BEFORE THE

NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

DOCKET DE 21-030

IN THE MATTER OF: Unitil Energy Systems, Inc.
Request for Change in Rates

DIRECT TESTIMONY

OF

Stephen R. Eckberg
Utility Analyst
New Hampshire Department of Energy

November 23, 2021

Q. Please state your full names.

A. Stephen R. Eckberg.

Q. By whom are you employed and what is your business address?

A. I am employed as a utility analyst with the New Hampshire Department of Energy in the Regulatory Support Division. My business address is 21 South Fruit Street, Suite 10, Concord, NH, 03301.

Q. Please summarize your relevant education and professional work experiences.

A. I was previously employed as a Utility Analyst with the New Hampshire Office of Consumer Advocate (OCA) from 2007 to 2014. In 2014, I joined the Sustainable Energy Division of the Public Utilities Commission. In 2019, I joined the Commission's Electric Division. In July, 2021, with the passage of HB2, the New Hampshire Legislature created the Department of Energy (DOE) and I became an employee of the Regulatory Support Division of DOE. I have a B.S. in Meteorology from the State University of New York at Oswego and an M.S. in Statistics from the University of Southern Maine. I have worked in a variety of energy related analytic and administrative roles for over 25 years. Attachment SRE-1 provides more complete details of my education and professional work experience.

Q. What is the purpose of your testimony?

A. The purpose of our testimony is to present DOE's position on the Depreciation Study and recommendations from that Study by Unitil's witness Mr. Ned Allis. I also provide DOE's recommendation regarding cash working capital as it relates to Unitil's transmission costs

and transmission-related operating costs. While these costs are not included in this rate case, the lead-lag study which provides the framework for calculating cash working capital on transmission costs, is part of this case. Recovery of cash working capital on transmission costs will be considered annually in a separate filing.

Depreciation

Q. Please briefly describe your background in utility depreciation matters.

A: I am familiar with depreciation matters, having reviewed depreciation studies in numerous utility rate case dockets in which I have participated. I have taken the Fundamentals of Depreciation training course offered by the Society of Depreciation Professionals and am working toward becoming a Certified Depreciation Professional (CDP). I have not previously filed testimony specifically addressing depreciation before this or any regulatory commission.

Q: Please provide a summary of your recommendations regarding depreciation in this case.

A: My recommendations to the Commission include:

1) Approve the use of depreciation accrual rates developed using the whole life (WL) technique to determine the accrual rates and annual depreciation amount, by plant account, rather than rates developed using the remaining life (RL) technique as submitted in the Depreciation Study performed by Company witness, Mr. Ned Allis.
2) Direct the Company to perform future Depreciation Studies using the whole life technique in conformance with past Commission practice.

3) Approve $12,854,711 as the unadjusted whole life depreciation annual accrual amount for the test year based on pro-forma end of test year plant account balances. This amount does not include adjustments related to recommended plant adjustments included in the testimony of Mr. Dudley. Those adjustments are included in the testimony of Ms. Mullinax.

4) Approve a five year amortization of the theoretical reserve imbalance of ($7,652,721) resulting in annual credit to ratepayers of ($1,530,544). As in item 3) above, this amount does not include adjustments related to recommended plant adjustments of Mr. Dudley. Those adjustments are included in the testimony of Ms. Mullinax.

Q: What is the significance of depreciation in rate of return utility regulation and for purposes of this proceeding?

A: Unitil, as with all public utilities, includes in its revenue requirement an amount that is, at least theoretically, equal to the decline in the value of the company's capital assets over a twelve month period. This is necessary because all capital assets decline in value over their period of usage. To account for this, the annual amount of depreciation is deducted in the calculation of the utility's rate base and that same amount becomes an addition to its operating cost. In this manner, the utility's shareholders receive both a return on their investment, and, via the depreciation charges, a return of their investment.

The accounting necessary to determine the depreciation amount is complicated. Utilities, including Unitil, constantly add new capital assets to their rate base, and accurate records must be kept about the additions, and related removals. In addition, operating conditions are not static, and existing assets may not depreciate exactly as they were expected to at the

time they were installed and included in rate base. For this reason, utilities such as Unitil, conduct, from time to time, a depreciation study usually completed by experienced consultants who are expert in the field of depreciation. A depreciation study is a statistical undertaking that takes into account the vintage of the utility's assets – the year when each asset was placed in service and the rate at which specific assets are being retired from service. Actuarial techniques are used to update determinations of how much useful life remains, on average, in the capital assets included in rate base. Depreciation experts use statistical techniques to fit survival curves to groups of assets and make calculations of how the forces of retirement are acting upon each asset group to derive an estimate of the service life remaining in each such group.

Q: Have you reviewed the depreciation study and recommendations that UES' witness, Mr. Allis, has presented?

A: Yes, I have.

Q: What did the depreciation study performed by Mr. Allis present?

A: Mr. Allis' study, which used the straight-line method, average service life broad group procedure, and RL technique, presented newly developed depreciation accrual rates for most of the common production, distribution, and general plant accounts used to record the company's distribution assets. As Mr. Allis states on Bates 1635 of his testimony, the straight-line method and average service life broad group procedure approach was used in the previous depreciation study performed for UES' 2010 rate case docketed as DE 10-055.

However, in this current study, Mr. Allis used the remaining life technique, which is a change from the prior study. UES' prior depreciation study used the whole life technique.

Q: Was that rate case in 2010 which you mentioned UES' most recent rate case?

A: No. UES had a more recent distribution rate case which was filed in 2016. That was docketed as DE 16-384. However, in that 2016 UES rate case, no new depreciation study was performed. The Company continued to use the depreciation accrual rates that were developed and approved in the 2010 case.

Q: You mentioned that Mr. Allis used the remaining life technique in his study, representing a change from the prior study. Do you support that change in technique?

A: No. I recommend that the Company continue to use depreciation accrual rates developed using the whole life technique. The use of the whole life depreciation technique is consistent with the Commission's practice for setting depreciation accrual rates for other electric companies as well as for natural gas and water utilities. See Attachment SRE-2 for a list of PUC Orders relating to the use of the whole life technique. As stated above, the whole life depreciation technique is the basis for the Commission approved depreciation accrual rates that are currently in place for Unitil.

Q: Can you briefly explain the difference between the whole life and the remaining life techniques?

A: The whole life technique allocates the original cost of the assets less the estimated net salvage[1] over the total estimated life of the asset. The whole life formula is defined as follows:

WL Depreciation Accrual Rate = (1 – Net Salvage Rate) / (Average Service Life)

For example, if a capital asset has an average service life of 10 years and a net salvage rate of 20 percent, the WL accrual rate would be calculated as follows:

WL rate = (1 – 0.20) / 10 = (0.8)/10 = 0.08 = 8% annual accrual rate

This accrual rate would result in collecting 80% of the original asset value over the 10 year depreciable life of the asset with the remaining 20% of the asset's original cost realized through its salvage value.

The remaining life technique takes a different approach. It recovers the undepreciated original cost less the net salvage over the remaining life of the asset. That is, the original plant cost less current book depreciation is used as the depreciable cost and the average remaining life is used in the denominator to calculate the annual depreciation accrual rate. The formulas for both the remaining life depreciation amount and the corresponding rate are more complicated than the whole life formulas and I will not attempt to provide them here. Additional detail on the remaining life formulas is provided in Attachment SRE-3[2].

[1] Net salvage represents the estimated gross salvage value less the estimated cost of removal at retirement. Net salvage can be either positive (if gross salvage > cost of removal) or negative (if cost of removal > gross salvage).
[2] Information provided in Attachment SRE-3 is from the NARUC manual titled "Public Utility Depreciation Practices" August 1996.

Q: Are there advantages and disadvantages of each whole life and remaining life techniques?

A: Yes, there are. The whole life technique is simpler to explain and to present mathematically. However, because the whole life approach uses the original cost of the asset to calculate the accrual rate even as new information comes in over the life of the asset about changes in the net salvage rates and the asset life itself (an asset may prove to deteriorate more quickly or last longer than originally planned), there can be differences which develop between the booked depreciation reserve (the total amount of depreciation expense collected from ratepayers) and the theoretical or calculated depreciation amount. This difference is referred to as a theoretical reserve imbalance.

Q: Please explain what a theoretical reserve imbalance represents.

A: A utility's theoretical depreciation reserve is the calculated balance that would be in the company's accumulated depreciation account at a point in time using the currently approved depreciation parameters. A utility's booked depreciation reserve, alternately called accumulated depreciation, is equal to the total amount of depreciation expense (collected from ratepayers) relative to all of the utility's capital assets as stated on the utility's balance sheet. A depreciation reserve imbalance occurs when there is a difference between the depreciation reserve recorded on the company's balance sheet (book reserve) and the calculated value of the accumulated depreciation (theoretical reserve).

Q: Please continue with your explanation of the advantages and disadvantages of the whole life and remaining life techniques.

A. As I explained above, use of the whole life technique may result in a theoretical reserve imbalance. That imbalance is then something which may require attention. The remaining life technique differs in that it uses the undepreciated value of the asset and the remaining service life to calculate the annual accrual rate. This method incorporates into the accrual rate calculation any theoretical reserve imbalance and spreads it out over the remaining life of the asset. It's important to note that the remaining life method starts with the undepreciated value of the assets – this is the original cost less the book reserve which means that this method already incorporates any potential reserve imbalance into its calculations. This method has some advantage in that, theoretically, it will always collect no more and no less than the original cost of the plant asset over the life of that asset, even as new information comes in over time about retirements, service life, and salvage value during subsequent depreciation studies.

Q: Does Mr. Allis also explain and compare the whole life and remaining life techniques?

A: Yes. On Bates 1635 – 1638 of his testimony, Mr. Allis provides a comparison of these two techniques and explains why he believes the remaining life method is superior.

Q: Can you provide a synopsis of why Mr. Allis believes the remaining life depreciation technique to be superior?

A: My understanding is that because the remaining life technique corrects for issues that arise when average service lives change over time, and adjusts the accrual rate to compensate for prior over- or under-collection of depreciation amounts without the need for external

amortization of any theoretical reserve imbalance, Mr. Allis finds that remaining life is superior to the whole life technique.

Q: Did Mr. Allis' depreciation study determine that there was a theoretical reserve imbalance that would need to be dealt with?

A: No. As explained, the depreciation study prepared by Mr. Allis used the remaining life technique so any imbalance has been incorporated into his calculated depreciation accrual rates and any imbalance is spread over the average remaining life of the assets in each plant account.

Q: However, in your recommendations at the beginning of your testimony, you stated that there is a reserve imbalance and you recommended a period over which it should be amortized. What is the source of the calculation of the reserve imbalance?

A: In response to discovery, Mr. Allis performed additional calculations using the whole life technique to determine a total annual depreciation accrual amount and a theoretical reserve imbalance. The response to data request DOE 5-12 and its attachments are included as Attachment SRE-4 and are the source of information used in my recommendation.

Q: Does the theoretical reserve calculated by Mr. Allis in response to data request DOE 5-12 represent the "correct" reserve amount?

A: No. The theoretical reserve is an estimate developed at a point in time based on the current plant balances, the current life and net salvage estimates developed using available plant records. It provides a useful measurement which can be compared to the Company's actual

book reserve to establish the relative position of the two estimates. It should not generally be considered as the "correct" reserve amount. This is, in part, because development of the theoretical reserve value depends on decisions and judgement made during the study of "best fit" Iowa Curves (asset survival curves) among other things. These decisions are, to a degree, subjective and experts will not always agree on every particular. For example, there may be several different Iowa curves which each fit plant data reasonably well but which yield slightly different results for average service life for assets in a plant account. Therefore, determination of accrual rates and depreciation accrual amounts are not an exact science – they are the result of the application of mathematical techniques, the results of which are based, in part, on the decisions of the expert conducting the study.

Q: Can the reserve imbalance change from one depreciation study to the next?

A: Yes. As more, and newer, information becomes available about plant retirements, net salvage amounts, and changing plant technologies which impact service life, the depreciation accrual rates for various accounts will likely change from one study to the next. These changes will, in turn, impact the calculation of the theoretical reserve.

Q: What is the annual depreciation accrual amount recommended by Mr. Allis in his study compared to the amount he calculated in response to DOE's data requests?

A: The amounts are shown below in Table 1. These amounts are the basis for my recommendations regarding depreciation techniques, total annual depreciation amount, and amortization of theoretical reserve imbalance. It should be noted that any changes to plant

in service as a result of recommendations by other witnesses will impact the total annual depreciation accrual amount.

Table 1. Comparison of Allis Depreciation Calculation Using Remaining Life and Whole Life Techniques for Pro Forma Test Year.

	Remaining Life	Whole Life
Depreciation Amount	$12,799,754	$12,854,711
Theoretical Reserve Imbalance		($7,652,721)
Amortization of Reserve Imbalance over 5 years results in annual return to ratepayers		($1,530,544)

Source: Allis Depreciation Study, Response to Energy 5-12 and Energy TS 1-5.
See Attachment SRE-4 and Attachment SRE-5.

Transmission Cash Working Capital

Q: In your introductory remarks, you stated that you would address the issue of cash working capital relating to UES' transmission costs. Please address that issue.

A: In docket DE 21-121 Unitil' Annual Stranded Cost Recovery and External Delivery Charge (EDC) Reconciliation and Rate Filing, the Company filed to recover its costs related to, among other things, its transmission costs incurred for getting electric power to its distribution system for delivery to customers. At hearing held on July 23, 2021, DOE questioned the Company about the methodology that the Company used to determine the cash working capital (CWC) requirement related to its transmission costs. Specifically, the discussion centered around the issue of use of a lead-lag study to determine the net lag to be used in the CWC calculation. (*See* hearing transcript pages 38 – 44)

Q: Does the Company currently use a lead-lag study in the development of its CWC requirement related to transmission costs?

A: No it does not. As the transcript reference above states, the Company uses the alternate method of a formula "based on the length of ½ of the utility's billing cycle plus 30 days in lieu of a detailed lead-lag study"[3] (*i.e.*, the 45-day method). That approach was the result of the Settlement Agreement in the Company's 2010 Distribution Rate Case, DE 10-055, and has continued through the present.

Q: What did the Commission conclude about the issue in docket DE 21-121?

A: In its order, the Commission stated:

> "Regarding Unitil's working capital requirement for transmission costs, we believe it is important for working capital to be accurate. Given that is has been eleven years since the settlement agreement cited by Unitil as the basis for the 45 day figure, with a rate case in the interim, we agree that [the] best way to determine an accurate figure would be through a lead-lag study. While we approve the rate with the fixed 45 day lag at this time, we will consider the issue in the upcoming rate case, and anticipate moving to a more accurate working capital number moving forward. *See* Order 26,500 at 5-6.

Q: Has the issue of the transmission working capital been explored in the current rate case?

A: Yes. Through the discovery process, DOE requested information targeted at this issue. The response to discovery request DOE 4-65 and DOE 4-66 and the related attachment are included as Attachment SRE-6 and Attachment SRE-7, respectively, to my testimony and are relevant to this issue. As shown in Response DOE 4-65, Unitil calculated that the net lag for transmission costs is 0.47 days. In addition, UES calculated that the net lag for "Other Flow-

[3] See Puc 1604.05 (t) regarding working capital.

Through Operating Expenses Excluding Transmission" costs that are also recovered through the EDC is 5.32 days. *See* Response to DOE 4-66. Based on the Commission's Order quoted above, DOE would expect Unitil to use the information provided in these responses to calculate its working capital requirement related to transmission costs in its next External Delivery Costs docket in 2022, and to present the results for approval when those costs are reviewed.

Q: Does this conclude your testimony?

A: Yes.