NORTHERN UTILITIES, INC.

DIRECT TESTIMONY OF

DAVID L. CHONG

EXHIBIT DLC-1

New Hampshire Public Utilities Commission

Docket No. DG 17-070

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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 Northern Utilities, Inc. (hereinafter referred to as "Northern" 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 sixteen 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 and how is it organized?

A. The purpose of my testimony is to outline the Company's request for an increase in gas distribution revenues and associated rate making proposals for which the Company is seeking the Commission's approval in this proceeding. First, I introduce the other Company witnesses in this proceeding. Next, I provide a brief description of the Company's request for rate relief and the other major components of this filing, including temporary rates for effect August 1, 2017, and a proposed multi-year rate plan (the "Rate Plan"). I then explain the reasons why Northern is filing for a distribution base revenue increase at this time. Next, I provide a comprehensive overview of the schedules created to support the Company's distribution cost of service and revenue requirements analysis, which is presented to justify the requested increase in base revenues. After that 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. I then provide a brief overview of rate case expenses before describing and supporting the Company's requested Rate Plan. Lastly, I summarize the Company's rate design proposals and give my concluding remarks.

Q. Please briefly identify the witnesses the Company is presenting and the subjects on which they are testifying.

A. The Company's direct presentation will include testimony by Company witnesses and outside experts. As discussed above, I will summarize the rate case filing. The other witnesses in this proceeding are as follows:

- Mr. Kevin E. Sprague, Director of Engineering, who will describe the Company's progress on the settlement agreement made in Docket DG 13-086 with respect to capital spending on defined "Eligible Facilities". In addition he describes recent and future capital spending on Eligible Facilities and proposes a modification to the list of Eligible Facilities to be included in the Company's Rate Plan. Also, he describes limited changes to the Company's miscellaneous charges in its tariff.

- Ms. Elizabeth M. Shaw, Director of Human Resources, who will present the salary and wage policies and employee and retiree benefit plans included in the Company's cost of service, including pro forma adjustments.
- Mr. Daniel Nawazelski, Senior Financial Analyst, who will present the Lead-Lag Study for delivery and purchased gas services.
- Mr. Robert Hevert, Partner of Scott Madden, Inc., who supports and recommends the proposed allowed return on equity of 10.3% for the Company.
- Mr. Paul M. Normand of Management Applications Consulting, who will present the Depreciation Study, Allocated Accounting Cost of Service Study and Marginal Cost of Service Study prepared in support of distribution base revenue responsibility, proposed distribution rates and associated bill impacts.

In addition, Northern is making the following housekeeping tariff changes: adhering to a request made by Chairman Honigberg at hearing in the Company's annual Cost of Gas proceeding, DG 16-819, to change "Clause" to "Charge" in the Company's Gas Tariff; melding the existing T rate schedules into the corresponding G rate schedules for administrative ease and their redundancy, as the T rate schedules rates are identical to the corresponding G rate schedules rates, are subject to the Company's General Terms and Conditions, and are subject to either Company's Delivery Service Terms and Conditions or the Company's Cost of Gas Factor; and complying with Puc 1603.05 by filing a new tariff because more than 50% of the pages of the existing tariff are proposed to be revised in a single filing. These housekeeping changes have no rate impact on customers. Lastly, the Company's filing includes the required Puc 1604.01(a) materials provided in a separate volume.

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, 2016, the Company has determined the need to increase its revenues by $4,728,445, or approximately 7.3% 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 8.30%. As I describe later in my testimony and in the testimony of witness Mr. Robert Hevert, the Company is seeking a cost of common equity of 10.3% for its permanent revenue requirement in this rate case.

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

A. In conjunction with this request for permanent rate relief, the Company is also seeking initial authorization to implement a temporary distribution base revenue increase of $1,996,875 effective as of August 1, 2017. This temporary rate level is based on a conservative calculation of the revenue requirement and a lower cost of common equity of 9.50%, which was the amount approved by the Commission in the Company's last rate case in Docket DG 13-086.

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

A. As I will discuss later in my testimony, the Company's requested Rate Plan is substantially similar to the step adjustments and other features that the Company agreed to in its last rate case in Docket DG 13-086. Similar to the prior settlement, the Rate Plan would provide annual revenue step increases recovering the revenue requirement associated with the Company's future capital spending on Eligible Facilities. Under the Rate Plan, the Company expects its incremental revenue requirement to be approximately $2 million annually over the three-year term of the plan. This equates to approximately 3.0%-3.5% of test year total operating revenues. As I discuss below, the Rate Plan offers numerous customer benefits and customer protections.

III. UNITIL CORPORATION OVERVIEW

Q. Please provide a brief overview of Unitil Corporation and Northern.

A. Unitil Corporation is a public utility holding company. Unitil Corporation's principal business is the retail distribution of electricity and natural gas throughout its service territories in the states of New Hampshire, Massachusetts and Maine. Unitil Corporation is the parent company of three distribution utilities: Unitil Energy Systems, Inc., which provides electric service in the southeastern seacoast and state capital regions of New Hampshire, including the capital city of Concord; Fitchburg Gas and Electric Light Company, which provides both electric and natural gas service in the greater Fitchburg area of north central Massachusetts; and, Northern, which provides natural gas service in southeastern New Hampshire and portions of southern and central Maine, including the city of Portland, which is the largest city in northern New England. In addition, Unitil Corporation is the parent company of Granite State Gas Transmission, Inc., an interstate natural gas pipeline company located in New Hampshire and Maine. Together, Unitil Corporation's three distribution utilities service approximately 104,300 electric customers and 79,900 natural gas customers. All of Unitil Corporation's utility service territories are shown in Schedule DLC-1.

Unitil Corporation acquired Northern from Bay State Gas Company (a subsidiary of NiSource, Inc.) in December 2008, and since that time has fully integrated the Company into its utility operations to provide safe, reliable and efficient natural gas service to a growing number of customers. Northern has two operating divisions, one operates in New Hampshire, and the other operates in Maine. As of December 31, 2016 the Company's New Hampshire Division served 32,282 customers in its service territory, including the towns of Atkinson, Brentwood, Dover, Durham, East Kingston, East Rochester, Exeter, Gonic, Greenland, Hampton, Hampton Falls, Kensington, Madbury, Newington, North Hampton, Plaistow, Portsmouth, Rochester, Rollinsford, Salem, Seabrook, Somersworth and

Stratham. The New Hampshire Division accounted for 43% of Northern's total operating revenues in 2016.

Q. Does Unitil Corporation have any other subsidiaries?

A. Unitil Corporation has structured its utility business operations in a centralized manner in order to achieve system-wide efficiencies through economies of scale by eliminating duplicate functions, sharing services and systems, and employing best business practices consistently across all the utilities. At the hub of this organizational structure is Unitil Service Corp. ("Unitil Service"), a subsidiary of Unitil Corporation, which provides a wide variety of shared business functions to its utility affiliates on an "at-cost" basis. In addition to Unitil Service, Unitil Corporation's other subsidiaries are: Unitil Power Corp., Unitil Resources, Inc. and Unitil Realty Corp. Unitil Power Corp. is a FERC-regulated wholesale power company that formerly provided all the wholesale power requirements to Unitil Energy in New Hampshire. As a result of industry restructuring and the introduction of retail choice in New Hampshire, Unitil Power Corp. has divested substantially all of its long-term power supply contracts and is currently winding up its business operations and obligations. Unitil Resources, Inc. is a wholly-owned non-regulated subsidiary with two additional subsidiaries: Usource, Inc. and Usource, L.L.C. (collectively "Usource"), which provides electric and natural gas energy brokering and advisory services to large commercial and industrial customers. Unitil Realty Corp. owns the corporate office building in Hampton, New Hampshire.

IV. SUMMARY OF REASONS FOR RATE CASE

Q. Why is the Company filing for rate relief at this time?

A. Under the settlement agreement in Docket DG 13-086, the Company was allowed two step adjustments in 2014 and 2015. The last time the Company had a base rate adjustment was in May 2015 for Eligible Facilities placed into service in calendar year 2014 as described by Mr. Sprague. Therefore, the Company has not recovered its utility plant additions and increases in operating expenses since 2014. The Company's current gas distribution base rate levels are not sufficient to allow Northern a reasonable opportunity to recover its cost of service and earn its allowed return on the capital it has invested to provide safe, reliable and cost-effective service to its customers. Since the Company's last rate case in 2013, the Company has not earned its authorized return on equity (see Schedule DLC-2). As a result, the primary driver of this rate relief is the need to bring distribution base revenues in line with the Company's current operating costs and rate base, including substantial increases in rate base that have been driven by non-revenue producing investments Northern is making to replace and improve the safety and reliability of its existing gas distribution system. At the same time, the Company is investing in the expansion of its natural gas distribution system to serve the growing demand for natural gas in New Hampshire. These investments will continue to have a substantial impact on the Company's capital expenditures, rate base and financing program for the foreseeable future. The requested rate relief in this proceeding is critical to allow the Company a reasonable opportunity to earn a fair return, maintain its financial strength and credit quality and provide the Company with continued access to capital on reasonable terms to support its system improvement and growth programs.

Q. Please summarize the Company's ongoing investment in system improvements and upgrades.

A. As more fully described in the testimony of Mr. Sprague, a major share of Northern's capital expenditures in New Hampshire has been directed toward non-revenue producing replacements and safety and reliability improvements to Northern' s existing distribution infrastructure. As part of Unitil Corporation's acquisition of Northern in 2008, the Company agreed to replace all its bare steel mains in New Hampshire within nine years beginning in calendar year 2009. As agreed to in the settlement, the Company undertook an accelerated bare steel replacement program beginning in calendar year 2009, and expects to be completed by this year (2017). In addition, Northern is replacing significant facilities due to state and municipal infrastructure projects. Replacement of these additional facilities is either mandated, in the case of state and municipal infrastructure projects, or premised on the same criteria, including improved safety and reliability, that supported the Commission's finding that the bare steel replacement program is reasonable and in the public interest. In addition, as described in Mr. Sprague's testimony, the Company is proposing to include Farm Tap Replacements, Excess Flow Valve Installations and Rochester Reinforcement Projects to the list of Eligible Facilities. These non-revenue producing projects are necessary to allow the Company to continue providing its customers with safe and reliable gas service with a state of the art distribution system, fully capable of meeting the growing demand for natural gas in New Hampshire. Over the next five years the Company expects to invest nearly $59 million in Eligible Facilities.

Q. How has the Company responded to the growth in demand for natural gas service?

A. Northern shares the desire expressed by many public officials, business and community leaders to expand the availability of natural gas and is committed to meeting the increased demand for natural gas in New Hampshire. Changing gas industry fundamentals, primarily reflecting the remarkable speed and scale of shale gas development in the United States, have heightened the awareness of the many benefits of natural gas over other competing fuel sources and lowered gas supply prices. Current and forecasted natural gas prices now make it economically attractive for residential and business customers to convert from oil, propane or other energy resources. Switching to domestically produced natural gas also has broader public benefits, such as energy efficiency, a cleaner environment and economic development. Broader availability of safe and efficient natural gas service will have significant benefits, both economic and environmental, for New Hampshire families and businesses, and for the State as a whole.

Given the relatively low saturation rate of natural gas in Northern's New Hampshire service territory and the higher cost of competing fuels, market conditions are favorable to the Company's plans to market natural gas to new customers. Northern plans to invest more than $36 million over the next five years in revenue producing projects to safely and reliably serve a growing number of customers. Since acquiring Northern in late 2008, the Company has added over 3,600 customers in New Hampshire, or an increase of 12.6% (see Schedule DLC-3). The Company expects this level of growth to continue in the future.

Q. Please explain the Company's current growth initiatives.

A. The Company currently implements strategies that are designed to grow new customers that are located both on and off the main. Potential customers who already have a main installed in the right of way at their residence or business are marketed and reflect a core component of the Company's growth. Another gas expansion strategy is gas main extensions to anchor customers. This strategy involves extending the main 1-5 miles to an anchor customer that the Company has contracted load with. Customers along the new main are notified about the project and are marketed on making the switch to natural gas. Finally, the Company has successfully implemented a Targeted Area Buildout ("TAB") strategy in Maine that is a planned, systematic expansion into dense markets without contracted anchor loads. This strategy focuses on marketing and customer acquisition in concentrated and well defined market areas that are not currently served by natural gas. The Company is assessing potential TAB opportunities in New Hampshire.

Q. What effect does the growth the Company is experiencing have on existing customers?

A. Broadly defined, there are two types of growth the Company can experience. The first type is from increased usage of natural gas by existing customers. This type of growth is typically achieved with limited or no investment by the Company. While Northern has some opportunity to promote greater use of natural gas to existing customers (e.g. conversions of appliances and equipment to use natural gas), this type of growth is not expected to be a significant contributor to overall revenue growth.

The second type of growth is from new customers. This type of growth is the primary one Northern is now experiencing and expects to experience in the future. However, this type of growth involves substantial investment in new gas mains and services. When the Company receives requests for a new gas service or a request for an extension of mains or an expansion of service area, it uses investment criteria in accordance with its gas mains and services extension policies to evaluate the requests. These investment criteria are designed and intended to ensure that new customers are paying for the incremental system investments or upgrades required to extend distribution service to their locations and that existing customers are not subsidizing this investment. In cases where expected revenues from new customers are inadequate to justify the investment, the Company will request contributions from these new customers.

The distinction between these two types of growth is important to understanding the effect growth has on Northern's customers. Growth in usage by existing customers increases revenues and has little effect on costs. As a result, this type of growth has a very positive benefit to existing customers. In contrast, the growth from new customers, which also increases revenues, has a much smaller benefit to existing customers because the incremental cost to serve new customers tends to offset the revenue generated by these customers in the upfront years. In the early years when a new customer begins taking distribution service, the front loaded carrying cost or revenue requirement associated with the investment to serve the new customer will exceed the incremental revenue from a new customer. As a result, new customer additions generally provide sufficient revenue to support the incremental investment over the customer's expected service life, but do not make contributions to support the revenue requirement in the early years. This is further exacerbated by the Company's non-revenue producing capital expenditures and additions.

Nevertheless, growth in customers leads to economies and efficiencies that reduce rates to all customers over the long term compared to what they would otherwise have been. For example, the rate impacts associated with Northern's non-revenue producing capital expenditures will be mitigated as the costs of these projects are spread over increased numbers of customers in future years. Likewise, growth in new customers can also help to mitigate the expense and earnings attrition the Company experiences between base rate proceedings, thereby lengthening the period between the filing of general rate cases and allowing for longer stay out periods.

Q. Please explain what you mean by "earnings attrition"?

A. Earnings attrition, as a utility ratemaking concept, occurs when a utility's costs rise faster than its revenues over time. In Northern's case, its investments in non-revenue producing assets have caused its fixed costs including depreciation, property taxes and return to rise faster than its revenues. Add to these fixed cost increases, the effect of inflationary pressures on other operating and maintenance costs, and the gap between revenues and costs widens even further. Many of these cost pressures come in the form of contractual obligations, such as union wage increases, vendor agreements, and employee and retiree benefit plans. As shown in Schedule DLC-2, earnings attrition has affected the Company since 2010 as it has not earned its authorized return on equity.

Q. Are you making any proposals in this filing to address earnings attrition?

A. Yes, later in my testimony I will describe in detail the various adjustments made to the cost of service, all of which are designed to offset earnings attrition. One notable proposal is the inclusion of a new Rate Plan that will provide annual revenue step increases for additions to utility plant during calendar years 2017-

2019. Without annual revenue step increases the Company will significantly under-earn when permanent rates go into effect.

Q. Please describe the efforts Northern has undertaken to offset attrition.

A. The Company has a strong culture of cost control. As part of its annual budgeting process, functional managers develop detailed operating budgets which are reviewed by senior management. Functional managers are expected to maintain their costs within their approved annual budget. Annual operating budgets are reviewed monthly for variances, and functional managers are expected to explain any significant budget variances. In addition, the Company monitors its benefits plans with its peer companies and periodically makes changes to make its benefits plans in-line with its peer companies. For example, the Company has closed its pension plan to both union and non-union new employees. Another example is the Company’s medical plan. As explained by Ms. Shaw, the Company is changing its insurance provider later in 2017 to achieve significant medical savings. By maintaining a low cost structure, and aggressively pursuing cost savings, Northern has been able to consistently provide its customers with safe and reliable service at a reasonable cost.

V. DEVELOPMENT OF DISTRIBUTION REVENUE REQUIREMENT

A. INTRODUCTION

Q. Please summarize your revenue requirement testimony.

A. My testimony presents and supports the Company's proposed cost of service and revenue requirement, which is used in the testimony of Mr. Normand to establish the proposed distribution base rates contained in Northern's proposed gas 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, 2016.

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 July 1, 2018, or the effective date of permanent rates.

Q. Why are these standards important?

A. The level of rates approved by the Commission in this proceeding should provide Northern with sufficient revenues to continue to ensure safe, reliable and cost-effective delivery service for Northern's customers and to provide a reasonable opportunity for Northern to earn its authorized rate of return. Northern 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 Northern 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-6 through 6-7. The Adjustments to Test Year specified in Section Puc 1604.09 have been provided in Schedules RevReq-3 through 3-20.

Q. Has Northern 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 a separate volume 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 cost of service schedules and workpapers for Northern in the test year are presented in Schedule RevReq-1 through RevReq-7 and Revenue Requirement Workpapers supporting the revenue requirement schedules. The pro forma operating income for Northern in the test year is presented in Schedule RevReq-2, pages 1 and 2. In page 1, the "per books" revenues, operating expenses and net operating income are set forth in column (2), labeled "Test Year 12 Months Ended 12/31/2016." Column (3), labeled "Cost of Gas Excluding Prod. & OH.", contains test year revenue and operating expenses associated with the Company's cost of gas mechanism, excluding its allowance for production and related overhead. I will discuss the exclusion of production and related overhead in the next Q&A. Column (4), labeled "Other Flowthrough" contains revenue and operating expenses from the Company's non-base rate mechanisms including energy efficiency, environmental response costs, residential low income assistance, rate case costs and recoupment. Column (5), labeled "Test Year Distribution, Prod. & OH." reflects base revenues and expenses and is calculated by subtracting Columns (3) and (4) from Column (2). In page 2 of Schedule RevReq-2, the proposed normalizing adjustments are set forth in column (3), labeled "Pro Forma Adjustments." The pro forma adjustments are added to column (2), labeled "Test Year Distribution, Prod. & OH.", to obtain the adjusted revenues and operating expenses in column (4), labeled "Test Year Distribution, Prod. & OH. Pro Forma". The pro forma operating income from column (4) 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 (4) of page 2 of 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 exclusion of production and related overhead allowances in the cost of gas mechanism as shown in column (3) of page 1 of Schedule RevReq-2.

A. During the test year, the Company collected $938,029 for production and related overhead through the Company's cost of gas mechanism as shown in Workpaper

– Cost of Gas. This revenue relates to the revenue requirement last approved for the Company's gas production facilities in Docket DG 13-086. Excluding this amount from column (3) causes it to be included as a component of revenues in column (5) of Schedule RevReq-2, page 1. This component of the revenue requirement is later functionalized as production-related by witness Mr. Normand and appropriately assigned for recovery through the cost of gas mechanism consistent with the current ratemaking.

Q. Please describe the pro forma adjustments that are shown in column (3) of page 2 of Schedule RevReq-2.

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

- Total Sales
- 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. TOTAL SALES

Q. What adjustments were made to Total Sales?

A. Northern made the following adjustments to total sales:

- Weather Normalization
- Residential Low Income
- Unbilled Revenue
- Non-Distribution Bad Debt
- Special Contract Customer Revenue

Q. Please explain the weather normalization adjustment.

A. The weather normalization adjustment normalizes the effect of actual weather experienced during the test year. Normal weather is based on 30-year historical average temperatures. In 2016, net temperatures were warmer than normal; therefore the test year operating revenues were lower than would occur under normal weather conditions. Schedule RevReq-3-1 provides for a pro forma adjustment to increase base distribution revenue by $897,399. This adjustment was calculated and supported in the testimony of Mr. Normand.

Q. Please explain the residential low income adjustment.

A. I increased distribution revenues by $366,440 to reflect that residential low income costs are collected through a separate flow-through rate recovery mechanism, but should be attributed to the Company’s cost of service. This adjustment is shown in Schedule RevReq-3-2.

Q. Please explain the unbilled revenue adjustment.

A. Northern books unbilled revenue to account for the difference between the amount of gas delivered to customers during the test year and the amount billed to customers during the same period. Because the test year sales are based on weather-normalized sales, the accrual for the amount of unbilled sales was removed from the test year. This adjustment increases revenue by $151,597 as shown in Schedule RevReq-3-3.

Q. Please explain the non-distribution bad debt adjustment.

A. I increased total sales by $2,498 to remove accrued revenue associated with non-distribution bad debt. I also make a similar adjustment to increase operating expenses by $2,498 which is the provision for non-distribution bad debt in operating expenses. These adjustments are summarized in Schedule RevReq-3-4. Overall, there is no impact on the revenue requirement since both the revenue and operating expenses are adjusted by the same amount.

Q. Please explain the special contract customer revenue adjustment.

A. I increased total sales by $42,845 as shown in Schedule RevReq-3-5 to reflect known and measurable special contract rate increases that will occur in 2017. Test year billing determinants for these two customers were calculated at their respective 2017 special contract rates and then reduced by the customer's test year actual revenues to calculate the net revenue adjustment.

II. OPERATING & MAINTENANCE EXPENSES

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

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

- Production Expense
- Payroll
- Distribution Bad Debt
- Non-Distribution Bad Debt
- Medical & Dental Insurances
- Pension, Postemployment Benefits Other than Pension, Supplemental Executive Retirement Plan, and 401K
- Property & Liability Insurances
- Postage
- NH PUC Assessment
- Inflation Allowance

I will discuss each adjustment individually in the following section.

Q. What adjustments were made to production expense?

A. This adjustment allocates production facility operation and maintenance expenses between Northern Utilities' Maine (ME) and New Hampshire (NH) divisions by the Fixed Demand factor as filed in the Company's cost of gas filings. The Fixed Demand factor as of December 31, 2016 was 43.73% (NH) and 56.27% (ME).

This allocation results in an increase of expense of $67,212 to the NH division as shown in Schedule RevReq 3-6.

Q. What adjustments were made to payroll?

A. The payroll adjustment, as detailed on Schedule RevReq-3-7, pages 1-2, increases the test year payroll charged to O&M Expense for known and measurable increases that will occur through January 1, 2018. The Company will provide an update to the January 1, 2018 pay increase before the completion of this proceeding. The adjustment reflects payroll adjustments for both the Company and for Unitil Service amounts assigned to the Company. The pro forma increase to test year O&M payroll is $273,315. This adjustment is discussed in more detail in the testimony of Ms. Shaw.

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

A. The calculation of this adjustment is shown in Schedule RevReq-3-8. I developed this adjustment by first calculating a bad debt rate based on the past three-year history of delivery net write-offs divided by delivery billed revenue. I then multiplied the bad debt rate by test year delivery revenue including the revenue requirement from Schedule RevReq-1, which establishes an uncollectible revenues amount. The uncollectible revenues amount is compared to test year delivery write-offs to produce the pro forma adjustment of $89,445.

Q. Please explain the expense adjustment for non-distribution bad debt.

A. Please refer to Schedule RevReq-3-4 and the response provided above in Section V (B) (I), titled Total Sales.

Q. Please explain the medical and dental insurance adjustment.

A. As explained by Ms. Shaw, Northern test year O&M expense has been adjusted to decrease test year medical and dental insurance by $11,878. This adjustment is shown in Schedule RevReq-3-9, and includes amounts allocable to the Company from Unitil Service. This adjustment is based on actual working rates for 2017, and an estimated increase for 2018. Before the completion of this proceeding, this adjustment will be updated to reflect actual 2018 working rates.

Q. Please explain the pension, postemployment benefits other than pension, supplemental executive retirement plan, and 401k adjustments.

A. The purpose of the pension, postemployment benefits other than pension (PBOP), supplemental executive retirement plan (SERP), and 401(k) adjustments is to update these costs from test period O&M expense. The latest year-end 2016 actuarial report which provides 2017 calendar year expense was the basis for the pension, PBOP, and SERP adjustment. The 2016 401(k) expense was adjusted to reflect the effect of the payroll increase referenced above. The pension, PBOP, SERP, and 401(k) adjustments are all provided in Schedule RevReq-3-10 which shows increases of $37,510, $150,217, $28,544 and $21,621, respectively. These adjustments include costs for the Company as well as costs allocable to the Company from Unitil Service. This adjustment is further supported by Ms. Shaw.

Q. Please describe Northern'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. Northern'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-3-11, the pro forma adjustment for property and liability insurances is an increase of $48,435 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 5.3 include estimates for certain insurance policies that will renew in 2017 and 2018. The Company will provide a final update to these estimated premiums as described on Workpaper 5.3 before the completion of this proceeding.

Q. Please explain the adjustment for postage.

A. This adjustment reflects two postage rate changes. The first rate change was a rate decrease that occurred on April 10, 2016 which decreased postage rates $0.02. The second rate change was a rate increase that occurred on January 22, 2017 which increased postage rates $0.02. Annualizing the impact of both of these postage rate changes to the Company's test year postage expense results in an adjustment increase of $4,415 as shown in RevReq-3-12.

Q. Please explain the NH PUC regulatory assessment adjustment.

A. Currently, the Company collects the PUC assessment in both base rates and through its Local Delivery Adjustment Clause ("LDAC") mechanism. The proposed adjustment shown in Schedule RevReq-3-13 moves all recovery into base rates, with any subsequent incremental changes flowing through to the LDAC mechanism. The adjustment increases expenses by $219,575 and is necessary to comply with the requirements in RSA 363-A:6.II. While the adjustment is significant, it does not reflect any additional impact to ratepayers or additional revenue to the Company. Rather, it merely moves recovery of the assessment from the LDAC mechanism to base rates.

Q. Please explain the inflation allowance.

A. This adjustment, detailed on Schedule RevReq-3-14, 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 Northern'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 4.26% over a 24-month period, which represents the increase in the Gross Domestic Product Implicit Price Deflator from the mid-point of the test year (July 1, 2016) to July 1, 2018 (date of permanent rates), as shown on Schedule RevReq-3-14 Page 2. The resulting increase to O&M expenses for the inflation allowance for residual O&M expense is $136,865.

III. DEPRECIATION AND AMORTIZATION

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

A. Yes. The annualization of depreciation expense based on the twelve months ended December 31, 2016 depreciable plant balance is detailed in Schedule RevReq-3-15 page 1. The annualization adjustment increases the depreciation expense by $337,999.

Q. When were the currently authorized depreciation rates implemented?

A. The current depreciation rates were authorized in Docket DG 11-069 based on a comprehensive depreciation study that established new depreciation accrual rates appropriate for its properties.

Q. Is Northern proposing an adjustment to depreciation expense for any proposed changes in depreciation rates?

A. Yes. The depreciation adjustment, detailed on Schedule RevReq-3-15 page 2, increases the test year depreciation expense by $541,522. The new asset depreciation rates are presented in the testimony of Company witness Mr. Normand.

Q. Is there a reserve deficiency that the Company is proposing to amortize?

A. No. The analysis of the reserve variance is presented in the testimony of Mr. Normand. As shown on Schedule RevReq 3-15 page 3, the Book Reserve exceeds the Theoretical Reserve by $829,634, or 1.3%. This amount of variance is well within acceptable limits, and I recommend no adjustment be considered which may reverse this small difference in a future study.

Q. What is the net depreciation adjustment reflected in the revenue requirement?

A. The net adjustment of Schedule RevReq 3-15 pages 1 and 2 is an increase of $879,521 when compared to the test year level.

Q. What adjustments were made to production depreciation expense?

A. This adjustment allocates production facility depreciation expense between the NH and ME divisions by the Fixed Demand Factor used in the Company's cost of gas filings as discussed earlier. This results in an increase in expense of $38,600 to the NH division as shown in Schedule RevReq-3-6.

Q. Please explain the customer information system amortization adjustment.

A. In the test year, the Company amortized its customer information system project over an 8-year life. Pursuant to the settlement agreement approved by the Commission in Docket DG 08-048 and DG 08-079, this project should amortize over a 13-year period. The adjustment in Schedule RevReq-3-16 reduces amortization expense by $43,376 to reflect a 13-year amortization period.

Q. Please explain the plant acquisition adjustment.

A. In Unitil Corporation's acquisition of Northern approved by the Commission in Docket DG 08-048 and DG 08-079, the Company agreed to not seek recovery of purchase acquisition premium, transaction costs and transition costs. In Schedule RevReq-3-17, I removed the amounts that were included in the test year for a total adjustment of $352,468.

IV. TAXES OTHER THAN INCOME

Q. Have test year property taxes been adjusted?

A. Yes. The adjustment is detailed on Schedule RevReq-3-18, page 1 and amounts to an estimated increase in property tax expense of $678,611. 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 5.46% to increase test year property taxes an additional year, which will be known and measurable before the completion of this proceeding.

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 2017 is generally estimated based on 2016 property taxes, and the second billed installment will reflect the final accounting for 2017. Typically, the second billing installments are received in October and November, with payments due in November and December. Absent the final tax bills for 2017, Northern estimated the increase in its property tax expense to be equal to the average property tax expense increases for the period 2014 to 2016, as shown on Schedule RevReq-3-18, page 2. The property tax adjustment will be updated during the proceeding to reflect final property tax bills.

Q. Have test year payroll taxes been adjusted?

A. Yes, the adjustment is shown on Schedule RevReq-3-19 and amounts to an increase in payroll tax expense of $24,915. This adjustment is described in the testimony of Ms. Shaw.

V. INCOME TAXES

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

A. Yes. The adjustment is summarized on Schedule RevReq-3-20, pages 1 and 2, and amounts to a reduction in federal income taxes of $443,471 and state income taxes of $116,508. The adjustment to test year income taxes calculates the income tax effect of the adjustments to revenues and expenses previously described in 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-3-20, page 2. The adjustment also reflects the income tax effect on flow through net operating income of $498,382 which is the sum of the operating income in columns (3) and (4) in Schedule RevReq-2 page 1

VI. RATE BASE

Q. Have you provided the balance sheets for Northern?

A. Yes, I have provided Assets & Deferred Charges and Stockholder's Equity and Liabilities in Schedules RevReq-4-1 and 4-2, respectively. I have also provided detailed plant and accumulated depreciation information in Schedules RevReq-4-3 and 4-4, respectively.

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

A. Schedule RevReq-5 summarizes the rate base. The test year-end rate base at December 31, 2016, was used to determine Northern's revenue requirement.

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

A. A year-end rate base is appropriate for Northern given the significant annual growth in its rate base driven by investments in bare steel replacement and other system improvements. 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 DG 13-086 and Docket DG 11-069 and I believe it is appropriate to continue this practice.

Q. Please describe the component of rate base information on Schedule RevReq-5-1.

A. Schedule RevReq-5-1 presents the balance of rate base items for each of the 5 quarters beginning with the balance at December 31, 2015 and ending with the balance at December 31, 2016. The components of rate base include Utility Plant in Service, Depreciation Reserve, Materials and Supplies Inventories, Cash Working Capital, Deferred Income Taxes, Customer Advances and Customer Deposits.

Q. Please describe the component of rate base information on Schedule RevReq-5-2.

A. The calculation of cash working capital in rate base is detailed in this schedule. The calculation consists of a 23.97 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 testimony of Mr. Nawazelski.

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 have been added to rate base. These items are shown on Schedule RevReq-5 and 5-1.

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-5 and 5-1.

Q. Please explain Schedule RevReq-5-3 which contains the Supplemental Plant Pro Forma Adjustment.

A. This schedule contains plant in service and accumulated depreciation for the Company's production facilities, including a LNG plant located in Maine. This schedule allocates these production plant and depreciation balances to either New Hampshire or Maine based on the Company's Fixed Demand factor (43.73% NH and 56.27% ME). The Company allocates the production facilities based on this methodology because the Company manages a combined system where the costs are allocated among the states based on relative gas usage. This methodology was approved in the Stipulation and Settlement approved by the Maine Commission in Docket No. 2005-273 and by the New Hampshire Commission in Docket DG 05-080.

Q. Please explain Schedule RevReq-5-4 which contains a deferred income tax adjustment.

A. In Docket DG 08-048 and DG 08-079, the Company agreed to hold ratepayers harmless from the tax impact of Unitil Corporation's acquisition of the Company. In this acquisition, a 338(h)(10) election was made which eliminated the Company's historical accumulated deferred income taxes. In the Stipulation approved by the Commission in Docket DG 08-048 and DG 08-079, the Company agreed to maintain pro forma accounting for regulatory purposes of the historical deferred income tax balance assuming the acquisition had not occurred. This historical deferred income tax balance is then used for ratemaking purposes until such time that the newly acquired deferred income tax balance equals or exceeds the historical balance. This schedule provides both the historical and newly acquired deferred income tax balances and utilizes the historical balance for ratemaking purposes. The schedule then incorporates deferred income tax balances as a result of capital spending post-acquisition and deferred taxes due to net operating losses. The deferred taxes associated with net operating losses have been adjusted to reflect losses attributable to rate base.

Q. Please explain the customer information system accumulated depreciation and deferred income tax adjustments to rate base.

A. As discussed earlier, the Company is amortizing its customer information system project over an 8-year life. Pursuant to the Stipulation approved by the Commission in Docket DG 08-048 and DG 08-079, this project should amortize over a 13-year period. The adjustment in Schedule RevReq-3-16 reduces accumulated depreciation by $307,244 from project inception through year-end 2016. Similarly, the adjustment in Schedule RevReq-3-16 increases accumulated deferred taxes by $121,091 from project inception through year-end 2016.

VII. RATE OF RETURN

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

A. As shown on Schedule RevReq-6, Northern's weighted cost of capital is calculated to be 8.30%. 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 Northern's capital structure?

A. As detailed on Schedules RevReq-6 and RevReq-6-1, the Company's capital structure consists of 51.70% common equity and 48.30% long-term debt. The common stock equity and long-term debt balances are as of December 31, 2016, 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 10.3% is the cost of equity determined in the prefiled testimony of Mr. Hevert, as the appropriate market cost of common equity for Northern for ratemaking purposes.

Q. Have you determined the cost of preferred stock equity?

A. No. As shown in Schedule RevReq-6-3, the Company does not have preferred stock outstanding.

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

A. The calculation of the cost of long-term debt for Northern is detailed on Schedule RevReq-6-4, which shows the weighted cost rate of 6.16% 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 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 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-6-5, pages 1 and 2. In the Company's cost of capital, I used an average monthly short-term borrowing balance, and for an interest rate I used the Company's most recent 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. Unitil Corporation's interest rate under this credit facility during the test year (and currently) is LIBOR + 125 basis points (bps). 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-6-5, page 1, I deduct average accrued revenue (net of unbilled), purchased gas working capital, and average construction work in process 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 gas 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. In addition, construction work in process is not reflected in rate base, but is financed through short-term borrowings. Since the Company does not recover construction work in process through rate base, the cost of capital associated with this is appropriate to unbundle.

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

A. I prepared Schedule RevReq-6-6 showing the Company's historical capital structure and Schedule RevReq-6-7 showing historical capitalization ratios.

C. DISTRIBUTION REVENUE REQUIREMENT CONCLUSION

Q. Please provide the result of the revenue requirement calculation for Northern.

A. As shown on Schedule RevReq-1, when the rate of return of 8.30% is applied to the rate base of $131,491,801 the resulting income required is $10,913,819. The income required is then compared to the test year adjusted net operating income to arrive at an operating income deficiency of $2,864,870. Applying the income tax factor associated with the deficiency results in a revenue requirement of $4,728,445.

VI. 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 $1,996,875 on an annualized basis to become effective on August 1, 2017. The development of the temporary rate amount is detailed in Schedule DLC-4.

Q. Please explain how the temporary rate amount of $1,996,875 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 2016 test year-end rate base. 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-6. However, the cost of equity was set at 9.5% reflecting the last authorized return on equity awarded to the Company in its last base rate case. As shown in page 23 of Schedule DLC-4, this results in an overall cost of capital of

7.89%. The test year net operating income was adjusted to reflect only a handful of pro forma adjustments, as shown in page 6 of Schedule DLC-4, and also portrays a weather-normal 2016 distribution test year. In general, the pro forma adjustments selected were confined to the 2016 test year, such as depreciation annualization to bring depreciation levels up to year-end balances, and property taxes to reflect the most recent annualized 2016 property tax bills. No adjustments pertaining to 2017 and beyond were incorporated.

Q. Please describe the derivation of the proposed temporary delivery charge per therm.

A. The annualized proposed temporary rate increase is determined by dividing the proposed temporary revenue requirement by test year weather-normalized delivery volumes excluding special contracts rounded to four decimals:

$1,996,875 / 69,908,225 therms = $0.0285 per therm

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 therm, and included in the Local Delivery Adjustment Charge (“LDAC”).

VII. RATE CASE EXPENSES

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

A. Northern 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-7.

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

A. The rate case surcharge will be a charge per therm, and included in the LDAC. 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 $416,000 and are detailed on Schedule RevReq-7.

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. Yes, the Company has processed $18,277 of actual rate case costs.

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.

VIII. RATE PLAN

Q. Are you proposing a Rate Plan in this filing?

A. Yes, the Company is requesting a Rate Plan that is outlined in detail in Schedule DLC-5. I provide a brief summary below.

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

A. The plan will encompass three annual step adjustments to recover the revenue requirement. The step adjustments would take place on July 1 of 2018, 2019, and 2020, for calendar years 2017, 2018, and 2019. Each step adjustment compliance filing would be made with the Commission on or before the last day of March for the prior year's additions. Then, the resulting rate changes would go into effect

July 1. For example, the filing for additions for investment year 2017 would be filed with the Commission by March 31, 2018 with rates going into effect July 1, 2018, coinciding with the expected effective date of permanent rates from this proceeding.

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

A. Yes, I have prepared Schedule DLC-6 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 summarize what Eligible Facilities are recoverable in the Rate Plan.

A. As more fully described in Mr. Sprague's testimony, Eligible Facilities are defined as capital spending related to the NH Mains Replacement Program, Gas Main Extensions and Gas Highway Projects, as well as Farm Tap Replacements, Excess Flow Valve Installations and Rochester Reinforcement Projects. The Rate Plan expands the list of Eligible Facilities because the Company has experienced earnings attrition and not earned its authorized rate of return on equity over the last several years in spite of having been allowed annual base rate step adjustments.

Q. Please describe the derivation of Rate Base on page 1 of Schedule DLC-6?

A. Rate Base is calculated by sourcing lines 1 and 2 from the Company's plant accounting records to arrive at the Rate Plan eligible facilities shown on line 3. Accumulated Depreciation is calculated on line 4 by taking 50% of the calculated Depreciation Expense. Next, Accumulated Depreciation is removed from the Rate Plan Eligible Facilities to derive Net Utility Plant as shown on line 5. Then Accumulated Deferred Income Taxes (ADIT) is calculated on line 6 by applying the Effective Income Tax Rate to the difference between Book and Tax Depreciation as shown on lines 18-26. Lastly, ADIT is deducted from Net Utility Plant to get the Rate Base associated with Rate Plan eligible facilities as shown on line 7.

Q. Please describe the derivation of Revenue Requirement on page 1 of Schedule DLC-6?

A. As described above, once Rate Base is calculated it is multiplied by the Pre-Tax Rate of Return on line 9 to derive the Return and Related Income Taxes on line 10. Next, Depreciation Expense associated with eligible facilities is calculated on lines 18-20 based on a composite depreciation rate. Then, Property Taxes are calculated on Net Utility Plant on line 12 using a property tax rate of 2.75%, which corresponds to the composite rate calculated in Schedule-3-18 page 1. The Company would update this rate annually based on the latest property tax rates. Finally, Return and Related Income Taxes, Depreciation and Property Taxes are added together to arrive at the Revenue Requirement on line 13.

Q. What schedules support Schedule DLC-6 page 1?

A. Schedule DLC-6 page 2 presents the detail of Rate Plan eligible facilities forecasted to close to plant that is used in Schedule DLC-6 page 1 for illustrative purposes. Again, actual plant accounting records will be utilized in calculating the Rate Plan eligible facilities. Schedule DLC-6 page 3 shows the calculation of the Pre-Tax Rate of Return.

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

A. The revenue requirement that will be derived from the step adjustments is $2,290,811 (in investment year 2017), $2,217,664 (in investment year 2018), and $1,923,758 (in investment year 2019). The step adjustments represent 3.0%-3.5% of test year operating revenue. Again, these revenue requirements are forecasts based on the Company's capital budget. Actual Rate Plan eligible facilities closed to plant in a given year will vary from this forecast.

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

A. Yes. As described earlier, the Company would submit an annual compliance filing subject to Commission review and approval. In addition, the Company included other consumer protections in the Rate Plan as described below.

Q. Is the Company proposing a cap on capital spending in the Rate Plan?

A. Yes. As further outlined in Scheduled DLC-6, the Company proposes a cap of $7,100,000 which is the sum of the revenue requirements for investment years

2017-2019 plus an increase of approximately 10%. The additional approximate 10% is to accommodate unknown conditions, such as municipal projects that may arise in the future but are not known today. In addition, the Company may identify additional spending opportunities in New Hampshire, including mains extensions to anchor customers.

Q. Does the Rate Plan include a stay out provision?

A. Yes. The Company would commit to a base rate case stay-out through the end of 2020, subject to exogenous factors and other considerations.

Q. Is there an earnings sharing component included in the Rate Plan?

A. The Company proposes an ROE collar which would allow the Company to file a base rate case before 2020 if ROE is under 7%, but provides for equal earnings sharing between the distribution ratepayers and the Company if ROE is greater than 11%.

Q. Does the Rate Plan include features for exogenous events?

A. Yes. The Rate Plan includes features for exogenous events and excessive inflation that allow the Company to adjust distribution rates upward or downward.

IX. RATE DESIGN

Q. Please summarize the Company's rate design proposals.

A. The Company is proposing to build upon the rate design improvements made in its last base rate case in 2013 by continuing to move towards cost based distribution rates. The Company proposal is to continue to move the design of rates to recover a greater portion of predominately fixed costs associated with the provision of distribution service through the fixed customer charge component of rates. As explained in Mr. Normand's testimony, this design is consistent with the goal of establishing cost based rates.

X. CONCLUSION

Q. Do you have anything further to add?

A. The Company has made significant safety, customer service and operational improvements in the 8-plus years it has operated as a utility subsidiary of Unitil Corporation. Northern is committed to continually investing in New Hampshire in order to maintain a safe and reliable state-of-the-art natural gas distribution system, which will benefit the State and energy consumers for years to come. A key objective of this rate filing is to assure sufficient support for the funding and financing of these infrastructure replacements and capital improvements at a reasonable cost. That is why, as further explained in the testimony of Robert Hevert, the Company believes that a Return on Equity ("ROE") of 10.3% reflects a fair and reasonable cost of equity capital. The Company has a large capital expenditure plan to improve and expand gas services to its customers. As a result, the Company will be accessing debt and equity financing in capital markets on a regular basis over many years. The Commission's authorized ROE in this proceeding can send the necessary message to investors that the Company has appropriate regulatory support for the safety and reliability related investments the Company is making, and for expanding gas service to a greater number of energy consumers in New Hampshire. The ROE authorized for Northern in this proceeding, which will be established for the duration of the Rate Plan, should take into account the Company's ongoing and repeated needs to access the capital markets at a reasonable cost for the benefit of its customers. In addition, this rate filing is intended to limit future procedural and administrative costs through the adoption of the proposed Rate Plan, which will avoid expenses of general rate cases and will reduce customer rate impacts from Northern's non-revenue producing capital expenditures and additions to rate base. Finally, this rate proceeding is intended to further design distribution base rates with cost based principals in order to send the appropriate price signals to Northern's natural gas customers and achieve a number of other important rate design objectives to benefit customers and the Company.

Q. Does this conclude your testimony?

A. Yes, it does.