Volume 2B

Direct Testimony and Supporting Schedules:

Robert B. Hevert

Before the South Dakota Public Utilities Commission
State of South Dakota

In the Matter of the Application of Otter Tail Power Company
For Authority to Increase Rates for Electric Utility
Service in South Dakota

Docket No. EL18-___
Exhibit___(RBH-1)

RETURN ON EQUITY

DIRECT TESTIMONY AND SCHEDULES OF
ROBERT B. HEVERT

April 20, 2018

TABLE OF CONTENTS

Schedules

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, AFFILIATION, AND BUSINESS ADDRESS.

A. My name is Robert B. Hevert. I am a Partner of ScottMadden, Inc. ("ScottMadden"). My business address is 1900 West Park Drive, Suite 250, Westborough, MA 01581.

Q. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am submitting this direct testimony ("Direct Testimony") before the South Dakota Public Utilities Commission ("Commission") on behalf of Otter Tail Power Company ("OTP" or the "Company"), a wholly-owned subsidiary of Otter Tail Corporation ("OTTR").

Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND.

A. I hold a Bachelor's degree in Business and Economics from the University of Delaware, and an MBA with a concentration in Finance from the University of Massachusetts. I also hold the Chartered Financial Analyst designation.

Q. PLEASE DESCRIBE YOUR EXPERIENCE IN THE ENERGY AND UTILITY INDUSTRIES.

A. I have worked in regulated industries for over thirty years, having served as an executive and manager with consulting firms, a financial officer of a publicly-traded natural gas utility (at the time, Bay State Gas Company), and an analyst at a telecommunications utility. In my role as a consultant, I have advised numerous energy and utility clients on a wide range of financial and economic issues, including corporate and asset-based transactions, asset and enterprise valuation, transaction due diligence, and strategic matters. As an expert witness, I have provided testimony in more than 200 proceedings regarding various financial and regulatory matters before numerous state utility regulatory agencies, the Federal Energy Regulatory Commission, and the Alberta Utilities Commission. A summary of my professional and educational background, including a list of my testimony in prior proceedings, is included in Attachment A to my Direct Testimony.

II. PURPOSE AND OVERVIEW OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. My Direct Testimony presents evidence and a determination as to OTP's current Cost of Equity and provides a recommendation as to OTP's Return on Equity ("ROE").[1] My analysis and conclusions are supported by the data presented in Exhibit__(RBH-1), Schedules 1 through 12, which have been prepared by me or under my supervision.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE APPROPRIATE ROE AND CAPITAL STRUCTURE FOR OTP?

A. My analyses indicate that OTP's Cost of Equity currently is in the range of 10.00 percent to 10.60 percent. Based on the quantitative and qualitative analyses discussed throughout my Direct Testimony, including an assessment of the Company's relative risk, it is my view that 10.30 percent would be the appropriate ROE in this proceeding. Based on the analyses described in Section IX, I believe a capital structure including 53.10 percent common equity and 46.90 percent long-term debt is appropriate.

Q. PLEASE PROVIDE A BRIEF OVERVIEW OF THE ANALYSES THAT LED TO YOUR ROE DETERMINATION.

A. Because all financial models are subject to various assumptions and constraints, equity analysts and investors tend to use multiple methods to develop their return requirements. I therefore relied on three widely accepted approaches to develop my ROE recommendation: (1) the Discounted Cash Flow ("DCF") model, including the Constant Growth and Multi-Stage forms; (2) the Capital Asset Pricing Model ("CAPM"); and (3) the Bond Yield Plus Risk Premium approach.

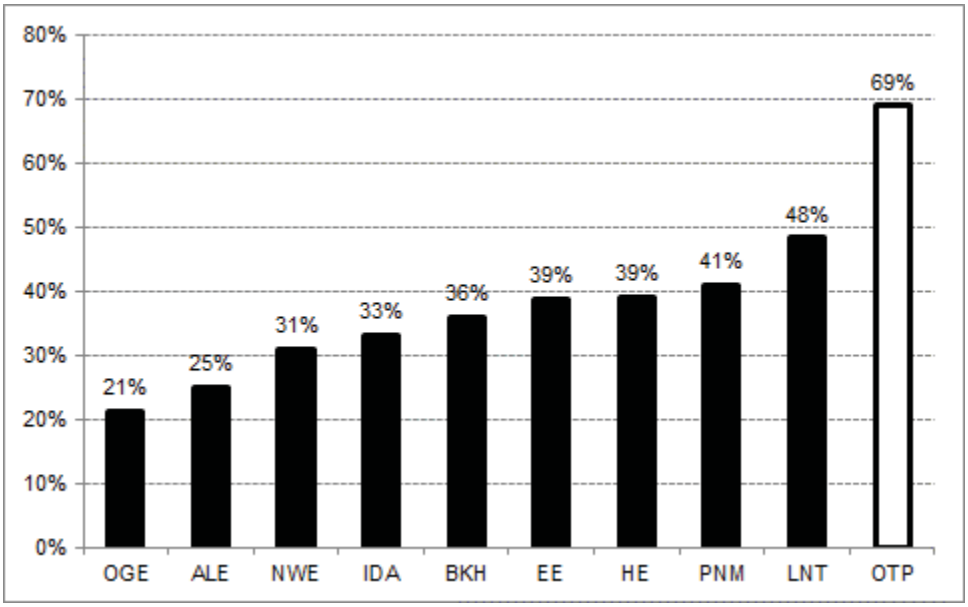
In addition to the methods noted above, my recommendation also takes into consideration: (1) OTP's extensive planned capital investment program (that is, significantly higher than any of my proxy companies); (2) OTP's small size, which is

[1] Throughout my Direct Testimony, I interchangeably use the terms "ROE" and "Cost of Equity" to refer to the market-required rate of return.

related to OTTR's low level of institutional ownership and low common stock trading volume; and (3) OTP's customer concentration.

OTP's planned capital expenditures in 2018 – 2022 represent approximately 69.00 percent of its net plant in service, higher than all the proxy companies, and over 20.00 percentage points above the highest in the proxy group (see Chart 1, below):

Chart 1: Capital Expenditures



OTP also is substantially smaller than other utilities in my proxy group: OTP's implied market capitalization is only about 2.00 percent of the proxy group median level market capitalization, and only 4.00 percent of the smallest of the proxy companies. Moreover, OTTR's 43.00 percent institutional ownership is the lowest of any company in my proxy group, and approximately 38.00 percent lower than the proxy group average. In terms of trading volume, OTTR's average is very low, at approximately 17.50 percent of the proxy group average. OTP also has a substantial concentration of revenues in its commercial and industrial customers. The combination of those factors indicates a heighted degree of business risk relative to the proxy companies, suggesting an ROE toward the upper end of the range to account for that greater risk.

Given OTP's substantial capital investment plan, and in light of the additional risks the Company faces, it will be important to set a return that will support and enhance its internally generated funds, and enable access to capital markets at reasonable terms. The costs at which OTP can obtain capital to fund its capital expenditures will influence customer costs over an extended period (i.e., ten to 30 years).

The need to support internal fund generation and efficient capital market access becomes increasingly important as Federal Reserve monetary policy continues its process of "normalization." As discussed later in my Direct Testimony, coincident with monetary policy normalization, economists and market data indicate expectations for increasing interest rates throughout 2018. In addition, the effects of the recent reduction in the federal income tax rate on OTP's cash flow also should be considered in setting the Company's ROE, especially if the Commission adjusts its rates to reflect the reduction in tax rates in this proceeding.

Lastly, it is appropriate to consider OTP's low rates to customers, its very high levels of customer satisfaction (as explained by OTP witness Mr. Bruce Gerhardson), and the customer savings resulting from OTP's under-budget completion of recent capital projects (as explained by OTP witness Mr. Stuart Tommerdahl). As Mr. Tommerdahl explains, by completing its largest capital project approximately $125 million (Total Project) below budget, OTP has produced South Dakota customer savings of approximately $300,000 in the 2017 Test Year, approximately $2.9 million in the first ten years, and approximately $5.4 million over project's 30-year life. Setting an ROE that recognizes overall performance in reducing costs and providing high quality of service is an appropriate element of the Commission's regulatory discretion. The combination of OTP's cost savings and its high quality of service merits consideration by the Commission in determining OTP's ROE.

Q. DO THE ROE DECISIONS OF OTHER JURISDICTIONS ALSO PROVIDE RELEVANT INFORMATION?

A. Yes, I believe so. Investors have many options available to them and will allocate their capital based on expected risks and returns associated with those alternatives. Although I am not suggesting the Commission should be bound by decisions in other regulatory jurisdictions, the regulatory environment is one of the most important factors considered by debt and equity investors in assessing the risks and prospects of utility companies. ROEs awarded by regulatory commissions are important to the financial community's view of the regulatory environment and, therefore, a utility's risk profile.[2] For example, if a company in a given jurisdiction is authorized a significantly lower ROE than a company of equivalent risk is authorized in another jurisdiction, capital will flow from the lower return to the higher return.

Q. PLEASE SUMMARIZE RECENT RETURNS FROM OTHER JURISDICTIONS.

A. Between January 2017 and February 2018, there were 32 regulatory decisions establishing ROEs for vertically integrated electric utilities. Across those cases, the average was 9.79 percent, with nine cases at or above 10.00 percent. In 2016, there were 20 regulatory decisions establishing allowed ROEs for vertically integrated electric utilities; the average of those cases was 9.77 percent, including five at or above 10.00 percent.[3]

Q. HOW IS THE REMAINDER OF YOUR DIRECT TESTIMONY ORGANIZED?

A. The remainder of my Direct Testimony is organized as follows:

- Section III – provides a summary of the results of analytical models;
- Section IV – provides a summary of issues regarding Cost of Equity estimation in regulatory proceedings and discusses the regulatory guidelines pertinent to the development of the cost of capital;

[2] For example, S&P recently revised its outlook on ALLETE Inc. to negative from stable due in part to the company's regulatory risk after the Minnesota Public Utilities Commission issued an order in Minnesota Power's (a subsidiary of ALLETE Inc.) rate case, which S&P viewed as unfavorable. Nephele Kirong, *S&P Changes Outlook on ALLETE to Negative*, S&P Global Market Intelligence, February 8, 2018.

[3] Source: Regulatory Research Associates.

- Section V – explains my selection of the proxy group used to develop my analytical results;
- Section VI – explains my analyses and the analytical bases for my ROE determination;
- Section VII – provides a discussion of specific business risks and other considerations that have a direct bearing on OTP's Cost of Equity;
- Section VIII – highlights the current capital market conditions and their effect on OTP's Cost of Equity;
- Section IX – provides my analysis of OTP's capital structure; and
- Section X – summarizes my conclusions.

III. SUMMARY OF ANALYTICAL RESULTS

Q. WHAT ARE THE RESULTS OF YOUR ANALYTICAL MODELS?

A. The analytical results are summarized in Tables 1a and 1b:

Table 1a: Summary of Discounted Cash Flow Results

Discounted Cash Flow	*Mean Low*	*Mean*	*Mean High*
Constant Growth DCF – Including Flotation Costs[4]			
30-Day Constant Growth DCF	8.22%	9.33%	10.70%
90-Day Constant Growth DCF	7.97%	9.08%	10.44%
180-Day Constant Growth DCF	7.91%	9.02%	10.39%
Multi-Stage DCF – Including Flotation Costs			
30-Day Multi-Stage DCF	8.79%	9.42%	10.22%
90-Day Multi-Stage DCF	8.07%	8.69%	9.49%
180-Day Multi-Stage DCF	7.97%	8.59%	9.39%

[4] Constant Growth DCF results exclude El Paso Electric Company, IDACORP, Inc., and Northwestern Corporation, as explained at page 24 of my Direct Testimony..

Table 1b: Summary of Risk Premium Results

CAPM Results	*Bloomberg Derived Market Risk Premium*	*Value Line Derived Market Risk Premium*
Average Bloomberg Beta Coefficient		
Current 30-Year Treasury (3.05%)	10.52%	10.97%
Near Term Projected 30-Year Treasury (3.42%)	10.89%	11.33%
Average Value Line Beta Coefficient		
Current 30-Year Treasury (3.05%)	12.22%	12.76%
Near Term Projected 30-Year Treasury (3.42%)	12.58%	13.13%
Bond Yield Plus Risk Premium Approach		
Current 30-Year Treasury (3.05%)	9.97%	
Near Term Projected 30-Year Treasury (3.42%)	10.03%	
Long Term Projected 30-Year Treasury (4.20%)	10.25%	

Based on the analytical results presented in Tables 1a and 1b, and in light of the considerations discussed throughout the balance of my Direct Testimony (among them, the Company's business risks relative to the proxy group), it is my view that an ROE of 10.30 percent is reasonable and appropriate.

IV. SUMMARY OF ISSUES SURROUNDING COST OF EQUITY ESTIMATION IN REGULATORY PROCEEDINGS

Q. PLEASE PROVIDE AN OVERVIEW OF THE ISSUES SURROUNDING THE COST OF EQUITY IN REGULATORY PROCEEDINGS, GENERALLY.

A. In very general terms, the Cost of Equity is the return that investors require to make an equity investment in a firm. That is, investors will provide funds to a firm only if the return that they *expect* is equal to, or greater than, the return that they *require* to accept the risk of providing funds to the firm. From the firm's perspective, that required return, whether it is provided to debt or equity investors, has a cost. Individually, we speak of the "Cost of Debt" and the "Cost of Equity" as measures of those costs; together, they are referred to as the "Cost of Capital."

The Cost of Capital (including the costs of both debt and equity) is based on the economic principle of "opportunity costs." Investing in any asset, whether debt or equity securities, implies a forgone opportunity to invest in alternative assets. For any investment to be sensible, its expected return must be at least equal to the return expected on alternative, comparable risk investment opportunities. Because investments with like risks should offer similar returns, the opportunity cost of an investment should equal the return available on an investment of comparable risk.

Although both debt and equity have required costs, they differ in certain fundamental ways. Most noticeably, the cost of debt is contractually defined and can be directly observed as the interest rate, or yield, on debt securities.[5] The Cost of Equity, on the other hand, is neither directly observable nor a contractual obligation. Rather, equity investors have a claim on cash flows only after debt holders are paid; the uncertainty (or risk) associated with those residual cash flows determines the Cost of Equity. Because equity investors assume "residual risk" in perpetuity, they require higher returns than those provided to debt holders. In that basic sense, equity and debt investors invest in different securities, face different risks, and require different returns.

Whereas the cost of debt can be directly observed, the Cost of Equity must be estimated, or inferred, based on market data and various financial models. As discussed throughout my Direct Testimony, each of those models is subject to certain assumptions, which may become more, or less, applicable with changing market conditions. Because the Cost of Equity is premised on the economic principle of opportunity costs, those models typically are applied to a group of "comparable", or "proxy", companies. The choice of models (including their inputs), the selection of proxy companies, and the interpretation of model results all require the application of reasoned judgment. That judgment should consider data and information not necessarily included in the models, themselves. In the end, the

[5] The observed interest rate may be adjusted to reflect issuance or other directly observable costs.

estimated Cost of Equity should reflect the return investors require in light of the subject company's risks, and the returns available on comparable investments.

Q. PLEASE PROVIDE A SUMMARY OF THE GUIDELINES FOR THE PURPOSE OF DETERMINING THE RETURN ON EQUITY.

A. The United States Supreme Court (the "Court") established the guiding principles for establishing a fair return for capital in two cases: (1) *Bluefield Water Works and Improvement Co. v. Public Service Comm'n*. ("*Bluefield*");[6] and (2) *Federal Power Comm'n v. Hope Natural Gas Co.* ("*Hope*").[7] In *Bluefield*, the Court recognized that: (1) a regulated public utility cannot remain financially sound unless the return it is allowed to earn on its invested capital is at least equal to the Cost of Capital (the principle relating to the demand for capital); and (2) a regulated public utility will not be able to attract capital if it does not offer investors an opportunity to earn a return on their investment equal to the return they expect to earn on other investments of similar risk (the principle relating to the supply of capital).[8] In *Hope*, the Court reiterated the financial integrity and capital attraction principles of *Bluefield*.[9]

In summary, the Court clearly has recognized that the fair rate of return on equity should be: (1) comparable to returns investors expect to earn on other investments of similar

---

6 *See* Bluefield Water Works and Improvement Co. v. Public Service Comm'n. 262 U.S. 679, 692 (1923).

7 *See* Federal Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591, 603 (1944).

8 Bluefield, 262 U.S. at 692:
"A public utility is entitled to such rates as will permit it to earn a return upon the value of the property which it employs for the convenience of the public equal to that generally being made at the same time and in the same general part of the country on investments in other business undertakings which are attended by corresponding risks and uncertainties; but it has no constitutional right to profits such as are realized or anticipated in highly profitable enterprises or speculative ventures. The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit, and enable it to raise the money necessary for the proper discharge of its public duties."

9 Hope, 320 U.S. at 603:
"From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business. These include service on the debt and dividends on the stock... By that standard the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and to attract capital."

risk; (2) sufficient to assure confidence in the company's financial integrity; and (3) adequate to maintain and support the company's credit and to attract capital.

Q. WHY IS IT IMPORTANT FOR A UTILITY TO BE ALLOWED THE OPPORTUNITY TO EARN A RETURN ADEQUATE TO ATTRACT CAPITAL AT REASONABLE TERMS?

A. A return that is adequate to attract capital at reasonable terms enables the utility to provide service while maintaining its financial integrity. The ability to attract capital is particularly important when a utility is engaged in an extensive capital expenditure program, such as OTP is at this time. As discussed above, and in keeping with the *Hope* and *Bluefield* standards, that return should be commensurate with the returns expected elsewhere in the market for investments of equivalent risk. Based on those standards, the Commission's decision in this case should provide the Company with the opportunity to earn an ROE that is: (1) adequate to attract capital at reasonable terms; (2) sufficient to ensure its financial integrity; and (3) commensurate with returns on investments in enterprises having corresponding risks. The allowed ROE should enable the Company to finance capital expenditures at reasonable cost rates and maintain its financial flexibility over the period during which rates are expected to remain in effect. To the extent OTP is provided a reasonable opportunity to earn its market-based Cost of Equity, neither customers nor shareholders should be disadvantaged. In fact, a return that is adequate to attract capital at reasonable terms enables OTP to provide safe, reliable electric utility service while maintaining its financial integrity.

Q. HOW IS THE COST OF EQUITY ESTIMATED IN REGULATORY PROCEEDINGS?

A. As noted earlier (and as discussed in more detail later in my Direct Testimony), the Cost of Equity is estimated by the use of various financial models. By their nature, those models produce a range of results from which the ROE is determined. That determination must be based on a comprehensive review of relevant data and information; it does not necessarily lend itself to a strict mathematical solution. The key consideration in determining the ROE is to ensure that the overall analysis reasonably

reflects investors' view of the financial markets in general, and the subject company (in the context of the proxy companies) in particular.

Practitioners and academics alike recognize that financial models are tools to be used in the ROE estimation process, and that strict adherence to any single approach, or to the specific results of any single approach, can lead to flawed or misleading conclusions. That position is consistent with the *Hope* and *Bluefield* principle that it is the analytical result, as opposed to the methodology employed that is controlling in arriving at ROE determinations. A reasonable ROE estimate therefore appropriately considers alternative methods, and the reasonableness of their individual and collective results in the context of observable, relevant market information.

V. PROXY GROUP SELECTION

Q. AS A PRELIMINARY MATTER, WHY IS IT NECESSARY TO SELECT A GROUP OF PROXY COMPANIES TO DETERMINE THE COST OF EQUITY FOR OTP?

A. The ROE is a market-based concept and OTP is not a publicly traded entity. Rather, it is a subsidiary of OTTR. Accordingly, it is necessary to establish a group of comparable, publicly traded companies to serve as its "proxy." Even if OTP were publicly traded, short-term events could bias its market value during a given period of time. A significant benefit of using a proxy group is that it moderates the effects of anomalous, short-term events associated with any one company. At the same time, the subject company's risk relative to its peers should be considered when determining the appropriate ROE.

Q. DOES THE SELECTION OF A PROXY GROUP SUGGEST THAT ANALYTICAL RESULTS WILL BE TIGHTLY CLUSTERED AROUND AVERAGE (*I.E.*, MEAN) RESULTS?

A. No. For example, the Constant Growth DCF approach defines the Cost of Equity as the sum of the expected dividend yield and projected long-term growth. Despite the care taken to ensure risk comparability, market expectations with respect to future risks and growth opportunities will vary from company to company. Therefore, even within a group of similarly situated companies it is common for analytical results to reflect a

seemingly wide range. At issue is how to estimate the Cost of Equity from within that range. That determination necessarily must consider a wide range of both quantitative and qualitative information, including the risk profile of the subject company (*i.e.* OTP).

Q. PLEASE PROVIDE A SUMMARY PROFILE OF OTP.

A. OTP provides electric production, transmission, and distribution services to approximately 11,600 customers in South Dakota.[10] OTP is engaged in an extensive capital expenditure plan that began in 2012 and is expected to continue through 2021. OTP currently has long-term issuer credit ratings of BBB from S&P, A3 from Moody's Investor Service, and BBB from Fitch Ratings.[11] The following table provides summary financial and operating statistics for OTP for the past three years.

Table 2: OTP Operating and Financial Results 2015-2017[12]

(in thousands)	**2015**	**2016**	**2017**
Electric Operations			
SD Electric Customers	11.46	11.69	11.60
Total Electric Customers	129.99	132.94	132.15
Electric Revenues	$407,131	$427,383	$434,537
Electric Net Income	$48,370	$49,829	$49,446
Electric Net Plant	$1,292,879	$1,387,697	$1,451,143
Electric Capital Expenditures	$135,572	$149,648	$118,444

Q. WHAT ARE THE IMPLICATIONS OF THE COMPANY'S BUSINESS RISKS FOR OTP'S COST OF EQUITY?

A. Consistent with the principles established in *Hope*[13], and to provide a return to equity holders that is risk appropriate, it is reasonable to consider a proxy group of companies with a commensurate level of risk. Compared to other investor-owned electric utilities,

---

10 Company website.

11 Otter Tail Corporation, *Williams Capital West Coast Utilities Conference*, Investor Presentation, March 22, 2018, at 32.

12 S&P Global Market Intelligence, Otter Tail Corporation SEC Form 10-K for year ending December 31, 2017, at 78-79, and 109, Company provided data.

13 Hope, 320 U.S. at 603. *See* Bluefield, 262 U.S. at 692.

no company has the same service territory and risk profile as OTP. Consequently, selecting a proxy group without regard to OTP's size and service territory would be inconsistent with the principles set forth in *Hope,* and would lead to in inaccurate conclusion regarding the Company's Cost of Equity. As such, I have included screening criteria that account for OTP's profile relative to its service territory and other operating risk factors.

Q. HOW DID YOU SELECT THE COMPANIES INCLUDED IN YOUR PROXY GROUP?

A. A proxy group should consist of companies with risk profiles reasonably comparable to the subject company. In developing the proxy group, my objective is to select companies that are highly representative of the risks and prospects faced by OTP, while including a reasonably large number of companies in the group. Based on those two considerations, I began with the universe of companies that Value Line classifies as Electric Utilities, and applied the following screening criteria:

- I excluded companies that do not consistently pay quarterly cash dividends;
- I excluded companies that were not covered by at least two utility industry equity analysts;
- I excluded companies that do not have investment grade senior unsecured bond and/or corporate credit ratings from S&P;
- I excluded companies that were not vertically-integrated, *i.e.* utilities that own and operate regulated generation, transmission and distribution assets;
- I excluded companies whose regulated operating income over the three most recently reported fiscal years comprised less than 60.00 percent of the respective totals for that company;
- I excluded companies whose regulated electric operating income over the three most recently reported fiscal years represented less than 60.00 percent of total regulated operating income;
- I excluded companies with a market capitalization greater than $10.00 billion, or "large cap" companies (OTTR is a "small cap" company);

- I excluded companies with more than 250 customers per square mile (OTP has approximately four customers per square mile) to eliminate companies with service territories primarily located in densely populated, or urban areas;[14]
- I eliminated companies that are currently known to be party to a merger or other significant transaction;

Q. DID YOU INCLUDE OTTR IN YOUR ANALYSIS?

A. No. To avoid the circular logic that otherwise would occur, it is my practice to exclude the subject company, or its parent holding company, from the proxy group.

Q. WHAT COMPANIES MET THOSE SCREENING CRITERIA?

A. The criteria discussed above resulted in a proxy group of the following nine companies:

Table 3: Proxy Group Screening Results

Company	Ticker
ALLETE, Inc.	ALE
Alliant Energy Corporation	LNT
Black Hills Corporation	BKH
El Paso Electric Company	EE
Hawaiian Electric Industries, Inc.	HE
IDACORP, Inc.	IDA
NorthWestern Corporation	NWE
OGE Energy Corp.	OGE
PNM Resources, Inc.	PNM

Q. DO YOU BELIEVE THAT A PROXY GROUP OF NINE COMPANIES IS SUFFICIENTLY LARGE?

A. Yes, I do. As discussed above, the analyses performed in estimating the ROE are more likely to be representative of the subject utility's Cost of Equity to the extent that the chosen proxy companies are fundamentally comparable to the subject utility. Because all

[14] *See* Exhibit___(RBH-1), Schedule 9. OTP's aggregate service area has a population of approximately 230,000, of which only approximately 126,000 residents live in communities with a population of at least 1,000. *See* Otter Tail Corporation, SEC Form 10-K for the Period Ending December 31, 2017, at 6.

analysts use some form of screening process to arrive at a proxy group, the group, by definition, is not randomly drawn from a larger population. Consequently, there is no reason to place more reliance on the quantitative results of a larger proxy group simply by virtue of the resulting larger number of observations.

VI. COST OF EQUITY ESTIMATION

Q. PLEASE BRIEFLY DISCUSS THE ROE IN THE CONTEXT OF THE REGULATED RATE OF RETURN.

A. Regulated utilities primarily use common stock and long-term debt to finance their permanent property, plant, and equipment. The overall rate of return ("ROR") for a regulated utility is based on its weighted average Cost of Capital, in which the costs of the individual sources of capital are weighted by their respective book values. As noted above, the ROE is market-based and, therefore, must be estimated based on observable market information.

Q. HOW IS THE REQUIRED ROE DETERMINED?

A. I estimated the ROE using analyses based on market data to quantify a range of investor expectations of required equity returns. By their very nature, quantitative models produce a range of results from which the market required ROE must be estimated. As discussed throughout my Direct Testimony, that estimation must be based on a comprehensive review of relevant data and information and does not necessarily lend itself to a strict mathematical solution. Consequently, the key consideration in determining the ROE is to ensure the overall analysis reasonably reflects investors' views of the financial markets in general, and the subject company (in the context of the proxy group) in particular.

Because the Cost of Equity is not directly observable, it must be estimated based on both quantitative and qualitative information. Although a number of empirical models have been developed for that purpose, all are subject to limiting assumptions or other

constraints. Consequently, many finance texts recommend using multiple approaches to estimate the Cost of Equity.[15] When faced with the task of estimating the Cost of Equity, analysts and investors are inclined to gather and evaluate as much relevant data as reasonably can be analyzed and, therefore, rely on multiple analytical approaches.

I also note that as a practical matter, no individual model is more reliable than all others under all market conditions. Therefore, it is both prudent and appropriate to use multiple methodologies to mitigate the effects of assumptions and inputs associated with any single approach. As such, I have considered the results of the Constant Growth and Multi-Stage forms of the DCF model; the CAPM; and the Bond Yield Plus Risk Premium approach.

Constant Growth DCF Model

Q. PLEASE DESCRIBE THE CONSTANT GROWTH DCF APPROACH.

A. The Constant Growth DCF approach is based on the theory that a stock's current price represents the present value of all expected future cash flows. In its simplest form, the Constant Growth DCF model expresses the Cost of Equity as the discount rate that sets the current price equal to expected cash flows:

$$P_0 = \frac{D_1}{(1+k)} + \frac{D_2}{(1+k)^2} + \cdots + \frac{D_\infty}{(1+k)^\infty} \quad \text{Equation [1]}$$

where P_0 represents the current stock price, $D_1 \ldots D_\infty$ represent expected future dividends, and k is the discount rate, or required ROE. Equation [1] is a standard present value calculation that can be simplified and rearranged into the familiar form:

$$k = \frac{D(1+g)}{P_0} + g \quad \text{Equation [2]}$$

[15] *See*, *e.g.*, Eugene Brigham, Louis Gapenski, Financial Management: Theory and Practice, 7th Ed., 1994, at 341, and Tom Copeland, Tim Koller and Jack Murrin, Valuation: Measuring and Managing the Value of Companies, 3rd ed., 2000, at 214.

Equation [2] is often referred to as the "Constant Growth DCF" model in which the first term is the expected dividend yield and the second term is the expected long-term growth rate.

Q. WHAT ASSUMPTIONS ARE REQUIRED FOR THE CONSTANT GROWTH DCF MODEL?

A. The Constant Growth DCF model assumes: (1) earnings, book value, and dividends all grow at the same, constant rate in perpetuity; (2) the dividend payout ratio remains constant; (3) a Price to Earnings ("P/E") multiple remains constant in perpetuity; and (4) the discount rate is greater than the expected growth rate.

Q. WHAT MARKET DATA DID YOU USE TO CALCULATE THE DIVIDEND YIELD IN YOUR DCF MODEL?

A. The dividend yield is based on the proxy companies' current annualized dividend and average closing stock prices over the 30-, 90-, and 180-trading day periods as of February 28, 2018.

Q. WHY DID YOU USE THREE AVERAGING PERIODS TO CALCULATE AN AVERAGE STOCK PRICE?

A. I did so to ensure that the model's results are not skewed by anomalous events that may affect stock prices on any given trading day. At the same time, the averaging period should be reasonably representative of expected capital market conditions over the long term. In my view, using 30-, 90-, and 180-day averaging periods reasonably balances those concerns.

Q. DID YOU MAKE ANY ADJUSTMENTS TO THE DIVIDEND YIELD TO ACCOUNT FOR PERIODIC GROWTH IN DIVIDENDS?

A. Yes, I did. Since utility companies tend to increase their quarterly dividends at different times throughout the year, it is reasonable to assume that dividend increases will be evenly distributed over calendar quarters. Given that assumption, it is appropriate to calculate the expected dividend yield by applying one-half of the long-term growth rate to the current dividend yield. That adjustment ensures that the expected dividend yield is,

on average, representative of the coming twelve-month period, and does not overstate the dividends to be paid during that time.

Q. IS IT IMPORTANT TO SELECT APPROPRIATE MEASURES OF LONG-TERM GROWTH IN APPLYING THE DCF MODEL?

A. Yes. In its Constant Growth form, the DCF model (*i.e.*, as presented in Equation [2] above) assumes a single growth estimate in perpetuity. Accordingly, to reduce the long-term growth rate to a single measure, one must assume a fixed payout ratio, and the same constant growth rate for earnings per share ("EPS"), dividends per share, and book value per share. Since dividend growth can only be sustained by earnings growth, the model should incorporate a variety of measures of long-term earnings growth. That can be accomplished by averaging those measures of long-term growth that tend to be least influenced by capital allocation decisions that companies may make in response to near-term changes in the business environment. Because such decisions may directly affect near-term dividend payout ratios, estimates of earnings growth are more indicative of long-term investor expectations than are dividend growth estimates. For the purposes of the Constant Growth DCF model, therefore, growth in EPS represents the appropriate measure of long-term growth.

Q. PLEASE SUMMARIZE THE FINDINGS OF ACADEMIC RESEARCH ON THE APPROPRIATE MEASURE FOR ESTIMATING EQUITY RETURNS USING THE DCF MODEL.

A. The relationship between various growth rates and stock valuation metrics has been the subject of much academic research.[16] As noted over 40 years ago by Charles Phillips in The Economics of Regulation:

> For many years, it was thought that investors bought utility stocks largely on the basis of dividends. More recently, however, studies indicate that the market is valuing utility stocks with reference to total per share earnings, so that the earnings-price ratio has assumed increased emphasis

[16] *See* Harris, Robert, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rate of Return*, Financial Management (Spring 1986).

in rate cases.[17]

Phillips' conclusion continues to hold true. Subsequent academic research has clearly and consistently indicated that measures of earnings and cash flow are strongly related to returns, and that analysts' forecasts of growth are superior to other measures of growth in predicting stock prices.[18] For example, Vander Weide and Carleton state that "[our] results … are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy-and-sell decisions."[19] Other research specifically notes the importance of analysts' growth estimates in determining the Cost of Equity, and in the valuation of equity securities. Dr. Robert Harris noted that "a growing body of knowledge shows that analysts' earnings forecasts are indeed reflected in stock prices." Citing Cragg and Malkiel, Dr. Harris notes that those authors "found that the evaluations of companies that analysts make are the sorts of ones on which market valuation is based."[20] Similarly, Brigham, Shome, and Vinson noted that "evidence in the current literature indicates that (i) analysts' forecasts are superior to forecasts based solely on time series data, and (ii) investors do rely on analysts' forecasts."[21]

To that point, the research of Carleton and Vander Weide demonstrates that earnings growth projections have a statistically significant relationship to stock valuation levels, while dividend growth rates do not.[22] Those findings suggest that investors form their

---

17 Charles F. Phillips, Jr., The Economics of Regulation, at 285 (Rev. ed. 1969).

18 *See, e.g.*, Christofi, Christofi, Lori and Moliver, *Evaluating Common Stocks Using Value Line's Projected Cash Flows and Implied Growth Rate*, Journal of Investing (Spring 1999); Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, 21 (Summer 1992); and Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management (Spring 1988).

19 Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of Portfolio Management (Spring 1988) at 81. The Vander Weide and Carleton study was updated in 2004 under the direction of Dr. Vander Weide. The results of the updated study were consistent with the original study's conclusions.

20 Robert S. Harris, *Using Analysts' Growth Forecasts to Estimate Shareholder Required Rate of Return*, Financial Management (Spring 1986) at 59.

21 Eugene F. Brigham, Dilip K. Shome, and Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, Financial Management (Spring 1985) at 36.

22 *See* Vander Weide and Carleton, *Investor Growth Expectations: Analysts vs. History*, The Journal of

investment decisions based on expectations of growth in earnings, not dividends. Consequently, earnings growth, not dividend growth, is the appropriate estimate for the purpose of the Constant Growth DCF model.

Q. PLEASE SUMMARIZE YOUR INPUTS TO THE CONSTANT GROWTH DCF MODEL.

A. I applied the Constant Growth DCF model to the proxy group of electric utility companies using the following inputs for the price and dividend terms:

- The average daily closing prices for the 30-trading days, 90-trading days, and 180-trading days ended February 28, 2018 for the term P_0; and
- The annualized dividend per share as of February 28, 2018 for the term D_0.

I then calculated the DCF results using each of the following growth terms:

- The Zack's consensus long-term EPS growth estimates;
- The First Call consensus long-term EPS growth estimates; and
- The Value Line EPS growth estimates.

Q. HOW DID YOU CALCULATE THE DCF RESULTS?

A. For each proxy company, I calculated the mean, mean high, and mean low results. For the mean result, I combined the average of the EPS growth rate estimates reported by Value Line, Zacks, and First Call with the subject company's dividend yield for each proxy company and then calculated the average result for those estimates. I calculated the high DCF result by combining the maximum EPS growth rate estimate as reported by Value Line, Zacks, and First Call with the subject company's dividend yield. The mean high result simply is the average of those estimates. I used the same approach to calculate the low DCF result, using instead the minimum of the Value Line, Zacks, and First Call estimate for each proxy company, and calculating the average result for those estimates.

Portfolio Management (Spring 1988).

The Constant Growth DCF model is predicated on a number of assumptions, one of which is that the P/E ratio will remain constant, in perpetuity. Because the utility sector P/E ratios have expanded to the point that they recently have exceeded both their long-term average and the market P/E ratio, Constant Growth DCF model's results should be viewed with caution. As such, it is appropriate to consider additional methods, such as the Multi-Stage DCF model, CAPM approach, and the Bond Yield Plus Risk Premium model.

Q. DID YOU MAKE ANY ADJUSTMENTS AS PART OF YOUR DCF ANALYSIS?

A. Yes, I made an adjustment for flotation costs.

Q. WHAT ARE FLOTATION COSTS?

A. Flotation costs are the costs associated with the sale of new issues of common stock. These include out-of-pocket expenditures for preparation, filing, underwriting, and other costs of issuance.

Q. WHY IS IT IMPORTANT TO RECOGNIZE FLOTATION COSTS IN THE ALLOWED ROE?

A. To attract and retain new investors, a regulated utility must have the opportunity to earn a return that is both competitive and compensatory. To the extent a company is denied the opportunity to recover prudently-incurred flotation costs, actual returns will fall short of expected (or required) returns, thereby diminishing its ability to attract adequate capital on reasonable terms.

Q. ARE FLOTATION COSTS PART OF THE UTILITY'S INVESTED COSTS OR PART OF THE UTILITY'S EXPENSES?

A. Flotation costs are part of the invested costs of the utility, which are properly reflected on the balance sheet under "paid in capital." They are not current expenses, and therefore are not reflected on the income statement. Rather, like investments in rate base or the issuance costs of long-term debt, flotation costs are incurred over time. As a result, the great majority of a utility's flotation cost is incurred prior to the test year but remains part

of the cost structure that exists during the test year and beyond, and as such, should be recognized for ratemaking purposes. Therefore, even if no new issuances were planned in the near future, recovery of flotation costs would be appropriate because failure to allow such cost recovery could deny OTP the opportunity to earn its required rate of return in the future. In this case, new issuances, as described in the Direct Testimony of OTP witness Mr. Kevin G. Moug, further support the need for flotation cost recovery.

Q. DOES THE FACT THAT OTP IS A WHOLLY OWNED SUBSIDIARY OF OTTR AFFECT THE NEED TO INCLUDE FLOTATION COSTS?

A. No. Although the Company is a wholly owned subsidiary of OTTR, it is appropriate to consider flotation costs because wholly owned subsidiaries receive equity capital from their parents and provide returns on the capital that roll up to the parent, which is designated to attract and raise capital based on the returns of those subsidiaries. This is important for companies such as OTP that are planning continued capital expenditures in the near term, and for which access to capital (at reasonable cost rates) to fund such required expenditures will be critical.

Q. DO THE DCF AND CAPM MODELS ALREADY INCORPORATE INVESTOR EXPECTATIONS OF A RETURN TO COMPENSATE FOR FLOTATION COSTS?

A. No. The models used to estimate the appropriate ROE assume no "friction" or transaction costs, as these costs are not reflected in the market price (in the case of the DCF model) or risk premium (in the case of the CAPM and the Bond Yield Plus Risk Premium model).

Q. IS THE NEED TO CONSIDER FLOTATION COSTS RECOGNIZED BY THE ACADEMIC AND FINANCIAL COMMUNITIES?

A. Yes. The need to reimburse investors for equity issuance costs is recognized by the academic and financial communities in the same spirit that investors are reimbursed for the costs of issuing debt. That treatment is consistent with the philosophy of a fair rate of return. As explained by Dr. Shannon Pratt:

> Flotation costs occur when a company issues new stock. The business usually incurs several kinds of flotation or transaction costs, which reduce

> the actual proceeds received by the business. Some of these are direct out-of-pocket outlays, such as fees paid to underwriters, legal expenses, and prospectus preparation costs. Because of this reduction in proceeds, the business's required returns must be greater to compensate for the additional costs. Flotation costs can be accounted for either by amortizing the cost, thus reducing the net cash flow to discount, or by incorporating the cost into the cost of equity capital. Since flotation costs typically are not applied to operating cash flow, they must be incorporated into the cost of equity capital.[23]

Q. HAS OTTR RECENTLY ISSUED COMMON EQUITY?

A. Yes. As stated in the Direct Testimony of Mr. Moug, OTTR has had issuances of common stock in 2014 through 2017, including issuances under OTTR's "At the Market Program" and under OTTR's Employee Stock Purchase Plan and Dividend Reinvestment Plan.[24] Mr. Moug further explains that these OTTR common stock issuances are directly related to the Company's current and planned capital expenditures.[25] OTTR also plans to issue common stock equity to assist OTP in maintaining a balance of equity (including OTP retained earnings) and debt in funding its $901 million capital expenditure plan for 2018-2022.

Q. DID YOU CALCULATE A FLOTATION COST RECOVERY ADJUSTMENT?

A. Yes, I have. I modified the DCF calculation to derive the dividend yield that would reimburse investors for direct issuance costs. Based on the weighted average issuance costs shown in Exhibit___(RBH-1), Schedule 2, a reasonable estimate of flotation costs is approximately 0.13 percent (13 basis points).

Q. DID YOU CONSIDER ANY OTHER INFORMATION TO ESTIMATE THE RESULTS OF YOUR CONSTANT GROWTH DCF ANALYSIS?

A. It is important to review the extent of model results within the context of the current capital market environment. That is especially true with DCF-based models, which assume that the conditions prevailing at the time the model is applied will remain in place

---

[23] Shannon P. Pratt, Roger J. Grabowski, Cost of Capital: Applications and Examples, 4th ed. (John Wiley & Sons, Inc., 2010), page 588.

[24] Exhibit ___ Moug Direct, at 19, Exhibit___(KGM-1), Schedule 7.

[25] *Ibid*.

in perpetuity. In the short-run, prices may be influenced by temporary demand, with utility stocks subject to the type of "risk-on/risk-off" dynamics that cause investors to move into or out of securities for reasons other than long-term, fundamental valuation. Because DCF-based models assume current prices measure long-term, fundamental value, it is extremely important to interpret their results in the context of other observable data. Failing to do so could produce results that fall far from investors' required returns, putting the Company at a significant disadvantage in its ability to raise capital.

Q. DID YOU MAKE ANY ADJUSTMENTS TO YOUR CONSTANT GROWTH DCF RESULTS BECAUSE OF THOSE CONSIDERATIONS?

A. Yes, I did. I first estimated the Constant Growth DCF results of each of the proxy companies. Three companies, El Paso Electric Company, IDACORP, Inc., and Northwestern Corporation, had Constant Growth DCF results of 6.43 percent to 7.81 percent using the 30-day average stock price. Those results are approximately 187 to 325 basis points below the average authorized return for all electric utilities in 2017, and approximately 119 to 257 basis points below the lowest authorized return ever for a vertically integrated electric utility. As such, I believe it is more reasonable to consider the Constant Growth DCF results excluding those companies. These results also underscore the need to consider the results of approaches other than the Constant Growth DCF under current market conditions.

Q. WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF ANALYSES?

A. My Constant Growth DCF results, excluding the three companies noted above, are summarized in Table 4 below (*see* also Exhibit __(RBH-1), Schedule 1).

Table 4: Constant Growth DCF Results[26]

[26] Results include flotation costs. *See also* Exhibit __(RBH-1), Schedule 1.

	Mean Low	Mean	Mean High
30-Day Average	8.22%	9.33%	10.70%
90-Day Average	7.97%	9.08%	10.44%
180-Day Average	7.91%	9.02%	10.39%

As noted above, current market conditions are incompatible with the underlying assumptions of the Constant Growth DCF model. Considering the results of the other analytical models and the higher business risks faced by the Company (including extensive capital expenditures, small size which is related to low institutional ownership and low trading volume, and customer concentration), the Mean High results in Table 4 represent a more reasonable estimate of the Company's ROE.

Multi-Stage Discounted Cash Flow Model

Q. WHAT OTHER FORMS OF THE DCF MODEL HAVE YOU USED?

A. To address certain limiting assumptions underlying the Constant Growth form of the DCF model, I also applied the Multi-Stage (three-stage) Discounted Cash Flow Model. The Multi-Stage model, which is an extension of the Constant Growth form and has been applied in regulatory proceedings, enables the analyst to specify growth rates over three distinct stages. As with the Constant Growth form of the DCF model, the Multi-Stage form defines the Cost of Equity as the discount rate setting the current price equal to the discounted value of future cash flows. Unlike the Constant Growth form, however, the Multi-Stage model must be solved in an iterative fashion.

Q. PLEASE SUMMARIZE WHY YOU HAVE INCLUDED THE MULTI-STAGE DCF MODEL AMONG THOSE USED TO ESTIMATE THE COST OF EQUITY.

A. First, it is both prudent and appropriate to use multiple methodologies to mitigate the effects of assumptions and inputs associated with any single approach. Second, the Constant Growth DCF model assumes earnings, dividends, and book value will grow at the same, constant rate in perpetuity; that the payout ratio will remain constant in perpetuity; and that the P/E ratio will remain constant. The Constant Growth DCF model further assumes that the return required today will be the same return required every year

in the future. Those assumptions, however, are not likely to hold. In particular, it is likely that over time, payout ratios will increase from their current levels and, to the extent long-term interest rates increase over the next few years, it is likely the Cost of Equity also will increase. In my view, the Multi-Stage DCF model enables analysts to consider those issues, and to address the limiting and likely unrealistic assumptions underlying the Constant Growth form of the model.

Q. PLEASE GENERALLY DESCRIBE THE STRUCTURE OF YOUR MULTI-STAGE MODEL.

A. As noted above, the model sets the subject company's stock price equal to the present value of future cash flows received over three "stages." In the first two stages, "cash flows" are defined as projected dividends. In the third stage, "cash flows" equal both dividends and the expected price at which the stock will be sold at the end of the period (*i.e.,* the "terminal price"). I calculated the terminal price based on the Gordon model, which defines the price as the expected dividend divided by the difference between the Cost of Equity (*i.e.*, the discount rate) and the long-term expected growth rate. In essence, the terminal price is defined by the present value of the remaining "cash flows" in perpetuity. In each of the three stages, the dividend is the product of the projected earnings per share and the expected dividend payout ratio. A summary description of the model is provided in Table 5 (below).

Table 5: Multi-Stage DCF Structure

Stage	**0**	**1**	**2**	**3**
Cash Flow Component	Initial Stock Price	Expected Dividend	Expected Dividend	Expected Dividend + Terminal Value
Inputs	Stock Price; EPS; Dividends Per Share ("DPS")	Expected EPS; Expected DPS	Expected EPS; Expected DPS	Expected EPS; Expected DPS; Terminal Value
Assumptions	30-, 90-, and 180-day average stock price	EPS Growth Rate; Payout Ratio	Growth Rate Change; Payout Ratio Change	Long-term Growth Rate; Long-term Payout Ratio

Q. WHAT ARE THE ANALYTICAL BENEFITS OF YOUR THREE-STAGE MODEL?

A. The principal benefits relate to the flexibility provided by the model's formulation. Because it provides the ability to specify near-term, intermediate, and long-term growth rates, for example, the multi-stage structure avoids the sometimes-limiting assumption that the subject company will grow at the same, constant rate in perpetuity. In addition, by calculating the dividend as the product of earnings and the payout ratio, the model enables analysts to reflect assumptions regarding the timing and extent of changes in the payout ratio to reflect, for example, increases or decreases in expected capital spending, or transition from current payout levels to long-term expected levels. In that regard, because the model is not limited to a single provider, such as Value Line, for all inputs, it mitigates the potential bias associated with relying on a single source of growth rate projections.[27]

The Multi-Stage model also enables the analyst to assess the reasonableness of the inputs and results by reference to certain market-based metrics. For example, the terminal stock price can be divided by the expected earnings per share in the terminal year to calculate the expected P/E ratio. Similarly, the terminal P/E ratio can be divided by the terminal growth rate to develop a Price to Earnings Growth ("PEG") ratio. To the extent the projected P/E or PEG ratios are inconsistent with historical experience, it may indicate incorrect or inconsistent assumptions within the balance of the model.

Q. PLEASE SUMMARIZE YOUR INPUTS TO THE MULTI-STAGE DCF MODEL.

A. I applied the Multi-Stage model to the proxy group described earlier in my Direct Testimony. My assumptions with respect to the various model inputs are described in Table 6 (below).

[27] *See*, for example, Harris and Marston, *Estimating Shareholder Risk Premia Using Analysts' Growth Forecasts*, Financial Management, 21 (Summer 1992).

Table 6: Multi-Stage DCF Model Assumptions

Stage	Initial	First	Transition	Terminal
Stock Price	30-, 90-, and 180-day average stock price as of February 28, 2018			
Earnings Growth	2016 actual EPS escalated by Period 1 growth rate	EPS growth as average of: (1) Value Line; (2) Zacks; (3) First Call	Transition to Long-term GDP growth	Long-term GDP growth
Payout Ratio		Value Line company-specific	Transition to long-term industry payout ratio	Long-term expected payout ratio
Terminal Value				Expected dividend in final year divided by solved Cost of Equity less long-term growth rate

Q. HOW DID YOU CALCULATE THE LONG-TERM GDP GROWTH RATE?

A. The long-term growth rate of 5.45 percent is based on the real GDP growth rate of 3.21 percent from 1929 through 2017, and an inflation rate of 2.16 percent. The GDP growth rate is calculated as the compound growth rate in the chain-weighted GDP for the period from 1929 through 2017.[28] The rate of inflation of 2.16 percent is an average of two components: (1) the compound annual forward rate starting in ten years (*i.e.*, 2028, which is the beginning of the terminal period) based on the 30-day average spread between yields on long-term nominal Treasury Securities and long-term Treasury Inflation Protected Securities, known as the "TIPS spread" of 2.13 percent;[29] and (2) and the projected Blue Chip Financial Forecast of the CPI for 2024 – 2028 of 2.20 percent.[30]

The real GDP growth rate projection assumes that absent specific knowledge to the contrary, real GDP growth will revert to its long-term mean. Because estimating the Cost

[28] *See* Bureau of Economic Analysis, "Current-Dollar and 'Real' Gross Domestic Product," February 28, 2018 update.

[29] *See* Board of Governors of the Federal Reserve System, "Table H.15 Selected Interest Rates."

[30] *Blue Chip Financial Forecasts*, December 1, 2017, at 14.

of Equity is a market-based exercise, it is important to reflect, to the extent possible, the sentiments and expectations of investors; those expectations are directly captured in the market-based measure of inflation. In that important respect, the TIPS spread represents the collective views of investors regarding long-term inflation expectations. Equally important, by using forward yields, we can infer the level of long-term inflation expected by investors as of the terminal period of the Multi-Stage model (that is, ten years in the future).

Q. WHAT WERE YOUR SPECIFIC ASSUMPTIONS WITH RESPECT TO THE PAYOUT RATIO?

A. As noted in Table 6, for the first two periods I relied on the first year and long-term projected payout ratios reported by Value Line[31] for each of the proxy group companies. I then assumed that, by the end of the second period (*i.e.*, the end of year 10), the payout ratio will converge to the long-term industry average of 65.91 percent.[32]

Q. WHAT WAS YOUR PRINCIPAL ASSUMPTION REGARDING THE TERMINAL VALUE?

A. Although I performed a series of analyses in which the terminal value is calculated based on the assumed long-term nominal GDP growth rate,[33] I also performed a series of analyses in which the terminal value is based on the current P/E ratio.[34] The results of that analysis are shown in Table 7, below (*see* also Exhibit __(RBH-1), Schedule 3).

---

31 As reported in the Value Line Investment Survey as "All Div'ds to Net Prof."

32 Source: Bloomberg Professional. The assumption of mean reversion in payout ratios is consistent with published texts. As noted by Morin, "Most firms, including utilities, tend to maintain a fixed payout ratio when it is averaged over several years." See Roger A. Morin, PhD, New Regulatory Finance, Public Utilities Reports, June 2006, at 258.

33 *See* Exhibit __(RBH-1), Schedule 3.

34 Defined as the 30-day average of the proxy group P/E ratio, calculated as an Index.

Table 7: Multi-Stage DCF Results, Terminal P/E Method[35]

	Low	*Mean*	*High*
30-Day Average	8.79%	9.42%	10.22%
90-Day Average	8.07%	8.69%	9.49%
180-Day Average	7.97%	8.59%	9.39%

Q. DID YOU UNDERTAKE ANY ADDITIONAL ANALYSES TO SUPPORT YOUR RECOMMENDATION?

A. Yes, I also applied the CAPM and Risk Premium approaches.

CAPM Analysis

Q. PLEASE BRIEFLY DESCRIBE THE GENERAL FORM OF THE CAPM.

A. The CAPM is a risk premium method that estimates the Cost of Equity for a given security as a function of a risk-free return plus a risk premium (to compensate investors for the non-diversifiable or "systematic" risk of that security). As shown in Equation [3], the CAPM is defined by four components, each of which theoretically must be a forward-looking estimate:

$$K_e = r_f + \beta(r_m - r_f) \quad \text{Equation [3]}$$

where:

K_e = the required market ROE;

β = Beta of an individual security;

r_f = the risk-free rate of return; and

r_m = the required return on the market as a whole.

[35] Results include flotation costs. *See* Exhibit __(RBH-1), Schedule 3.

In Equation [3], the term ($r_m - r_f$) represents the Market Risk Premium.[36] According to the theory underlying the CAPM, since unsystematic risk can be diversified away by adding securities to investment portfolios, investors should be concerned only with systematic or non-diversifiable risk. Non-diversifiable risk is measured by the Beta coefficient, which is defined as:

$$\beta = \frac{\sigma_j}{\sigma_m} \, x \, \rho_{j,m} \qquad \text{Equation [4]}$$

Where σ_j is the standard deviation of returns for company "j," σ_m is the standard deviation of returns for the broad market (as measured, for example, by the S&P 500 Index), and $\rho_{j,m}$ is the correlation of returns in between company j and the broad market. The Beta coefficient therefore represents both relative volatility (*i.e.*, the standard deviation) of returns and the correlation in returns between the subject company and the overall market. Intuitively, higher Beta coefficients indicate that the subject company's returns have moved in tandem with the overall market. Consequently, if a company has a Beta coefficient of 1.00, it is as risky as the market and does not provide any diversification benefit.

Q. WHAT ASSUMPTIONS DID YOU INCLUDE IN YOUR CAPM ANALYSIS?

A. Since utility equity is a long duration investment, I used two different measures of the risk-free rate: (1) the current 30-day average yield on 30-year Treasury bonds (*i.e.*, 3.05 percent); and (2) the near-term projected 30-year Treasury yield (*i.e.*, 3.42 percent).

[36] The Market Risk Premium is defined as the incremental return of the market portfolio over the risk-free rate.

Q. WHY HAVE YOU RELIED ON THE 30-YEAR TREASURY YIELD FOR YOUR CAPM ANALYSIS?

A. In determining the security most relevant to the application of the CAPM, it is important to select the term (or maturity) that best matches the life of the underlying investment. Electric utilities typically are long-duration investments and, as such, the 30-year Treasury yield is more suitable for the purpose of calculating the Cost of Equity.

Q. PLEASE DESCRIBE YOUR *EX-ANTE* APPROACH TO ESTIMATING THE MARKET RISK PREMIUM.

A. The approach is based on the market-required return, less the current 30-year Treasury yield. To estimate the market required return, I calculated the market capitalization weighted average total return based on the Constant Growth DCF model. To do so, I relied on data from Bloomberg and Value Line, respectively. With respect to Bloomberg-derived growth estimates, I calculated the expected dividend yield (using the same one-half growth rate assumption described earlier) and combined that amount with the projected earnings growth rate to arrive at the market capitalization weighted average DCF result. I performed that calculation for each S&P 500 company for which Bloomberg provided consensus growth rates. I then subtracted the current 30-year Treasury yield from that amount to arrive at the market DCF-derived *ex-ante* market risk premium estimate. In the case of Value Line, I performed the same calculation, again using all companies for which earnings growth rates were available. The results of those calculations are provided in Exhibit __(RBH-1), Schedule 4.

Q. HOW DID YOU APPLY YOUR EXPECTED MARKET RISK PREMIUM AND RISK-FREE RATE ESTIMATES?

A. I relied on the *ex-ante* Market Risk Premia discussed above, together with the current and near-term projected 30-year Treasury yields as inputs to my CAPM analyses.

Q. WHAT BETA COEFFICIENT DID YOU USE IN YOUR CAPM MODEL?

A. As shown in Exhibit __(RBH-1), Schedule 5, I considered the Beta coefficients reported by Bloomberg and Value Line. Both services adjust their calculated (or "raw") Beta

coefficients to reflect the tendency of the Beta coefficient to regress to the market mean of 1.00, although Value Line calculates the Beta coefficient over a five-year period, whereas Bloomberg's calculation is based on two years of data.

Q. WHAT ARE THE RESULTS OF YOUR CAPM ANALYSES?

A. As shown in Table 8 (below) the CAPM analyses suggest an ROE range of 10.52 percent to 13.13 percent (*see* also Exhibit __(RBH-1), Schedule 6).

Table 8: Summary of CAPM Results[37]

	Bloomberg Derived Market Risk Premium	Value Line Derived Market Risk Premium
Average Bloomberg Beta Coefficient		
Current 30-Year Treasury (3.05%)	10.52%	10.97%
Near Term Projected 30-Year Treasury (3.42%)	10.89%	11.33%
Average Value Line Beta Coefficient		
Current 30-Year Treasury (3.05%)	12.22%	12.76%
Near Term Projected 30-Year Treasury (3.42%)	12.58%	13.13%

Bond Yield Plus Risk Premium Analysis

Q. PLEASE DESCRIBE THE BOND YIELD PLUS RISK PREMIUM APPROACH.

A. This approach is based on the basic financial tenet that equity investors bear the residual risk associated with ownership and therefore require a premium over the return they would have earned as a bondholder. That is, because returns to equity holders are riskier than returns to bondholders, equity investors must be compensated for bearing that additional risk. Risk premium approaches, therefore, estimate the Cost of Equity as the sum of the equity risk premium and the yield on a particular class of bonds. Because the equity risk premium is not directly observable, it typically is estimated using a variety of approaches, some of which incorporate *ex-ante*, or forward-looking estimates of the Cost of Equity, and others that consider historical, or *ex-post*, estimates. An alternative

[37] *See* Exhibit __(RBH-1), Schedule 6.

approach is to use actual authorized returns for electric utilities to estimate the Equity Risk Premium.

Q. PLEASE EXPLAIN HOW YOU PERFORMED YOUR BOND YIELD PLUS RISK PREMIUM ANALYSIS.

A. As suggested above, I first defined the Risk Premium as the difference between the authorized ROE and the then-prevailing level of long-term (*i.e.*, 30-year) Treasury yield. I used the current and near-term 30-year Treasury yield discussed earlier and a long-term projected 30-year Treasury yield as well. I then gathered data for 1,545 electric utility rate proceedings between January 1980 and February 28, 2018. In addition to the authorized ROE, I also calculated the average period between the filing of the case and the date of the final order (the "lag period"). To reflect the prevailing level of interest rates during the pendency of the proceedings, I calculated the average 30-year Treasury yield over the average lag period (approximately 200 days).

Because the data cover a number of economic cycles, the analysis also may be used to assess the stability of the Equity Risk Premium. Prior research, for example, has shown that the Equity Risk Premium is inversely related to the level of interest rates. That analysis is particularly relevant given the relatively low, but increasing level of current Treasury yields.

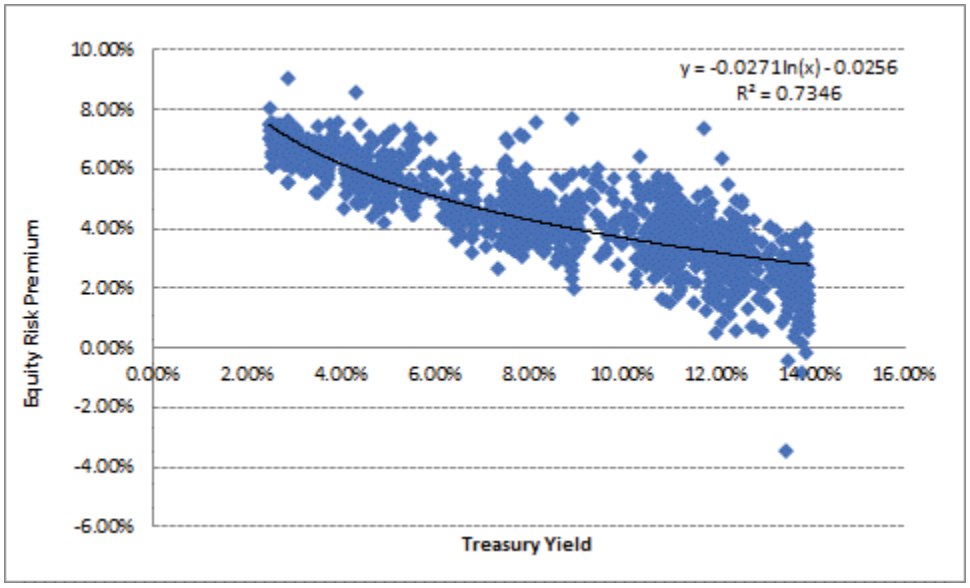
Q. HOW DID YOU ANALYZE THE RELATIONSHIP BETWEEN INTEREST RATES AND THE EQUITY RISK PREMIUM?

A. The basic method used was regression analysis, in which the observed Equity Risk Premium is the dependent variable, and the average 30-year Treasury yield is the independent variable. Relative to the long-term historical average, the analytical period includes interest rates and authorized ROEs that are quite high during one period (*i.e.*, the 1980s) and that are quite low during another (*i.e.*, the post-Lehman bankruptcy period). To account for that variability, I used the semi-log regression, in which the Equity Risk Premium is expressed as a function of the natural log of the 30-year Treasury yield ("T_{30}"):

$$RP = \alpha + \beta(LN(T_{30})) \quad \text{Equation [5]}$$

As shown on Chart 2 (below), the semi-log form is useful when measuring an absolute change in the dependent variable (in this case, the Risk Premium) relative to a proportional change in the independent variable (the 30-year Treasury yield).

Chart 2: Equity Risk Premium[38]



As Chart 2 illustrates, over time there has been a statistically significant, negative relationship between the 30-year Treasury yield and the Equity Risk Premium. Consequently, simply applying the long-term average Equity Risk Premium of 4.62 percent would significantly understate the Cost of Equity and produce results well below any reasonable estimate. Based on the regression coefficients in Chart 2, however, the implied ROE is between 9.97 percent and 10.25 percent (*see* Table 9 and Exhibit __(RBH-1), Schedule 7).

[38] *See* Exhibit __(RBH-1), Schedule 7.

Table 9: Summary of Bond Yield Plus Risk Premium Results[39]

	Return on Equity
Current 30-Year Treasury (3.05%)	9.97%
Near Term Projected 30-Year Treasury (3.42%)	10.03%
Long-Term Projected 30-Year Treasury (4.20%)	10.25%

VII. BUSINESS RISKS AND OTHER CONSIDERATIONS

Q. WHAT ADDITIONAL INFORMATION DID YOU CONSIDER IN ASSESSING THE ANALYTICAL RESULTS NOTED ABOVE?

A. Because the analytical methods discussed above provide a range of estimates, there are several additional factors that should be taken into consideration when establishing a reasonable range for the Company's Cost of Equity. Those factors include OTP's planned capital investment program, small size, degree of customer concentration, other market data, including institutional ownership, trading volumes and liquidity, and relative Beta coefficients. As noted earlier, given the Company's substantial capital investment plan, it will be important to set a return that will enable access to capital markets at reasonable terms. OTP's combination of low customer rates, cost savings, and high quality of service also merit some consideration. Doing so is consistent with the long-standing discretion of regulatory commissions to recognize low cost, efficient service when setting the authorized return.

Capital Expenditures

Q. PLEASE SUMMARIZE OTP'S CAPITAL EXPENDITURE PLANS.

A. As discussed in more detail below, the Company's capital investment plan is substantial, and represents a significant increase over its existing net plant. That is the case whether viewed in isolation, or relative to the proxy group.

[39] *See* Exhibit __(RBH-1), Schedule 7.

Q. HOW DO OTP'S EXPECTED CAPITAL EXPENDITURES COMPARE TO THE PROXY GROUP?

A. OTP currently plans to invest approximately $901 million of additional capital over the five-year period spanning 2018-2022.[40] To reasonably compare that level of investment to the proxy companies, I calculated the ratio of expected capital expenditures to net plant for each of the companies in the proxy group. For the period 2018-2022, I performed that calculation using the Company's projected capital expenditures relative to its total net plant as of December 31, 2016. As shown in Exhibit __(RBH-1), Schedule 8, and Chart 1 in Section II, relative to the proxy group, OTP's ratio of projected capital expenditures to net plant is 68.92 percent.

As a further point of reference, I compared OTP's ratio of projected capital expenditures to net plant to the comparable ratio for the other utilities in South Dakota. OTP's 68.92 percent projected capital expenditure ratio is higher than Northern States Power Company's 58.79 percent ratio, MDU Resources Group Inc.'s ("MDU") 59.09 percent ratio, Black Hills Corporation's ("BKH") 35.86 percent ratio, and Northwestern Corporation's ("NWE") 30.96 percent ratio. As explained below, comparatively high levels of capital expenditures place downward pressure on credit metrics.

Q. DO CREDIT RATING AGENCIES RECOGNIZE RISK ASSOCIATED WITH INCREASED CAPITAL EXPENDITURES?

A. Yes, they do. From the perspective of debt investors, the additional pressure on cash flows associated with high levels of capital expenditures exerts corresponding pressure on credit metrics and, therefore, credit ratings. S&P has noted that:

> For regulated utilities, infrastructure spending leads to rate-base growth. But for a company to preserve its financial strength, it must be able to quickly begin recovering this spending.

***

[40] Exhibit __ Moug Direct at 2.

> To retain critical access to the debt markets, utilities will need to continue to seek and receive supportive cost recovery from regulators.[41]

The rating agency views noted above also are consistent with certain observations discussed earlier in my testimony: (1) the benefits of maintaining a strong financial profile are significant when capital access is required, and become particularly acute during periods of market instability; and (2) the Commission's decision in this proceeding will have a direct bearing on the Company's credit profile, and its ability to access the capital needed to fund its investments.

Q. DO SUBSTANTIAL CAPITAL EXPENDITURES DIRECTLY RELATE TO A UTILITY TO BEING ALLOWED THE OPPORTUNITY TO EARN A RETURN ADEQUATE TO ATTRACT CAPITAL AT REASONABLE TERMS?

A. Yes, they do. The allowed ROE should enable the subject utility to finance capital expenditures and working capital requirements at reasonable rates, and to maintain its financial integrity in a variety of economic and capital market conditions. As discussed throughout my Direct Testimony, a return that is adequate to attract capital at reasonable terms enables the utility to provide safe, reliable service while maintaining its financial soundness. To the extent a utility is provided the opportunity to earn its market-based cost of capital, neither customers nor shareholders should be disadvantaged. These requirements are of particular importance to a utility when it is engaged in a substantial capital expenditure program.

The ratemaking process is based on the principle that, for investors and companies to commit the capital needed to provide safe and reliable utility services, the utility must have the opportunity to recover the return of, and the market-required return on, invested capital. Regulatory commissions recognize that since utility operations are capital intensive, regulatory decisions should enable the utility to attract capital at reasonable terms; doing so balances the long-term interests of the utility and its ratepayers.

---

[41] Standard & Poor's, *U.S. Utilities' Capital Spending is Rising, and Cost-Recovery is Vital*, RatingsDirect, May 14, 2012, at 6.

Further, the financial community carefully monitors the current and expected financial condition of utility companies, as well as the regulatory environment in which those companies operate. In that respect, the regulatory environment is one of the most important factors considered in both debt and equity investors' assessments of risk. That is especially important during periods in which the utility expects to make significant capital investments and, therefore, may require access to capital markets.

Q. WILL OTP NEED CONTINUED ACCESS TO THE CAPITAL MARKETS TO FINANCE ITS CAPITAL EXPENDITURE PLAN?

A. Yes. As discussed by Mr. Moug, although OTP has been retaining a significant portion of its earnings to finance its capital expenditures, it will require continued access to the capital markets, at reasonable terms, to finance its capital expenditure plan.[42]

Q. WHAT ARE YOUR CONCLUSIONS REGARDING THE EFFECT OF OTP'S CAPITAL INVESTMENT PLAN ON ITS RISK PROFILE AND COST OF CAPITAL?

A. It is clear that OTP's five-year capital investment plan will require continued access to capital markets. It also is clear that equity investors and credit rating agencies recognize the additional risks associated with substantial capital expenditures. These additional risk factors suggest that an ROE toward the upper end of the reasonable range of returns would be appropriate. As such, the Commission's decision in this proceeding will have a direct bearing on OTP's ability to maintain its financial profile, and its ability to access the capital market at reasonable cost rates.

Q. HAVE YOU CONSIDERED OTP'S EXTENSIVE CAPITAL EXPENDITURES IN YOUR RECOMMENDED RETURN ON EQUITY FOR OTP?

A. Yes, I have. Although I have not quantified the effect of OTP's extensive capital expenditures, or proposed a specific premium, I have considered OTP's relative level of capital expenditures in my assessment of business risks to determine where, within a reasonable range of returns, OTP's required ROE appropriately falls.

---

[42] Exhibit __ Moug Direct at 9.

Small Size

Q. PLEASE EXPLAIN THE RISK ASSOCIATED WITH SMALL SIZE.

A. Both the financial and academic communities have long accepted the proposition that the Cost of Equity for small firms is subject to a "size effect".[43] Although empirical evidence of the size effect often is based on studies of industries beyond regulated utilities, utility analysts also have noted the risks associated with small market capitalizations. Specifically, Ibbotson Associates noted:

> For small utilities, investors face additional obstacles, such as smaller customer base, limited financial resources, and a lack of diversification across customers, energy sources, and geography. These obstacles imply a higher investor return.[44]

Small size, therefore, leads to two categories of increased risk for investors: (1) liquidity risk (*i.e.*, the risk of not being able to sell one's shares in a timely manner due to the relatively thin market for the securities); and (2) fundamental business risks.

Q. HOW DOES OTP COMPARE IN SIZE TO THE PROXY COMPANIES?

A. OTP is substantially smaller than the average for the proxy group companies both in terms of numbers of customers and annual revenues. Exhibit__(RBH-1), Schedule 9 estimates the implied market capitalization for OTP (*i.e.*, the implied market capitalization if the Company were a stand-alone, publicly traded entity). That is, because OTP is a subsidiary of OTTR, an estimated stand-alone market capitalization for OTP must be calculated. To do so, I applied the median market to book ratio for the nine member proxy group to OTP's implied equity of $45 million in South Dakota.[45] The implied market capitalization based on that calculation is $78 million, which is approximately 2.00 percent of the median level of the proxy group and approximately

---

43 *See* Mario Levis, *The record on small companies: A review of the evidence, Journal of Asset Management*, March 2002, at 368-397, for a review of literature relating to the size effect.

44 Michael Annin, *Equity and the Small-Stock Effect*, Public Utilities Fortnightly, October 15, 1995 at 42.

45 The implied equity was calculated by applying the proposed equity ratio of 53.10 percent to the proposed South Dakota rate base for the Company (i.e., $84 million).

4.00 percent of the smallest of the proxy companies. I also note that OTTR's market capitalization of $1.68 billion is smaller than any of the proxy companies.[46]

Q. HOW DOES THE SMALLER SIZE OF OTP AFFECT ITS BUSINESS RISKS RELATIVE TO THE PROXY GROUP OF COMPANIES?

A. In general, smaller companies are less able to withstand adverse events that affect their revenues and expenses. The effect of weather variability, the loss of large customers to bypass opportunities, or the destruction of demand as a result of general macroeconomic conditions or fuel price volatility will have a proportionately greater impact on the earnings and cash flow volatility of smaller utilities. Similarly, capital expenditures for non-revenue producing investments such as system maintenance and replacements will put proportionately greater pressure on customer costs, potentially leading to customer attrition or demand reduction. Taken together, these risks affect the return required by investors for smaller companies.

[46] Source: S&P Global Market Intelligence, as of February 28, 2018.

Q. IS THERE SUPPORT IN THE FINANCIAL COMMUNITY FOR THE USE OF A SMALL SIZE PREMIUM?

A. Yes, there have been several studies conducted that demonstrate the size premium. One of the earliest works in this area found that over a period of 40 years "the common stock of small firms had, on average, higher risk-adjusted returns than the common stock of large firms."[47] The author, who referred to that finding as the "size effect," suggested that the CAPM was mis-specified in that on average, smaller firms had significantly larger risk-adjusted returns than larger firms. The author also concluded that the size effect was "most pronounced for the smallest firms in the sample."[48] Since then, additional empirical research has focused on explaining the size effect as a function of lower trading volume and other factors, but the proposition that Beta fails to reflect the risks of smaller firms persists.[49]

In 1994, Fama and French also focused on the issue of whether the CAPM adequately explained security returns and proposed a "three factor" model for expected security returns. Those factors include: (1) the covariance with the market; (2) size; and (3) financial risk as determined by the book-to-market ratio. As explained by Morningstar, Fama and French "found that the returns on stocks are better explained as a function of size and book-to-market value in addition to the single market factor of the CAPM, with the company's size capturing the size effect and its book-to-market ratio capturing the financial distress of a firm."[50]

Q. HOW DID YOU ESTIMATE THE SIZE PREMIUM FOR OTP?

A. In its *2017 Valuation Handbook*, Duff & Phelps presents its calculation of the size premium for deciles of market capitalizations relative to the S&P 500 Index. An additional estimate of the size premium associated with OTP, therefore, is the difference

47 R. W. Banz, *The Relationship Between Return and Market Value of Common Stocks*, Journal of Financial Economics, 9, 1981 at 3-4.

48 *Ibid.* at 16.

49 *See*, for example, Mario Levis, *The record on small companies: A review of the evidence*, Journal of Asset Management, March, 2002.

50 Morningstar, Ibbotson SBBI 2013 Valuation Yearbook, at 109.

in the Duff & Phelps size risk premiums for the proxy group median market capitalization relative to the implied market capitalization for OTP.

As shown on Exhibit__(RBH-1), Schedule 9, based on recent market data, the median market capitalization of the proxy group was approximately $3.60 billion, which corresponds to the fourth decile of Duff & Phelps's market capitalization data. Based on the Duff & Phelps analysis, that decile has a size premium of 0.98 percent (or 98 basis points). The implied market capitalization for OTP is approximately $78 million, which falls within the tenth decile and corresponds to a size premium of 5.59 percent (or 559 basis points). The difference between those size premiums is 461 basis points (5.59 percent – 0.98 percent).

Q. HAVE YOU CONSIDERED THE SMALLER SIZE OF OTP IN YOUR RECOMMENDED RETURN ON EQUITY FOR OTP?

A. Yes. Although I have quantified the small size effect, rather than proposing a specific premium, I have considered the small size of OTP in my assessment of business risks to determine where, within a reasonable range of returns, OTP's required ROE appropriately falls.

Customer Concentration

Q. HOW DOES OTP'S CUSTOMER CONCENTRATION AFFECT ITS BUSINESS RISK?

A. OTP's customer base is largely comprised of commercial and industrial customers. Approximately 69.50 percent of OTP's total revenues, and 74.30 percent of its total sales volume are attributable to sales to commercial and industrial customers.[51] Relative to the proxy group, OTP has the second highest commercial customer concentration by percent of revenues, and the second highest commercial customer concentration by percent of volume (in kilowatt-hours) (*see* Exhibit__(RBH-1), Schedule 10). OTP's dependence on sales to commercial users subjects its operations to greater cash flow

[51] Estimated as total sales less residential sales based on 2016 data.

volatility, and risk of demand destruction and bypass. Although OTP currently believes its rates are sufficiently competitive to retain its commercial customers, the Company remains highly exposed to such risks.

Q. DOES THE ABSENCE OF ECONOMIC DIVERSITY IN OTP'S SERVICE TERRITORY AFFECT THE COMPANY'S RISK PROFILE?

A. Yes. OTP's service territory is predominantly agricultural.[52] It generally is understood that diversity is an important factor in the economic stability of a given market area. That is, a diversified economy is less susceptible to the economic cycles of, or shocks associated with a single industry. Consequently, a relatively undiversified market, such as that served by OTP, represents meaningful financial risks to the host utility.

Q. HAVE YOU CONSIDERED THE LACK OF CUSTOMER AND ECONOMIC DIVERSIFICATION OF OTP IN YOUR RECOMMENDED RETURN ON EQUITY FOR OTP?

A. Yes. Although I have not proposed a specific premium, I have considered OTP's higher level of risk due to its lack of customer diversification in my assessment of business risks to determine where, within a reasonable range of returns, OTP's required ROE appropriately falls.

Other Evidence of OTP's Relatively Higher Cost of Equity

Q. ARE THERE OTHER OBSERVABLE FACTORS THAT SUPPORT YOUR POSITION THAT OTP'S COST OF EQUITY FALLS IN THE UPPER END OF THE RANGE OF ROE ESTIMATES?

A. Yes, there are. The Company's relatively low degree of institutional ownership and the low trading volume of its common stock indicate that investors require a "liquidity premium". Although that premium is difficult to quantify, it does support the position that OTP's ROE should be set toward the upper end of the range of results. The position that the ROE falls in the upper end of the range also is supported by OTTR's relative risk

[52] Otter Tail Corporation, SEC Form 10-K for the Period Ending December 31, 2017, at 6.

as measured by Beta coefficients. Those issues, and their implications for the Company's Cost of Equity, are discussed in more detail below.

Institutional Ownership

Q. AS A PRELIMINARY MATTER, WHAT IS "INSTITUTIONAL OWNERSHIP" AS IT RELATES TO COMMON EQUITY?

A. Institutional ownership refers to the extent to which a given company's common stock is owned by large financial institutions, mutual funds, insurance companies, and endowments.[53] Because they tend to have more resources than retail investors, institutional investors are able to perform more in-depth research, and tend to take larger positions in a given company's stock. A significant benefit of institutional investors to capital-intensive companies such as OTP is that they tend to be an efficient source of equity capital. In addition, because they buy and sell large stock positions based on their individual research and portfolio objectives, institutional investors provide a significant source of liquidity. As discussed below, a more liquid market means that an investor can sell stocks without the risk of losing value.

There is little question that institutional ownership is important to equity investors. Value Line, for example provides institutional buy and sell decisions (by quarter) as well as total institutional ownership. Similarly, Yahoo! Finance reports institutional ownership as a percentage of float and shares held. Because access to this efficient source of equity capital and market liquidity is diminished, companies with lower levels of institutional ownership are at a competitive disadvantage, and their investors face greater liquidity risk. Those companies therefore must provide higher returns to compensate investors for that disadvantaged position and incremental risk. As discussed below, that higher return has been referred to as the "liquidity premium".

Q. HOW DOES OTTR'S PERCENTAGE OF INSTITUTIONAL OWNERSHIP COMPARE TO THE UTILITIES INCLUDED IN THE PROXY GROUP?

[53] As opposed to institutional ownership, "retail" ownership refers to ownership by individual investors.

A. OTTR's 43.10 percent institutional ownership is significantly lower than any of the proxy companies. More specifically, OTTR's institutional ownership is significantly below the 81.22 percent average institutional ownership of my proxy group. OTTR's institutional ownership is also below that of MDU, BKH, NWE, and Xcel Energy, Inc. ("Xcel Energy"), 64.77 percent, 99.03 percent, 99.56 percent, and 74.51 percent, respectively. The relative portions of institutional ownership are provided in Exhibit__(RBH-1), Schedule 11. Because OTTR's level of institutional ownership is significantly below its peers, there is a lower level of equity capital available from institutional investors to OTTR and OTP.

Trading Volume and Liquidity Risk

Q. DOES THE TRADING VOLUME OF A COMPANY AFFECT A LARGE INVESTOR'S ABILITY TO SELL ITS STAKE IN THE COMPANY?

A. Yes. Smaller companies (such as OTTR) typically have fewer shares outstanding, and fewer shares traded than their larger counterparts. This is significant to institutional investors, who typically hold larger numbers of shares in each of their investments as a matter of management efficiency. In other words, institutional investors tend to have minimum dollar amounts for individual investments, which lead to positions involving larger numbers of shares. If an institutional investor holds a relatively large portion of the shares of a company, its ability to sell its position (without adversely affecting the market price of shares) may be limited by the volume of shares traded each day. That uncertainty, which often is referred to as "liquidity risk", requires a higher expected return (that is, the "liquidity premium" noted earlier). As noted by Amihud and Mendelson:

> …investors prefer to commit capital to liquid investments, which can be traded quickly and at low cost whenever the need arises. Investments with less liquidity must offer higher expected returns to attract investors.[54]

[54] Yakov Amihud, Haim Mendelson, *Liquidity, Asset Prices and Financial Policy*, Financial Analysts Journal, Vol. 47, No. 6 (Nov-Dec 1991), at 56.

Q. HOW DOES THE DAILY TRADING VOLUME OF OTTR SHARES COMPARE TO OTHER UTILITIES IN YOUR PROXY GROUP?

A. The daily trading volume of OTTR shares is far below the average volume of my proxy group. As Table 10 (below) indicates, OTTR's average daily volume has been only about 17.00 to 18.00 percent of the average daily volume for the Proxy Group. Again, that low volume indicates low liquidity and the corresponding requirement for a liquidity premium.

Table 10: Average Daily Trading Volumes

Group	Jan 2013 – Feb 2018	Jan 2014 – Feb 2018	Jan 2015 – Feb 2018	Jan 2016 – Feb 2018	Jan 2017 – Feb 2018
OTTR	94,878	96,401	95,424	100,875	93,062
Proxy Group	519,892	547,046	559,974	568,667	549,902
OTTR Volume as a % of:					
Proxy Group	18.25%	17.62%	17.04%	17.74%	16.92%

OTTR's average daily trading volume is also significantly lower than the averages for Xcel Energy, MDU, BKH, and NWE which were approximately 3.00 million (3.00 percent), 1.00 million (10.00 percent), 400,000 (24.00 percent), and 330,000 (29.00 percent), respectively.

Taken from a slightly different perspective, OTTR's average daily trading volume as a percentage of shares outstanding is less than one-half of its peers' (see Table 11, below). Again, that low volume indicates a degree of illiquidity that strongly suggests the need for a liquidity premium.

Table 11: Average Daily Volume as a Percentage of Shares Outstanding

GROUP	JAN 2013 – FEB 2018	JAN 2014 – FEB 2018	JAN 2015 – FEB 2018	JAN 2016 – FEB 2018	JAN 2017 – FEB 2018
OTTR	0.252%	0.253%	0.248%	0.259%	0.236%
Proxy Group	0.558%	0.582%	0.593%	0.600%	0.585%

OTTR's average daily trading volume as a percentage of shares outstanding is also significantly lower than the averages for Xcel Energy, MDU, BKH, and NWE which were approximately 0.60 percent, 0.50 percent, 0.80 percent, and 0.70 percent, respectively.

Q. WHAT DO YOU CONCLUDE FROM THAT DATA?

A. First, there is little question that OTTR has a small percentage of institutional ownership, and very low daily trading volumes relative to its peers. Its equity investors therefore face greater liquidity risk, for which they would require a liquidity premium. Because OTP's Cost of Equity is estimated based on a proxy group of companies with greater degrees of institutional ownership and higher daily trading volumes, the liquidity premium required to invest in OTTR's shares is not reflected in the analytical results. Although it is difficult to estimate the required liquidity premium, OTTR's relatively illiquid shares provide further support for moving toward the upper end of the range of analytical results.

Relative Beta Coefficients

Q. PLEASE BRIEFLY EXPLAIN BETA COEFFICIENTS, AND HOW THEY RELATE TO THE COST OF EQUITY.

A. As discussed in Section VI, Beta coefficients (which are an important component of the CAPM) measure the risk of a given security relative to the market as a whole. In that regard, a company with a Beta coefficient equal to 1.0 is as risky as the market; Beta coefficients greater (less) than 1.0 indicate more (less) risk than the market. Because they include relative returns over time, Beta coefficients can be calculated a number of ways. As a general matter, however, higher Beta coefficients indicate higher Costs of Equity.

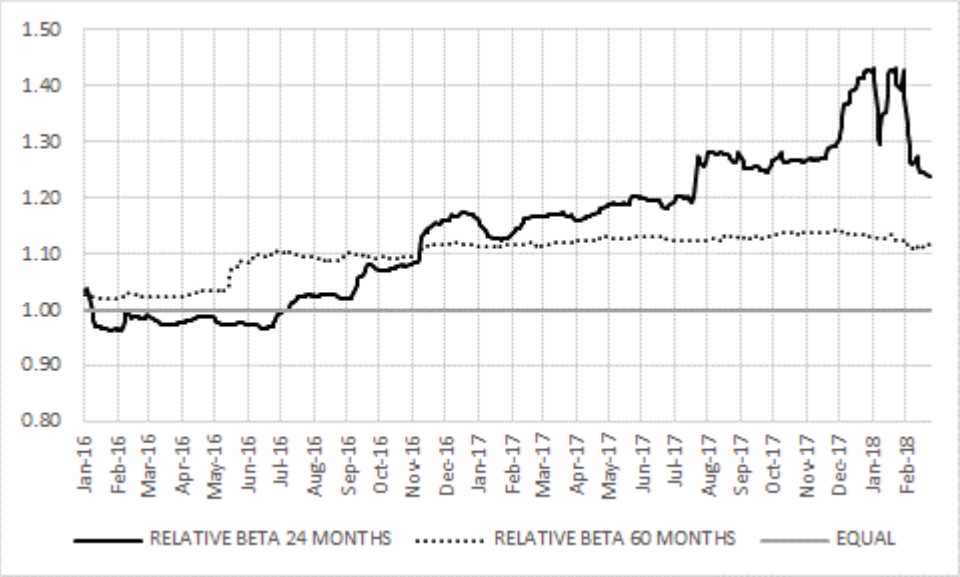
Q. HOW DOES OTTR'S BETA COEFFICIENT COMPARE TO THOSE OF THE PROXY COMPANIES?

A. OTTR's Beta coefficient has been consistently above that of the proxy group. In fact, OTTR's Beta coefficient has been greater than the proxy group's Beta coefficient since at least January 2016 or June 2016 depending on the calculation period. This indicates that from the perspective of relative betas, OTTR has been riskier than the proxy group.

Q. PLEASE DESCRIBE THE ANALYSES YOU PERFORMED REGARDING RELATIVE BETA COEFFICIENTS.

A. I calculated OTTR's Beta coefficient over both 24- and 60-month periods (that is, the same periods used by Value Line and Bloomberg[55]); I performed that calculation each day from January 2016 through February 2018. I then took the ratio of OTTR's calculated Beta coefficient to the proxy group and plotted that ratio each day over the calculation period. Those results are provided in Chart 3, below.

Chart 3: Relative Beta Coefficients[56]



Q. WHAT ARE YOUR CONCLUSIONS OF YOUR ANALYSIS RELATIVE BETA COEFFICIENTS?

A. Chart 3 demonstrates that OTTR has been riskier than the proxy group when calculated over both 24- and 60- month periods, because the relative Beta coefficient (*i.e.*, the Beta coefficient for OTTR divided by the Beta coefficient for the proxy group) has been consistently above 1.0. As such, the review of relative Beta coefficients supports the conclusion that OTTR, and by extension OTP, are riskier than the proxy group.

---

55 Although Bloomberg enables analysts to calculate Beta coefficients over different periods, its default period is two years. Please note that because of slight differences in the method of calculation, the Beta coefficients provided in Chart 3 will not equal those reported by either Bloomberg or Value Line. Any such differences, however, do not negate the findings discussed herein.

56 Source: S&P Global Market Intelligence.

Cost Savings for Customers

Q. HAS OTP DEMONSTRATED THE COMBINATION OF SUBSTANTIAL COST SAVINGS FOR CUSTOMERS AND VERY HIGH LEVELS OF CUSTOMER SATISFACTION?

A. Yes. OTP witness Mr. Kirk A. Phinney explains that OTP has completed the largest capital project it has undertaken, the Big Stone Air Quality Control System project ("AQCS Project"), on time and approximately 26.00 percent under budget. Mr. Phinney also explains that the smaller Hoot Lake Mercury Air Toxins Standard project has also been completed substantially under budget.

Mr. Tommerdahl explains the very substantial savings to all OTP customers, including approximately $300,000 in the 2017 Test Year, approximately $2.9 million in the first ten years, and approximately $5.4 million over 30-year life of the AQCS Project. Mr. Gerhardson discusses the high levels of customer satisfaction and low rates that OTP has maintained for a number of years.

Q. IS IT APPROPRIATE FOR A REGULATORY ENTITY SUCH AS THE COMMISSION TO RECOGNIZE SIGNIFICANT SAVINGS AND HIGH LEVELS OF CUSTOMER SATISFACTION WHEN SETTING THE ROE?

A. Yes. The rationale for setting an ROE that recognizes utility performance that results in substantial cost savings for customers, and the mutual benefits to customers and investors from doing so, are summarized by Professor Roger Morin in his text <u>New Regulatory Finance,</u> in which he discusses incentive-based regulation:

> In essence, an incentive premium in excess of the authorized rate of return is granted as an incentive device and/or to reward the attainment of a certain performance objective. Benefits accrue to both investors and ratepayers, the former in the form of enhanced profitability, and the latter in the form of reduced costs. The ROE increment is frequently tied to a specific performance target, for example a given ratio of actual/filed capital spending program. More importantly, the ROE increment is applied in order to reward overall management performance as opposed to

the attainment of a narrow, specific objective.[57]

Although Dr. Morin's discussion specifically addresses formal incentive plans, I believe the same rationale applies to setting the ROE in a traditional rate case.

Q. IS SUCH A PREMIUM PART OF THE COST OF EQUITY?

A. No. Such a premium would represent an award above the Cost of Equity to reflect a recognition and reward for the performance of the utility.

Q. WHAT ARE YOUR CONCLUSIONS REGARDING OTP'S COST SAVINGS, LOW RATES, AND CUSTOMER SATISFACTION?

A. Although I have not made an explicit adjustment to my ROE recommendation based on the cost savings for customers, I note that it will be important to set a return that will support internally generated funds and enable access to capital markets at reasonable terms given OTP's extensive capital expenditure program. These factors, along with OTP's higher risk factors and need to access debt and equity capital, support my 10.30 percent recommendation.

VIII. CAPITAL MARKET ENVIRONMENT

Q. DO ECONOMIC CONDITIONS INFLUENCE THE REQUIRED COST OF CAPITAL AND REQUIRED RETURN ON COMMON EQUITY?

A. Yes. As discussed in Section VI, the models used to estimate the Cost of Equity are meant to reflect, and therefore are influenced by, current and expected capital market conditions. As such, it is important to assess the reasonableness of any financial model's results in the context of observable market data. To the extent certain ROE estimates are incompatible with such data or inconsistent with basic financial principles, it is appropriate to consider whether alternative estimation techniques are likely to provide more meaningful and reliable results.

[57] Morin in New Regulatory Finance, Chapter 20, section 20.3 Alternatives To Rate Of Return/Rate Base Regulation, p. 539.

Q. DO YOU HAVE ANY GENERAL OBSERVATIONS REGARDING THE RELATIONSHIP BETWEEN FEDERAL RESERVE MONETARY POLICY, CAPITAL MARKET CONDITIONS, AND THE COMPANY'S COST OF EQUITY?

A. Yes, I do. Much has been reported about the Federal Reserve's Quantitative Easing policy and its effect on interest rates. Although the Federal Reserve completed its Quantitative Easing initiative in October 2014, it was not until December 2015 that it raised the Federal Funds rate, and began the process of rate normalization.[58] Therefore, a significant issue is how investors will react as that process continues, and eventually is completed. A viable outcome is that investors will perceive greater prospects of macroeconomic growth, which will increase the growth rates included in the Constant Growth DCF model. At the same time, higher growth and the absence of Federal market intervention could provide the opportunity for interest rates to increase, thereby increasing the dividend yield portion of the DCF model. In that case, both terms of the Constant Growth DCF model would increase, producing increased ROE estimates.

More recently, interest rates have risen and become increasingly volatile. In the equity markets, sectors that historically have included dividend-paying companies lost value, as increasing interest rates provided investors with other sources of current income. Because those dynamics affect different models in different ways, it would be inappropriate to rely on a single method to estimate the Company's Cost of Equity. A more reasoned approach is to understand the relationships among Federal monetary policy, interest rates, and measures of market risk, and to consider how those factors may affect different models and their results. As discussed throughout my Direct Testimony, it remains important to consider a broad range of data and models when determining the Company's Cost of Equity.

Q. PLEASE SUMMARIZE THE EFFECT OF RECENT FEDERAL RESERVE POLICIES ON INTEREST RATES AND THE COST OF CAPITAL.

[58] *See* Federal Reserve Press Release (December 16, 2015).

A. Beginning in 2008, the Federal Reserve proceeded on a steady path of initiatives intended to lower long-term Treasury yields.[59] The Federal Reserve's policy actions "were designed to put downward pressure on longer-term interest rates by having the Federal Reserve take onto its balance sheet some of the duration and prepayment risks that would otherwise have been borne by private investors."[60] Under that policy, "Securities held outright" on the Federal Reserve's balance sheet increased from approximately $489 billion at the beginning of October 2008 to $4.20 trillion by February 2018.[61] To put that increase in context, the securities held by the Federal Reserve represented approximately 3.29 percent of Gross Domestic Product ("GDP") at the end of September 2008, and had risen to approximately 21.28 percent of GDP in February 2018.[62] As such, the Federal Reserve provided a significant source of liquidity, and had a substantial effect on capital markets.

Q. DOES YOUR RECOMMENDATION CONSIDER THE INTEREST RATE ENVIRONMENT?

A. Yes, it does. From an analytical perspective, it is important that the inputs and assumptions used to arrive at an ROE recommendation, including assessments of capital market conditions, are consistent with the recommendation itself. Although all analyses require an element of judgment, the application of that judgment must be made in the context of the quantitative and qualitative information available to the analyst, and the capital market environment in which the analyses were undertaken. Because the Cost of Equity is forward-looking, the salient issue is whether investors see the likelihood of increased interest rates during the period in which the rates set in this proceeding will be in effect.

---

59 *See* Federal Reserve Press Release, dated June 19, 2013.

60 Federal Reserve Bank of New York, *Domestic Open Market Operations During 2012*, April 2013, at 29.

61 Source: Federal Reserve Board Schedule H.4.1. "Securities held outright" include U.S. Treasury securities, Federal agency debt securities, and mortgage-backed securities

62 Source: Federal Reserve Board Schedule H.4.1; Bureau of Economic Analysis.

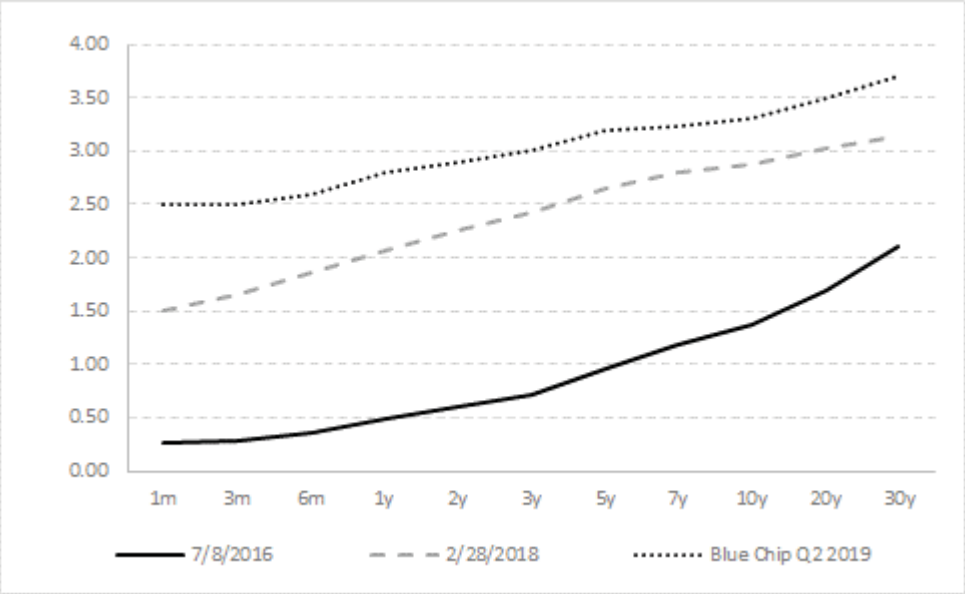
The low interest rate environment associated with central bank intervention may lead some analysts to conclude that current capital costs, including the Cost of Equity, are low and will remain as such. However, that conclusion only holds true under the hypothesis of Perfectly Competitive Capital Markets ("PCCM") and the classical valuation framework which, under normal economic and capital market conditions, underpin the traditional Cost of Equity models. Perfectly Competitive Capital Markets are those in which no single trader, or "market-mover", would have the power to change the prices of goods or services, including bond and common stock securities. In other words, under the PCCM hypothesis, no single trader would have a significant effect on market prices.

Classic valuation theory assumes investors trade securities rationally, with prices reflecting their perceptions of value. Although central banks may set benchmark interest rates, they have maintained below-normal rates to stimulate economic expansion and capital market recovery. It therefore is reasonable to conclude that the Federal Reserve and other central banks have been acting as market-movers, thereby having a significant effect on the market prices of both bonds and stocks. The presence of market-movers, such as the Federal Reserve, runs counter to the PCCM hypothesis, which underlies traditional Cost of Equity models. Consequently, the results of those models should be considered in the context of both quantitative and qualitative information.

Although the Federal Reserve's market intervention policies have kept interest rates historically low, since July 8, 2016 (when the 30-year Treasury yield hit an all-time low of 2.11 percent), rates have risen. As the Federal Reserve increased the Federal Funds target rate by 25 basis points five times from December 2016 (from 0.25 percent - 0.50 percent to 0.50 percent - 0.75 percent) to March 2018 (to 1.50 percent – 1.75 percent) short-term and long-term interest rates increased by a corresponding amount (*see* Chart 4 below).[63]

[63] Federal Reserve Board Schedule H.15. 6-month and 1-year Treasury yields increased by 150 basis points and 159 basis points, respectively, July 8, 2016 to February 28, 2018. The ten-year and 30-year Treasury yields increasing by 150 basis points and 102 basis points, respectively, by February 28, 2018.

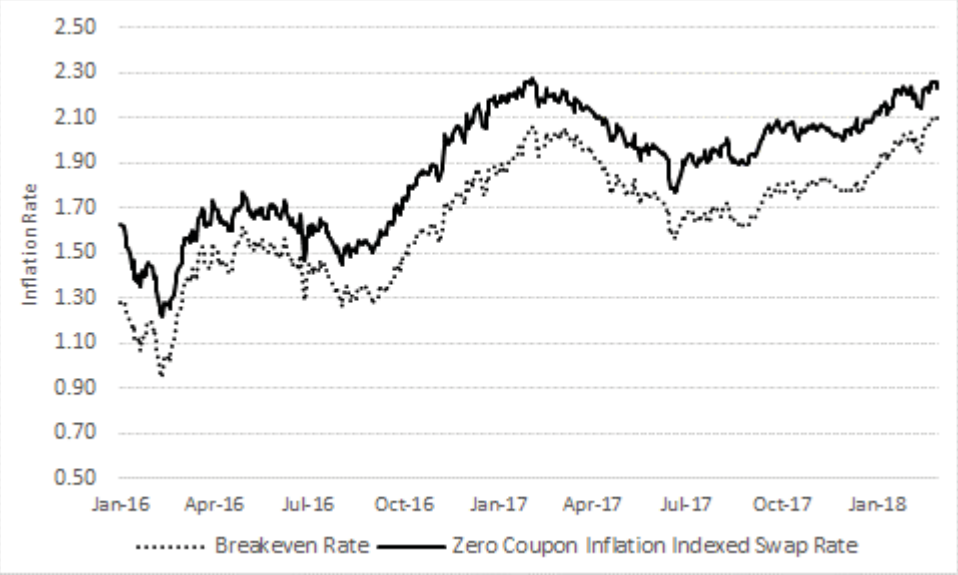
Chart 4: Treasury Yield Curve: 7/8/2016, 2/28/2018 and Projected Q1 2019[64]



The significant increase in the 10- and 30-year yields from July 2016 to February 2018 is highly related to increasing inflation. To that point, leading up to and following the November 2016 Presidential election, expected inflation, as measured by the breakeven forward inflation rate and the zero-coupon inflation index swaps also increased. Although those measures of forward inflation fell somewhat between February and June 2017, they have increased since that period, such that they are similar to the Federal Reserve's 2.00 percent inflation target (*see* Chart 5, below).

[64] Sources: Federal Reserve Board Schedule H.15.; Blue Chip Financial Forecasts, Vol. 37, No. 3, March 1, 2018, at 2. 3-year, 7-year and 20-year projected Treasury yields interpolated.

Chart 5: Five-Year Forward Inflation[65]



Lastly, on September 20, 2017, the Federal Reserve announced that it will "initiate the balance sheet normalization program described in the June 2017 Addendum to the Committee's Policy Normalization Principles and Plans."[66] Those "Principles and Plans" call for reducing the reinvestment of principal payments received from its holdings of Treasury securities by up to $30 billion per month, and mortgage-backed securities by up to $20 billion per month.[67] At the same time, the Federal Reserve will continue considering increases to the Federal Funds target rate; as noted below, current market data indicate an approximately 99.70 percent likelihood of further rate increases by December 2018.

Q. DOES MARKET-BASED DATA INDICATE THAT INVESTORS SEE A PROBABILITY OF INCREASING INTEREST RATES?

A. Yes. Forward Treasury yields implied by the slope of the yield curve and published projections by sources such as *Blue Chip Financial Forecasts* (which provides consensus

65 Source: Bloomberg Professional Services
66 Federal Reserve Press Release, (Sept. 20, 2017).
67 Federal Reserve *Addendum to the Policy Normalization Principles and Plans,* as adopted effective June 13, 2017.

estimates from approximately 50 professional economists) indicate investors expect long-term interest rates to increase.

Looking to short-term interest rates, data compiled by CME Groups indicates that investors see a high likelihood of further Federal Funds rate increases, even after the five increases between December 14, 2016 and March 21, 2018. As shown in Table 12, (below) the market is now anticipating at least one additional rate hike (97.50 percent probability) and possibly two or more (78.40 percent) by December 2018.

Table 12: Probability of Federal Funds Rate Increases[68]

Target Rate (bps)	Federal Reserve Meeting Date					
	5/2/18	6/13/18	8/1/18	9/26/18	11/8/18	12/19/18
150-175	95.9%	16.8%	14.9%	5.3%	4.5%	2.5%
175-200	4.1%	79.8%	72.9%	35.3%	31.0%	19.1%
200-225		3.4%	11.8%	51.4%	49.1%	41.0%
225-250			0.4%	7.8%	14.0%	29.7%
250-275				0.2%	1.3%	7.0%
275-300						0.6%

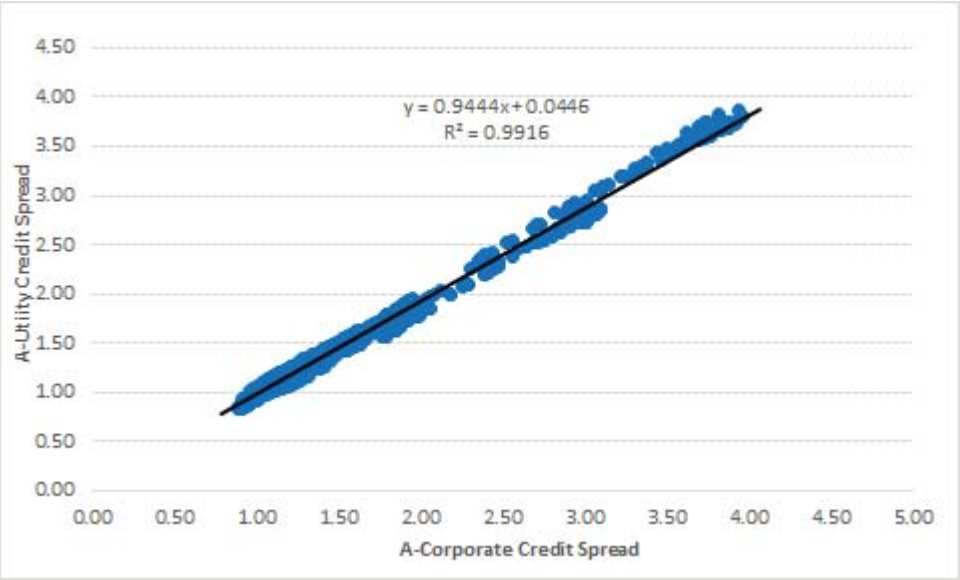
Q. HAVE YOU ALSO REVIEWED THE RELATIONSHIP BETWEEN CREDIT SPREADS FOR A-RATED UTILITY DEBT RELATIVE TO A-RATED CORPORATE DEBT?

A. Yes, I have. Given the historical volatility in the spread between corporate and utility A-rated debt, there is no reason to conclude that utility yields are different than those of their corporate counterparts. That conclusion is consistent with the finding that over time, there has been a nearly one-to-one relationship between credit spreads on A-rated corporate and utility bonds. In fact, a regression analysis in which corporate credit spreads are the explanatory variable and utility credit spreads are the dependent variable shows that slope is approximately 1.00 and highly significant (*see* Chart 6, below). Because the intercept term is nearly zero, we can conclude that there has been no material

[68] Source: http://www.cmegroup.com/trading/interest-rates/countdown-to-fomc.html, accessed March 21, 2018.

difference between the two, and there certainly is no meaningful difference in the current market.

Chart 6: Corporate and Utility Credit Spreads (A-Rated)[69]



Q. WHAT CONCLUSIONS DO YOU DRAW FROM YOUR ANALYSES OF THE CURRENT CAPITAL MARKET ENVIRONMENT, AND HOW DO THOSE CONCLUSIONS AFFECT YOUR ROE RECOMMENDATION?

A. In my view, we cannot conclude that the recent levels of utility valuations are due to a fundamental change in the risk perceptions of utility investors. There is no measurable difference between credit spreads of A-rated utility debt, and A-rated corporate debt. That is, based on analyses of credit spreads, there is no reason to conclude that investors see utilities as less risky relative to either historical levels or to their corporate counterparts.

From an analytical perspective, it is important that the inputs and assumptions used to arrive at an ROE determination, including assessments of capital market conditions, are consistent with the conclusion itself. Although all analyses require an element of judgment, the application of that judgment must be made in the context of the

[69] Source: Bloomberg Professional Services

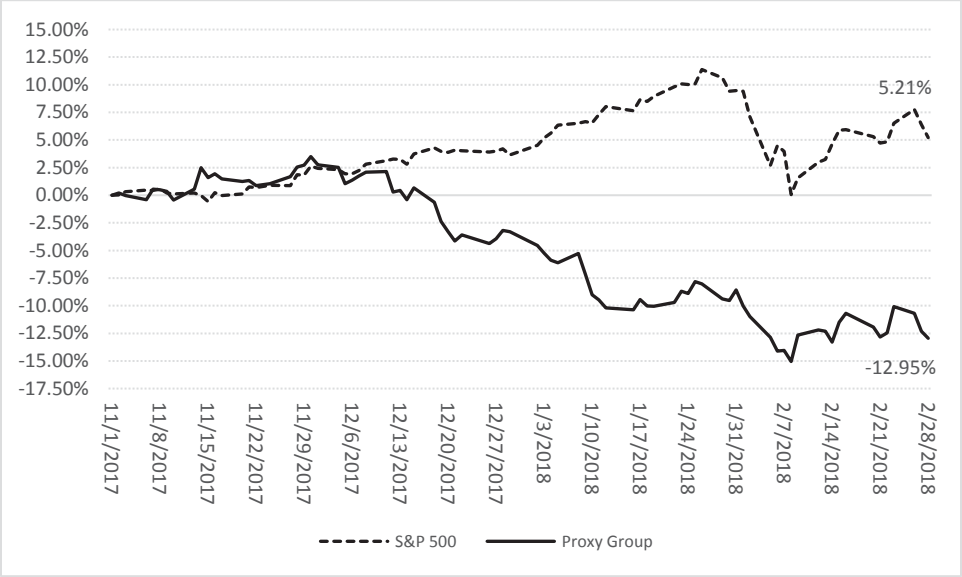
quantitative and qualitative information available to the analyst and the capital market environment in which the analyses were undertaken. Because the application of financial models and interpretation of their results often is the subject of differences among analysts in regulatory proceedings, I believe that it is important to review and consider a variety of data points; doing so enables us to put in context both quantitative analyses and the associated recommendations.

Because not all models used to estimate the Cost of Equity adequately reflect those changing market dynamics, it is important to give appropriate weight to the methods and to their results. Moreover, because those models produce a range of results, it is important to consider the type of data discussed above in determining where the Companies' ROE falls within that range. As described in Section VII, on balance, I believe that the DCF-based results should be viewed very carefully, and that somewhat more weight should be afforded the Risk Premium-based methods. I believe that doing so supports my recommended range of 10.00 percent to 10.60 percent, and my ROE recommendation of 10.30 percent.

Q. HAVE YOU ALSO CONSIDERED THE EFFECT OF THE RECENTLY ENACTED TAX CUT AND JOBS ACT ("TCJA")?

A. Yes, I have. On December 22, 2017, the TCJA was signed into law. Since shortly before the TCJA was signed, electric utilities (as measured by my proxy group) have significantly underperformed the overall market. As Chart 7 (below) demonstrates, from November 1, 2017 through February 28, 2018 the S&P 500 gained about 5.21 percent in value. In stark contrast, my proxy group lost about 12.95 percent, underperforming the overall market by more than 18.00 percentage points.

Chart 7: Relative Performance since November 2017[70]



Q. WHAT DOES THIS DATA INDICATE?

A. A reasonable inference to be drawn from that data is that investors have been re-evaluating electric utilities relative to other market sectors. To the extent investors now view utilities as less attractive relative to alternative investments, the proxy companies' prices will fall, and the dividend yields will increase. As explained below, because rating agencies have begun to discuss the consequences of the TCJA for utilities' cash flow, a reasonable conclusion is that equity investors also have begun to recognize those consequences, and to allocate their capital to other market sectors.

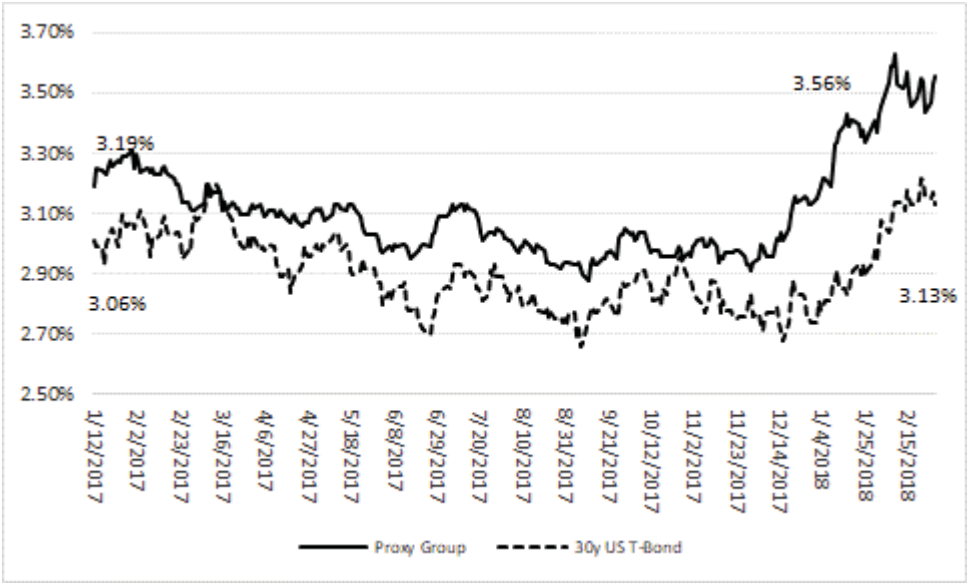
Q. HAVE THE PROXY COMPANIES' DIVIDEND YIELDS INCREASED COINCIDENT WITH THE TCJA?

A. Yes, since the beginning of December 2017 the dividend yield for my proxy group increased by about 62 basis points, while the 30-year Treasury yield increased by about 37 basis points (*see* Chart 8, below). Again, that data suggests the fall in price among utility stocks may be a matter of relative value stemming from concerns regarding the TCJA's effect on utilities' cash flow. As discussed below, Moody's Investors Service

[70] Source: S&P Global Market Intelligence. Proxy group calculated as an index.

("Moody's"), Standard & Poor's, and Fitch Ratings all recently have evaluated the utility sector in the context of the TCJA, with Moody's noting negative ratings implications for many of the utilities it covers.

Chart 8: Proxy Group Dividend Yield vs. 30-Year Treasury Yield[71]



Further, as shown in Chart 8, although the spread between the proxy group dividend yield and the 30-year Treasury yield increased, the 30-year Treasury yield also increased significantly since December 2017.[72] As discussed above, the increase in interest rates, and expectation of further increases, may lead to lower utility valuations, higher dividend yields, and higher growth rates, which would suggest higher DCF results, and a higher ROE.

Q. ARE THERE REASONS TO EXPECT THE TCJA MAY AFFECT THE MODELS USED TO ESTIMATE THE COST OF EQUITY?

A. Yes, there are. As discussed earlier in my Direct Testimony, the Constant Growth DCF model is based on several assumptions that together assume current market conditions essentially will remain in place, unchanged, in perpetuity. Because we have seen a

[71] Source: S&P Global Market Intelligence. My proxy group calculated as an index.

[72] The 30-day average of the 30-year Treasury yield ranged from 2.77 percent to 2.83 percent in December 2017 and increased to 3.06 percent as of February 28, 2018.

significant change in utility valuations, we should recognize the mean DCF results likely are not reliable indicators of the Company's Cost of Equity. As also discussed in my Direct Testimony, the Cost of Equity is affected by the degree of financial leverage, or debt, in the capital structure. That is, the results of the DCF model should be viewed with caution when they change significantly over short periods of time, because the model assumes that current market conditions will exist on an ongoing basis.

Q. WHAT CONCERNS HAVE RATING AGENCIES RAISED AS THEY CONSIDER THE IMPLICATIONS OF THE TCJA FOR UTILITIES' CASH FLOW?

A. The rating agencies have observed that a reduction in utilities' revenue associated with lower income taxes and the potential return of excess accumulated deferred income taxes also may reduce utilities' cash flow.[73] As FitchRatings pointed out "[a]bsent mitigating strategies on the regulatory front, this is expected to lead to weaker credit metrics and negative rating actions for issuers with limited headroom to absorb the leverage creep."[74] In a similar vein, Standard & Poor's observed that the TCJA is "…negative for credit quality because the combination of a lower tax rate and the loss of stimulus provisions related to bonus depreciation or full expensing of capital spending will create headwinds in operating cash-flow generation capabilities as customer rates are lowered in response to the new tax code."[75] Moody's stated the following:

> Tax reform is credit negative for US regulated utilities because the lower 21% statutory tax rate reduces cash collected from customers, while the loss of bonus depreciation reduces tax deferrals, all else being equal. Moody's calculates that the recent changes in tax laws will dilute a utility's ratio of cash flow before changes in working capital to debt by approximately 150 - 250 basis points on average, depending to some degree on the size of the company's capital expenditure programs. From a leverage perspective, Moody's estimates that debt to total capitalization

[73] *See* S&P Global Market Intelligence, *Rating agencies warn tax reform could drag US utility sector credit quality*, January 25, 2018.

[74] FitchRatings Special Report, *Tax Reform Impact on the U.S. Utilities, Power & Gas Sector*, January 24, 2018 at 1.

[75] S&P Global Ratings, *U.S. Tax Reform: For Utilities' Credit Quality, Challenges Abound*, January 24, 2018 at 5.

> ratios will increase, based on the lower value of deferred tax liabilities.[76] (Emphasis added.)

All three rating agencies, therefore, have observed the negative effects of the TCJA on utilities' cash flow, and the potential consequences for their credit profiles. Moody's noted the significance of a utility's capital expenditure program, and the Company has a very extensive capital expenditure program, as I explained in my Direct Testimony.

Q. HAVE THE RATING AGENCIES ALSO DISCUSSED POSSIBLE REGULATORY REACTIONS TO THE CASH FLOW IMPLICATIONS OF THE TCJA?

A. Yes. Moody's, for example, identified approaches to help preserve credit profiles, including "…accelerated cost recovery of certain regulatory assets or future investment; changes to the equity layer or allowed ROEs in rates, and other actions." Moody's also suggested that "[c]hanges to corporate financial policies could include changes to capitalization, the financing of future investments, dividend growth, or others."[77] FitchRatings observed the following:

> A majority of states have opened dockets or requested all utilities in the state to submit an analysis on the implications of the tax reform. While regulators will be keen to provide some sort of rate relief for customers, such actions could take many forms and vary in time frame. Some jurisdictions may be open to a negotiated outcome that focuses more on benefits of rate stability and creditworthy utilities rather than immediate rate reductions. In the former, many tools could be employed, including the following:
>
> • Deferral of lower tax expense to use as an offset to expected future rate increases either from the recovery of regulatory deferrals or rate base growth
>
> • Return of excess unprotected ADIT over a longer-term horizon
>
> • Increase in authorized equity ratio and/or return on equity
>
> • Accelerated depreciation on some assets

---

[76] Moody's Investors' Service, *Rating Action: Moody's changes outlooks on 25 US regulated utilities primarily impacted by tax reform*, January 19, 2018 at 1.

[77] *Ibid.* at 1-2.

- Lower capex[78]

As both rating agencies discussed, regulatory responses may vary by company and jurisdiction, but may include a variety of potential approaches.

Q. WHAT CONCLUSIONS DO YOU DRAW FROM THE DATA AND INFORMATION DISCUSSED ABOVE?

A. There is little question that the TCJA has increased cash flow-related risks for utilities. Those risks are manifested in the sector's significant underperformance relative to the broad market, and in the comments of financial participants such as Moody's, Standard & Poor's, and FitchRatings.

Q. ARE YOU RECOMMENDING A HIGHER ROE IN THIS PROCEEDING IN CONNECTION WITH THE TCJA?

A. No, I am not. Rather, I recommend that the Commission consider the capital market implications of the TCJA as part of its review. Based on the data and information discussed above, it is my view that the TCJA, and its implications for utilities' cash flows and credit profiles, provide further support for my ROE range and recommendation.

IX. CAPITAL STRUCTURE

Q. WHAT IS OTP'S PROPOSED CAPITAL STRUCTURE?

A. As described in the Direct Testimony of Mr. Moug, OTP's proposed capital structure consists of 53.10 percent common equity and 46.90 percent long-term debt.

Q. IS THERE A GENERALLY ACCEPTED APPROACH TO DEVELOPING ASSESSING THE APPROPRIATE CAPITAL STRUCTURE FOR A REGULATED ELECTRIC UTILITY?

A. Yes, there is. In general, it is important to consider the capital structure in light of industry norms and investor requirements. That is, the capital structure should be reasonably consistent with industry practice, and enable the subject company to maintain

[78] FitchRatings Special Report, *Tax Reform Impact on the U.S. Utilities, Power & Gas Sector*, January 24, 2018.

its financial integrity, thereby enabling access to capital at competitive rates under a variety of economic and financial market conditions.

Q. HOW DOES THE CAPITAL STRUCTURE AFFECT THE COST OF CAPITAL?

A. It is well understood that from a financial perspective, there are two general categories of risk: business risk and financial risk. Business risk includes operating, market, regulatory, and competitive uncertainties, while financial risk is the incremental risk to investors associated with additional levels of debt. As such, the capital structure relates to a Company's financial risk, which represents the risk that a company may not have adequate cash flows to meet its financial obligations, and is a function of the percentage of debt (or financial leverage) in its capital structure. In that regard, as the percentage of debt in the capital structure increases, so do the fixed obligations for the repayment of that debt. Consequently, as the degree of financial leverage increases, the risk of financial distress (*i.e.*, financial risk) also increases.[79]

Q. PLEASE SUMMARIZE YOUR ANALYSIS OF THE PROXY COMPANIES' CAPITAL STRUCTURES?

A. First, it is important to keep in mind that the proxy group has been selected to reflect comparable companies in terms of financial and business risk. As such, it is appropriate to review the proxy companies' capital structures as a means of assessing whether the proposed capital structure is consistent with industry practice. To make that assessment, I calculated the average capital structure for each of the proxy companies over the last eight quarters (*see* Exhibit __(RBH-1), Schedule 12).

Q. WHAT IS THE BASIS FOR USING AVERAGE CAPITAL COMPONENTS RATHER THAN A POINT-IN-TIME MEASUREMENT?

A. Measuring the capital components at a particular point in time can skew the capital structure by the specific circumstances of a particular period. Therefore, it is more appropriate to normalize the relative relationship between the capital components over a period of time.

[79] *See* Roger A. Morin, New Regulatory Finance, Public Utility Reports, Inc., 2006, at 45-46.

Q HOW DOES OTP'S RATIO OF COMMON EQUITY TO TOTAL DEBT COMPARE TO YOUR PROXY GROUP?

A. Over the last eight quarters, the proxy group mean and median equity ratios were 52.33 and 52.84 percent, respectively. The common equity ratios ranged from 46.06 percent to 59.52 percent.[80] OTP's proposed 53.10 percent equity ratio is slightly above the median, but well within the range of those in place among its peers.

Q. WILL THE CAPITAL STRUCTURE AND ROE AUTHORIZED IN THIS PROCEEDING AFFECT OTP'S ABILITY TO COMPLETE ITS CAPITAL EXPENDITURE PLAN?

A. Yes, I believe so. As Mr. Moug states in his Direct Testimony, the level of earnings authorized by the Commission directly affects the Company's ability to fund capital investment with internally generated funds; and both lenders and equity investors expect a significant portion of on-going capital investments to be financed with internally generated funds.[81]

It also is important to realize that investors weigh a given utility's authorized ROE in the context of the nature of its expected capital investments. Because a utility's investment horizon is very long, investors require the assurance of a sufficiently high return to satisfy the long-run financing requirements of the assets put into service. Those assurances, which often are measured by the relationship between internally generated cash flows and debt (or interest expense), depend quite heavily on the capital structure. Both the ROE and capital structure therefore are very important to both debt and equity investors.

Q. WHAT IS YOUR CONCLUSION REGARDING AN APPROPRIATE CAPITAL STRUCTURE FOR OTP?

[80] Source: S&P Global Market Intelligence.
[81] Exhibit __ Moug Direct at 11.

A. I believe that the Company's proposed capital structure, which consists of 53.10 percent common equity and 46.90 percent long-term debt, is appropriate.

X. CONCLUSIONS AND RECOMMENDATION

Q. HAVE YOU PREPARED A SUMMARY OF YOUR ANALYTICAL RESULTS?

A. Yes, I have. As discussed in Section VI, I have performed several analyses to estimate OTP's Cost of Equity, including two applications of the DCF model, the CAPM approach, and the Bond Yield Plus Risk Premium model. Tables 13a and 13b below summarize my analytical results.

Table 13a: Summary of DCF Results[82]

	Mean Low	***Mean***	***Mean High***
Constant Growth DCF – Including Flotation Costs[83]			
30-Day Constant Growth DCF	8.22%	9.33%	10.70%
90-Day Constant Growth DCF	7.97%	9.08%	10.44%
180-Day Constant Growth DCF	7.91%	9.02%	10.39%
Multi-Stage DCF – Including Flotation Costs			
30-Day Multi-Stage DCF	8.79%	9.42%	10.22%
90-Day Multi-Stage DCF	8.07%	8.69%	9.49%
180-Day Multi-Stage DCF	7.97%	8.59%	9.39%

82 *See also* Exhibit __(RBH-1), Schedules 1 and 3.

83 Constant Growth DCF results exclude El Paso Electric Company, IDACORP, Inc., and Northwestern Corporation.

Table 13b: Summary of Risk Premium Results[84]

	Bloomberg Derived Market Risk Premium	***Value Line Derived Market Risk Premium***
Average Bloomberg Beta Coefficient		
Current 30-Year Treasury (3.05%)	10.52%	10.97%
Near Term Projected 30-Year Treasury (3.42%)	10.89%	11.33%
Average Value Line Beta Coefficient		
Current 30-Year Treasury (3.05%)	12.22%	12.76%
Near Term Projected 30-Year Treasury (3.42%)	12.58%	13.13%
Bond Yield Plus Risk Premium Approach		
Current 30-Year Treasury (3.05%)	9.97%	
Near Term Projected 30-Year Treasury (3.42%)	10.03%	
Long Term Projected 30-Year Treasury (4.20%)	10.25%	

Q. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE COMPANY'S COST OF EQUITY.

A. As discussed throughout my Direct Testimony, it is important to consider a variety of empirical and qualitative information in reviewing analytical results and arriving at ROE determinations. Here, we have a situation in which the proxy companies have traded at P/E ratios in excess of their historical average, and, for a time, in excess of the market. Because that condition is unlikely to persist, it violates a principal assumption of the Constant Growth DCF model, i.e., that the P/E ratio will not change, ever. A more balanced approach is to consider additional methods, including the CAPM approach, and the Bond Yield Plus Risk Premium model. Based on that data, I believe that an ROE in the range of 10.00 percent to 10.60 percent represents the range of equity investors' required ROE for investment in OTP in today's capital markets. Within that range, I conclude that an ROE of 10.30 percent represents the Cost of Equity for OTP and an appropriate ROE in this matter.

[84] *See also* Exhibit __(RBH-1), Schedule 6 and Schedule 7.

My conclusion reflects OTP's risk profile relative to the proxy group, along with market indications of increasing capital costs. My analysis demonstrates that OTP's level of projected capital expenditures (68.92 percent of net plant) is higher than all proxy companies, and is substantially higher than the proxy group median (34.80 percent of net plant). My analysis also shows that OTP's estimated stand-alone market capitalization is approximately 4.00 percent of the smallest company in the proxy group. In addition, OTTR's level of institutional ownership, trading volume, and liquidity are all below the proxy group, and the relative Beta coefficient is above 1.00 suggesting that OTTR is riskier than the proxy group. Although I have not made a specific adjustment for any of these factors, these factors support an ROE above the mean analytical results.

My recommendation is also supported by the substantial customer savings that OTP has achieved while maintaining the highest levels of customer service and satisfaction. Mr. Tommerdahl has demonstrated that South Dakota customers will receive customer savings of approximately (approximately $300,000 in the 2017 Test Year, approximately $2.9 million in the first ten years, and approximately $5.4 million over 30 years) as the result of OTP's under-budget completion of the AQCS Project. Mr. Gerhardson has explained the high levels of customer satisfaction with OTP service. Here too, although I have not made a specific adjustment for these factors, they do support my recommended 10.30 percent ROE.

On balance, based on those considerations, I believe that an ROE of 10.30 percent is reasonable for OTP.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.