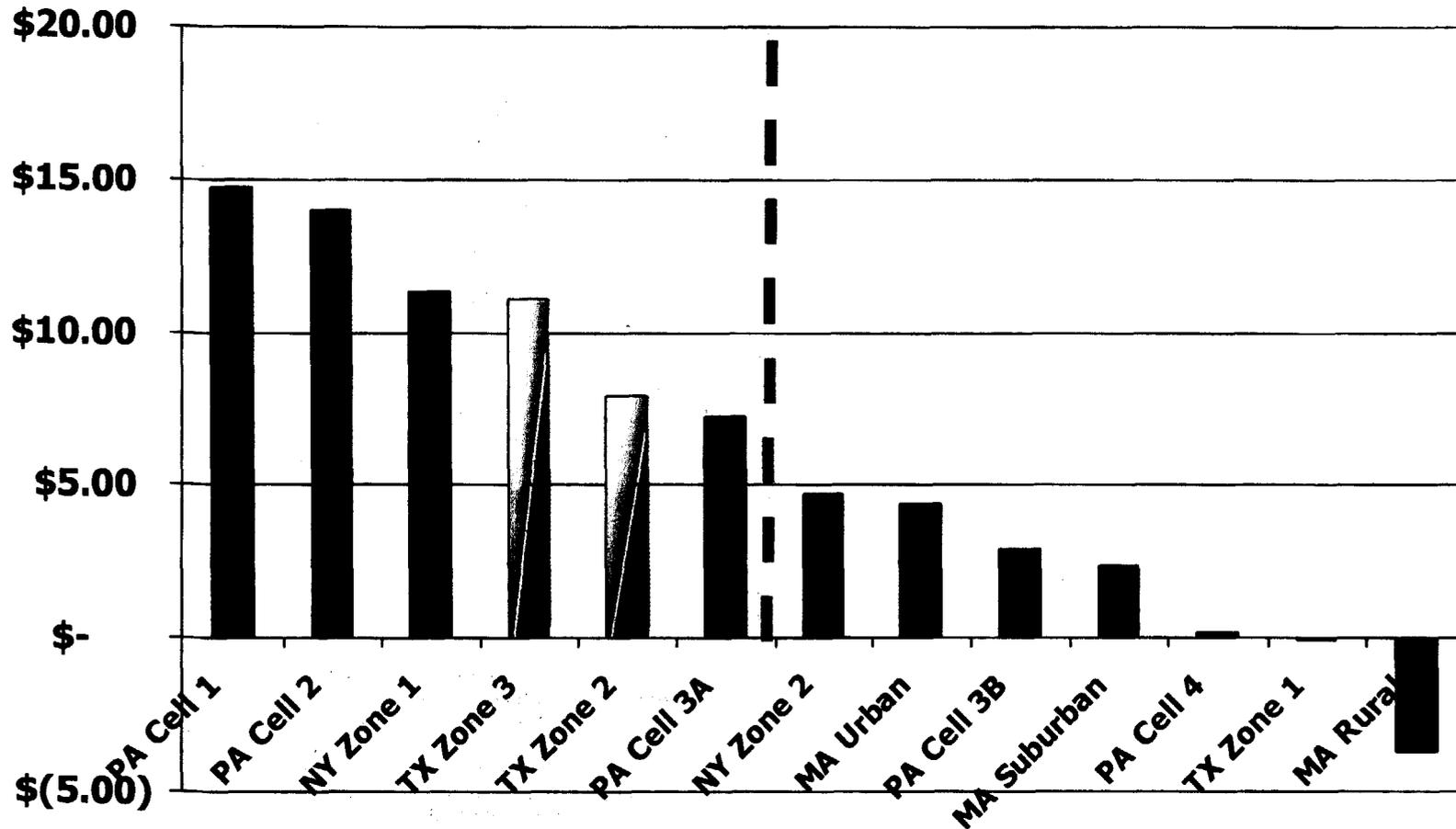


Gross Margin by Zone in Massachusetts and States WorldCom Has Entered



MA Metro zone omitted as de minimis, as it contains only 2% of households in state.

Note: Analysis does not include WorldCom or other CLEC internal costs (e.g., billing, customer service, sales/acquisition, bad debt)



B



**Before the
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of)	
)	
Application by Verizon New England)	
Inc., Bell Atlantic Communications,)	
Inc. (d/b/a Verizon Long Distance),)	CC Docket No. 00-176
NYNEX Long Distance Company)	
(d/b/a Verizon Enterprise Solutions),)	
and Verizon Global Networks Inc., for)	
Authorization to Provide In-Region,)	
InterLATA Services in Massachusetts)	
_____)	

**REPLY DECLARATION OF MARK T. BRYANT
ON BEHALF OF WORLDCOM, INC.**

Based on my personal knowledge and on information learned in the course of my duties, I, Mark T. Bryant, declare as follows:

I. INTRODUCTION

1. My name is Mark T. Bryant. I am employed by WorldCom, Inc. as an Executive Staff Member in the Economic Analysis Group of the Legal and Public Policy organization. My duties include analyzing economic issues relating to telecommunications industry regulation and public policy, and assisting in the development and advocacy of WorldCom’s public policy positions. For the past five years, I have had primary responsibility for managing WorldCom’s participation in the development of the HAI Model, a model used in the estimation of telecommunications network costs.

2. The purpose of this Reply Declaration is to respond to comments submitted by other interest parties in this proceeding, including in particular the evaluation filed by the Massachusetts Department of Telecommunications and Energy (“DTE”), as they relate to

Verizon's^{1/} rates for unbundled network elements ("UNEs") in Massachusetts. I will also address the eleventh hour switching and transport rates Verizon filed with the DTE on October 13, 2000, which Verizon brazenly claims "eliminate" the pricing issues in its section 271 application.^{2/} For the reasons I describe below, Verizon's new rates do not eliminate any of the pricing issues raised by commenters in this proceeding and in the proceeding before the Massachusetts DTE. Indeed, the new rates filed by Verizon, although lower than its current Massachusetts rates,^{3/} are unsupported by any cost studies or other documentation and remain significantly higher than properly calculated cost-based rates. Lastly, I will address why Verizon's loop rates in Massachusetts – which both Verizon and the Massachusetts DTE state are TELRIC-based – are inflated by over 9%.

II. VERIZON'S OCTOBER 13, 2000 SWITCHING AND TRANSPORT RATES ARE UNSUPPORTED AND REMAIN SIGNIFICANTLY HIGHER THAN PROPERLY CALCULATED COST-BASED RATES.

3. In my Declaration filed on October 16, 2000, I described in detail why Verizon's current Massachusetts unbundled switching and transport rates are not cost-based. In particular, I identified a number of inputs and assumptions used by Verizon in its cost studies that are unreasonable and unjustified. When I reran Verizon's calculations using inputs and assumptions that are consistent with the findings of the Federal Communications Commission

^{1/} Since NYNEX and Bell Atlantic are now Verizon, I will refer to the companies as Verizon when talking about something that occurred before or after the dates of the Bell Atlantic-NYNEX and Bell Atlantic-GTE mergers.

^{2/} See Cover Letter to Verizon's October 13, 2000 Tariff Filing.

^{3/} When I refer to Verizon's "current" Massachusetts rates in this Declaration, I mean those rates approved by the DTE at the time Verizon's section 271 application was filed with the Federal Communications Commission. Verizon's October 13, 2000 rates were filed after its application and do not take effect until November 12, 2000.

("FCC"), other incumbent LECs, and even Verizon in other states, Verizon's switching and transport rates in Massachusetts were significantly reduced. As I described in my initial Declaration, analog port rates were reduced by more than 77%, local switching usage rates were reduced in the range of 63% to 67%, shared trunk port rates were reduced by 79.76%, and local common transport rates were reduced by 62.2%.

4. I was able to corroborate the magnitude of these reductions by comparing the switching investment assumed by Verizon in its cost study (\$2.641 billion), with Verizon's reported embedded costs at the time it undertook its study (\$0.603 billion) and the FCC's estimate of switching investment needed to serve Verizon's territory in Massachusetts (\$0.491 billion).^{4/} This comparison reveals that Verizon's switching rates are at least four times too high. The Massachusetts Attorney General fully endorsed these findings in its comments. See MA Attorney General Comments at 5.

5. Verizon and the Massachusetts DTE have never disputed any of these conclusions and instead have only attempted to claim they are irrelevant, which is patently not the case.^{5/} Nevertheless, Verizon apparently recognizes that its inflated Massachusetts rates are an obstacle to obtaining section 271 authority under the Act and has attempted on two occasions

^{4/} As I explained in my first Declaration, I was unable to corroborate transport rates in a similar manner because, unlike switching, Verizon does not report its total estimated transport investment for Massachusetts.

^{5/} For example, in justifying the switching rates, the DTE suggests that there is no reason to think Verizon's historical costs will bear any relation to its forward-looking costs. DTE Eval. at 330-32. While it is true that historical costs are not the same as forward-looking costs, this is because forward-looking costs are significantly lower because the cost of switches and other equipment has declined and continues to decline. Thus, far from excusing Verizon's attempt to collect four times its historical costs in its wholesale rates for UNEs, the difference between historical and forward-looking costs requires that Verizon's rates be based on an overall switching investment that is lower than its historical costs.

to salvage its section 271 application by arbitrarily and insufficiently reducing the switching and transport rates it charges competitors. First, on July 19, 2000 – the same day comments were filed in the state section 271 proceedings – Verizon filed an amendment to its Massachusetts interconnection agreement with Z-Tel reducing its rates for local switching usage in most zones by between 30% and 35%, local common transport rates by 25% and shared trunk port rates by 25%, subject to change at its own discretion.^{6/} Then, on October 13, 2000 – one business day before comments were due in this proceeding – Verizon filed a new tariff further reducing the majority of its switching and transport rates. The Massachusetts DTE appears to contend that both of these filings ensure that Verizon’s UNE rates are in compliance with the Act. See DTE Eval. at 328-29, 340-44.

6. However, neither set of reductions meets the Act’s requirement of cost-based UNE rates. In neither instance did Verizon file any cost studies, workpapers or any other documentation demonstrating that these rates are properly based on the cost of providing these elements or even showing how it derived these rates. Verizon has never even suggested that these rates are cost-based. See Mass. DOJ Eval. at 20. As a result, it is impossible at this time to conduct any analysis on Verizon’s new rates – particularly the type of analysis that I was able to perform on Verizon’s current rates, for which Verizon has submitted workpapers demonstrating at least some of its assumptions and inputs.

7. Nonetheless, it is abundantly clear that Verizon’s October 13th rates remain well above the level that the rates would be if Verizon’s calculations were rerun using inputs and assumptions that are consistent with the findings of the FCC, other incumbent LECs,

^{6/} The Verizon-Z-Tel amended interconnection agreement did not reduce analog port rates.

and even Verizon in other states. For example, as part of its October 13th tariff filing, Verizon reduced switching usage rates during peak hours in urban and suburban areas by 36% and 51%, respectively. But rerunning Verizon's calculations using the more reasonable and objective inputs and assumptions described in my first Declaration showed that usage rates in these two areas should be reduced by between 63% and 65%. Meanwhile, Verizon's October 13th tariff does not reduce switching usage rates for the metro areas of Massachusetts, even though my calculations described in my first Declaration show that they should be reduced by over 66%.

8. The situation is similar for Verizon's new analog port, shared trunk port and local common transport rates. Verizon's October 13th tariff reduces analog port rates in metro, urban and suburban areas in Massachusetts by between 49% and 64%. They should, however, be reduced by more than 77%. Meanwhile, Verizon only reduces shared trunk port rates for metro, urban and suburban areas by between 49% and 59% when they should be reduced by nearly 80%. Finally, Verizon reduces local common transport rates by around 41% when they should be reduced by over 62%. Clearly, Verizon's reductions in switching and transport rates do not go nearly far enough and Verizon's new rates remain well above its cost plus a reasonable profit, as required under the Act.

9. Verizon's only apparent response is that the October 13th filing "makes the Massachusetts rates equivalent to the rates for Verizon NY."^{7/} However, as DOJ points out, Verizon supplied no documentation to show that the new rates are based on cost studies relied upon by the New York Public Service Commission ("NYPSC"). See Mass. DOJ Eval. at 20.

^{7/} See Cover Letter to Verizon's October 13, 2000 Tariff Filing.

10. Nonetheless, assuming that the new rates are comparable to the New York rates, the New York rates were rates set by the NYPSC in 1997, based on the information then available to the NYPSC, and much has changed between then and now. First and most significant, after adopting switching rates in 1997, the NYPSC discovered that Verizon had misled the commission about the switching discount. As a result, the NYPSC has convened a new UNE pricing proceeding, which is ongoing. Therefore, by no means are current New York switching rates cost-based even for New York.

11. Second, regardless of whether the switching rates adopted by the NYPSC were within a “range of reasonableness” in 1997, every indication in October 2000 is that the switching rates in New York would need to be reduced by at least 40% to be comparable with those rates a reasonable TELRIC analysis would produce.^{8/}

12. For example, in 1997 the NYPSC estimated an average total installed switch investment of \$192.67 per line.^{9/} As explained by the NYPSC in its pricing order, to calculate the \$192.67 figure it used the data provided by New York Telephone in connection with the 1995 depreciation represcription process. The data showed 33 switch installations by Verizon during 1993 and 1994, ranging in size from 485 lines to 58,755 lines. The total number of lines was approximately 369,284 and the total investment was \$112.2 million, which produced

^{8/} As a point of comparison, the New York blended switching and transport usage rate is nearly double what it is in Pennsylvania. See Joint Declaration of Patricia Proferes, John Nolan, Paul Bobeczko, and Thomas Graham On Behalf of WorldCom, Inc., Att. 1, at 1 (WorldCom Comments, Exh. A).

^{9/} Opinion and Order Setting Rates for First Group of Network Elements, Case 95-C-0657, 94-C-0095, 91-C-1144, at 85 (NYPSC filed April 1, 1997) (VZ-MA App. B, Tab 455, Exh. E). The NYPSC found neither New York Telephone’s \$586 per line estimate or the Hatfield Model’s \$125 per line estimate reliable and, therefore, conducted its own independent analysis. Id. at 84.

an average cost of \$303.89 per line. The NYPSC then adjusted the \$303.89 figure downward by 5.72% to reflect the continuing decline in the prices of switches through 1996. The resulting per-line price was \$286.51. To translate this cost into switch price inputs, the NYPSC then divided it by an adjusted installation factor of 1.373, and subtracted \$16 per trunk port (because this cost was collected as a transport cost), to come up with the \$192.67 per-line cost.^{10/} The NYPSC stated at the time that these figures did not take into account the large switch discounts Verizon received after 1994 in connection with its switch replacement program.^{11/}

13. In contrast to the NYPSC's switch study, the FCC in 1999 undertook a much broader study of switch costs in association with the Universal Service proceeding. The FCC's study reflected many more observations, a greater mix of host and remote switches, a wider representation of line sizes, and a much longer and more recent time period.

14. For example, the FCC's switch sample contained 1,085 observations in total (as compared to only 33 by the NYPSC), including 946 observations selected from depreciation data which provided information on the costs of purchasing and installing switches gathered from 20 states.^{12/} All observations in the depreciation data sample were for switches with 1,000 lines or more. In order not to ignore the costs of small switches, the FCC augmented the depreciation data set by adding data from the Rural Utilities Service ("RUS"). The RUS data sample contained 139 observations from across the nation and provided information on the costs of small switches purchased and installed by rural carriers. Eighty percent of these observations

^{10/} Id. at 85.

^{11/} Id.

^{12/} In re Federal-State Joint Board on Universal Service, CC Docket No. 96-45, Tenth Report and Order, 14 F.C.C.R. 20156, ¶ 299 (1999).

were for switches with 1,000 lines or less.^{13/} The combined sample covered switches installed between 1989 and 1996, and represented switches of both host (55% of sample) and remote (45% of sample) switches.^{14/}

15. Unlike the NYPSC, the FCC estimated both the fixed and per-line costs of switches. The FCC estimated the fixed cost (in 1999 dollars) of a remote switch as \$161,800 and the fixed cost (in 1999 dollars) of host and stand-alone switches as \$486,700. The per-line cost (in 1999 dollars) for remote, host and stand-alone switches was estimated to be \$87.^{15/}

16. In order to compare the FCC's estimates with those of the NYPSC, it is necessary to convert the FCC's fixed and per-line cost structure into the unitary per-line cost structure used by the NYPSC. As I just stated, the FCC found a per line cost of \$87 for both remote and host/stand-alone switches, and fixed costs of \$161,800 and \$486,700 for remote and host/stand-alone switches, respectively. The NYPSC examined 33 switches, with a total of 369,284 lines, or 11,190 lines per switch.

17. To perform the conversion, I first determined the unitary cost per line separately for host/stand-alone and remote switches. If each of the switches examined by the NYPSC had been a remote, this would imply a fixed cost of \$14.46 (i.e., \$161,800 divided by 11,190 lines). If each of the switches had been a host/stand-alone, the fixed cost would have been \$43.49 (i.e., \$486,700 divided by 11,190 lines). The NYPSC does not specify the mix of host/stand-alone and remote switches in the data it examined, but the FCC's model contains a mix that is 55% hosts/stand-alones and 45% remotes. Using these weights, the FCC's fixed cost

^{13/} Id.

^{14/} Id.

^{15/} Id. ¶ 296.

equals a \$30 per line cost. Adding this amount to the \$87 per-line cost determined by the FCC yields a unitary per line cost of \$117.

18. The \$117 per-line cost is nearly 40% lower than the \$192.67 per-line cost calculated by the NYPSC in 1997. Therefore, using the same modeling technique used by the NYPSC in 1997, Verizon's current New York switching rates – which the NYPSC is reexamining – are considerably above cost and cannot be considered a benchmark of true cost-based rates. It is irrational to apply these rates today in Massachusetts when every other comparison similarly suggests that New York rates are above cost.

III. VERIZON'S LOOP RATES IN MASSACHUSETTS ARE OVERSTATED BY OVER 9 PERCENT.

19. While Verizon's October 13, 2000 tariff reduced switching and transport rates in Massachusetts, it completely ignored loop rates. Apparently, both Verizon and the Massachusetts DTE contend that loop rates are fully compliant with the FCC's TELRIC methodology. See VZ-MA Application at 68; DTE Eval. at 328-29. However, an analysis of the limited support that Verizon has included as part of this record in support of its loop rates demonstrates that Massachusetts loop rates are overstated by at least 9%, or over \$1.25 per loop per month.^{16/}

20. I was unable to conduct a comprehensive analysis of Verizon's loop rates similar to the analysis I performed on switching and transport rates because Verizon has failed to provide sufficient support in the record to allow a full analysis of its loop costs. The only support Verizon provided is included in Workpapers Part A in its compliance filing of February

^{16/} Verizon's statewide average loop rate in Massachusetts is currently \$15.66. A 9% reduction would lower this rate to \$14.25.

14, 1997.^{17/} In the copy that was filed, several columns of this workpaper are illegible. When the workpaper is printed out, several of the columns contained entries that are too long to fit in the allowed width of the column. In these cases, the data in the columns is printed as “#####”, rendering the print-out largely useless for analysis. In addition, the print-out refers to a “supplied LINKCOST.XLS spreadsheet,” which contains the actual formulas used to compute the investment in loop plant.^{18/}

21. The LINKCOST.XLS spreadsheet is not part of the record in this proceeding and WorldCom contacted Verizon to obtain this spreadsheet in electronic format. To date, Verizon has refused to provide the spreadsheet. Instead, Verizon provided, on October 25, 2000, a revised printout of the workpapers that display the inputs in all columns. Even with this legible print-out, it is still impossible to trace adequately how Verizon developed the investment levels for feeder and distribution plant. There appear to be additional items of equipment included in the plant that are not included in the spreadsheet as printed. The LINKCOST.XLS spreadsheet presumably contains this vital information.

22. Nevertheless, even with the limited record, it is possible to determine that there are some assumptions made by Verizon that lead to an overstatement of loop costs. The clearest of these is the cost of capital. As is the case for switching and transport costs, Verizon used a 12.16% cost of capital in its cost studies rather than the FCC’s approved cost of capital of 11.25%. Verizon’s 12.16% cost of capital is heavily weighted to equity (76% equity) and does not reflect Verizon or other incumbent LECs’ capital structures. It is also inconsistent with the

^{17/} Phase 2 and Phase 4 Compliance Filing, D.P.U. 96-73/74, 96-75, 96-80/81, 96-83, 96-94 (DTE filed Feb. 14, 1997) (“2/14/97 Compliance Filing”) (VZ-MA App. H, Tab 198).

^{18/} 2/14/97 Compliance Filing, Workpaper Part A, at 1 (VZ-MA App. H, Tab 198).

FCC-approved capital structure of 44.2% debt and 55.8% equity financing.^{19/} Use of this excessive cost of capital results in an overstatement of the monthly cost of loops by about 9%.^{20/}

23. Without the LINKCOST.XLS spreadsheet, it is impossible to perform any further analysis on Verizon's loop rates. It is clear, however, that Verizon has made a number of other assumptions in its loop cost model that are at odds with the assumptions made by the FCC in the Universal Service proceeding. For instance, Verizon uses a utilization factor for fiber feeder of only 60%,^{21/} whereas the FCC used a factor of 100%.^{22/} Similarly, the utilization factor for copper feeder cable used by Verizon ranges from 60 to 75%,^{23/} whereas the FCC uses 80% in all but the two least dense (i.e., rural) zones.^{24/} In addition, the utilization factor for copper distribution cable in the Verizon model is 40% in the metro, urban, and suburban areas,^{25/} whereas the FCC uses factors ranging from 60 to 75%.^{26/} While it is not possible to determine precisely how this affects the investment level without seeing the electronic version of the

^{19/} In re Represcribing the Authorized Rate of Return for Interstate Services of Local Exchange Carriers, CC Docket No. 89-624, Order, 5 F.C.C.R. 7507, ¶ 8 (1990).

^{20/} My workpapers supporting these calculations are attached hereto as Attachment 1.

^{21/} See 2/14/97 Compliance Filing, Workpaper Part A, at 9 (VZ-MA App. B, Tab 198).

^{22/} See 'User Adjustable Inputs' of MA_New England Tel-MA_Default Scenario_WC.xls, downloadable from the FCC's website at <http://www.fcc.gov/ccb/apd/hcpm/>.

^{23/} See 2/14/97 Compliance Filing, Workpaper Part A, at 10 (VZ-MA App. B, Tab 198).

^{24/} See 'User Adjustable Inputs' of MA_New England Tel-MA_Default Scenario_WC.xls, downloadable from the FCC's website at <http://www.fcc.gov/ccb/apd/hcpm/>.

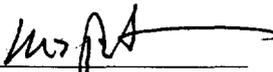
^{25/} See 2/14/97 Compliance Filing, Workpaper Part A, at 11 (VZ-MA App. B, Tab 198).

^{26/} See 'User Adjustable Inputs' of MA_New England Tel-MA_Default Scenario_WC.xls, downloadable from the FCC's website at <http://www.fcc.gov/ccb/apd/hcpm/>.

LINKCOST.XLS spreadsheet, it is clear that these low utilization factors result in investment that is overstated, which results in further inflation of the monthly cost of providing local loops.

24. This concludes my Declaration on behalf of WorldCom.

I declare under penalty of perjury that the foregoing is true and correct. Executed on October 30, 2000.



Mark T. Bryant

Reply Declaration of Mark T. Bryant

ATTACHMENT 1

2 Wire Analog Voice Grade

	Aerial Copper Cable	Underground Copper Cable	Buried Copper Cable	Distribution Facility		Poles	Conduit	NID	Building	Total		
				Block Copper Cable	Intrabuilding Copper Cable							
Metro		12.11		8.48			75.83	7.74	18.29	332.79		
Urban	91.63	51.7		15.25		16.64	139.84	27.35	26.79	603.99		
Suburban	194.38	31.16		9.16		58.94	84.64	35.17	26.53	672.96		
Rural	220.5	10.65		3.42		80.2	29.79	40.05	14.36	849.55		
Statewide Average	144.77	35.71	0.00	10.91	0.00	40.76	100.15	30.59	25.27	632.82		
TELRIC Annual Average Carrying Charge Factors (ACCFs)	0.2368	0.1878	0.1773	0.2368	0.0000	0.1478	0.1465	0.2368	0.1853			
Joint Average ACCFs	0.0630	0.0630	0.0630	0.0630	0.0000	0.0630	0.0630	0.0630	0.0630			
Common Cost ACCF												0.0085
TELRIC Monthly Costs												
				Distribution Facility								
Metro	0.00	0.19	0.00	0.17	0.00	0.00	0.93	0.15	0.28	4.77		
Urban	1.81	0.81	0.00	0.30	0.00	0.20	1.71	0.54	0.41	9.20		
Suburban	3.84	0.49	0.00	0.18	0.00	0.73	1.03	0.69	0.41	10.77		
Rural	4.35	0.17	0.00	0.07	0.00	0.99	0.36	0.79	0.22	13.33		
Statewide Average	2.86	0.56	0.00	0.22	0.00	0.50	1.22	0.60	0.39	9.90		
TELRIC Monthly Costs												
				Distribution Facility								
Metro	0.00	0.06	0.00	0.04	0.00	0.00	0.40	0.04	0.10	1.75		
Urban	0.48	0.27	0.00	0.08	0.00	0.09	0.73	0.14	0.14	3.17		
Suburban	1.02	0.16	0.00	0.05	0.00	0.31	0.44	0.18	0.14	3.53		
Rural	1.16	0.06	0.00	0.02	0.00	0.42	0.16	0.21	0.08	4.46		
Statewide Average	0.76	0.19	0.00	0.06	0.00	0.21	0.53	0.16	0.13	3.32		
TELRIC Monthly Costs												
				Distribution Facility							Common Costs	Total Costs
Metro	0.00	0.25	0.00	0.21	0.00	0.00	1.32	0.19	0.38	6.52	0.24	6.75
Urban	2.29	1.08	0.00	0.38	0.00	0.29	2.44	0.68	0.55	12.37	0.43	12.80
Suburban	4.86	0.65	0.00	0.23	0.00	1.04	1.48	0.88	0.55	14.30	0.48	14.78
Rural	5.51	0.22	0.00	0.09	0.00	1.41	0.52	1.00	0.30	17.79	0.60	18.39
Statewide Average	3.62	0.75	0.00	0.27	0.00	0.72	1.75	0.76	0.52	13.23	0.45	13.67

Summation to TELRIC Annual Carrying Charge Factors for UNEs

Line	Account	Maintenance	Directly Attributable	Ad Valorem	Personal Prop. Tax	Capcost	Revenue Loading	Incremental ACCF	Corrected Capcost	Corrected Incremental ACCF
1	Building	0.0359	0.0630	0.0018	0.0000	0.1857	1.0007	0.22360	0.1474	0.18528
2	ESSANLG	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.0000	0.00000
3	ESSDIGL	0.0277	0.0630	0.0018	0.0000	0.1686	1.0007	0.19828	0.1509	0.18060
4	RADSYS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.0000	0.00000
5	CKTANLG	0.0984	0.0630	0.0018	0.0000	0.2325	1.0007	0.33298	0.2325	0.33298
6	CKTDIGL	0.0090	0.0630	0.0018	0.0000	0.1931	1.0007	0.20409	0.1652	0.17613
7	C.O. COMP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.0000	0.00000
8	ORIGTERM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000	0.0000	0.00000
9	POLES	0.0088	0.0630	0.0018	0.0000	0.1449	1.0007	0.15565	0.1371	0.14780
10	AERCBLM	0.0851	0.0630	0.0018	0.0000	0.1707	1.0007	0.25782	0.1496	0.23676
11	AERCBLF	0.0038	0.0630	0.0018	0.0000	0.1671	1.0007	0.17286	0.1434	0.14917
12	UDGCBLM	0.0266	0.0630	0.0018	0.0144	0.1648	1.0007	0.20779	0.1449	0.18784
13	UDGCBLF	0.0056	0.0630	0.0018	0.0144	0.1648	1.0007	0.18677	0.1449	0.16683
14	BURCBLM	0.0304	0.0630	0.0018	0.0000	0.1721	1.0007	0.20449	0.1449	0.17730
15	BURCBLF	0.0034	0.0630	0.0018	0.0000	0.1694	1.0007	0.17477	0.1420	0.14733
16	SUBCBLM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000		0.00000
17	SUBCBLF	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000		0.00000
18	INBUILDM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000		0.00000
19	INBUILDF	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000		0.00000
20	AERWIR	0.0342	0.0630	0.0018	0.0000	0.2501	1.0007	0.28634		0.03607
21	CONDSYS	0.0075	0.0630	0.0018	0.0067	0.1603	1.0007	0.17647	0.1304	0.14651
22	OSP COMP	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00000		0.00000
	Common Cost							0.0085		

FACTOR	0.0593	0.0538	0.0240	0.1371
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ACCOUNT 2411
POLES
MASSACHUSETTS

TABLE OF INPUT VARIABLES

Original Cost	\$1,000.00	Cost of Equity	14.15%
Service Life (Years)	38.00	Cost of Invested Capital	11.25%
Future Net Salvage	-125.00%	MACRS Recovery Period (Years)	15.00
Debt Ratio	45.00%	Federal Income Tax Rate	35.00%
Cost of Debt	7.05%	State Income Tax Rate	6.50%
		Composite Income Tax Rate	39.23%

Year	Book Depr.		Deferred Inc. Tax		Investor-supplied Capital			Return		Current Inc. Tax	Total Ann. Chg.	Depreciation	Cost of Money	Income Tax	PV Ann. Chg.	
	Amount	Reserve	Amount	Reserve	Begin	End	Avg.	Debt	Equity							
1	29.61	29.61	8.00	8.00		962.39	481.20	16.67	37.45	23.17	(107.90)	28.07	51.31	22.92	102.30	
2	59.21	88.82	14.04	22.04	962.39	889.15	925.77	32.08	72.05	46.20	209.84	50.46	88.74	39.63	178.83	
3	59.21	148.03	10.31	32.35	889.15	819.62	854.38	29.60	66.49	42.92	198.22	45.36	75.62	32.88	151.85	
4	59.21	207.24	6.96	39.31	819.62	753.45	786.54	27.25	61.21	39.51	187.18	40.77	60.92	27.21	128.90	
5	59.21	266.45	3.94	43.25	753.45	690.30	721.88	25.01	56.18	36.26	176.66	36.65	50.26	22.44	109.36	
6	59.21	325.66	1.72	44.47	690.30	629.87	660.09	22.87	51.37	33.18	166.61	32.94	41.31	18.45	92.71	
7	59.21	384.87	(0.06)	44.41	629.87	570.72	600.30	20.80	46.72	30.15	156.88	29.62	33.77	15.08	78.47	
8	59.21	444.08	(0.06)	44.35	570.72	511.58	541.15	18.75	42.11	27.18	147.26	26.62	27.37	12.22	66.21	
9	59.21	503.29	(0.06)	44.28	511.58	452.43	482.00	16.70	37.51	24.21	137.63	23.93	21.91	9.78	55.62	
10	59.21	562.50	(0.06)	44.22	452.43	393.28	422.86	14.65	32.91	21.24	128.01	21.41	17.28	7.72	46.50	
11	59.21	621.71	(0.06)	44.16	393.28	334.13	363.71	12.60	28.31	18.27	118.39	19.34	13.36	5.97	38.66	
12	59.21	680.92	(0.06)	44.09	334.13	274.99	304.56	10.55	23.70	15.20	108.76	17.28	10.06	4.49	31.93	
13	59.21	740.13	(0.06)	44.03	274.99	215.84	245.41	8.50	19.10	12.23	99.14	15.62	7.28	3.25	26.16	
14	59.21	799.34	(0.06)	43.97	215.84	156.69	186.27	6.45	15.50	9.36	89.52	14.04	4.97	2.22	21.23	
15	59.21	858.55	(0.06)	43.90	156.69	97.55	127.12	4.40	9.89	6.39	79.89	12.62	3.05	1.46	17.03	
16	59.21	917.76	(1.64)	43.76	97.55	49.98	79.76	2.56	5.74	3.71	71.21	11.35	1.59	0.71	13.65	
17	59.21	976.97	(23.23)	9.03	49.98	13.99	31.99	1.11	2.49	1.61	64.41	10.20	0.62	0.38	11.10	
18	59.21	1,036.18	(23.23)	(14.19)	13.99	(21.99)	(4.00)	(0.14)	(0.31)	(0.20)	58.58	9.17	(0.07)	(0.03)	9.07	
19	59.21	1,095.39	(23.23)	(37.42)	(21.99)	(37.98)	(39.98)	(1.39)	(3.11)	(2.01)	52.71	8.24	(0.03)	(0.28)	7.34	
20	59.21	1,154.60	(23.23)	(60.64)	(37.98)	(39.96)	(75.97)	(2.63)	(5.91)	(3.82)	46.85	7.41	(1.07)	(0.48)	5.86	
21	59.21	1,213.82	(23.23)	(83.87)	(39.96)	(129.95)	(111.95)	(3.88)	(8.71)	(5.62)	41.00	6.66	(1.42)	(0.63)	4.61	
22	59.21	1,273.03	(23.23)	(107.09)	(129.95)	(185.93)	(147.94)	(5.13)	(11.51)	(7.43)	35.14	5.99	(1.68)	(0.75)	3.55	
23	59.21	1,332.24	(23.23)	(130.32)	(185.93)	(201.92)	(183.92)	(6.37)	(14.31)	(9.24)	29.29	5.38	(1.88)	(0.84)	2.66	
24	59.21	1,391.45	(23.23)	(153.55)	(201.92)	(237.90)	(219.91)	(7.62)	(17.11)	(11.05)	23.43	4.84	(2.02)	(0.90)	1.91	
25	59.21	1,450.66	(23.23)	(176.77)	(237.90)	(273.89)	(255.89)	(8.87)	(19.92)	(12.85)	17.58	4.35	(2.11)	(0.94)	1.29	
26	59.21	1,509.87	(23.23)	(200.00)	(273.89)	(309.87)	(291.88)	(10.11)	(22.72)	(14.66)	11.72	3.91	(2.17)	(0.97)	0.77	
27	59.21	1,569.08	(23.23)	(223.23)	(309.87)	(345.86)	(327.87)	(11.36)	(25.52)	(16.47)	5.87	3.51	(2.19)	(0.98)	0.35	
28	59.21	1,628.29	(23.23)	(246.45)	(345.86)	(381.84)	(363.85)	(12.61)	(28.32)	(18.28)	0.01	3.16	(2.18)	(0.97)	0.00	
29	59.21	1,687.50	(23.23)	(269.67)	(381.84)	(417.83)	(399.84)	(13.85)	(31.12)	(20.08)	(5.54)	2.84	(2.16)	(0.96)	(0.28)	
30	59.21	1,746.71	(23.23)	(292.90)	(417.83)	(453.81)	(435.82)	(15.10)	(33.92)	(21.89)	(11.70)	2.52	(2.11)	(0.94)	(0.50)	
31	59.21	1,805.92	(23.23)	(316.12)	(453.81)	(489.80)	(471.81)	(16.35)	(36.72)	(23.70)	(17.55)	2.29	(2.06)	(0.92)	(0.68)	
32	59.21	1,865.13	(23.23)	(339.35)	(489.80)	(525.78)	(507.79)	(17.59)	(39.52)	(25.51)	(23.41)	2.06	(1.99)	(0.89)	(0.92)	
33	59.21	1,924.34	(23.23)	(362.57)	(525.78)	(561.77)	(543.78)	(18.84)	(42.32)	(27.31)	(29.26)	1.85	(1.91)	(0.85)	(0.92)	
34	59.21	1,983.55	(23.23)	(385.80)	(561.77)	(597.75)	(579.76)	(20.09)	(45.12)	(29.12)	(35.12)	1.67	(1.83)	(0.82)	(0.95)	
35	59.21	2,042.76	(23.23)	(409.02)	(597.75)	(633.74)	(615.75)	(21.34)	(47.92)	(30.93)	(40.97)	1.50	(1.75)	(0.78)	(1.04)	
36	59.21	2,101.97	(23.23)	(432.25)	(633.74)	(669.72)	(651.73)	(22.58)	(50.72)	(32.74)	(46.83)	1.35	(1.67)	(0.74)	(1.06)	
37	59.21	2,161.18	(23.23)	(455.47)	(669.72)	(705.71)	(687.72)	(23.83)	(53.53)	(34.54)	(52.68)	1.21	(1.58)	(0.71)	(1.08)	
38	59.21	2,220.39	(23.23)	(478.70)	(705.71)	(741.69)	(723.70)	(25.08)	(56.33)	(36.35)	(58.54)	1.09	(1.50)	(0.67)	(1.08)	
39	29.61	2,250.00	478.70	(0.00)	(741.69)	(1,250.00)	(995.85)	(34.51)	(77.30)	(50.02)	(132.42)	0.49	(1.85)	(0.83)	(2.19)	
											2,115.33					
											Total PV	518.00	469.59	209.71	1197.30	
											Annuity	59.29	53.75	24.01	137.05	
											Factor	0.0593	0.0538	0.0240	0.1371	

