COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

VERIZON MASSACHUSETTS

D.T.E. 01-20

SUPPLEMENTAL TESTIMONY OF THOMAS J. MAZZIOTTI

PUBLIC VERSION

October 2, 2002

Q. Please state your name, current position and business address.

A. My name is Thomas J. Mazziotti. I am currently a Senior Staff Consultant in the Service Costs department of Verizon, with responsibility for economic analysis involving Central Office based services. My business address is 1095 Avenue of the Americas, Room 1420E, New York, New York 10036.

Q. Please summarize your education and work experience.

A. I received a Bachelor of Science degree in Electrical Engineering Technology from New York Institute of Technology in 1981 and a Master of Science degree in Telecommunications and Computing Management from Polytechnic University in 1991. In 1999 I completed a program at the Stanford University Graduate School of Business in Managing Technology and Strategic Innovation. In June of 1981 I joined New York Telephone as a Central Office Engineer with responsibility for the engineering and project management of replacement and augmentation jobs for telephone switches, voice and data transmission systems and Central Office power systems (both AC and DC). I have held various positions, focusing on Central Office based services, in the Service Costs Department since 1990.

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to respond to the request for additional evidence set forth in the Department of Telecommunications and Energy's ("Department") September 24, 2002 Order granting certain motions for reconsideration. Specifically, my testimony addresses the Department's request for: (1) more recent information regarding right to use ("RTU") fees and the appropriate method for calculating RTU fees given the

Department's determination that 90 percent of the switch investment in Verizon MA's cost study should be "assumed" to be purchased at the "new" switch discount level; (2) supplemental information supporting the "new to existing switch ratios" set forth in Verizon MA's life-cycle analysis presented in RR-DTE-66; and (3) supplemental information regarding switch discounts from Nortel and the relevance, or lack of relevance, of the switch "discount" level identified in RR-DTE-56**.**

Right To Use Fees

Q. What is a switch Right To Use fee?

A. RTU fees are the monies paid to a switch vendor for the license to use the software required to operate and maintain a modern digital switch. These fees are incurred in two ways. When a switch is first installed, the company purchasing the switch is charged an "initial" RTU fee, which covers all of the software required to make the switch operational, including activation of the features and functions required at the time the switch is installed. After a switch has been placed into service, the companies using switches incur additional "ongoing" RTU fees based upon the periodic need (typically annually or semi-annually) to purchase software updates. These software updates generally provide enhanced functionality, including new services and increased operating, administrative, or maintenance efficiency. Such ongoing software updates reflect the fact that in addition to initial RTU costs, such costs must be incurred regularly in order to maintain the network.

Q. How do these two types of RTU fees relate to the studies and Department decision in this proceeding?

A. The switching cost study presented by Verizon MA was based on the assumption that TELRIC did not require the instantaneous replacement of the entire network. Thus, rather than estimate RTU fees based upon an assumption that the entire network would be instantaneously replaced, Verizon MA's cost study assumed that the majority of switch equipment would be purchased as "add-on" equipment consistent with Verizon's recent actual experience. Verizon MA's assumption that the majority of its equipment purchases would be based upon "add-ons" is based in part upon the fact that the Verizon MA network is 100 percent digital. As a result, the RTU fees included in Verizon MA switching cost study consisted almost exclusively of "ongoing" upgrade RTUs. An extremely small portion of RTU fees in the cost study were for initial fees associated with a new switch deployment.

Q. How does the Department's decision to base switch investment prices based upon the assumption that 90 percent of switch investment is purchase at the "new" discount level rather than the "add-on" level affect the RTU's costs in Verizon MA's study?

A. Because the Department has adopted the assumption that 90 percent of switch investment should be based on the "new" switch discount level and 10 percent should based on the add-on discount level, it is necessary to modify the RTU fees so that they also reflect a switch mix of 90 percent new and 10 percent replacement. Thus, the cost study must be modified to add initial RTU fees for 90 percent of the switch investment in addition to the

ongoing RTU fees that are a part of the ongoing costs of operating and maintaining a network.

Q. Based upon recent information, can you quantify the cost of an initial RTU?

A. Recent switch bid data affirms Verizon MA's prior assertion that the cost of initial RTU fees is at least approximately $1.88 million per switch. Proposed prices for initial RTUs fees in recent bids are below:

[Verizon MA Proprietary Begins]

1. **********
2. **********
3. **********
4. **********

[Verizon MA proprietary Ends]

It is worth noting that these software quotes do not include any cost for software that was previously paid for as part of a software buyout or pooling arrangement. Indeed, it is common for Verizon to pre-pay for software costs. Thus, the RTU fees on a particular switch may be less than they otherwise would be because Verizon has pre-paid for the software.

Q. Did you find updated RTU fees in any recent Lucent bid documents?

A. No. Recent Lucent bids indicate that the Base software for Generic 5E14 was paid for in a buyout and the rest of the feature specific software would be identified and priced when a switch is actually ordered.

Q. Were you able to obtain any Lucent RTU prices?

A. Yes. Through a joint effort of Lucent and Verizon's Engineering and Sourcing departments, a list of the software packages installed with the new 5E switch recently installed at Franklin Street in Boston was compiled. For each software package on the list, Lucent provided the list price that would be paid if no buyouts were in place as well as the discounted price that would be paid under the current switch contract and under competitive bidding situations. The total cost of an initial RTU without buyouts was **[Verizon MA Proprietary Begins]** $******** **[Verizon MA Proprietary Ends]**. If one assumes that 90 percent of the 71 Lucent 5ESSs and 62 Nortel DMS-100s found in the Verizon MA cost study are based on "new" switch prices and we apply **[Verizon MA Proprietary Begins]** ********** ********** **[Verizon MA Proprietary Ends]**. It is worth noting that the same adjustment would apply if the Department were to adopt a new switch ratio other than 90 percent (with of course the new ratio substituted in the above listed calculation for the current 90 percent).

The magnitude of the initial software right-to-use is significant. Based on the MA Department's recent UNE Order, Verizon's total switching investment using the DTE ordered inputs for switch discounts, (new vs. growth mix, etc.) is only **[Verizon MA Proprietary Begins]** $*******. **[Verizon MA Proprietary Ends]** Absent any other changes, the incorporation of the initial software RTU fees under the "dropped in place" network construct would dramatically increase the switching UNE rates. And even this number is conservative since the Nortel software costs are based upon reduced prices due

to software buyouts that would not be in place if a "brand new" network were constructed.

Q. Are you aware of any outside benchmarks that substantiate Verizon MA initial RTU fee cost estimates?

A. Yes. It is my understanding that it in FCC Docket CC Docket No. 00-218, AT&T provided a copy of their switch contract with Lucent in response to interrogatory VZ-VA 1-1. Although, I have not seen the contract, which I understand to contain proprietary data, it is my further understanding that Verizon argued in the Virginia proceeding that the AT&T contract substantiated Verizon's RTU fee costs. As part of its discovery on reconsideration, Verizon MA will ask that AT&T make that contract available to Verizon MA and the Department.

Given the recent prices paid by Verizon for initial RTU software (over and above the software maintenance and upgrade fees identified in the company's original filing), the Verizon MA estimate of $1.88 million per switch set forth in its petition for reconsideration represents a reasonable, if not extremely conservative estimate of the additional software fees the company would incur if it were to purchase its switching equipment based upon the assumption that 90 percent of the equipment should be purchased at the "new" equipment discount level.

Ratio of New Switches to Existing Switches

Q. The Department has requested the parties to analyze the differences in, and appropriateness of, the ratios of new to growth investment presented in the responses to RR-DTE-56 and RR-DTE-66. Can you address the source of those differences?

A. The difference in the two approaches is based primarily upon a difference of opinion regarding the parties' interpretation of the appropriate switch discounts to assume within a "dropped-in-place" network technology assumption that the Department has determined id required by the Total Element Long Run Incremental Cost ("TELRIC") methodology. There is no disagreement between the parties that the switching models used in the TELRIC study should reflect a uniform deployment of efficient technology following forward looking engineering practices. The SCIS models submitted by Verizon MA in this case are completely consistent with that principle. The disagreement arises because AT&T has argued that the "dropped in place" network assumption also requires the unrealistic assumption that virtually all switching equipment investment in the network be valued as if it were purchased at "new" switch discount levels that are generally available only for the limited, incremental, replacement of switches. In effect, AT&T is arguing that not only should constraints on the mix of technology assumptions be relaxed, a standard technique in Long Run Incremental Analysis, but also that a hypothetical purchasing regime should be assumed in which all switching equipment required to serve the entire quantity of existing lines is procured in one massive transaction with a supplier. Such a premise is inappropriate in any economic study because it defeats the study's purpose of attempting to establish meaningful cost estimates. In contrast, Verizon MA's

has proposed two rational approaches to selecting the appropriate discounts within the framework of a "dropped in place" network assumption. In its initial filed study and the supporting testimony and briefs, Verizon MA proposed a weighting of switch discounts that reflects the actual discount levels that Verizon MA expects to incur for future switch equipment purchases for the period covered by the study. Verizon MA believes that this discount weighting best estimates its actual forward looking cost. During the proceeding, concerns were raised by the Department that this proposed weighting was based substantially upon "add-on" purchases and the mix did not reflect the mix of new versus add-on purchases that Verizon MA might experience over the total life cycle of a switching technology. In response to this concern, Verizon MA submitted an alternative approach which weights the switch discounts using the actual mix percentage of new and growth line additions that were purchased in a five year period during which approximately 11 million lines of capacity were added to the Verizon network. See RR-DTE-66. Verizon MA believes that this large sample of purchases provides an accurate representation of the mix of growth and new line additions that could reasonably be expected during the normal life cycle of a switching technology. A completely rigorous "life cycle analysis" of switch material prices also should reflect the varying discount levels experienced over the product's full life cycle. Historically, discounts have been much lower in the early years of the life cycle. The Verizon MA costs are extremely conservative since both the new and growth discounts are derived from contracts or purchasing experience late in the product life cycle of the digital circuit switches.

Q. Why is the Verizon MA "life-cycle" approach set forth in RR-DTE-66 superior to the AT&T methodology in RR-DTE-56?

A. The "life-cycle" approach used by Verizon MA in RR-DTE-66 is far superior to the AT&T methodology because by realistically capturing the impact of vendor-pricing schemes (*i.e.*, discounts) for new versus add-on equipment over the life cycle of the product, it more accurately reflects long-run costs. Verizon MA's lifecycle analysis set forth in RR-DTE-66, unlike AT&T's unrealistic, hypothetical, analysis in RR-DTE-56, properly captures the mix of new and growth switch capacity purchases (50 percent "new", 50 percent "growth") that a real carrier could expect to experience over the actual life of a switching technology. In fact, it uses this mix to weight new and growth discounts based on actual contracts established at the end of the life cycle of the current digital switching technology. In this regard, the analysis is very conservative because the average discounts experienced over the life of a switching technology will always be much less than those at the end of the life cycle.

Q. Why does the AT&T analysis in RR-DTE-56 not properly capture long run costs for switching equipment?

A. The AT&T analysis is not an estimate of long-run costs of switching materials because it is based upon a "snap shot" discount assumption that would never exist over the life cycle of purchases experienced by actual providers of telecommunications services. It implicitly assumes a hypothetical purchasing regime in which the total quantity of switching equipment needed to satisfy the total current demand of the network is procured in a single massive transaction with the supplier. It then assumes that only add-on purchases are made in the entire network for the next 15 years. Since the AT&T

analysis discounts these investments to the present value, they essentially have no meaningful financial impact on the final investment costs. Clearly, this analysis does not represent even remotely the actual life-cycle purchasing behavior of any real carrier, past or future. Even if one accepted for argument this irrational purchasing model, the discount levels assumed in the analysis are inconsistent with this hypothetical construct. No supplier can offer discounts experienced at the tail end of the product life cycle for the vast majority of purchases that it achieves over the whole life cycle. But this is exactly what the AT&T analysis proposes. It implicitly assumes that a supplier would sell 90 percent of the volume of equipment that it provides over the entire product life cycle at the new switch discount established at the end of the life cycle of the existing digital switches. This is a logic inconsistency even within the unrealistic hypothetical-purchasing model.

Q. Why is it inappropriate to assume that a "dropped in place" network should include switching equipment discount levels that are the same as certain "new" switch discounts that may have been available to Verizon MA for a limited number of switches sold toward the end of the product's life cycle?

A. Even if the Department continues to assume that TELRIC requires the assumption of 90 percent new switch purchases — which it should not — it is inappropriate for the Department to conclude that a this necessitates the use of the "new" switch discount levels that vendors have made available for the sale of certain "new" switches. The "new" switch discount that Verizon has been able to recently negotiate has been for a limited number of new switches at the end of the life cycle. It is unrealistic to assume that when asked to supply the total volume of switching equipment in a company's entire

network — that the switch vendors would make the switching equipment available at the "new" discount levels made available when only a limited number of switches are being manufactured and sold. Because switch vendors rely substantially upon the sale of "add-on" equipment at discount level lower than "new" switch discounts, 90 percent new assumption would turn vendor-pricing strategies upside down. As a matter of simple economics and common sense, vendors could not supply the entire switch market at "new" switch prices that currently represent a portion of their equipment sales.

It is unreasonable to assume that the FCC ever intended TELRIC to disregard common sense and to require "cost estimates" that have no realistic or reasonable basis. The assumption that 90 percent of all switching equipment could be sold by Lucent and Nortel at the "new" switch discount that they made available for a limited number of purchases is an unrealistic result that does not estimate meaningful forward looking costs as contemplated by TELRIC.

Q. Assuming that the Department continues to rely on certain assumptions in AT&T response to RR-DTE-56, what revisions would be appropriate?

A. Although the discount methodology proposed by Verizon MA during the proceedings and the life-cycle analysis prepared by Verizon MA in response to RR-DTE-66 is superior to the methodology in RR-DTE-56, should the Department endorse the AT&T method, it is necessary that the Department modify the 1.5 percent growth rate used to calculate the ratio of "new" to "growth" equipment. The 1.5 percent growth rate is based on the three year growth cycle assumed in the Verizon MA cost studies**,** and while it may be appropriate to use this rate for doing short-term capacity calculations for switch growth job forecasting, the 1.5 percent is not representative of the growth rate of the

switch over a long period of time. In fact, the ARMIS data provided by Verizon MA shows that in the period of 1995 through 2000, the percentage of lines across the Verizon East footprint grew at an annual rate of 2.4 percent.

Q. The Department requested that the parties vary the time spans used in their respective analyses. Were you able to complete this sensitivity analysis?

A. Verizon MA has expanded the timeframe of the analysis done in RR-DTE-66 to include years from 1996 -2000 to 1990 - 2001. This has resulted in a ratio of 64.07 percent new purchases and 34.93 percent growth purchases. Due to the limited amount of time between the issuance of the Department's September 24, 2002 Order granting reconsideration and the date this testimony is due, Verizon MA has completed the sensitivity analysis with estimated line counts, based on the type of switches known to be installed.

Switch Discount Levels

Q. Please comment on AT&T's claim that a recent Nortel "discount" should be used to determine the costs for Verizon MA's entire switching investment.

A. AT&T's plea that the Department should assume that all of Verizon MA's switch material investment should be "costed out" based upon the assumption that Verizon MA could purchase its entire switching network at the substantial discount level that Nortel has made available for certain switching equipment is unreasonable. In its filing Verizon MA presented a TELRIC construct that reflected a discount structure that was based upon the evolution of the network. The discount structure was based upon actual discount levels provided by vendors, including the end of the product life "fire sale" type discounts in the proportions that they occurred. AT&T is now selectively advocating that

discount levels from "fire sale discounted" switches should be extended to all of the switches in the network even though those discounts have never been, and would never be, available on such a wide-scale basis. Although switch vendors may be able to provide a small number of switches each year at extremely high discounts using excess factory capacity, a large-scale order of several hundred switches in a short period of time would require the vendors to incur much greater costs in terms of additional factory labor and capital outlay as more production lines would need to be turned up to meet demand. AT&T's use of a single high switch discount as a basis for assuming that all switch equipment could be made available at that discount level is like a customer walking into a car dealer in early September, negotiating a price that is $10,000 off sticker for one of the three 2002 leftover models on the lot then telling the dealer that he wants to order, at the same price, 300 of the same model for his business fleet to be delivered in March 2003. By next March, all of the 2002 will have long been gone, and while the customer may get a good deal for making a 300-car fleet purchase, he is highly unlike to get a 2002 clearance price on a 2003 car in the middle of their prime selling season. That however is exactly what AT&T is trying to do.

It is also worth noting here that the switch vendor pricing policies have not served them well. The serious financial difficulties of Lucent and Nortel are well known.

Q. Please comment on the Department's request for additional information on the Nortel bid switch discounts, including the Department request to update the response to RR-DTE-49S.

A. Although Verizon MA is adding very few "new" switches because virtually all of the switches in Verizon MA's network are digital, in response to the Department's request

Verizon MA has compiled recent discounts proposed by Nortel for new switch proposals. Set forth below are recent Nortel proposals for "new" switch equipment discounts.

[Verizon MA Proprietary Begins]

**********	**********
**********	**********
**********	**********
**********	**********
**********	**********
**********	**********

[Verizon MA Proprietary Ends]

Q. Should the switch discount proposals referred to above made by Nortel during 2001 affect the Department's determination of the appropriate Nortel discount to be applied?

A. No. For there reasons referred to above, the recent bid proposals made by Nortel for the limited number of new switches that Verizon has been purchasing do not reasonably reflect the discount level that Verizon MA could be expected to receive in a forward-looking environment, particularly where a wide-scale replacement of switches would be assumed. These switches are being sold towards the end of their life cycle and in an unfavorable economic climate. Moreover, as discussed above, AT&T has misused the discount information because it has failed to take into account the fact that there are numerous additional costs associated with switch purchasing.

Q. Does this conclude your testimony?

A. Yes, it does.