UNITIL ENERGY SYSTEMS, INC.

DIRECT TESTIMONY OF

DAVID L. CHONG

EXHIBIT DLC-1

New Hampshire Public Utilities Commission

Docket No. DE 16-384

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I. INTRODUCTION

Q. Please state your name and business address.

A. David L. Chong, 6 Liberty Lane West, Hampton, New Hampshire 03842.

Q. What is your position and what are your responsibilities?

A. I am Director of Finance and Treasurer for Unitil Service Corp., a subsidiary of Unitil Corporation that provides managerial, financial, regulatory and engineering services to Unitil Corporation's utility subsidiaries. I am also the Treasurer of Unitil Energy Systems, Inc. (hereinafter referred to as "Unitil Energy" or the "Company") and Unitil Corporation's other utility subsidiaries. My responsibilities are primarily in the areas of financial planning and analyses, regulatory projects, treasury operations and banking relationships.

Q. Please describe your business and educational background.

A. I have approximately fifteen years of professional experience in the energy and utilities industries. From 2001 through 2005, I worked for Exxon Mobil Corporation in various facilities engineering roles with my last position as a Senior Project Engineer. From 2005 through 2008, I worked for RBC Capital Markets Corporation in the energy investment banking group, where I provided corporate finance and mergers and acquisitions advisory services. While at RBC, I raised equity and debt capital on numerous occasions for various energy companies. I also advised on several buy-side and sell-side mergers and acquisitions transactions. From 2008 through 2009, I worked for El Paso Exploration & Production Company in its business development group as an Acquisition & Divestiture Principal. I began working for Unitil Service Corp. in August 2009 as Director of Finance. I hold a Master's Degree in Business Administration from Tulane University and a Bachelor of Science degree in Mechanical Engineering with Honors from the University of Texas at Austin.

Q. Have you previously testified before this Commission?

A. Yes, I have testified before the New Hampshire Public Utilities Commission (the "Commission") on various financial, ratemaking and utility regulation matters, including utility cost of service and revenue requirements analysis. I have also testified before the Maine Public Utilities Commission and Massachusetts Department of Public Utilities on similar matters on several occasions.

II. SUMMARY OF TESTIMONY

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to present and support Unitil Energy in its request for a permanent increase in distribution base rates based on 2015 test year revenues and expenses and year-end rate base with pro forma adjustments for known and measurable changes consistent with Commission precedent. Also, as introduced in the prefiled testimony of Company witness, Mr. Mark Collin, I describe the process and mechanics of the Company's requested multi-year rate plan (the "2016 Rate Plan"). Lastly, I describe and support the Company's request for a temporary increase in distribution base rates which would be subject to reconciliation based on the difference between permanent and temporary rates.

Q. Please summarize the Company's conclusions with respect to its permanent revenue requirement.

A. Based on test year results, as adjusted for known and measurable changes, for the twelve months ended December 31, 2015, the Company has determined the need to increase its revenues by $6,255,276, or approximately 3.6% over the Company's total revenue under present rates. The request is founded on the need for achieving, after payment of all operating expenses, taxes and other charges, a weighted average cost of capital of 8.75%. As I describe later in my testimony and in the prefiled testimony of Company witness Mr. Robert Hevert, Managing Partner of Sussex Economic Advisors, LLC, the Company is seeking a cost of common equity of 10.30% for its permanent revenue requirement in this rate case.

Q. Please summarize the Company's requested 2016 Rate Plan.

A. As I will discuss later in my testimony, the Company's requested 2016 Rate Plan is substantially similar to the one that the Company previously operated under, which was established in its last base rate case in Docket DE 10-055. Like its previous rate plan, the 2016 Rate Plan would provide recovery of a level of annual changes in the Company's net utility plant in service. Under the 2016 Rate Plan, the Company expects its incremental revenue requirement to range from approximately $1-$2 million annually over the five-year term of the plan.

This equates to approximately 0.6%-1.3% of test year total operating revenues. As I discuss below, the 2016 Rate Plan offers numerous customer benefits and customer protections.

Q. Please summarize the Company's request for temporary rates.

A. As indicated in the prefiled testimony of Mr. Collin, the Company is seeking a temporary rate increase. In my testimony, I describe the derivation of the requested temporary rate level of $3,010,561 to become effective on July 1, 2016. This temporary rate level is based on a very conservative calculation of the revenue requirement before known or measurable expense changes and a lower cost of common equity of 9.67%, which was the amount approved by the Commission in the Company's last rate case in Docket DE 10-055.

III. DEVELOPMENT OF DISTRIBUTION REVENUE REQUIREMENT

A. INTRODUCTION

Q. Please summarize your revenue requirement testimony.

A. My testimony presents and supports the Company's cost of service and revenue requirement, which is used in the prefiled testimony of Company witness Mr. H. Edwin Overcast, Director of Black and Veatch Management Consulting, to establish the new distribution base rates contained in Unitil Energy's Electric Delivery Tariff. In this section of my testimony, I will present the revenue requirement methodology. I then describe the pro forma test year operating revenues and expenses, rate base and rate of return used to determine the revenue deficiency.

Q. What approach was used to perform the revenue requirements analysis?

A. The revenue requirements analysis was developed using a pro forma test year approach. This approach utilizes "per books" data adjusted for known and measurable changes to develop normalized revenues, expenses and net operating income for ratemaking purposes. The adjusted net operating income is compared to the required operating income, based on the overall rate of return applied to test period rate base, to determine the deficiency. The deficiency is then increased for state and federal income taxes to determine the revenue deficiency.

Q. What test year was selected by the Company?

A. The test year is the twelve-month period ending December 31, 2015.

Q. What standards were employed to determine the pro forma adjustments?

A. All adjustments to the test year cost of service are based upon known and measurable changes to revenues and expenses, or upon changes that will become known and measurable during the course of this proceeding. As a practical matter, the Company has limited all pro forma adjustments to those that will be known and measurable through May 1, 2017, which is the date permanent rates are expected to go into effect for this proceeding.

Q. Why are these standards important?

A. The rates established in this proceeding should provide Unitil Energy with sufficient revenues to continue to ensure safe, reliable and cost-effective delivery service for Unitil Energy's customers and to provide a reasonable opportunity for Unitil Energy to earn its authorized rate of return. Unitil Energy does have a reasonable opportunity to earn its allowed rate of return when the proposed rates reflect, as closely as possible, the cost of service that Unitil Energy will actually experience when permanent rates are awarded.

Q. Have you followed the Commission's required format for presenting the calculation of the proposed revenue requirement?

A. Yes, to the best of my knowledge. I have followed the requirements as described in New Hampshire Code of Administrative Rules, Chapter PUC 1600 Tariffs and Special Contracts, Part PUC 1604 Full Rate Case Filing Requirements, Sections PUC 1604.06 through 1604.09. The Filing Requirement Schedules specified in Sections PUC 1604.06 and 1604.07 have been provided as "Filing Requirement Schedules Pages 1-12." The Filing Requirement Schedules are a summary of the actual revenue requirement model which drives the underlying calculations of the revenue deficiency. This revenue requirement model will be referred to throughout the rest of my testimony as "RevReq" schedules. The Rate of Return Information specified in Section PUC 1604.08 has been provided in Schedules RevReq-5 through 5-7. The Adjustments to Test Year specified in Section PUC 1604.09 have been provided in Schedules RevReq-3 through 3-12.

Q. Has Unitil Energy filed other material as required by Part PUC 1604 Full Rate Case Filing Requirements?

A. Yes. The material required by Section PUC 1604.01, Contents of a Full Rate Case, has been provided with this filing as separate volumes of materials.

B. DISTRIBUTION REVENUE REQUIREMENT

Q. Please describe the test year operating income, as adjusted, and used to determine the revenue deficiency.

A. The revenue requirement schedules and workpapers for Unitil Energy in the test year are presented in Schedule RevReq-1 through RevReq-6 and Workpapers supporting the revenue requirement schedules. The pro forma operating income for Unitil Energy in the test year is presented in Schedule RevReq-2. The "per books" revenues, operating expenses and net operating income are set forth in column (2), labeled "Test Year 12 Months Ended 12/31/2015." In Column (3), labeled "Test Year Flow-Through," test year revenue and operating expenses associated with various non-base rate mechanisms are summarized. The rate mechanism results in column (3) are subtracted from column (2) to arrive at "Test Year Distribution" results in column (4). The proposed normalizing adjustments are set forth in the column (5), labeled "Proforma Adjustments." The adjusted revenues, operating expenses and net operating income are set forth in column (6), labeled, "Test Year Distribution as Proformed." The final two columns contain operating revenues and expenses for the two preceding calendar years 2014 and 2013.

The pro forma operating income from column (6) is used to determine the operating income deficiency which is summarized in Schedule RevReq-1. Schedule RevReq-1 calculates the income required by multiplying rate base by rate of return. The pro forma operating income from column (6) Schedule RevReq-2 is then subtracted from the income required in Schedule RevReq-1 to obtain the operating income deficiency. This operating income deficiency is then grossed up for federal and state taxes to obtain the revenue deficiency as shown in Line 7 of Schedule RevReq-1.

Q. Please describe the pro forma adjustments that are shown in column (5) of Schedule RevReq-2.

A. As shown, I have made pro forma adjustments to the following areas of operating expense:

- Operating and Maintenance Expenses
- Depreciation and Amortization
- Taxes Other than Income
- Federal and State Income Taxes

These pro forma adjustments are detailed on Schedule RevReq-3 and on subsequent schedules as identified.

I. OPERATING & MAINTENANCE EXPENSES

Q. What adjustments were made to Operating & Maintenance Expenses?

A. Pro forma adjustments for Unitil Energy are included in the distribution cost of service for the following Operating & Maintenance Expenses:

- Payroll
- Medical & Dental Insurances
- Pension, Postemployment Benefits Other than Pension, and 401K
- Property & Liability Insurances
- Distribution Bad Debt
- Protected Receivables Expense
- Inflation Allowance

I will discuss each adjustment individually in the following section.

Q. What adjustments were made to payroll?

A. The payroll adjustment, as detailed on Schedule RevReq-3-1, adjusts the test year payroll charged to O&M Expense for known and measurable changes related to two items. First, the adjustment reflects wage increases that will occur before May 1, 2017. This increases the cost of service by $543,810 as shown in line 11. The 2017 wage increase is estimated for the purposes of this initial filing, but will be updated with actual results before the completion of this proceeding. Second, the adjustment reflects a reduction to the cost of service for incentive compensation. During the test year, incentive compensation was expensed at a higher level than target. I have made a normalizing adjustment for permanent rates to lower the test year incentive compensation to reflect a target payout level. Thus, I have reduced the cost of service by $212,702 in line 12. The net adjustment to the cost of service is $331,108 as shown in line 13. This adjustment is discussed in more detail in the prefiled testimony of Company witness, Mr. George Long.

Q. Please explain the medical and dental insurance adjustment.

A. The test year O&M expense has been pro formed to increase test year medical and dental insurance by $53,004. This adjustment is shown on Schedule RevReq-3-2, and includes amounts allocable to Unitil Energy from Unitil Service. The adjustment is based on actual working rates for 2016, and an estimated increase for 2017. Before the completion of this proceeding, this adjustment will be updated to reflect actual 2017 working rates. This adjustment is described in more detail in the prefiled testimony of Mr. Long.

Q. Please explain the pension, postemployment benefits other than pension, and 401k adjustments.

A. The purpose of the pension, postemployment benefits other than pension ("PBOP") and 401k adjustments is to update these costs from test period O&M expense. The latest year-end 2015 actuarial report which provides 2016 calendar year expense was the basis for the pension and PBOP adjustment. The 2015 actual 401(k) expense was adjusted to reflect the effect of the payroll increases referenced above. The pension, PBOP and 401k adjustments are all provided in

Schedule RevReq-3-3 which shows a pension expense reduction of $106,192, and increases in PBOP and 401K of $150,564 and $44,100, respectively. These adjustments include costs for the Company as well as costs allocable to the Company from Unitil Service. This adjustment is further supported in the prefiled testimony of Mr. Long.

Q. Please describe Unitil Energy's property and liability insurance coverage and the adjustment to test year property and liability insurance expense.

A. Property and liability insurance coverage includes a number of types of insurance that provide protection from casualty and loss, and other damages that the Company may incur in the conduct of its business. Unitil Energy's insurance program includes both premium-based and self-insured coverages, in order to obtain the widest portfolio of insurance coverage at the most reasonable cost. As shown on Schedule RevReq-3-4, the pro forma adjustment for property and liability insurances is an increase of $54,228 to test year O&M expense. This adjustment was made to adjust the property and liability insurance test year O&M expense to reflect known and measurable increases in premiums for the Company and for premiums allocable to the Company from Unitil Service. The premiums shown on workpaper 4.3 include estimates for certain insurance policies that will renew in 2016 and 2017. The Company will provide a final update to these estimated premiums as described on Workpaper 4.3 before the completion of this proceeding.

Q. Please explain the adjustment of test year distribution bad debt.

A. The calculation of this adjustment is shown in Schedule RevReq-3-5. I developed this adjustment by first calculating a bad debt rate based on 2015 delivery net write-offs divided by delivery billed revenue. I then multiplied the bad debt rate by per books delivery retail billed revenue including the revenue deficiency from Schedule RevReq-1, which establishes an uncollectible delivery revenues amount. The uncollectible revenues amount is compared to test year bad debt expense to produce the pro forma adjustment of $171,290.

Q. Please explain the adjustment for protected receivables expense.

A. This adjustment provides recovery for the write-off of protected receivables as further described in the prefiled testimony of Company witness, Mr. Daniel Main. Schedule RevReq-3-6 shows the calculation for this adjustment in the amount of $344,439.

Q. Please explain the inflation allowance.

A. This adjustment, detailed on Schedule RevReq-3-7, increases "residual O&M expenses" to recognize the general level of rising costs due to inflationary pressures. I am using the term "residual O&M expense" to refer to such items as fuel for Unitil Energy's fleet of utility vehicles, professional fees such as actuarial, audit and legal services, office supplies, telecommunication expenses, natural gas for heating, cleaning and building maintenance, snow removal and other contractor services. It is not feasible to project specific adjustments for residual O&M expenses that are comparable to adjustments made to other expense categories, but it is reasonable to assume residual O&M expenses will be subject to inflationary pressures; to assume that these type of costs would remain at the test year level in the rate year is unrealistic. The lack of an inflation adjustment on residual O&M expenses contributes to expense-related earnings attrition. The calculation of residual O&M expenses starts with total test year distribution O&M, from which the following is deducted: (1) specific adjustments previously described in this testimony and (2) expenses that are not directly impacted by general inflation. The inflation adjustment on residual O&M is based on a cumulative inflation rate of 2.96 percent over a 22-month period, which represents the increase in the Gross Domestic Product Implicit Price Deflator ("GDPIPD") from the mid-point of the test year (July 1, 2015) to May 1, 2017 (date of permanent rates), as shown on Schedule RevReq-3-7 Page 2. The resulting increase to O&M expenses for the inflation allowance for residual O&M expense is $141,596.

II. DEPRECIATION AND AMORTIZATION

Q. Is Unitil Energy proposing an annualization adjustment for depreciation for the test year?

A. Yes. The annualization of depreciation expense based on the December 31, 2015 depreciable plant balance is detailed in Schedule RevReq-3-8. The annualization adjustment increases the depreciation expense by $546,070. This adjustment also reflects the pro forma adjustment of the Kingston substation addition to rate base, which I will describe in further detail below.

Q. What depreciation accrual rates did you use in this rate case?

A. I have continued to use the currently approved settlement accrual rates as presented by staff witness Mr. Cunningham in Docket No DE 10-055.

Q. Why did you decide to use currently approved settlement accrual rates?

A. I requested that our prior depreciation consultant, Management Applications Consulting (MAC), provide an updated deprecation schedule by applying the DE 10-055 approved accrual rates and associated parameters using the plant balances as of December 31, 2015. I have attached these results as Schedule DLC-1. Having reviewed these results with the updated theoretical reserves and plant balances, the variance is $458,871 or 0.49% of the theoretical reserves which appears to be tracking well. In other words, the approved prior depreciation parameters of average service lives and net salvage show a small variance. These results indicate the factors should be reasonable for this case.

Q. Please explain the deferred storm costs amortization adjustment.

A. The deduction of deferred storm cost amortization in the amount of $68,008 is reflected in Schedule RevReq-3-9. This adjustment is to remove some deferred storm cost amortization from this filing. The deferred storm cost amortization is related to storm costs from 2009 which were deferred and are currently being amortized. In Docket DE 10-055, the Company did not pursue recovery of these costs, and is not seeking approval now, so these costs have been removed from the cost of service.

III. TAXES OTHER THAN INCOME

Q. Have test year property taxes been adjusted?

A. Yes. The adjustment is detailed on Schedule RevReq-3-10 and amounts to an estimated increase in property tax expense of $1,030,081. This schedule presents information related to property taxes including taxation period, amount paid, assessed valuations, and tax rates by municipality. This adjustment includes an estimated increase of 7.97% to increase test year property taxes an additional year, which will be known and measurable before the completion of this proceeding. This adjustment also includes the addition of the Kingston substation assets at the property tax rate for Kingston, NH.

Q. Why is the pro forma property tax adjustment estimated?

A. Property taxes are generally billed by municipalities in two installments. The first billed installment for 2016 is generally estimated based on 2015 property taxes, and the second billed installment will reflect the final accounting for 2016. Typically, the second billing installments are received in October and November, with payments due in November and December. Absent the final tax bills for 2016, I have estimated the increase in its property tax expense to be equal to the average property tax expense increases for the period 2011 to 2015, as shown on Workpaper 6.1. The property tax adjustment will be updated during the proceeding to reflect final property tax bills for 2016 and the estimated increase of 7.97% will be removed.

Q. Were there property tax abatements received during the test year?

A. Yes, the test year reflects on line 40 of Schedule RevReq-3-10 an amount of $367,492 related to property tax abatements received in 2015 for prior years, which do not impact the Company's current year's taxes and the estimate of future taxes on line 37.

Q. Have test year payroll taxes been adjusted?

A. Yes, the adjustment is shown on Schedule RevReq-3-11 and amounts to an increase in payroll tax expense of $31,834. This adjustment is described in the prefiled testimony of Mr. Long.

IV. INCOME TAXES

Q. Does the cost of service reflect adjustments to test year income taxes to reflect pro forma changes?

A. Yes. The adjustment is summarized on Schedule RevReq-3-12, pages 1-2. The adjustment to test year income taxes calculates the income tax effect of the adjustments to expenses previously described in my testimony and as listed in the Summary of Adjustments in Schedule RevReq-3. The adjustment also reflects the income tax effect of the adjustment for interest expense synchronization with rate base, based on the difference between interest expense for ratemaking and test year interest expense, which is shown on Schedule RevReq-3-12, page 2.

Q. Please explain the adjustments for prior year federal income taxes as shown in Schedule RevReq-3-12, page 4.

A. As part of its normal tax accounting practice, the Company accounts for a prior year return to accrual in its current year tax provision. The adjustment in Schedule RevReq-3-12 page 4 removes the prior year return to accrual so that the adjusted cost of service reflects current year income taxes only.

V. RATE BASE

Q. Have you provided the balance sheets for Unitil Energy?

A. Yes, I have provided Assets & Deferred Charges and Stockholder's Equity and Liabilities in Filing Requirements Schedule 2 and 2a, Page 6 & 7, respectively.

Q. Please summarize the information you have provided to support the rate base used to determine Unitil Energy's revenue requirements.

A. Schedule RevReq-4 summarizes the rate base. The summary includes several calculation methodologies, including the "Test Year Average" (arithmetic average of the beginning and end of test period amounts) of $143.7 million, the "5 Quarter Average" of $141.9 million, and the "Rate Base at December 31, 2015" of $142.9 million. The test year-end rate base at December 31, 2015, was used to determine Unitil Energy's revenue requirement.

Q. What did you consider in selecting a year-end rate base?

A. All three methodologies yield fairly similar results for a variety of reasons, including changes in certain categories of rate base. However, Utility Plant in Service consistently increases quarter-over-quarter. Thus, a year-end rate base is appropriate for Unitil Energy given the significant annual growth in the primary component of its rate base, Utility Plant. A year-end rate base reduces earnings attrition, because it aligns expenses, revenues and rate base with the period in which rates are going to be in effect. Finally, the year-end rate base was utilized in Docket DE 10-055, and I believe it is appropriate to continue this practice.

Q. Please describe the component of rate base information on Schedule RevReq-4-1.

A. Schedule RevReq-4-1 presents the balance of rate base items for each of the 5 quarters beginning with the balance at December 31, 2014 and ending with the balance at December 31, 2015. In the last column, the 5-Quarter Average is calculated.

Q. Please describe the cash working capital component of rate base information on Schedule RevReq-4-2.

A. The calculation of cash working capital in rate base is detailed in this schedule. The calculation consists of a 27 day lead-lag factor applied to test year distribution operating expenses. This lead-lag factor is based on the Company's lead-lag study as presented in the prefiled testimony of Mr. Normand.

Q. **Please list the other components added to rate base.**

A. In addition to Net Utility Plant in Service and Cash Working Capital described above, Materials and Supplies Inventories, Prepayments, the SFAS 109 Net Regulatory Asset, and Deferred Tax Debits, have all been added to rate base. These items are shown on Schedule RevReq-4 and RevReq 4-1.

Q. **Please list the components deducted from rate base.**

A. These items consist of Deferred Income Taxes, Customer Advances, and Customer Deposits and are also shown on Schedule RevReq-4 and 4-1.

Q. **Please explain the Utility Plant in Service Pro Forma Adjustment on Schedule RevReq-4.**

A. The adjustment shown on Schedule RevReq-4 in the amount of $9,880,166 is a post-test year adjustment to rate base reflecting plant in service for the Kingston substation which went into service in April 2016. As described in the prefiled testimony of Mr. Collin, the Kingston substation is a significant portion of the Company's rate base. The Kingston substation reflects 6.5 percent of the Company's rate base, and represents $1.7 million, or over 27 percent, of the Company's $6.3 million revenue requirement. Without this adjustment to add Kingston to rate base, the Company will be significantly under-earning when the new rates go into effect. In addition, the Kingston substation was in service as of April 2016, before the date of temporary rates, so given the relative size and fact that this rate base addition is used and useful and in service, it is appropriate as a known and measurable adjustment. The amount of $9,880,166 is currently an estimate given that the date of this filing corresponds with the in-service date of the substation, but will be updated with the actual amount once all work orders are accounted for and the accounting is complete.

VI. RATE OF RETURN

Q. What rate of return have you used for ratemaking purposes?

A. As shown on Schedule RevReq-5, Unitil Energy's weighted cost of capital is calculated to be 8.75%. This is derived from the Company's capital structure and related costs for various capital components and represents the required rate of return on rate base used in the determination of the Company's revenue requirement.

Q. How did you determine Unitil Energy's capital structure?

A. As detailed on Schedules RevReq-5 and RevReq-5-1, the Company's capital structure consists of 50.97% common equity, 0.13% preferred stock equity, 48.80% long-term debt, and 0.11% short-term debt. The common stock equity, preferred stock equity, and long-term debt balances are as of December 31, 2015, which is consistent with the use of a test year-end rate base.

Q. How is the cost of common equity determined?

A. The cost of common equity of 10.30 percent is determined in the prefiled testimony of Mr. Robert Hevert, of Sussex Economic Advisors, as the appropriate market cost of common equity for Unitil Energy for ratemaking purposes.

Q. Please explain the derivation of the cost of long-term debt.

A. The calculation of the cost of long-term debt for Unitil Energy is detailed on Schedule RevReq-5-4, which shows the weighted cost rate of 7.15 percent that was calculated by using the "Net Proceeds" methodology in accordance with Commission precedent. This methodology calculates the cost of debt based on the comparison of total annual debt costs to the total outstanding net proceeds. The total annual costs consist of the annual amortization amount of debt issuance costs, including the amortization of the costs associated with the development of the 12th Supplemental Indenture which was authorized by the Commission in DE 04-041, and annual interest charges. The total outstanding net proceeds consist of the long-term debt amount outstanding reduced by the unamortized balance of issuance costs. The weighted cost rate is derived by dividing the total annual cost by the total outstanding net proceeds.

Q. Please explain the pro forma adjustment to Long-Term Debt.

A. Schedule RevReq-5-4 shows a $3,000,000 adjustment to the amount of debt outstanding for the 8.49% Series I and Series L bonds combined. This adjustment reflects a sinking fund redemption scheduled to be paid on October 14, 2016.

Once the sinking fund is paid, it will reduce the amount outstanding under the Series I and L bonds from $12,000,000 to $9,000,000 combined. This is a known and measurable adjustment because this sinking fund payment occurs before May 1, 2017.

Q. Please explain the derivation of the cost of preferred stock equity.

A. The calculation of the preferred stock equity cost rate of 6.00 percent for Unitil Energy is detailed on Schedule RevReq-5-6. The methodology utilized to calculate the cost is the same as that used to calculate the cost of long-term debt except the annual cost associated with preferred stock is stated as an annual dividend rather than an annual interest cost, as is the case with long-term debt.

Q. Please explain the derivation of the amount and cost of short-term debt.

A. The derivation of the amount and cost of short-term debt is shown in Schedule RevReq-5-5, pages 1 and 2. In the Company's cost of capital, I used an average monthly short-term borrowing balance and an average historical interest rate paid on its monthly short-term borrowings. All of the Company's short-term borrowings are under the Unitil Corporation cash pool, and the Company is charged the same interest rate paid under Unitil Corporation's revolving credit facility with its banking group. I used a monthly average for the short-term debt balance because of the volatility of short-term debt throughout the year which is caused by variations in cash flow resulting from peak winter and summer seasons and by seasonal capital spending. In Schedule RevReq-5-5, page 1, I deduct average accrued revenue (net of unbilled) and power supply working capital balances to reflect that these items are financed through short-term borrowings and should be unbundled in the Company's rate of return on rate base. Flow-through costs such as cost of power are financed through short-term borrowings, but do not provide the Company with carrying charges at the same rate of return on rate base, so these items must be removed from short-term borrowings to properly reflect an unbundled short-term debt balance for return on rate base. The pro forma unbundled short-term debt balance is $161,783 for the purposes of this proceeding.

Q. Please describe the other rate of return schedules that you have prepared.

A. I prepared Schedule RevReq-5-2 showing the Company's historical capital structure and Schedule RevReq-5-3 showing historical capitalization ratios.

C. DISTRIBUTION REVENUE REQUIREMENT CONCLUSION

Q. Please provide the result of the revenue requirement calculation for Unitil Energy.

A. As shown on Schedule RevReq-1, when the rate of return of 8.75% is applied to the rate base of $152,951,401 the resulting income required is $13,383,248. The income required is then compared to the test year adjusted net operating income to arrive at an operating income deficiency of $3,777,561. Applying the income tax factor associated with the deficiency results in a revenue requirement of $6,255,276.

IV. 2016 RATE PLAN

Q. Are you proposing a rate plan in this filing?

A. Yes, the Company is proposing a multi-year rate plan with annual step adjustments to recover the revenue requirement of capital additions to rate base. The proposed 2016 Rate Plan is substantially similar to the plan that was established in Docket DE 10-055 (the "2010 Rate Plan"). The 2016 Rate Plan is outlined in detail in Schedule DLC-2.

Q. What additions to plant will be eligible for recovery?

A. All utility plant additions will be eligible for recovery upon Commission review and approval of an annual compliance filing. The 2016 Rate Plan will recover the revenue requirement associated with 80% of the annual Change in Net Plant.

Q. For what years will the 2016 Rate Plan apply and what is the timing for filings with the Commission and rate implementation?

A. The plan will encompass five annual step adjustments to recover the revenue requirement. The step adjustments would take place in May of 2017, 2018, 2019, 2020 and 2021 for investment years 2016, 2017, 2018, 2019 and 2020. Each step adjustment compliance filing would be made with the Commission on or before the last day of February for the prior year's additions. Then, the resulting rate changes would go into effect May 1. For example, the filing for additions for investment year 2016 would be filed with the Commission by February 28, 2017 with rates going into effect May 1, 2017, coinciding with the permanent rates from this proceeding. For investment year 1 (2016 additions), the Kingston substation would be excluded from the 2016 Rate Plan, because the Company is requesting this as a proforma adjustment to rate base in the 2015 revenue requirement calculation with recovery starting in temporary rates effective July 1, 2016.

Q. Have you prepared a schedule to demonstrate the calculation of the Company's proposed 2016 Rate Plan?

A. Yes, I have prepared Schedule DLC-3 Pages 1-3 for that purpose. The schedule is based on the Company's capital budget presented by Mr. Sprague. The schedule is for illustrative purposes, since actual plant additions will vary from the long-term forecast of the annual capital spending budget. Nevertheless, the schedule illustrates the express mechanics of the revenue requirement calculation.

Q. Please describe the derivation of Net Utility Plant on page 1 of Schedule DLC-3.

A. Page 1 of Schedule DLC-3 shows Beginning Utility Plant, Plant Additions, and Ending Utility Plant on lines 1-3. Beginning Utility Plant in 2016 corresponds to Schedule RevReq-4 pro forma rate base and includes the Kingston substation. Plant Additions are based on the capital budget, less Kingston, since Kingston is included in the rate base in this proceeding. Ending Utility Plant is the sum of Beginning Utility Plant and Plant Additions. Then, lines 4-6 show Beginning Accumulated Depreciation, Depreciation Expense, and Ending Accumulated

Depreciation. The difference between Ending Utility Plant and Ending Accumulated Depreciation results in Ending Net Utility Plant shown on line 7. While Schedule DLC-3 formulaically derives Net Utility Plant based on the capital budget provided in this proceeding, the intent of the Company is to source Net Utility Plant from its plant accounting records on an annual basis. For example, Ending Net Utility Plant in every year will be sourced from the Company's reported Net Utility Plant in Service provided in its FERC Form 1, page 110.

Q. Please describe the derivation of Revenue Requirement on page 1 of Schedule DLC-3.

A. Once Net Utility Plant is sourced from the Company's plant accounting records, the annual Change in Net Plant would be calculated as the difference in Ending Net Utility Plant from the current period less the prior period as shown in line 8. Next, line 9 calculates 80% of the Change in Net Plant, which is the ratio of non-growth capital additions to total capital additions as derived by Mr. Sprague in his testimony. Then, line 9 is multiplied by line 10, pre-tax rate of return, to derive the Return and Taxes on line 11. Next, Depreciation Expense is calculated on 80% of Plant Additions (line 2). A composite depreciation rate of 3.74% will be used which corresponds to the Company's annualized depreciation rate, which was calculated by taking Line 32 Column 9 divided by Line 32 Column 7 from Schedule RevReq-3-8. Then, Property Taxes are calculated on 80% of the

Change in Net Plant (line 9). A property tax rate of 3.11% was used which corresponds to the composite rate calculated in Schedule RevReq-3-10. The Company would update this rate annually based on the latest property tax rates. Finally, Return and Taxes, Depreciation Expense and Property Taxes are added together to arrive at the Revenue Requirement.

Q. What schedules support Schedule DLC-3, Page 1?

A. Schedule DLC-3, Page 2 presents the capital budget by year as well as depreciation by vintage that is used for calculating Accumulated Depreciation in Page 1 for illustrative purposes. Again, actual plant accounting records will be utilized in calculating Accumulated Depreciation to arrive at Net Utility Plant. Schedule DLC-3, Page 3 shows the calculation of the pre-tax rate of return.

Q. Can you summarize the revenue requirement results for the proposed 2016 Rate Plan?

A. The revenue requirement that will be derived from the step adjustments ranges from $917,041 (in investment year 2016) to $1,962,281 (in investment year 2017) depending on the level of plant investments in a given forecast year. The step adjustments represent 0.6%-1.3% of test year operating revenue. Again, these revenue requirement results are forecasts based on the Company's capital budget. Actual plant additions will vary from this forecast.

Q. Would vegetation management and reliability enhancement O&M expenses continue to be reconciled?

A. Yes. The Company would continue to file annual compliance reports, and would continue to reconcile actual vegetation management and reliability enhancement O&M expenses to test year costs in the Company's External Delivery Charge mechanism. With approval of the Commission, the Company may credit unspent amounts to future vegetation management program O&M expenditures.

Q. What is the amount of vegetation management and reliability enhancement O&M expenses embedded in the test year?

A. The amount of vegetation management and reliability enhancement O&M expenses embedded in the test year is equal to that recovered currently in rates. In Docket DE 10-055, the Company's test year expense was $735,739. In the Commission's Order for that proceeding, an additional $200,000 of vegetation management expense for the test year and $1,250,000 as a step adjustment was authorized. Then, in the 2010 Rate Plan, step adjustment amounts of $950,000 and $1,423,000 (storm resiliency) were authorized. Finally, in the 2010 Rate Plan, an additional $300,000 was authorized that would be allocated to either vegetation management or reliability enhancement spending according to the Company's discretion. In the test year, the Company allocated $200,000 of this $300,000 to vegetation management, and the remaining $100,000 to reliability enhancement. The total vegetation management expense in the test year is the combination of all the amounts above of $735,739, $200,000, $1,250,000, $950,000, $1,423,000, and $200,000 for a grand total of $4,758,739. The total reliability enhancement expense in the test year is $100,000. Thus, the Company proposes to reconcile annually in the External Delivery Charge mechanism the combined actual vegetation management and reliability enhancement spending to the combined test year expense of $4,858,739.

Q. Are there consumer protections included in the 2016 Rate Plan?

A. Yes, as described earlier, the Company would submit an annual compliance filing subject to Commission review and approval. As outlined in Schedule DLC-2, the Company proposes a limitation on the annual increase in revenues associated with the annual rate adjustments to 2 percent of total revenue. Any part of the rate adjustment that exceeds 2 percent would be deferred for future recovery at the Company's cost of capital. The Company would also commit to a base rate case stay-out through 2021, subject to certain exogenous factors and considerations. The Company proposes an ROE collar which would allow the Company to file a base rate case before 2021 if ROE was under 7%, but provides for earnings sharing of 50% if ROE is greater than 11%. In addition, as with the 2010 Rate Plan, the 2016 Rate Plan includes features for exogenous events and excessive inflation.

V. TEMPORARY RATES

Q. Is the company requesting that temporary rates be set in this proceeding?

A. Yes. The company requests that temporary rates be established in the amount of $3,010,561 ($0.00248 per kWh) on an annualized basis to become effective on

July 1, 2016. The development of the temporary rate amount is detailed in Schedule DLC-4.

Q. Please explain how the temporary rate amount of $3,010,561 ($0.00248 per kWh) was derived.

A. In general, I employed a conservative approach in calculating the amount of the temporary rate request. The amount of the temporary rate request was based on 2015 test year-end rate base with only one pro forma adjustment for the Kingston substation as previously discussed. Again, the Kingston substation has been in service since April 2016, which is before the date the temporary rates go into effect on July 1, 2016. In addition, as I described earlier, the Kingston substation represents a significant portion of the Company's revenue requirement in this proceeding. No other known and measurable adjustments relating to future costs are requested in the temporary rate increase. The cost of capital used in the calculation is based on the rate case filing capital structure and debt costs as provided in Schedule RevReq-5. However, the cost of equity was set lower at 9.67% reflecting the last authorized return on equity awarded to the Company in its last base rate case. As shown in page 2 of Schedule DLC-4, this results in an overall cost of capital of 8.43%.

Q. **How does the Company account for and collect the difference between temporary rates and permanent rates once the Commission issues its order for permanent rates?**

A. After the Commission issues its order in this case, the Company will submit for collection the difference in revenue (or "recoupment") between temporary and permanent rates from the date temporary rates went into effect to the date permanent rates became effective. The recoupment surcharge will be a charge per kilowatt-hour, applied to all rate schedules. The Company expects to combine its recoupment with its rate case expenses which are explained next.

VI. RATE CASE EXPENSES

Q. How do you propose to recover rate case expenses?

A. Unitil Energy proposes to file a rate case surcharge to recover the costs incurred to plan, develop and present this rate case to the Commission at the conclusion of this proceeding when the final dollar amount of these expenses is known. A projection of these costs is detailed in Schedule RevReq-6.

Q. How do you propose to structure the rate case expenses surcharge?

A. The rate case expenses surcharge will be a charge per kilowatt-hour, applied to all rate schedules. Subject to Commission approval, the charge will be a temporary charge, and will be set at a level to recover the costs over a one-year period. The revenue collected will be fully reconciled with the costs incurred. At the end of the recovery period, the Company would file with the Commission a reconciliation of the surcharge, including a recommendation for treatment of any under- or over-recovered balances projected to remain at the end of the surcharge account.

Q. Please provide the estimated amount of rate case costs.

A. The estimated costs to be incurred for the rate case are $337,000 and are detailed on Schedule RevReq-6.

Q. How does the Company account for rate case costs?

A. The Company defers all costs associated with the case as they are incurred during the course of the proceeding for future recovery in rates. The Company is prepared to provide the Commission's audit staff with documentation to support those costs eligible for recovery. This documentation will consist of copies of invoices and/or other information that will assist the Commission Staff with its audit.

Q. **Has the Company incurred any actual rate case costs to date?**

A. No, the Company has not yet paid any actual outside services costs related to the rate case.

Q. **Will the Company inform the Commission about its actual rate case costs throughout this proceeding**?

A. Yes, every 90 days the Company will file with the Commission the items required by Part Puc 1905.01 (a) of its rules.

VII. CONCLUSION

Q. Does this conclude your testimony?

A. Yes, it does.