UNITIL ENERGY SYSTEMS, INC.

DIRECT TESTIMONY OF

PAUL M. NORMAND

DEPRECIATION

New Hampshire Public Utilities Commission
Docket No. DE 10-055

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I. INTRODUCTION

Q. Please state your name, address and business affiliation.

A. My name is Paul M. Normand. I am a Principal with Management Applications Consulting, Inc. ("MAC"), 1103 Rocky Drive, Suite 201, Reading, Pennsylvania 19609.

Q. Please describe MAC.

A. MAC is a management consulting firm which provides rate and regulatory assistance including depreciation services for electric, gas and water utilities.

Q. Please summarize your education and business experience.

A. This information is contained in the attached Schedule PMN-1.

Q. What are your responsibilities in this proceeding?

A. I am the Project Manager of the depreciation rate study of Unitil Energy Systems, Inc. ("Unitil Energy" or "the Company"). I am responsible for planning the study, delineating and coordinating data collection, ensuring the accuracy of the data and properly reflecting any accounting adjustments. Beyond data collection, I am also responsible for the performance and interpretation of statistical analyses and the preparation of appropriate schedules to reflect the results of the study.

Q. Please briefly describe your schedules in this direct testimony.

A. Schedule PMN-1 presents my Qualifications and Schedule PMN-2 presents the Company's detailed depreciation study and proposed accrual rates based on plant in service on December 31, 2009.

II. PURPOSE OF TESTIMONY

Q. Please discuss the purpose of your testimony.

A. The purpose of my testimony is to describe the results of a new depreciation rate study that my consulting firm conducted for Unitil Energy.

Q. When was the last Unitil Energy depreciation study prepared?

A. The Company's last depreciation study was prepared on October 21, 2005 using an ending plant balance on June 30, 2005. The study results and recommendations were presented in DE 05-178, Unitil Energy's last base rate case.

Q. Please explain the overall depreciation model utilized in your depreciation study.

A. The depreciation study used the overall straight line method, broad group procedure, and whole life technique in arriving at the recommended accrual rates for the Company based on plant balances ending December 31, 2009.

Q. Are the contents of the depreciation study true and correct to the best of your knowledge?

A. Yes. The depreciation rates I am proposing are the result of detailed analyses of Unitil Energy investment in electric plant facilities and are reasonable and equitable in the recovery of its depreciable assets.

III. DEPRECIATION STUDY

Q. What is the definition of depreciation?

A. The National Association of Regulatory Utility Commissioners ("NARUC") has adopted the following definition of depreciation:

> *"Depreciation," as applied to depreciable utility plant, means the loss in service value not restored by current maintenance incurred in connection with the consumption or prospective retirement of utility plant in the course of service from causes which are known to be in current operation and against which the utility is not protected by insurance. Among the causes to be given consideration are wear and tear, decay, action of the elements, inadequacy, obsolescence, changes in the art, changes in demand and requirements of public authorities.*

Another commonly referenced definition of depreciation is that of the American Institute of Certified Public Accounts ("AICPA"):

> *Depreciation accounting is a system of accounting which aims to distribute the cost or other basic value of tangible capital assets, less salvage (if any) over the estimated useful life of the unit (which may be a group of assets) in a systematic and rational manner. It is a process of allocation, not of valuation. Depreciation for the year is the portion of the total charge under such a system that is allocated to the year. Although the allocation may properly take into account occurrences during the year, it is not intended to be a measurement of the effect of all such occurrences.*

The two foregoing citations are found on Pages 13 and 14, respectively, of "Public Utility Depreciation Practices," August 1996, by the NARUC Staff Subcommittee on Depreciation.

In our opinion, the AICPA definition helps clarify the NARUC definition in that brings to the description the process of allocation of cost.

Q. What is the purpose of the periodic book depreciation rate studies?

A. Consistent with the definitions above, the purpose of a depreciation study is to develop depreciation accrual rates reflective of engineering judgment, current industry and specific company experience, and current projections for the future, relative to the particular depreciable assets under study. The objective of depreciation as an element of the cost of service is to provide for the appropriate and equitable recovery of the investments in depreciable assets over a life term that assures the full recovery of the investments less estimated net salvage.

Q. Have you prepared a depreciation study for Unitil Energy?

A. Yes. The results of this study are shown in a report entitled, "Depreciation Rate Study – Depreciation Accrual Rates Based on Electric Plant in Service at December 31, 2009" ("the Depreciation Study") identified as Schedule PMN-2.

Q. What procedures did you employ in compiling the depreciation study?

A. First, we created the depreciation study databases. Unitil Energy provided us with the necessary property accounting history to update our existing database from June 30, 2005

to year-end December 31, 2009. We were also provided with Unitil Energy's recent plant account level gross salvage and removal cost history.

Q. Please continue.

A. We analyzed the historical data using computerized statistical routines and evaluated the output by considering the indications from the statistical analyses, input from the Unitil Energy's management, the character of the depreciable assets, knowledge gained during property inspections, our experience with like assets, and engineering knowledge and judgment. Final calculations were then made to develop the recommended accrual rates for each category of plant as shown in the Depreciation Study (Schedule PMN-2) sections entitled "Schedules."

Q. You previously referred to "statistical analyses." Please explain what is meant by this term?

A. We are referring to Simulated Plant Record (SPR) life analysis, a well known and well accepted technique employed in depreciation studies. Its purpose is as a tool to help provide an estimation of investment life. An SPR life analysis can be performed whenever there is an adequate volume and frequency of additions and retirements.

SPR life analyses are known by some as "semi-actuarial life analyses." The SPR-Balances analysis used in these studies is an iterative procedure in which certain values (survivor factors) from empirical survivor curves (Iowa curves) are applied to the company actual, recorded annual additions to generate theoretical surviving year-end balances. The procedure identifies the empirical curves that best simulate the actual

ending balances in a specified band of years. As an example, the bands of balance years simulated in these studies were primarily 10 years (2000 to 2009), 20 years (1990 to 2009), 30 years (1980 to 2009), and 40 years (1970 to 2009).

The Iowa survivor curves used in our analyses were developed in the 1930s at Iowa State University; they are empirical curves whose equations are published, along with tables of various values, e.g., survivor factors at various ages. Iowa curves are widely accepted in the industry as a common and convenient means of communicating and calculating technical depreciation parameters.

The SPR life analyses of property history can sometimes provide us with an estimate of the life of some historical investments, a starting point in the life estimation process. However, it must be noted that life analysis is <u>not</u> life estimation. Unfortunately, life analysis can only provide an indication as to what has happened in the past. Our obligation is to estimate what will occur in the future, not merely measure the past.

Q. Did you employ any analyses other than SPR to assist in the life estimation process?

A. Yes. We also studied the pattern of annual additions to and retirements from the plant accounts to determine the relative volumes of capital activity typically by decade. These mortality analyses and volume changes can often assist in explaining why life and/or curve changes occur in our studies.

Q. In evaluating the SPR life analyses, you previously stated that you also considered input from Unitil Energy. What type of information did you consider?

A. We conferred with Unitil Energy management to determine if there were any occurrences, changes in policy, procedure, equipment, or practices which might impact upon service life, salvage, or removal cost associated with depreciable assets. The major consideration was to determine whether indications of the past would likely be representative of the near-term future.

Q. Can you give any examples of specific input provided to you by Unitil Energy which influenced your life estimates?

A. Yes. Unitil Energy pointed out that they are still experiencing growth in their Seacoast Division and will continue to convert their existing 4 kV lines to higher 13.8 kV and 34.5 kV distribution voltages which can better handle the increasing load. This will also reduce losses. The conversion will very likely lead to an increase in the annual retirement volumes of several overhead line accounts, such as poles and conductors, and to some extent, substation equipment, factors which must be considered in evaluating the relevance of average lives indicated by past life analyses.

Q. Are judgment and experience significant elements in life estimation and in the interpretation of statistical analyses?

A. Yes, the literature is unambiguous on this point. For example, page I.1 of the New York State Department of Public Service publication, "Computer Supported Property Mortality Studies," published in 1971, states:

> *The purpose of an actuarial mortality study of public utility property is to make a statistical determination of a representative life table and average service life. The method used to derive these quantities in this report is that of smoothing and extending the retirement ratios.*

> *It must be clearly understood that the computer procedure explained in Section II accomplishes electronically only those computations which have had to be done manually, and nothing else. Because of the computer's large storage capacity and extremely fast running time, it is able to calculate a great deal more than has ever been obtained manually in the past.*
>
> *The computer exercises no judgment, reflects no opinions or company policies and does not forecast the future. The computer programs are merely the results of applying certain mathematical formulae to a set of statistics obtained from accounting records – and, based on these data and formulae give an indication of what has been the retirement experience of the past and what would be the future life pattern if the same experience were constant over the entire life of the surviving property under study.*
>
> *Under no circumstances should it be construed that a specific indicated service life and life table developed by this computer process must necessarily be used as the life table and average service life in arriving at a final estimate of annual and accrued depreciation. Stress is placed on the fact that the selected life table and average service life finally used, whether or not developed by program PSU-2 or PSU-2A must be the engineer's best estimate for the property under study.*

Q. Can you provide other citations to authority for the position that judgment and experience are significant elements in life estimation and in the interpretation of statistical analyses?

A. Mr. Alex E. Bauhan, who developed the SPR-Balances Method of life analysis, cites the need for exercising judgment in his paper in which the Balances Method was introduced to the industry. In his paper presented in April 1947 to the National Conference of Electric and Gas Utility Accountants of the American Gas Association ("AGA") and Edison Electric Institute ("EEI"), under the heading, "Multiple Indications," he states:

> *The method reads the past and not the future, and has no way of telling which patterns will be followed in the future. Neither the actuarial or any other statistical process can eliminate this dilemma. Only by the exercise of reasonable judgment, or by the passage of time, can a selection be made.*

In discussing the Retirement Experience Index, regarding the situation where the index is "poor or valueless," Mr. Bauhan states:

> *In all such cases, for estimating purposes, the result of the analysis should be discarded and a judgment figure should be substituted in place of it. In those cases where the experience index is only fair, the result should be examined critically, and if it is not supported by reasoned judgment, it should be accordingly modified.*

Mr. Bauhan's paper is found in the Edison Electric Institute Publication No. 51-23, titled, "Methods of Estimating Utility Plant Life" published in 1952; the foregoing citations are found on Pages 61 and 63, titled respectively.

The Retirement Experience Index (REI) is the percentage of the accumulated retirements with the given Iowa curve from the oldest capital addition, e.g., if the oldest addition was 1930, by convention it would be 70.5 years old at year-end 2000. If the Iowa curve in question was a 35-year L 1.0, the REI would be 96; that is, the 35-year L 1.0 Iowa curve shows 4 percent surviving at age 70.5 years, and 100 percent less 4 percent equals 96 percent.

In summary, life estimates consider many factors, including the importance of informed judgment.

Q. Have you employed your judgment in this depreciation study?

A. In the course of our study, we have conferred with Unitil Energy's management and operating personnel, reviewed and considered the types of property in the various

primary plant accounts, and have performed life analyses of the history of the property. We have relied upon our experience in doing similar studies as engineers and consultants in evaluating, interpreting and estimating the life analysis of property.

Q. What is the total Unitil Energy composite annual accrual rate which results from your Depreciation Study?

A. The composite of the proposed straight line, whole life individual account rates detailed in the Depreciation Study is 4.06 percent as presented and detailed for each account on Schedule A, column 8, page 2 of 2. These proposed accrual rates do not include an amortization of the variance.

The accrual rate Schedule A, the "Schedule of Depreciation Accrual Rates, Whole Life Schedule with Amortization of Reserve Variance," also presents the differences (variances) between the actual book depreciation reserves (column 12) and our computed (theoretical) reserves (column 11) in addition to the annual amortization amounts which eliminate the reserve variances over the average remaining life of the various accounts. Column 17 presents the annual accrual rate based on a remaining life procedure which can be compared to the whole life rate presented in column 8.

Q. Do the depreciation accrual rates you propose result in higher depreciation expense than that derived using the existing authorized depreciation accrual rates?

A. Yes, they do. The change is an increase of $402,985 in annual expense.

Q. Your Depreciation Study concludes (on Page 29) that the net salvage estimates are lower (more negative) than those in the existing depreciation accrual rates. Why are your estimates lower?

A. Our estimates are lower because we have adjusted our proposed estimates toward the actual net salvage realized by Unitil Energy. Our proposed estimates are more representative of Unitil Energy's actual experience, as compared to the values which are currently authorized from the Company's prior rate case and our prior depreciation study in that case.

Q. Why were the net salvage values contained in the Settlement Agreement which was approved by the Commission in Unitil Energy's last base rate case higher than actually experienced by Unitil Energy?

A. The Settlement Agreement's net salvage values were more nearly industry/New Hampshire averages rather than values actually realized by Unitil Energy. We are aware that the industry data (EEI averages) is not current in that some of the values therein are as old as 1974 and 1982.

It is our observation that the electric distribution utility industry's net salvage values continue to become more negative. Because of this, it is our position that the depreciation parameters (estimates of net salvage and average service life) should be primarily reflective of the specific company being studied, and not averages of outdated data.

Q. Can you compare the proposed net salvage values in the study you conducted in this case with those in your prior study of June 30, 2005?

A. Certainly. The following Table 1 summarizes our proposed net salvage percent values compared to our proposed levels in the prior depreciation study submitted in DE 05-178. It also provides the actual net salvage realized in the period 2005 to 2009. By this comparison, one can readily see the conservatism of most of our proposals.

TABLE 1

COMPARISONS OF UNITIL ENERGY PROPOSED NET SALVAGE

	Unitil Energy Realized Net Salvage, %			
Account No.	Period 2005-2009	Prior Study 6/30/05	Current Study 12/31/09	Existing Authorized Net Salvage %
Distribution Plant				
361	0.0*	(30)	(30)	(24.75)
362	(50.8)	(30)	(40)	(24.79)
364	(103.4)	(50)	(60)	(42.89)
365	(63.8)	(40)	(50)	(33.86)
366	(13.5)	(15)	(15)	(13.75)
367	(78.2)	(30)	(40)	(24.83)
368.1	(15.7)	0	(10)	0.00
368.2	(3.6)	0	(2)	0.00
369	(104.6)	(50)	(60)	(45.46)
370	+0.6	0	0	0.00
371	(48.6)	(30)	(30)	(26.17)
373	(48.6)	(35)	(35)	(29.62)
General Plant				
390		0	0	10.07
391.1		0	0	12.06
391.3		0	0	6.03
393		0	0	2.17
394		0	0	8.86
395		0	0	2.05
397		0	0	0.84
398		0	0	2.40

*Zero retirements 2005-2009

1 As can be noted from Table 1, our proposed net salvage factors continue to increase (i.e.
2 are more negative) based on the Company's historical experience of retirements and
3 removal costs.
4

5 **IV. CONCLUSION**

6 **Q. Does this complete your testimony?**

7 A. Yes.
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