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I. Factual Background

On April 20, 2018, Otter Tail Power Company (Otter Tail or the Company) filed an application with the Commission seeking a net annual revenue increase of \$3,358,574, or approximately 10.10%. Otter Tail also proposed an additional \$629,107, or 1.72%, step increase to become effective January 1, 2020, to begin recovering the cost of its Merricourt Wind Project, which was projected to enter service later in 2019. Otter Tail’s proposed requested revenue increase is based on a historic test year ended December 31, 2017, adjusted for what Otter Tail claimed to be known and measurable changes, a 10.3% return on common equity, and a 7.96% overall rate of return on rate base. Several witnesses submitted direct testimony on behalf of the Company, including Mr. Robert B. Hevert regarding rate of return on equity.

On May 16, 2018, the Commission issued an Order Suspending Operation of Proposed Rates; Order Assessing Filing Fee; Order Authorizing Executive Director To Enter Into a Consulting Contract. Pursuant to this order, implementation of Otter Tail’s proposed rates was suspended for 180 days beyond April 20, 2018. On June 28, 2018, Valley Queen Cheese Factory, Inc. (Valley Queen) filed a Petition to Intervene and intervention was granted by Commission Order on July 16, 2018. Valley Queen later indicated to Staff and Otter Tail that it no longer wished to participate, and, therefore, was not a party to the settlement and did not participate in the evidentiary hearing. On September 17, 2018, Otter Tail filed a Notice of Intent to Implement Interim Electric Service Rates for service provided on and after October 18, 2018, pursuant to

SDCL 49-34A-17. Interim rates are subject to refund pending a final order by the Commission in this proceeding.

Following extensive discovery, on January 7, 2019, Staff provided Otter Tail a copy of its draft revenue requirement determination and related recommendations, including rate of return on equity. Staff and Otter Tail held discussions on January 14, 2019 to discuss Staff's revenue requirement determination and to commence settlement negotiations. Thereafter, Staff and Otter Tail held additional settlement discussions in an effort to arrive at a mutually acceptable resolution of the issues presented in OTP's rate filing. Ultimately, the Parties reached an agreement on all issues presented in the case except rate of return on equity, and the resulting Joint Motion for Approval of Settlement Stipulation and Settlement Stipulation was filed on February 15, 2019. The Commission issued an Order Granting Joint Motion for Approval of Settlement Stipulation; Order Approving Settlement Stipulation on March 6, 2019.

On February 19, 2019, Staff filed the Testimony and Exhibits of Basil L. Copeland Jr., regarding the rate of return on equity. On March 15, 2019, Otter Tail filed the Rebuttal Testimony of Bruce G. Gerhardson, Kevin G. Moug, and Robert B. Hevert, in response to Mr. Copeland's testimony. An evidentiary hearing regarding the remaining issue of rate of return on equity was held on Tuesday, March 26, 2019.

II. Statutory and Constitutional Considerations

SDCL 49-34A-6 mandates that rates be just and reasonable. SDCL 49-34A-8 provides that in the determination of rates by the Commission, a public utility should be permitted the opportunity to "earn a fair and reasonable return upon the value of its property." Generally, a rate of return is considered fair if it "covers utility operating expenses, debt service, and dividends, if it compensates investors for the risks of investment, and if it is sufficient to attract capital and assure confidence in the enterprise's financial integrity."¹ "The rate of return should

¹ *State ex rel. Missouri Office of Public Counsel v. Public Service Commission of State*, 293 S.W.3d 63, 80 (Mo.App. S.D.2009).

not be higher than is necessary to achieve these goals. Otherwise, the utility customers will pay excessive prices, something regulation seeks to prohibit.”² Otter Tail has the burden to prove that the rate it seeks is just and reasonable.³

Ratemaking, “i.e., the fixing of ‘just and reasonable’ rates, involves a balancing of the investor and the consumer interests.”⁴ Under the standard of just and reasonable rates “the investor interest has a legitimate concern with the financial integrity of the company whose rates are being regulated.”⁵ Moreover:

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.⁶

These familiar words from the U.S. Supreme Court’s 1944 *Hope Natural Gas* case are commonly cited along with reference to the 1923 *Bluefield Waterworks Case*.⁷ But the *Hope* court never cited *Bluefield* and instead relied upon Justice Brandeis’ dissent in another case decided in 1923, *Southwestern Bell Tel. Co. v. Public Svc. Comm’n*, 262 U.S. 276.⁸ It then followed its cite to *Southwestern Bell* with the caveat that “[t]he conditions under which more or less might be allowed are not important here.”⁹ The implication is clear: under *some* conditions a “just and reasonable” rate might be *less* than what would normally be required to satisfy the investor interest. But let it also be clear, the Staff is not contending for anything like that in this case.

² *Assoc. Natural Gas Co.*, 706 S.W.2d at 873.

³ SDCL 49-34A-11

⁴ *Federal Power Comm’n v. Hope Natural Gas Co.*, 320 U.S. 591, 603, 64 S.Ct. 281, 88 L.Ed. 333 (1944)

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Bluefield Waterworks & Improvement Co. v. Public Service Comm’n*, 262 U.S. 679, 43 S.Ct. 675, 67 L.Ed. 1176 (1923).

⁸ *Southwestern Bell Tel. Co. v. Public Svc. Comm’n*, 262 U.S. 276, 291 (1923). *Hope* erroneously describes Brandeis’ opinion as a concurrence. It was not, it was a dissent against the then prevailing rule of *Smyth v. Ames*, 169 U.S. 466 (1898), the same rule upon which *Bluefield* was based. In effect, *Hope* was a vindication of Brandeis, and a rejection of the judicial philosophy underlying *Bluefield*. *Bluefield* and *Hope* simply do not belong together.

⁹ *Hope*, *ibid.*

The Staff's recommended return on equity is *more than enough* to satisfy the investor interest.¹⁰ But we cannot let stand the perception that a utility is *entitled* to a return that meets the investor interest as described in the familiar words of *Hope Natural Gas*.

The language of “entitlement” harks back to the time of *Smyth v. Ames* when utility regulation was viewed judicially as a form of takings which under the Fifth Amendment would require just compensation.¹¹ *Hope* abandoned that view adopting instead the view that “[r]atemaking is indeed but one species of price-fixing,” adding:

The fixing of prices, like other applications of the police power, may reduce the value of the property which is being regulated. But the fact that the value is reduced does not mean the regulation is invalid.¹²

This shift from the substantive due process view of rate regulation in *Smyth v. Ames* to the procedural due process view of rate regulation in *Hope* was even more forcefully articulated in the *Permian Basin Area Rate Cases* decision in 1968.¹³ There the Court said:

No constitutional objection arises from the imposition of maximum prices merely because...the value of regulated property is reduced as a consequence of regulation. *FPC v. Hope Natural Gas Co., supra*, at 601. Regulation may, consistently with the Constitution, limit stringently the return recovered on investment, for investors' interests provide only one of the variables in the constitutional calculation of reasonableness. *Covington & Lexington Turnpike Co. v. Sandford*, 164 U. S. 578, 596.¹⁴

Elaborating further on this language from *Hope*, the *Permian Basin* Court exclaimed:

¹⁰ An example of where *less* might be warranted under the balancing calculus of “just and reasonable” is when a utility fails to meet reasonable service requirements. It would be neither just nor reasonable for a utility to think that it is entitled to a return commensurate with the returns on other investments of comparable risk under such circumstances.

¹¹ *Smyth v. Ames*, 169 U.S. 466, 468 (1898).

¹² *Hope, ibid.*

¹³ Procedural due process is the force of the “end result” language famously associated with *Hope*. We discuss “end result” further, *infra*, Page 8.

¹⁴ *Permian Basin Area Rate Cases*, 390 U. S. 747, 769. The language of *Covington & Lexington* which the Court cites approvingly is worth noting:

It cannot be said that a corporation operating a public highway is entitled as of right, and without reference to the interests of the public, to realize a given percent upon its capital stock. When the question arises whether the legislature has exceeded its constitutional power in prescribing rates to be charged by a corporation controlling a public highway, stockholders are not the only persons whose rights or interests are to be considered. The rights of the public are not to be ignored... The public cannot properly be subjected to unreasonable rates in order simply that stockholders may earn dividends. (769)

The Commission cannot confine its inquiries either to the computation of costs of service or to conjectures about the prospective responses of the capital market; it is instead obliged at each step of its regulatory process to assess the requirements of the broad public interests entrusted to its protection by Congress. Accordingly, the "end result" [Footnote 60] of the Commission's orders must be measured as much by the success with which they protect those interests as by the effectiveness with which they "maintain . . . credit and . . . attract capital."

This strikes at the heart of what is at stake in this docket. Otter Tail would have the Commission's attention focused only upon "conjectures about the prospective responses of the capital market." Staff agrees that "prospective responses of the capital market" are not unimportant and will further set forth its view of this matter below in its review of the evidence presented in this case. Here we will simply reiterate that "the rights of the public are not to be ignored." Otter Tail, in its single-minded focus on "prospective responses of the capital market" articulates no standard by which to judge whether the rights of the public are being adequately represented. Staff, on the other hand, has not only focused its attention upon truly *balancing* the public interest and the investor interest, but has relied upon the best metric available to assure that the interests of the public are not being ignored: the market-to-book ratio.¹⁵

Market-to-book ratio was once widely recognized as an important metric for evaluating the financial health of regulated utilities, especially in the late 1970's and early 1980's.¹⁶ A market-to-book ratio below 1.0 was looked upon as "confiscatory" because the sale of new stock under such conditions would dilute the value of existing shares, and a market-to-book ratio of 1.1 was viewed as fair to the investor interest because it was sufficiently above 1.0 to prevent the price from falling below 1.0 from market pressure or the failure to cover flotation costs when

¹⁵ Market-to-book ratio is the ratio of a stock's selling price to its book value. S1, Page 18, Line 16.

¹⁶ See *Report by the United States Accounting Office: Analysis of the Financial Health of the Electric Utility Industry*, GAO/RCED-84-22, June 11, 1984 ("Of the indicators examined, GAO found the rate of return on common stock, the ratio of stock market price-to-book value of common stock, and corporate bond ratings to be appropriate measures of the industry's financial health," i). Also, *The Congress of the United States, Congressional Budget Office: Financial Condition of the U.S. Electric Utility Industry*, March 1986 ("The financial recovery of the industry has been reflected in its common stock: by the end of May 1985, the market-to-book ratio—the market value of common stock divided by the depreciated book value of the utility's assets—for the industry as a whole was 108 percent, a marked contrast to the 73 percent of 1980," xi).

new shares are issued.¹⁷ Contributing to the usefulness of market-to-book ratio as a metric for evaluating return on equity was that it was an implicit property of the Discounted Cash Flow (DCF) methodology for estimating cost of equity capital. It was well known that when market-to-book ratios were below 1.0, if utilities could earn a return based upon DCF, that this would move their prices back up toward book value. Ironically, if not surprisingly, this was a period when some of the strongest supporters of DCF were from the utility industry.¹⁸ And now that market-to-book ratios are well above 1.0, and DCF based returns will bring them back down toward 1.0, utility interest in DCF has waned.¹⁹ While utilities may be able to be opportunistic in the methods they choose to justify their rate of return requests, the Commission is held to a higher standard. Which brings us, for the moment, back to *Hope* and the “end result doctrine.”

This Commission adopted a rate of return on equity in Docket No. EL11-019 based upon a DCF analysis presented by Staff invoking specific assumptions. (We will discuss the specifics of this in our analysis of the evidence later.) Staff employed the exact same methodology in this case as it employed in Docket No. EL11-019. The estimated cost of equity resulting from that same methodology is now much lower.²⁰ And so (as we will see when we discuss the evidence below) Staff’s recommendation is now much lower than what the Commission granted in Docket

¹⁷ S1, Page 37, Line 19, to Page 38, Line 3. See also Hanson, Samuel L. and Davies, R. Scott (1982) "Judicial Review of Rate of Return Calculations," *William Mitchell Law Review*: Vol. 8: Iss. 2, Article 12 (“With nearly fifty years of additional experience since *Hope*, it is possible to suggest some identifying marks of confiscation ... The first, and perhaps most significant, single indicator is a market price below book value,” 537); and *New England Tel. & Tel. Co. v. Public Utilities*, 390 A.2d 8 (1978) (The Supreme Judicial Court of Maine upholding a commission decision adopting the testimony of a witness testifying that a market-to-book ratio of 1.1 to 1.15 was sufficient to avoid dilution).

¹⁸ See Win Whittaker, “THE DISCOUNTED CASH FLOW METHODOLOGY: ITS USE IN ESTIMATING A UTILITY’S COST OF EQUITY,” *Energy Law Journal*, Vol. 12, 265-290, 1991. While critical of the DCF methodology, this article recognizes this aspect of its historical past:

When utility stocks began trading below book value in the early and mid 1970s..., the DCF methodology quickly became *the* methodology. Utilities found DCF attractive because the formula produced, at least in theory, a return level that would drive the market price up to book value. As a result, comparable earnings witnesses were shunned and utilities presented a new flock of rate-of-return witnesses advocating the DCF methodology instead. Ratemaking agencies, no longer confronted with utility opposition, quickly gravitated to the DCF methodology. (267)

¹⁹ Exemplified, perhaps, by Otter Tail Witness Hevert’s attitude toward DCF, OTP-2, 8-11.

²⁰ This is not peculiar to Staff’s implementation of DCF. It is a consequence of any DCF implementation. A vivid demonstration of this is Mr. Hevert’s Chart 2, OTP-2, Page 8.

No. EL11-019. We have no doubt that Otter Tail, in its analysis of *Hope Natural Gas* and perhaps other precedent deriving from *Hope*, will emphasize the following language from it:

We held in *Federal Power Commission v. Natural Gas Pipeline Co.*, *supra*, that the Commission was not bound to the use of any single formula or combination of formulae in determining rates. Its ratemaking function, moreover, involves the making of "pragmatic adjustments." ... And when the Commission's order is challenged in the courts, the question is whether that order, "viewed in its entirety," meets the requirements of the Act. ... Under the statutory standard of "just and reasonable," it is the result reached, not the method employed, which is controlling

....

It is not the theory but the impact of the rate order which counts.²¹

This has come to be known as the "end result doctrine." Since Otter Tail is unhappy with the results produced using the DCF methodology the Commission adopted in Docket No. EL11-019, it will no doubt contend this is an "end result" that the Commission should address by adopting a new methodology.

But not so fast. Once again, the Court in *Permian Basin* elaborated on what the "end result doctrine" of *Hope* actually requires:

...the court must determine whether the order may reasonably be expected to maintain financial integrity, attract necessary capital, and fairly compensate investors for the risks they have assumed, and yet provide appropriate protection to the relevant public interests, both existing and foreseeable. The court's responsibility is not to supplant the Commission's balance of these interests with one more nearly to its liking, but instead to assure itself that the Commission has given reasoned consideration to each of the pertinent factors. Judicial review of the Commission's orders will therefore function accurately and efficaciously only if the Commission indicates fully and carefully the methods by which, and the purposes for which, it has chosen to act...

Under the "end result doctrine" a court of review is not concerned about the specific methodologies a commission employs to develop rates. If it chooses to rely upon a multi-stage DCF analysis rather than a constant growth DCF analysis, or if it chooses to rely upon CAPM rather DCF, or if it chooses to utilize market-to-book ratios in its assessment of the required

²¹ *Hope*, 602.

return, the particular choice does not matter. Insofar as the investors' interest is concerned, what matters is that the Commission make clear *why* it relied upon the method of choice, and can *clearly explain* why it believes the return resulting from that choice satisfies the investors' interest. And at the same time, it must clearly articulate how it has provided "appropriate protection to the relevant public interests." If the Commission uses a methodology that it has relied upon before, it still must explain how the results of employing that methodology will achieve the goal of balancing consumer and investor interests. If the Commission *changes* its methodology, it must explain in its order doing so why it changed its methodology and how that change is intended to affect the balancing of investor and consumer interests. The "end result doctrine" is satisfied in either case. Ultimately, the Commission has to follow the evidence. If it chooses to use evidence in this case developed using a method approved in Docket No. EL11-019, it just needs to make clear why it believes that result will satisfy the "just and reasonable" standard. We will address what the evidence has to say about that in Part III of this brief.

Returning to the matter of market-to-book ratio, if a utility can issue shares of stock at a price sufficiently above book value as to prevent dilution and allow the recovery of flotation costs, the investor interest as articulated in either *Hope* or *Permian Basin* is satisfied. It is obvious that if the return is insufficient to prevent dilution or allow for the recovery of flotation costs that a utility's financial integrity and ability to attract capital will at some point become compromised. From the investor point of view, we do not want that to happen. At some margin above 1.0 the utility will be able to issue stock without experiencing dilution and will recover its flotation costs. What that margin might be—1.05, 1.10, 1.15—is a matter of evidence or expert opinion, not law. But is there ever a reason for it (the market-to-book ratio) to be any higher? *Not from a ratepayer perspective.* The upper limit of what might be appropriate from the ratepayer perspective is a return sufficient to maintain the financial integrity of the utility such that it can provide safe, reliable, and cost-effective service. The ratepayer has no interest in paying more than that. Market-to-book ratio provides an objectively quantifiable standard to

determine whether or not the competing interests of ratepayers and investors are being fairly balanced. Otter Tail will no doubt disagree, but the law is not on its side in the matter.

We have previously shown that under the prevailing constitutional standard of *Hope Natural Gas* that the return on equity can be “stringently” limited, even to a point where “the value of regulated property is reduced as a consequence.” By this standard, a return that allows for a market-to-book ratio sufficient to prevent dilution and the recovery of flotation costs is “just and reasonable.” Suppose the market-to-book ratio is 2.0, and the Commission sets a return with the intent that the market to book ratio should decline to 1.50. Is the relevant constitutional standard met? Yes. Suppose the Commission reduces the return even further, so that the market-to-book ratio falls to 1.25. Is the relevant constitutional standard still satisfied? So long as the utility can attract capital and maintain its financial integrity, yes.

Otter Tail is likely to contend that the Commission has no power to influence market-to-book ratios, that they are the result of forces the Commission has no control over. That is nonsense. Why is Otter Tail so concerned about Staff’s recommended ROE if it cannot affect the market-to-book ratio? The very reason why Otter Tail is so concerned about Staff’s recommended ROE is that it knows full and well that it may lead to a reduction in its market-to-book ratio. And under every possible variation of what the U.S. Supreme Court has had to say about the investor interest in either *Hope* or *Permian Basin*, there is simply no way under normal circumstances to rationalize a rate of return on equity higher than is necessary to maintain a market-to-book ratio modestly above 1.0 as “just and reasonable.” The fact that investors are willing to pay more than book value for the stock is *de facto* evidence of a return on equity that satisfies the constitutional standard regarding the investor interest.

Another facet to consider in determining what is “just and reasonable” is the concept of a “zone of reasonableness.” Courts typically defer to a standard similar to that described in *Permian Basin* that “any rate selected by the Commission from the broad zone of reasonableness permitted by [statute] cannot properly be attacked as confiscatory.” It is Staff’s

contention that with respect to return on equity, the Commission should adopt the *lowest* reasonable return on equity supported by substantial evidence.²² If it were to find that the return recommended by one witness was reasonable, and if it were to find that the return recommend by another witness is reasonable, it should adopt the lower of the two. It should not “split the difference.” The lower of two *reasonable* returns cannot “properly be attacked as confiscatory.”

It was once the policy of the Minnesota Public Service Commission to do something like this, to search for the lowest reasonable return supported by the evidence:

In the ideal sense the Commission's obligation is to insure that a Company has the opportunity to earn as much as it needs to maintain its financial integrity and provide adequate service and not a penny more. In exercising its mandate to protect the public interest, we believe that we should choose the lowest acceptable recommendation (adjusted as appropriate) which falls within the range of reasonableness. We will first review the testimony of all the witnesses to determine a range of reasonableness. We will then focus on the testimony of the witness who recommends the lowest rate of return to determine if it is reasonable and has withstood the tests of cross examination and rebuttal testimony. If we are satisfied that it is sound, we will adopt it. If the testimony has been shown to be deficient in certain respects but is nevertheless basically sound, we will adjust it to remedy the deficiencies and adopt it as adjusted. If we conclude that the testimony is basically unsound we will reject it and consider the next lowest recommendation, etc.²³

This came to be known as the “North Central Doctrine” and was later overturned by the Minnesota Supreme Court. While the Court acknowledged that the policy adopted by the Minnesota Commission was intended to comply with a Minnesota statute according to which any “doubt as to the reasonableness should be resolved in favor of the consumer,” it found fault with the way the policy was implemented because it did not constitute “a full review of evidence and testimony” and thus failed the *substantial evidence* rule.²⁴

All the testimony and evidence must be fully reviewed in order to establish a range or

²² S1, Page 24, Lines 1-5.

²³ Docket No. E-OOI/GR-76-1826 (Minn. P.S.C. June 30, 1977), at 14-15.

²⁴ *Hibbing Taconite Co. v. MINN. PSC*, 302 N.W. 2d 5, 11 (1980).

zone of reasonable returns supported by substantial evidence. But once that is done, taking the range of returns which fall within a “zone of reasonableness” and then splitting the difference imparts an upward bias to the resulting return that is unfair to the ratepayer and unjustly enriches the investor. It is appropriate here to address Staff’s position on this in light of an exchange between Mr. Rislov and Mr. Copeland during the hearing.²⁵ Mr. Rislov asked Mr. Copeland how commissions can “split the difference” and adhere to a methodology that will hold up in court. Mr. Copeland responded that were the Commission to conclude that 8.25 and 10.3 percent were both “reasonable” estimates of the return required to satisfy the investor interest (i.e. that these constituted lower and upper limits to a “zone of reasonableness”) that the Commission could “split the difference” and that this would likely be upheld on review by a court.²⁶ This was his response to a question regarding *legal* implications. In his testimony, where he contends that the allowed rate of return on equity should be the lowest reasonable return sufficient to satisfy the investor interest in *Hope*, he is testifying about the *economic consequences* associated with the particular return selected from a range of reasonable returns.²⁷ If the Commission were to find that a reasonable range, from an *economic* perspective, included the recommended ROEs of both witnesses, then from a *legal* perspective it could adopt a rate of return on equity by “splitting the difference” and that decision would likely be upheld. The important thing to note in this case is that the ROE recommended by Mr. Hevert is not a reasonable estimate of the cost of equity capital. From an *economic* perspective, if 8.25 percent is sufficient to attract capital, nothing is gained by allowing a higher ROE calculated by “splitting the difference” other than to put more money in the investors' pockets with no corresponding benefit (or "balance") to ratepayers. And if 8.25 percent satisfies the Hope

²⁵ TR 126.

²⁶ It should be clear, but if not, Mr. Copeland here was speaking *hypothetically* of a finding that 10.3 percent was reasonable. It is clear from his testimony and exhibits, and also from Staff’s review of the evidence below, that 10.3 percent is *not* a reasonable estimate of the cost of equity capital. Bear this in mind throughout this paragraph when the figure 10.3 percent is used.

²⁷ S1, Page 24, Lines 1-5.

criteria, there is no legal reason to split the difference. A likely reason that the economic concept of "cost of capital" has come to be the standard basis for a "fair rate of return" is that it is *the maximum rate of return required to satisfy both law and economics*. More is not needed. It satisfies the economic criteria of capital attraction, and under *Hope* that puts it in the zone of reasonableness as to what satisfies the investor interest from a legal perspective.

Last of all, the clear and established purpose of the rate of return is to provide an opportunity for revenue and profit. It is not a tool to incentivize economic development as argued by Otter Tail. Never in the history of rate regulation in this state has the Commission utilized the rate of return as a means by which to incentivize a utility to build new plant in South Dakota. Aside from violating the purpose of the rate of return, such a practice is contrary to the very principles by which this Commission evaluates new plant addition – is it necessary and is it the least cost alternative? While other legislatures in other states have utilized economic development and job growth as a means to justify new generation, that has never been the policy in South Dakota. This state has consistently relied on the least cost alternative. Thus, economic incentive is not a factor in rate analysis and should not be a factor in establishing a rate of return.

III. Argument and Analysis

A. On the best evidence, the required rate of return on equity for a company of average market risk is no more than 8 to 8.3 percent.

The overall “market required return” is the expected or required rate of return on equity (or “cost of equity”) for the market as a whole, normally measured by reference to the S&P 500 index.²⁸ Both rate of return witnesses, Mr. Copeland for Staff and Mr. Hevert for Otter Tail, proffered testimony and analysis as to the overall market required return with reference to the S&P 500 index.

Mr. Hevert performed his own constant growth DCF analysis of the market required

²⁸ TR 89, S1, Page 55, Line 21.

return for the S&P 500 using two sources of expected earnings growth for the individual firms in the S&P 500 (Bloomberg and Value Line).²⁹ Using Bloomberg data Mr. Hevert found an estimated market required return for the S&P 500 of 14.84 percent; using Value Line data he estimated it to be 15.54 percent.³⁰

Mr. Copeland did not estimate the market required return himself, but relied upon a variety of published estimates, with primary reliance on a 2018 survey by Pablo Fernandez, et al, which indicated a mean response of 8.2 percent as the market required return from a survey with 1348 respondents.³¹ With a standard deviation of 2 percent, the 95 percent confidence interval of the mean response was 4.2 to 12.2 percent.³² Other estimates of the market required return presented by Mr. Copeland were an estimate of 6.0 percent by the Survey of Professional Forecasters published by the Federal Reserve Bank of Philadelphia;³³ an estimate of 6.79 percent from a long running quarterly survey of Chief Financial Officers by Professors John R. Graham and Campbell R. Harvey;³⁴ a recent estimate by Professor Aswath Damodaran of 8.64 percent;³⁵ and a 9 percent estimated return on the overall market recommended by Duff & Phelps.³⁶ Mr. Copeland testified that based on such widely available estimates from recognized authorities or sources that a reasonable person might find the current expected market return to

²⁹ OTP-1, Page 32, Lines 10-12.

³⁰ OTP-1, Schedule 4, Pages 1 and 7. With an update accompanying his Rebuttal Testimony these estimates changed to 13.75 percent (Bloomberg) and 17.14 percent (Value Line), OTP-2, Schedule 3, Pages 1 and 7.

³¹ S1, Page 60, Lines 9-10, Page 61, Lines 13-15.

³² The range is determined by adding and subtracting two standard deviations to and from the mean: $8.2\% \pm 2 \times 2\%$. See S1, Page 61, Line 16 to Page 62, Line 1, and Footnote 22 on Page 62. At hearing, Mr. Copeland noted that the 2019 Fernandez survey had been published the previous Saturday, March 23, 2019, and that the survey results for the expected market return had increased slightly, from 8.2 percent and a standard deviation of 2 percent, to 8.3 percent with a standard deviation of 2.1 percent. That update is not enough to alter Staff's argument. The 95 percent confidence interval using the updated results would be $8.3\% \pm 2 \times 2.1\%$ or 4.1 to 12.5. The 2019 Fernandez survey is published to the Social Science Research Network (SSRN) and available online, <https://ssrn.com/abstract=3358901>.

³³ S1, Page 68, Lines 4-7.

³⁴ S1, Page 66, Footnote 22; Page 67, Lines 6-10.

³⁵ This is the 2019 update cited by Mr. Copeland at Hearing, TR 90. Professor Damodaran published his 2019 update to his blog, "Musings on Markets," <https://aswathdamodaran.blogspot.com/2019/01/january-2019-data-update-1-reminder.html>. Mr. Copeland's direct testimony relied upon his 2018 estimate of 7.49 percent, S1, Page 63, Lines 11-13 and Footnote 23.

³⁶ TR 90; Attachment 9.

be anywhere from 6 to 10 percent.³⁷

That is a complete and accurate summarization of the evidence in this case as to the expected market return. Staff submits that Mr. Hevert's estimates of approximately 15 percent must be rejected as unreasonable and cannot be considered to be substantial evidence upon which the Commission can rely to determine just and reasonable rates.

This conclusion is justified for two reasons. First, on its face, Mr. Hevert's estimate of an expected market return of approximately 15 percent is such an extreme outlier as to strain credulity. Based on the standard deviation of the Fernandez survey, Mr. Copeland demonstrated that a 15 percent expected market return would put Mr. Hevert above the 99th percentile of the range of estimates in the 2018 Fernandez survey.³⁸ By the metric of standard deviation, Mr. Hevert's estimate of approximately 15 percent is more than three standard deviations above the mean. In Mr. Copeland's summary of his analysis of Mr. Hevert's direct testimony he concluded, with regard to the 15 percent estimate of the expected market return:

Impossible. Would require expected long-term growth of about 13%. The S&P 500 cannot, over the long-term, grow faster than the economy (GDP) as a whole. In the post WWII era, a 10-year rolling average of nominal GDP peaked at just over 10% during the inflation of the late 1970's and has declined steadily since then. Current CBO forecast for GDP through 2028 is 3.9%. A 15% expected total return just for the next few years is outside three standard deviations ($8.2\% + 3 \times 2\% = 14.2\%$ upper limit) of a survey of 1348 respondents (Fernandez, et. al). That it could be 15% in perpetuity is impossible.³⁹

Mr. Hevert's response to this criticism of his 15 percent estimate of the expected market return was to cite statistics regarding the volatility of actual market returns.⁴⁰ Under cross-examination Mr. Hevert acknowledged that his estimates of the expected market return purport to be *ex ante* returns, while actual market returns are *ex post* returns.⁴¹ Thus his forward looking

³⁷ TR 90.

³⁸ S1, Page 61, Lines 7-10.

³⁹ S1, Schedule 10, citing Pages 51-55, 64-65. The estimation of future growth in GDP is discussed further, *infra*, Page 26.

⁴⁰ OTP-2, Page 66, Line 27, through Page 67, Line 10.

⁴¹ TR 55. See also OTP-1, Page 31, Line 7. *Ex ante* refers to a forward-looking projection ("before the event") and *ex post* refers to a backward-looking analysis ("after the event"). See further

estimate of the expected market return is that investors are expecting approximately 15 percent year in and year out. On an *ex post* basis, Mr. Hevert conceded that actual returns are extremely volatile, and in some years can even be negative.⁴² He acknowledged that the average return historically was 12.06 percent, with a standard deviation of 19.80 percent.⁴³ Two standard deviations around the mean of 12.06 percent implies a 95% Confidence Interval range of -26.10 to +50.22 percent. This is the evidence to which Mr. Hevert appeals to claim that his 15 percent estimate is reasonable. But on the basis of a standard deviation this large the mean—12.06 percent—is not significantly different than zero. And his 15 percent estimate, because it falls within this range of -26.10 to +50.22 percent, is likewise statistically indistinguishable from zero. A number that cannot be statistically distinguished from zero is more or less the *sine qua non* definition of *unreasonable*, a number that no one of reasonable mind would rely upon. Mr. Hevert has not only failed to rebut the evidence of how far out of the mainstream his estimate of the market expected return is, in his effort to do so he has effectively rebutted his own testimony.

Beyond the statistical data demonstrating how far out of the mainstream Mr. Hevert is with his expected market return of approximately 15 percent, Mr. Copeland identified a fundamental conceptual error in Mr. Hevert's use of the *Constant Growth* form of the DCF methodology for estimating expected market returns. The Constant Growth form of the DCF methodology projects a growth rate that is perpetual.⁴⁴ The analysts' expected growth rates utilized by Mr. Hevert to arrive at his 15 percent expected market return are growth rates typically projected out no more than 3-5 years.⁴⁵ Many of the companies that Mr. Hevert applied the constant growth DCF model actually pay no dividends, and Mr. Hevert's estimated required

<https://www.economicshelp.org/blog/15377/economics/ex-ante-and-ex-post-meaning/>.

⁴² TR 56.

⁴³ TR 56, OTP-2, Schedule 12. Hevert rounds to "about 20 percent" in his response during cross-examination; his rebuttal Schedule 12 shows the more exact 19.80 percent.

⁴⁴ S1, Page 15, Lines 8-10.

⁴⁵ S1, Page 57, Line 10.

return for those companies is just the expected analyst growth rate; in such circumstances the expected market return cannot be estimated using the constant growth model, though it might be possible to do so using a non-constant growth model.⁴⁶ But the Constant Growth DCF model is clearly inappropriate for estimating the expected market return for companies that do not pay dividends.

This is not the first time Mr. Hevert's approach to estimating the expected rate of return has been challenged because of its reliance upon the Constant Growth DCF model. Mr. Hevert testified in Illinois Commerce Commission Docket 13-0132, Ameren Illinois Company d/b/a Ameren Illinois, using the same approach to estimating the market expected return there as he has in this docket. The Commission summarized the matter in the following way:

In Docket No. 11-0282, the Commission also expressed "serious concerns" with the market risk premium relied upon by Mr. Hevert. There, as in the current case, Staff objected to Mr. Hevert's inclusion of non-dividend paying companies in the DCF analysis used in the calculation of the expected market return, from which the risk-free rate is subtracted in the calculation of the market risk premium. Staff contends that inclusion of non-dividend paying companies upwardly biases the estimate of the market return, as does IIEC. The Commission again shares this concern, and agrees with Staff that the market risk premium calculated by Staff is more reliable.⁴⁷

The Illinois Commerce Commission decision in this case was appealed, and its judgment affirmed by the Appellate Court, which stated in part:

Ameren purports to be mystified as to why the Commission required the exclusion of non-dividend-paying companies from the market-return parameter, and Ameren complains of the lack of an explanation. Actually, though, as far as we can see, Ameren never has squarely responded to the Commission's stated rationale: that it is impossible to apply a constant-growth DCF model to companies that pay no dividends. See *Connect America Fund*, 28 FCC Rcd. at 7159 n.156 ("The general DCF model cannot be used to calculate the cost of equity for a firm that does not pay dividends."); *Represcribing the Authorized Rate*, 5 FCC Rcd. at 7511 (before "DCF cost of equity calculations" were made, "[t]he S & P 400 group and the electric group were screened to remove *** companies that did not pay quarterly dividends"). Ameren never has explained how the constant-

⁴⁶ S1, Page 56, Lines 6-14.

⁴⁷ *Ameren Illinois Co., Proposed General Increase in Gas Rates* (Tariffs Filed January 25, 2013), Order, Docket No. 13-0192, slip op., 2013 WL 6971100 (Ill. C. C. Dec. 18, 2013), *aff'd*, *Ameren Illinois Co. v. Illinois Commerce Commission*, 2015 IL App (4th) 140173, ¶20.

growth DCF formula works when applied to non-dividend-paying companies.⁴⁸

This captures the heart of the matter. Mr. Hevert's use of the Constant Growth DCF model to estimate the expected market return, incorporating as it does numerous firms that do not pay dividends, is inappropriate and must be rejected.

For the foregoing reasons Staff urges the Commission to find that:

1. A reasonable estimate of the market expected return is from 6.0 to 10.0 percent, with the *best evidence* supporting a return of approximately 8 percent, or more precisely 8.2 to 8.3 percent.
2. Mr. Hevert's estimate of approximately 15 percent is unreasonable and cannot be relied upon in any fashion to the determination of just and reasonable rates or a just and reasonable rate of return on equity. All conclusions derived from this estimate, specifically the risk premium in Mr. Hevert's CAPM analysis and the resulting CAPM estimates of the cost of equity, are likewise unreasonable and must be rejected.

B. Electric utilities generally, and Otter Tail specifically, are of less market risk than the market as a whole or the average firm in the S&P 500.

Electric utilities generally, and Otter Tail specifically, are of less market risk than the market as a whole or the average firm in the S&P 500. This fact is undisputed. Both Mr. Copeland and Mr. Hevert utilized "beta" as a common measure of market risk for publicly traded stock.⁴⁹ Thus Staff recommends the following finding of fact:

1. Electric utilities generally, and Otter Tail specifically, are of less market risk than the market as a whole or the average firm in the S&P 500.

C. The Cost of Equity or Required Return on Equity for Otter Tail must be less than 8.0 to 8.3 percent.

The Cost of Equity or Required Return on Equity for Otter Tail must be less than 8.0 to 8.3 percent. This is the logical and unavoidable conclusion of the preceding proposed findings. If the best evidence of the overall market required return is that it is only 8.0 to 8.3 percent, and if electric utilities and Otter Tail are less risky than the market as a whole, then the cost of equity

⁴⁸ *Ameren Illinois Co. v. Illinois Commerce Comm'n*, 2015 IL App (4th) 140173, ¶ 84.

⁴⁹ OTP-1, Page 31, Lines 1-13; TR 65; and S1, Schedule 7. There was a dispute over whether betas should be "adjusted" (so Hevert) or "raw" (so Copeland) but this dispute is *de minimis* with respect to Staff's recommendations and wherever beta is used in this brief we use adjusted betas favored by OTP's witness.

or required return on equity for Otter Tail must be less than 8.0 to 8.3 percent.

Staff submits that this should be treated as a *prima facie* finding establishing a rebuttable presumption in which any argument that the cost of equity or required return on equity is greater than this *bears the burden of proof*. In the following analysis of the record we will go through each methodology employed by either witness to estimate the cost of equity and determine whether or not there is sufficient evidence to meet this burden of proof and justify that one might reasonably conclude that the cost of equity or required return on equity for Otter Tail could possibly be more than 8.0 to 8.3 percent.

Staff proposes the following finding:

1. Since the best evidence supports a finding that the overall market return is 8.0 to 8.3 percent, and it is undisputed that electric utilities generally and Otter Tail specifically are less risky than the market as a whole, it follows, *prima facie*, that the cost of equity or required rate of return for Otter Tail must be less than 8.0 to 8.3 percent.

D. The Constant Growth Discounted Cash Flow (DCF) methodology demonstrates that the market required return on equity (“cost of equity”) is less than 8 percent, and no more than about 7.6 or 7.7 percent.

We will examine first the constant growth DCF analysis of Otter Tail’s witness, Mr. Hevert. In Mr. Hevert’s original direct testimony he used a sample of 9 companies, but then excluded three companies from his tabulation of results because their estimated DCF cost of equity was under 8 percent.⁵⁰ In his Rebuttal Testimony, he updated his sample of companies, removing two and adding a new one, reducing his sample to 8, but once again excluded three companies from his tabulation of results because they came in at under 8 percent. Since the best evidence of the overall market return indicates that the required return on a stock of average market risk is about 8 percent, this elimination of DCF estimates for electric utilities under 8 percent is unwarranted and renders as unreasonable Mr. Hevert’s conclusions as to what the DCF methodology indicates to be the cost of equity for his samples of comparable utilities.

⁵⁰ The process of selecting a group of comparable companies is not an issue in this docket. Mr. Copeland accepted the sample of companies proposed by Mr. Hevert in his Direct Testimony. S1, Page 12, Lines 10-15.

There is, however, a DCF calculation performed by Mr. Hevert which indicates a cost of equity under 8 percent: the most recent DCF result in “Chart 2” of his rebuttal testimony, which indicates a DCF cost of equity of about 7.9 percent.⁵¹ Individual company estimates under 8 percent are obviously not excluded from this result (or the average would not be less than 8 percent). Staff submits that this is the best evidence, not tainted by the unwarranted removal of estimates below 8 percent.

But even at only 7.9 percent, Mr. Hevert’s DCF methodology overstates the required return on equity. This is because the only expected growth rate data utilized in Mr. Hevert’s DCF analysis are near-term investor analysts’ growth projections.⁵² There are fundamental problems with respect to a DCF analysis that relies only on near-term investor analysts’ growth projections. The constant growth DCF model is not a model of near-term growth expectations; it is a model that assumes a constant growth rate in perpetuity.⁵³ If there is a difference between near-term growth expectations and long-term growth expectations, exclusive use of near-term growth expectations can significantly bias the resulting constant growth DCF estimate of the cost of equity. There is abundant and substantial evidence that near-term growth expectations exceed long-term growth expectations and that a constant growth DCF analysis that relies exclusively upon near-term analysts’ forecasts will *overstate* the market cost of equity. For example, in Mr. Copeland’s constant growth DCF analysis, presented in Schedule 2 of his direct testimony, the median expected Analyst EPS growth rate was 4.56 percent (Column D) while the median long-term growth rate was 3.50 percent (Column I).⁵⁴

Where differences such as these exist, Mr. Copeland testified that a constant growth DCF

⁵¹ OTP-2, Page 8. Visually, the final observation on the chart, corresponding to the last quarter of 2018, appears to be about 7.9 percent. From the workpapers for Mr. Hevert’s rebuttal testimony, the actual number is 7.93 percent.

⁵² S1, Page 57, Lines 9-10. That the analysts’ forecasts relied upon by Mr. Hevert are near-term is also demonstrated by his use of them for the *first* state of his multi-state DCF Model; see “Table 6,” OTP-1, Page 28, Lines 1-2.

⁵³ OTP-1, Page 17, Lines 6-7.

⁵⁴ S1, Schedule 1. The data in Column I is Value Line’s estimate of long-term sustainable growth, S1, Page 12, Lines 22-23.

analysis should utilize a variety of different methods of estimating growth, rather than rely upon a single method.⁵⁵ This is the same approach Mr. Copeland utilized in Docket No. EL11-019, which the Commission adopted, rejecting Xcel's constant growth DCF analysis for its "exclusive use ... in its DCF model of forecasted growth in earnings per share."⁵⁶ The facts are the same here and the Commission should follow the precedent of Docket No. EL11-019. Moreover, the Commission is not alone in rejecting a constant growth DCF analysis that relies exclusively upon projected analysts' growth rates. In 2015 the Missouri PSC rejected Mr. Hevert's constant growth DCF analysis in a Kansas City Power & Light case because it relied exclusively upon analysts' forecasts; the decision was appealed, and upheld by the Missouri Court of Appeals, Western District, summarizing the PSC's rejection of Mr. Hevert's testimony in the following way:

The PSC found Hevert's (1) constant growth DCF results were based on excessive and unsustainable long-term growth rates, (2) multi-stage DCF was based on a flawed accelerating dividend cash flow timing and an inflated gross domestic product growth estimate as a proxy for long-term sustainable growth, (3) CAPM was based on inflated market risk premiums, and (4) bond yield plus risk premium was based on inflated equity risk premiums.

...

We find that the decision of the PSC was lawful and supported by competent and substantial evidence.⁵⁷

The Missouri PSC's finding is identical to what Mr. Copeland has testified to in this case, and to what the Commission found in Docket No. EL11-019: constant growth DCF analysis which relies exclusively upon near-term analysts' forecasts imparts an upward bias to the resulting estimate of the cost of equity.

In his review of Mr. Hevert's direct testimony, Mr. Copeland estimated that Mr. Hevert's

⁵⁵ S1, Page 13, Line 22 to Page 14, Line 9.

⁵⁶ SDPUC Docket No. EL11-019, Final Decision and Order, Page 5, ¶ 20.

⁵⁷ *KANSAS CITY POWER v. Public Serv. Comm.*, 509 S.W. 3d 757, 766, 767 (Missouri Court of Appeals, Western District, September 6, 2016).

exclusive reliance upon analysts' near-term projections overstated what one would get using a mixture of short- and longer-term projections by 64 basis points. That was based on a median expected growth of 5.20 percent in Mr. Hevert's direct testimony. In the update provided with his rebuttal testimony, the median expected growth rate was 5.07 percent, so the bias would increase to 77 basis points. Adjusting Mr. Hevert's average "Proxy Group Median" from Pages 1-3 of Schedule 1 of his rebuttal testimony – $(8.31\% + 8.36\% + 8.48\%)/3 = 8.38\%$ for this bias of 77 basis points results in a constant growth DCF estimate of 7.61 percent $(8.38\% - 0.77\%)$.⁵⁸ Thus adjusted for this bias, Mr. Hevert's constant growth DCF analysis produces a result close to Mr. Copeland's 7.71 percent.

With respect to the constant growth DCF methodology, Staff proposes the following findings:

1. With respect to the expected growth rate to be used in the constant growth DCF analysis, the Commission should reaffirm the precedent it established in Docket No. EL11-019 and reject exclusive reliance upon analysts' near-term growth forecasts.
2. Using this methodology, the best evidence in this docket supports an estimate of the cost of equity of 7.6 to 7.7 percent.

E. The non-constant growth or multi-stage DCF model indicates a cost of equity of about 7 percent.

Both Mr. Hevert and Mr. Copeland utilized non-constant growth or multi-stage DCF models to estimate the cost of equity for the sample of companies comparable to Otter Tail. Mr. Copeland's implementation of the non-constant growth form (also called a "Dividend Discount Model" or "DDM") resulted in an estimated cost of equity of about 7 percent.⁵⁹ Mr. Hevert's implementation of the methodology resulted in much higher estimates, with means ranging from 8.59 percent to 9.42 percent, depending on the length of period used to calculate dividend yield.⁶⁰

⁵⁸ OTP-2, Schedule 1, Pages 1-3, Line "Proxy Group Median," Column [10].

⁵⁹ S1, Schedule 2. Mr. Hevert quibbled over the way Mr. Copeland's implementation calculated the terminal share price, OTP-2, Page 58, Lines 7-9. But his own "correction" for this showed the result to be *de minimis*, just 3 basis points, TR 45; Attachment 2.

⁶⁰ OTP-1, Page 67, Table 13a. In his Rebuttal Testimony the updated Multi-Stage DCF mean results ranged from

Mr. Copeland identified the main reason for the large difference between his 7 percent and Mr. Hevert's much higher estimates averaging about 9 percent: "Far and away the key issue with [Mr. Hevert's approach] is the growth rate assumed for the terminal stage of the analysis, 5.45 percent."⁶¹ Mr. Hevert based this terminal growth rate upon an extrapolation of historical growth in gross domestic product (GDP). Mr. Copeland adduced two primary reasons why this approach was inappropriate. The first was that future growth in GDP is likely to be much less than the historical pattern that Mr. Hevert extrapolates. Mr. Copeland presented evidence showing that "[a]ny realistic expectation of long-term nominal GDP above 5 percent or real GDP above 2 percent collapsed with the 2008-2009 recession."⁶² He cited Congressional Budget Office estimates of real GDP growth for the period 2023-2028 to be just 1.7 percent, and nominal GDP growth of just 3.9 percent.⁶³ When 3.9 percent is substituted for 5.45 percent in deriving the mean DCF cost of equity shown on his Direct Testimony Schedule 3, Page 19, the mean DCF estimate fell from 9.20 percent to 7.95 percent.⁶⁴ But Mr. Copeland also contended that "if 3.9 percent is what we might expect for the economy overall, we must expect something less for public utilities."⁶⁵

Which brings us to the second reason why Mr. Hevert's use of future GDP for a long-term growth rate is inappropriate. First, public utilities typically have higher dividend payout ratios than unregulated firms, meaning that growth from retained earnings will be lower.⁶⁶ For this reason alone, we might expect public utilities to be constrained to future growth that is less than growth in the overall economy (GDP). But in addition to the higher dividend payout and lower earnings return, public utilities are less risky than the average unregulated company and

8.92 percent to 9.01 percent, OTP-2, Page 77, Table 7a. These results, both in his Direct Testimony and his Rebuttal Testimony include flotation costs. We discuss flotation costs *infra*, Section L., Page 55.

⁶¹ S1, Page 51, Lines 10-11.

⁶² S1, Page 52, Lines 1-2.

⁶³ S1, Page 52, Line 7.

⁶⁴ S1, Page 52, Lines 10-12.

⁶⁵ S1, Page 53, Lines 3-4.

⁶⁶ S1, Page 53, Lines 6-23.

thus expected returns on equity should be less than the market as a whole. Taking these two things together Mr. Copeland testified that “the long-term growth of a typical public utility can never equal the long-term rate of growth in GDP.”⁶⁷ Mr. Copeland demonstrated that based on the long-term earnings retention rate used in Mr. Hevert’s multi-stage DCF analysis, the sample of comparable companies would have to have a return on book equity of about 16.0 percent to produce a growth rate of 5.45 percent.⁶⁸ Mr. Copeland concluded:

Mr. Hevert’s long-term growth rate based on an estimate of gross product in GDP requires one of two equally implausible assumptions. It either requires that public utilities earn a higher return on equity than is even typical of unregulated companies or it requires public utilities to have an earnings retention rate that far exceeds the norm for public utilities. Since neither of these conditions is likely or even plausible, Mr. Hevert’s long-term GDP growth rate is completely inappropriate for any kind of DCF analysis for OTP or any other typical public utility.⁶⁹

Finally, Mr. Copeland noted that when the long-term growth rate he used, 3.50 percent, is substituted for the 5.45 percent that Mr. Hevert used, the 9.20 percent DCF result shown on Mr. Hevert’s Direct Testimony Schedule 3, Page 1, drops to 7.28 percent.⁷⁰ The 3.50 percent used by Mr. Copeland was a median estimate of future earnings growth for the comparable companies from Value Line. It is a plausible estimate given the 3.9 percent forecast for GDP from the Congressional Budget Office. Staff would point out that Mr. Copeland’s conclusions regarding Mr. Hevert’s multi-stage DCF analysis mirror those of the Missouri PSC in the case cited above (“[Mr. Hevert’s] multi-stage DCF was based on ... an inflated gross domestic product growth estimate as a proxy for long-term sustainable growth”).⁷¹

Staff proposes the following findings with respect to the non-constant or multi-stage DCR methodology:

1. Mr. Hevert’s use of gross domestic product (GDP) as the long-term growth rate for

⁶⁷ S1, Page 54, Lines 2-3.

⁶⁸ S1, Page 54, Lines 15-18.

⁶⁹ S1, Page 54, Line 21 to Page 55, Line 3. It bears noting that in his Rebuttal Testimony Mr. Hevert never responded to these arguments.

⁷⁰ S1, Page 55, Lines 5-9.

⁷¹ *Supra*, Page 24 and accompanying Footnote 57.

- his multi-stage DCF analysis is inappropriate and should be rejected. Long-term utility growth rates are unlikely to ever equal GDP growth under any plausible scenario because of the lower returns on equity and lower earnings retention rates of utilities.
2. The long-term growth rate used by Mr. Copeland of 3.50 percent, using Value Line forecasts of long-term growth is reasonable, especially in light of a CBO forecast of 3.9 percent for GDP for 2023-2038.
 3. Using the non-constant or multi-stage DCF approach the best evidence in this docket supports a cost of equity estimate of about 7 percent.

F. An analysis of market-to-book ratios and expected returns on book equity indicates a cost of equity of about 7 percent.⁷²

Mr. Copeland presented the results of a study of market-to-book ratios and expected returns on equity for the past two decades, 1999-2019. That study showed that utilities have been earning substantial excess returns over this period of time, i.e., that authorized returns on equity have exceeded the required return on equity (cost of equity). He attributed this to regulatory lag (authorized ROEs have not declined as rapidly as capital costs have declined over the years) and a bias in the way differences in estimates of the cost of equity are often resolved in utility regulation (“splitting the difference”).⁷³

Mr. Copeland then showed how the mathematical properties of the constant growth DCF model regarding the relationship between market-to-book ratio and expected ROE can be used to estimate the level of excess returns implied when market-to-book ratios are above one.⁷⁴ These excess returns, which Mr. Copeland labeled “XROE” are estimated by the difference between dividend-to-book ratios (“D/B”) and dividend yields (“D/P”):

$$\text{XROE} = \text{D/B} - \text{D/P}$$

To derive an estimate of the cost of equity, this estimate of excess returns is subtracted from expected book returns on equity. Mr. Copeland presented an application of this to the set

⁷² The analytics of the relationship between market-to-book equity, expected book returns, and the cost of equity is discussed further in Section K, *infra*, Page 37. There the focus is on using market-to-book ratios to decide on a range of reasonable returns. Here the focus is on using these relationships to develop an estimate of the cost of equity.

⁷³ S1, Page 20, Line 7 through Page 24, Line 5; Page 26, Line 6 through Page 28, Line 15.

⁷⁴ S1, Page 29, Line 16, through Page 30, Line 8; and Schedule 5.

of comparable companies he used in his DCF analysis in Schedule 5 of his exhibit accompanying his Direct Testimony. He showed that with a median market-to-book ratio of 1.85, 2.64 percent of the median 9.67 percent expected return on book equity was an excess return. Subtracting 2.64 percent from 9.67 percent yields the implied cost of equity or required rate of return:

$$9.67\% - 2.64\% = 7.03\%$$

It should not be surprising that this is close to the result obtained using the non-constant growth model. While the mathematical relationships are different, they both derive from DCF theory and with consistent inputs would be expected to yield similar results.

Based on the foregoing Staff recommends that the Commission make the following findings:

1. The Discounted Cash Flow theory implies a mathematical relationship between expected returns on book equity and market-to-book ratios that allows estimating how much of the expected return on book equity is an excess return (XROE) above the required return implicit when market-to-book ratios are above 1. That relationship is represented by the difference between dividend-to-book ratios (D/B) and dividend yields (D/P):

$$XROE = D/B - D/P$$

2. Evidence shows an expected median return on book equity for Mr. Copeland's sample of comparable returns of 9.67 percent and current median market-to-book ratios of 1.85. The estimated excess return (XROE) is 2.64 percent. The resulting estimate of the required return or cost of equity would be 7.03 percent.
3. An analysis of the relationship between market-to-book ratios and expected returns on book equity thus indicates a cost of equity of about 7 percent.

G. The Capital Asset Pricing Model (CAPM) indicates a cost of equity of about 7 percent.

Both Mr. Hevert and Mr. Copeland presented evidence of the cost of equity using the Capital Asset Pricing Model. Mr. Copeland did not rely upon it directly, but in his review of Mr. Hevert's use of CAPM critiqued critical inputs to the methodology and demonstrated that with more reasonable inputs the CAPM would indicate a cost of equity capital of about 7 percent. According to Mr. Copeland, "[b]y far the key issue [with respect to Mr. Hevert's CAPM analysis] is his attempt to estimate the required return on the market as a whole and, as a derivative, his

resulting estimate of the equity risk premium.”⁷⁵ We have already responded to Mr. Hevert’s unrealistic and unreasonable estimate of the required return on the market as a whole, concluding that “All conclusions derived from this estimate, specifically the risk premium in Mr. Hevert’s CAPM analysis and the resulting CAPM estimates of the cost of equity, are likewise unreasonable and must be rejected.”⁷⁶ Here we only need consider what the CAPM indicates when more reasonable estimates of the overall market return and market risk premium are employed.

Besides evidence of the expected overall market return of about 8.0 or 8.2-8.3 percent discussed above, Mr. Copeland presented evidence of what market analysts think about the current market risk premium in a chart that appears on Page 49 of his Direct Testimony and again on Page 59. Those estimates ranged from 4.0 percent to 5.5 percent.⁷⁷ Just to put into perspective how unrealistic Mr. Hevert’s estimates of the market risk premium used in his CAPM analysis, his estimates were 11.78 percent and 12.49 percent, *more than twice what most market analysts consider to be the current market risk premium!*⁷⁸ Using a market risk premium of 5.2 percent, Mr. Copeland calculated a CAPM cost of equity of 6.64 percent.⁷⁹ When questioned by Mr. Rislov about what would be the difference in risk premium between an average utility and the market as a whole, Mr. Copeland relied upon the mechanics of CAPM (beta and the market risk premium) and estimated that it would be about 1.5 percent (or “percentage points”).⁸⁰ With the best evidence suggesting an overall market return of no more than 8.2 to 8.3 percent, this 1.5 percent lower risk premium would indicate a CAPM cost of equity of 6.7 to 6.8 percent.

⁷⁵ S1, Page 56, Lines 21-22.

⁷⁶ Section A., Proposed Finding #2, Page 20, *supra*.

⁷⁷ S1, Pages 49 and 59.

⁷⁸ OTP-1, Schedule 4, Pages 1 and 7. In his update, the estimates were 10.72 percent and 14.10 percent, Exhibit for Hevert rebuttal, Schedule 3, Pages 1 and 7.

⁷⁹ S1, Page 62, Line 6.64.

⁸⁰ TR 126.

During the cross-examination of Mr. Hevert, Staff used an exhibit showing the current market risk premium and total expected market return published by Duff & Phelps.⁸¹ Duff & Phelps' latest recommended estimate of the market risk premium is 5.50 percent. Using that as the estimated market risk premium, Staff used another exhibit showing that when 5.50 percent is substituted for the risk premia utilized by Mr. Hevert, the average of his CAPM estimates fall to 7.12 percent.⁸²

As in the Missouri PSC case cited above, the record here indicates that Mr. Hevert's "CAPM [is] based on inflated market risk premiums."⁸³

With respect to the CAPM methodology, Staff proposes that the Commission find:

1. Mr. Hevert's CAPM estimates of the cost of equity are predicated on unrealistic and unreasonable estimates of the market risk premium, and must be rejected.
2. When more plausible and reasonable estimates of the market risk premium are employed, the cost of equity indicated by CAPM is approximately 7 percent.

H. Bond Yield Plus Risk Premium Analysis indicates a cost of equity of about 7 percent.

Mr. Hevert performed what he described as a Bond Yield Plus Risk Premium Analysis in which the cost of equity is estimated by adding a risk premium to bond yields. In this analysis he "*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."⁸⁴ Mr. Hevert is *assuming* that allowed or authorized ROEs are *unbiased estimates* of actual investor returns. While we might hope that to be the case, it is not necessarily so, and Mr. Hevert presented no *evidence* whatsoever to justify his assumption. In his Rebuttal Testimony, his answer to criticism from Mr. Copeland that authorized ROE's have exhibited systematic positive bias for the past two decades was simply: "In my experience, regulatory commissions fully weigh the results of

⁸¹ Attachment 5.

⁸² Attachment 4

⁸³ *Supra*, Page 24 and accompanying Footnote 57.

⁸⁴ OTP-1, Page 34, Lines 5-6. The italics ("*defined*") are not in the original, but supplied here for emphasis.

various models, analyses and expert testimony presented before them, and use that information to determine a fair ROE that meets the *Hope* and *Bluefield* standards.”⁸⁵

There are multiple reasons why there might be systematic biases in the use of authorized ROE’s to estimate a risk premium. Some of these reasons are addressed in Section J, *infra*, discussing OTP’s contention that returns allowed in this jurisdiction should take into consideration the returns allowed in other jurisdictions.⁸⁶ But Mr. Copeland testified that there are two reasons in particular why historical authorized ROEs are likely to be above actual required market returns on equity (or cost of equity). The first reason he identified is regulatory lag.⁸⁷ When capital costs are *trending* allowed rates of return typically lag the upward or downward trend in capital costs. For example, Mr. Copeland demonstrated that over the period since the Commission’s last adjudicated ROE in Docket No. EL11-019 capital costs, as measured by Moody’s Seasoned Baa Corporate Bond Yield, have declined about 100 basis points.⁸⁸ But allowed ROEs only declined 60 basis points over a similar period.⁸⁹ This is evidence of a *significant* upward bias in a risk premium estimated from authorized ROEs.

The second reason given by Mr. Copeland for why there might be a systematic upward bias in authorized ROEs owes to a tendency of commissions to “split the difference” in whatever may be the range of reasonable returns it determines from the evidence used to establish ROEs. As noted above in the legal section of this brief, the “end result doctrine” presumes that commissions will make findings about rates (or rates of return) that fall along a spectrum referred to as a “zone of reasonableness.” The normal standard of review is that courts will not substitute their judgment for a commission’s judgment so long as the resulting rate or rate of

⁸⁵ OTP-2, Page 55, Lines 1-3.

⁸⁶ For example, the data relied upon by Mr. Hevert only utilizes publicly reported authorized ROEs. Numerous cases are settled with ROEs that are not published. The main reason why a utility will want a settlement ROE to be kept confidential is because it is *lower* than most publicly reported ROEs. That alone imparts an upward bias to Mr. Hevert’s risk premium estimate which disqualifies it as an unbiased estimate of the real risk premium.

⁸⁷ S1, Page 75, Lines 11-13.

⁸⁸ S1, Page 8, Line 11 through Page 9, Line 1 (and accompanying chart).

⁸⁹ S1, Page 10, Lines 14-20 (and accompanying chart).

return is within the “zone of reasonableness.” Mr. Copeland explained that from an economic perspective to truly balance consumer and investor interests’ commissions should adopt ROEs at the *lower* end of this zone of reasonableness; to “split the difference” imparts an upward bias to the allowed ROE that favors the investor at the expense of the ratepayer.⁹⁰ The logic of Mr. Copeland’s contention is easily illustrated. Suppose, after reviewing the evidence, a commission concludes that a rate of return on equity of 7.5 percent to 8.5 percent are reasonable returns in relation to the *Hope* standard for satisfying the investor interest (e.g., the ability to attract capital). If 7.5 percent is a reasonable estimate of what ROE is sufficient for a utility to attract capital, *Hope* is satisfied, and there is no reason to allow a higher ROE. If 8 percent is allowed (by “splitting the difference”) this will merely drive up the market-to-book ratio, creating short-term *excess* returns for investors, at the expense of ratepayers.⁹¹

Using data from an analysis of market-to-book ratios (discussed further in Section K, *infra*) Mr. Copeland estimated that authorized ROEs have exceeded the required ROE (or cost of equity) by an average of 2.2 percent over the past two decades.⁹² Mr. Hevert’s estimated risk premium of 6.2 percent includes this estimated upward bias, and when removed the risk premium over bond yields would be 4 percent (400 basis points), resulting in a cost of equity estimate relative to recent 30-year Treasury bonds of 7.0 percent.⁹³ Mr. Copeland also noted that the spread between utility cost of equity and BAA bond yields has averaged about 200 basis points for more than half a century.⁹⁴ He demonstrated the reasonableness of a premium of this magnitude by showing how it would result in a 6.9 percent ROE, and that when that is compared to a total expected market return of 8.2 percent, it produces an “implied beta” of 0.75,

⁹⁰ S1, Page 23, Line 15 through Page 24, Line 5.

⁹¹ TR 94, 99.

⁹² S1, Page 76, Line 1.

⁹³ S1, Page 76, Lines 4-7.

⁹⁴ This is based upon the period spanned by Mr. Copeland’s peer-reviewed and published 1979 article estimating utility equity capital costs from 1961-1976, and the more recent period of 1999-2018 (57 years from 1961 to 2018). S1, Pages 71-72.

which is typical for electric utilities.⁹⁵ By way of contrast, Mr. Copeland showed how the 10.3 percent ROE requested by Otter Tail, compared to the overall market expected return of 8.2 percent, implies a beta of 1.40; a rate of return of 10.3 percent would reward Otter Tail for a level of risk that *far exceeds* its actual level of risk.⁹⁶

Based on the foregoing analysis of the evidence regarding the “Bond Yield Plus Risk Premium” method presented by Mr. Hevert, Staff recommends that the Commission make the following findings:

1. There is good reason and substantial evidence to suggest that relying upon authorized ROEs to estimate a risk premium relative to bond yields results in an inflated and upward biased estimate of the risk premium, and therefore Mr. Hevert’s estimated cost of equity using this approach must be rejected.
2. Substituting more reasonable assumptions and evidence the indicated cost of equity using this approach is about 7 percent.
3. There is substantial evidence that capital costs have declined since the Commission adopted an ROE for Xcel in Docket No. EL11-019. That creates a *prima facie* expectation that market evidence of the cost of equity will show current cost of equity below what we found reasonable in that docket.

I. Based on the evidence in this docket, the “zone of reasonableness” in estimating the cost of equity for Otter Tail is 7.0 to no more than 7.7 percent.

We have examined five methods of estimating the cost of equity based upon testimony and exhibits in this docket. These five methods, when utilized with reasonable assumptions and data, produce the following cost of equity estimates:

Method	Estimated Cost of Equity
Constant Growth DCF Method	7.6 or 7.7 percent
Non-Constant or Multi-Stage DCF Method	7 percent
Market-to-Book and XROE Analysis	7 percent
Capital Asset Pricing Model	7 percent
Bond Yield Plus Risk Premium	7 percent

The *reasonableness* of these estimates of the cost of equity is corroborated by the evidence presented in Sections A and B regarding the overall market return and the lower

⁹⁵ S1, Page 73, Line 19 through Page 74, Line 4.

⁹⁶ S1, Page 74, Lines 6-11.

relative risk of electric utilities. Relative to an overall expected market return of 8.2 to 8.3 percent, we showed that as a rebuttable presumption the cost of equity for electric utilities generally, and Otter Tail and comparable electric utilities specifically, must be less than 8.2 to 8.3 percent. And that is what is demonstrated in this record by abundant and substantial evidence.

If the Commission were to base OTP's authorized ROE on the best evidence regarding cost of equity, the authorized ROE could be no more than 7.7 percent. And to properly balance ratepayer and investor interests, by that same standard the authorized ROE would be toward the lower end of this range of reasonable returns, i.e., 7 percent. Mr. Copeland, however, recommended an ROE of 8.0 to 8.5 percent. That recommendation was based upon his analysis of market-to-book ratios. We discuss that in Section K, *infra*. But much was made in this docket of how ROEs allowed in other jurisdictions are much higher than either what this record shows is the best evidence of the cost of equity, or Mr. Copeland's specific recommendation of an ROE of 8.0 to 8.5 percent. We discuss authorized returns in the next section.

Staff recommends that with respect to the cost of equity the Commission make the following finding:

1. Using multiple methods and plausible and reasonable data and assumptions, this record supports a zone of reasonableness in estimating the cost of equity for Otter Tail and comparable companies to be in the range of 7.0 to 7.7 percent.

J. ROEs from other jurisdictions should not be considered.

Rates of return on equity from other jurisdictions are not relevant to the determination of appropriate ROE in this case and, therefore, should not be given consideration.

Otter Tail repeatedly refers to the ROEs granted to other utilities in South Dakota and other jurisdictions, as well as what it claims is the national average.⁹⁷ However, in making this argument Otter Tail is confusing the issue by making an apples-to-oranges comparison. At no

⁹⁷ OTP-6, Page 2; OTP-6, Page 7; OTP-4, Page 2.

point did Otter Tail make any showing that any of the ROEs referenced or relied upon put the associated company in the same or similar position as Otter Tail. The data utilized in derivation of the national average ROE is flawed for several reasons. Most importantly, it excludes the ROEs included in black boxed settlements, which are likely to be on the lower end of allowed ROEs. Even Mr. Gerhardson acknowledged this when he stated “I suspect that there were reasons it was in a black box...[and]...they most likely didn’t want to have that ROE publicly known”⁹⁸, in reference to other utilities in South Dakota. The same is most certainly true for other utilities around the country. Ignoring such ROEs artificially inflates the national average.

Furthermore, some ROEs included in the national average could be the result of public settlement agreements resulting in a higher ROE in exchange for certain treatment on other cost of service items. Commissioner Fiegen was absolutely correct at the hearing when stating that “there’s give and take in settlements and there’s give and take in rate cases. [The Commission is] being asked to compare South Dakota with all these other utilities and all these other [Commissions], although [we] don’t know what’s in all those settlements.”⁹⁹ Commissions across the country have varying rate making policies and treatments which may impact certain commissions’ decisions on ROE. Other commissions may disallow recovery of certain costs that South Dakota allows and have varying cost recovery mechanisms. For instance, South Dakota legislature has allowed the use of several cost recovery riders, guaranteeing a rate of return on specific investments, where as other states may not utilize these mechanisms in the same way. Simply comparing the ROE from one state to another or one utility to another does not take into consideration these varying rate making policies and treatments.

In response to a question by Commission Advisor Greg Rislov, Mr. Hevert agreed that there is a “circular nature” when comparing returns among commissions. Mr. Hevert stated “I agree with you. There’s a circularity to it that we just have to be aware of and that’s why we do

⁹⁸ TR 167.

⁹⁹ TR 146.

create the models and look at them.”¹⁰⁰ If commissions continue to compare returns amongst other commission authorized returns, a consistent authorized ROE emerges, without regard for any economic analysis. Otter Tail is drawing an inappropriate and irrelevant comparison. This comparison to the national average merits no weight and should have no bearing on the decision.

Comparisons to other utility companies in South Dakota are flawed for many of the same reasons as the national average. All ROEs granted in South Dakota since Docket EL11-019 are the result of black box settlements. OTP implies all currently authorized ROEs in South Dakota are at least 9.25%.¹⁰¹ OTP also does not provide any of its calculations used to come up with the 9.25% and therefore one cannot absolutely verify the assumptions OTP used in its calculation. Staff desires to be clear that the record in this docket does not disclose the confidential ROEs included in black box settlements. Furthermore, such a comparison does not acknowledge such settled ROEs are the result of negotiations and may or may not reflect Staff’s range had Staff filed testimony in those dockets. OTP acknowledges that ROEs granted as a result of a settlement were likely the result of a give and take negotiation.¹⁰² Simply put, settlement ROEs should not be compared to litigated ROEs and such a comparison is inappropriate. Furthermore, even if the ROEs granted in South Dakota were the result of a commission decision on a litigated matter, the Commission must recognize that each utility is unique and the cost of equity will likewise be unique for each company.

For all of the above reasons it is plain that authorized ROEs, either for other South Dakota utilities, or even more so for utilities in other jurisdictions, provide no firm foundation for determining what return is required given the facts of this case to satisfy the *Hope* criteria and provide Otter Tail with a return sufficient to attract capital without burdening ratepayers

¹⁰⁰ TR 84:17-22.

¹⁰¹ OTP-6, Pages 7-8

¹⁰² TR 167:3-6.

with a return higher than necessary. But were that not enough, it is not just possible, but likely, that allowed ROEs elsewhere are above the cost of equity and therefore unreliable guides to what ROE is necessary and sufficient to meet the *Hope* standard. The *prima facie* evidence for this are the extremely high market-to-book ratios for utilities at the present time. We discuss this elsewhere in this brief, but believe that it merits mention here as yet one more reason not to rely upon authorized returns elsewhere as estimates of the market cost of equity or required return on equity.¹⁰³

Otter Tail also alleges that it should have a higher ROE than other South Dakota utilities, claiming that its “performance and commitment to South Dakota merits” such treatment.¹⁰⁴ There is absolutely nothing in the record to demonstrate that Otter Tail has outperformed the other investor-owned utilities in South Dakota. There is no showing that it has had less outages, less complaints, or has distinguished itself by any other metric. Staff is in no way alleging Otter Tail has not performed well, however, it is Staff’s belief that other regulated utilities in South Dakota provide exemplary service, meeting all required standards, as well.

Not only is there nothing in the record to demonstrate what any other utilities’ ROEs actually are, there is nothing to demonstrate that Otter Tail has performed in a way so far superior as to merit its ratepayers paying a premium. The bottom line is that every utility in South Dakota is required to provide adequate, efficient, and reasonable service.¹⁰⁵ We do not make the customers pay extra for that. It is what is expected.

Last of all, Staff urges the Commission to not be misled by Otter Tail’s claim that if the authorized return it receives is lower than authorized returns received elsewhere that investors will be motivated to take their money out of investments in South Dakota and invest it in jurisdictions allowing higher authorized returns. Mr. Copeland explained that at the heart of this

¹⁰³ In particular, see Section K, *infra*, Page 42, but also Section F, *supra*, Page 28.

¹⁰⁴ OTP-6, Page 10.

¹⁰⁵ SDCL 49-34A-2

claim lays a simple fallacy: investors do not earn the *book* returns on equity reflected in authorized returns, they earn returns based on purchasing shares at *market* prices, not *book* values. If commissions in other jurisdictions are allowing returns higher than the market required return, that merely drives up market prices, resulting in higher market-to-book ratios, but *lower* market returns. Mr. Copeland explained how there might be some short-term capital gains as prices are driven up by these higher returns but once the price rises to where the return has fallen to the market required return there is an equilibrium price and market-to-book ratio that produces the lower market-required returns. These short-term gains are excess returns—excess profits. Investors buying the stocks at the now higher price are only receiving the lower market required return. Mr. Copeland explained the result using a common Internet acronym: TANSTAAFL. “There ain’t no such thing as a free lunch.”¹⁰⁶ The short-term excess profits came out of the pockets of ratepayers, for which they received nothing of value in return.

Staff proposes the following findings on the irrelevance of authorized returns granted other utilities or in other jurisdictions:

1. A decision regarding a fair and reasonable rate of return based upon a zone of reasonableness regarding estimates of the cost of equity must be based upon substantial evidence presented in this docket. The Commission is not privy to the give and take, the endless variations in regulatory policy and ratemaking treatment, and the variety and quality of evidence regarding the cost of equity that underlies returns authorized elsewhere. Calling attention to what other commissions have done based upon facts, evidence, and statutory and ratemaking distinctions of which we know little or nothing about is not helpful and will be ignored.
2. The fact that authorized book returns are higher in some jurisdictions than in others does not mean that investors will flock to those jurisdictions. Investors cannot purchase stock at book value; they must pay market prices for the stock. When market price is above book value, the market return that investors will earn will be lower than the authorized book return. Investors will earn the lower market return, the cost of equity, not the higher book return.
3. As long as we satisfy the investor interest as set forth in *Hope* with a return equal to the cost of equity, Otter Tail will be able to attract capital and provide quality service to its South Dakota customers.
4. Excellent and quality performance and service does not justify a higher return. It is the level of service expected for a utility that is earning the cost of capital. Failure to provide excellent and quality performance, however, would be grounds for only

¹⁰⁶ TR 99:20-22.

authorizing a return less than the cost of equity.

K. Market-to-book ratios are relevant and useful metrics for balancing investor and ratepayer interests.

If the zone of reasonableness for an authorized return on equity is to be based solely upon the cost of equity, the zone of reasonableness is limited to a return of 7.0 to 7.7 percent. Mr. Copeland recognized that a return this low would likely “have a significant impact on OTC’s market price and market-to-book ratio.”¹⁰⁷ He proposed a recommended return on equity of 8.0 to 8.5 percent after taking into consideration the impact of return on equity on market-to-book ratios.

Market-to-book ratios were once widely recognized as important metrics for gauging the financial health of public utilities.¹⁰⁸ Mr. Copeland explained how market-to-book ratios can be used to tell if utilities are earning (or are expected to earn) a return on equity above or below their cost of equity.¹⁰⁹ This economic principle was stated by Prof. Myron Gordon in his seminal application of the discounted cash flow theory to public utilities, *The Cost of Capital to a Public Utility*:

A widely believed theorem is that the market-book value ratio [is more, equal to, or less than] 1 when the ratio of the allowed rate of return to the cost of capital [is more than, equal to, or less than] 1.¹¹⁰

That was in 1974. In 1993 the District of Columbia Court of Appeals, citing Alfred Kahn’s *The Economics of Regulation*, acknowledged the validity of this principle stating: “If the regulatory agency allows a company to earn more than the required cost of capital, theory has it that market-to-book ratios will exceed one, *ceteris paribus*.”¹¹¹ After citing Kahn, the Court added “If

¹⁰⁷ S1, Page 5, Lines 5-8.

¹⁰⁸ See sources cited in Footnote 16.

¹⁰⁹ S1, Page 18, Line 21 through Page 19, Line 6.

¹¹⁰ Myron J. Gordon, *The Cost of Capital to a Public Utility*, 1974, MSU Public Utilities Studies, 63. The text in brackets replaces mathematical notation, some of which is no longer commonplace or would require further explanation.

¹¹¹ *Illinois Bell Telephone Co. v. FCC*, 988 F. 2d 1254, 1261, Footnote 9.

the cause of the current market-to-book ratios is in fact an excessive rate of return on interstate access service (instead of other regulated activities), Ameritech can hardly complain about the reduction in the rate.”¹¹²

The DC Court’s reliance upon Kahn’s *The Economics of Regulation* is worth exploring further because of facts noted by Kahn that have a bearing on this case. At the time of first publication, 1970, public utilities had enjoyed two decades of excess returns:

... the sharp appreciation in the prices of public utility stocks, to one and a half and then two times their book value during this [post WW II] period, reflected also a growing recognition that the companies in question were in fact being permitted to earn considerably more than their cost of capital. Perhaps, indeed, the discrepancy was growing over time: as the data ... demonstrate, the return on equity among public utilities increased markedly relative to manufacturing in the two decades after WW II.¹¹³

and

... commissions have been allowing r 's in excess of k ; if instead they had set r equal to k , or proceeded at some point to do so ... the discrepancy between market and book value ... would have disappeared, or would never have arisen.¹¹⁴

The situation described by Kahn at the time he wrote is exactly the same situation that Mr. Copeland has described in his testimony: two decades of market-to-book ratios (1999-2018) well above 1 indicating utility earned returns on equity in excess of the cost of equity.¹¹⁵

This use of market-to-book ratio to assess how returns on equity correspond to the required return or cost of equity was also recognized in Prof. Howard E. Thompson’s text

Regulatory Finance, Financial Foundations of Rate of Return Regulation:

If the allowed rate of return is set in such a way as to erode the earning position of the shareholders, the financial integrity standard of the *Hope* case would be violated. So the establishment of an appropriate allowed rate of return must consider the investment made by shareholders.

If one assumes that the stockholders are to receive a return on the capital they provided, it follows that the market price of the firm should equal the book value since that is the

¹¹² Ibid.

¹¹³ Alfred E. Kahn, *The Economics of Regulation*, 1970, Vol. 1, 48, Footnote 69.

¹¹⁴ Id., 50.

¹¹⁵ S1, Page 20, Line 9 through Page 21, Line 10.

amount the equity investor has contributed to the business--the original contribution plus retained earnings. *From this idea, the criterion that the market price should equal the book value emerges.*

The conclusion that the allowed rate of return should be set so that the market price equals book value *is commonly accepted*. But it must be modified slightly *to account for flotation costs on new stock issues and to prevent dilution*.¹¹⁶

Similarly, Kolbe, Read and Hall, *The Cost of Capital: Estimating the Rate of Return for Public Utilities*, say that “regulators’ actions should make the ratio of a regulated stock’s market value to its book value (slightly more than) one.”¹¹⁷

Mr. Copeland’s testimony was in line with what was recommended by Thompson, and by Kolbe, Read and Hall:

In the late 1970’s and early 1980’s, a period where market-to-book ratios were often below 1.0, a market-to-book ratio of 1.1 was frequently used as a policy recommendation in order to allow for the recovery of flotation costs and to prevent market-to-book ratios from falling below one because of “market pressure” when new shares are publicly issued.¹¹⁸

An example of what Mr. Copeland is referring to here can be found in a 1978 decision of the Supreme Judicial Court of Maine:

The market-to-book ratio is used as a measure of how much greater the market value of the stock must be over its book value so as to prevent dilution. New England's witness testified that it needs a market-to-book ratio of 1.3 to 1.5. On the other hand, Mr. Kosh testified that a market-to-book ratio of 1.1 to 1.15 was sufficient. Based upon his bare cost of equity of 10.5%, he stated that a 11.25% return on the book value of common equity was required to meet this objective market-to-book ratio, and therefore, concluded that New England's cost of equity was 11.25%.

...

New England's principal objection to the Commission's calculation of the 11.5% cost of equity appears to concern its use of a market-to-book ratio of 1.1 to 1.15. New England argues that this figure is unreasonably low and results in dilution of the stockholders'

¹¹⁶ Howard E. Thompson, *Regulatory Finance, Financial Foundations of Rate of Return Regulation*, 2012 (Springer; Softcover reprint of the original 1st ed. 1991 edition), 31. Italics supplied for emphasis.

¹¹⁷ A. Lawrence Kobe and James A. Read, Jr. with George R. Hall, *The Cost of Capital: Estimating the Rate of Return for Public Utilities* (1984), 25. The “more than one” in parentheses is accompanied by a note (#19, 158) which explains: “the excess is intended to offset the cost of issuing new stock.”

¹¹⁸ S1, Page 37, Line 23 through Page 38 Line 3.

interest and, consequently, confiscation. We find no error in the Commission's selection of a market-to-book ratio of 1.1 to 1.15 and hold that its determination was reasonable and supported by substantial evidence.

Mr. Kosh testified that the cost of financing and pressure would act to reduce the proceeds of a stock issue by approximately 5%. Cost of financing includes legal and brokerage fees, accounting expenses, taxes, etc. Pressure describes the tendency of a stock's market price to drop when new stock is issued by the same corporation. Mr. Kosh presented sufficient and detailed testimony to support a finding that a market price of 5% over book value was required to compensate for these effects. Also based upon his studies, Mr. Kosh added another 5% as a margin of protection against short-term declines in the market price of New England's stock. He then concluded that the market price of New England's stock must be 10%-15% above its book value in order to prevent dilution. This produces the 1.1 to 1.15 market-to-book ratio used by the Commission in its determination of a cost of equity of 11.5%.

We sustain the Commission's finding in this respect.¹¹⁹

The use of market-to-book ratio as a financial metric in assessing cost of equity, and a market-to-book ratio of slightly above 1.0 such as the 1.10 that Mr. Copeland recommended, is thus well established.

Mr. Copeland testified that while 1.10 was an appropriate policy goal for the market-to-book ratio under normal circumstances, that because market-to-book ratios are presently so high, he would recommended 1.25 as prudent goal at the present time.¹²⁰ Commissioner Nelson questioned Mr. Copeland about this number, correctly noting that it is a matter of judgment.¹²¹ Mr. Copeland agreed that it was a matter of judgment, but that it derived from a consideration of two numbers that are not matters of judgment: a market-to-book ratio of 1.1, and a market-to-book ratio of 1.85. The first is what Mr. Copeland testified should be the ultimate policy goal, and the second is the current average market-to-book ratio of 1.85 of the sample of comparable companies that Mr. Copeland used. The latter number, based upon the economic principles discussed above, is evidence that the current expected book returns on equity are too high, they

¹¹⁹ *New England Tel. & Tel. Co. v. Public Utilities*, 390 A. 2d 8, 37.

¹²⁰ S1, Page 41, Line 19 through Page 42, Line 4.

¹²¹ TR 105-106.

are above the market cost of equity for the comparable utilities; thus Mr. Copeland said “It’s got to come down.”¹²² How far and how fast it comes down is, indeed, a matter of judgment.

Mr. Copeland reached his judgment by considering various possibilities. When Commissioner Nelson suggested that Mr. Copeland’s statement that market-to-book ratios must come down was his judgment, Mr. Copeland disagreed, responding that if the *Hope* criteria of just and reasonable rates that balance consumer and investor interests were satisfied, it would come down to 1.1.¹²³ That is not his “judgment” but his conclusion regarding the economic principles involved in satisfying the *Hope* criteria: “The investor concern is satisfied when the market-to-book ratio is 1.1.”¹²⁴ That is consistent with the authorities (Gordon, Kahn, the DC Court of Appeals, Thompson, and Kolbe, Read and Hall) cited above. The judgment is in deciding on an appropriate market-to-book ratio *between* 1.1 and 1.85. A market-to-book ratio of 1.1 is where it *should* be to satisfy the investor criteria of *Hope*, and a market-to-book ratio of 1.85 is far, far above anything required to satisfy the *Hope* standard.

If the Commission were to “split the difference” between 1.1 and 1.85, the resulting market-to-book ratio would be just a bit below 1.5 (1.475, to be precise).¹²⁵ From the table presented on the last page of Mr. Copeland’s testimony, this would correspond, approximately, to an ROE of 8.50 percent for Otter Tail. Mr. Copeland suggested that this should be the upper limit of a reasonable range for ROE at the present time. When we consider that it splits the difference between what the consumer would like to see (a market-to-book ratio of 1.1) and what the investor would like to see (an ROE that keeps the market-to-book ratio at 1.85) the midpoint

¹²² Ibid.

¹²³ TR 105-106.

¹²⁴ TR 106.

¹²⁵ This “split the difference” is distinguishable from splitting the difference in a range of reasonable returns. Here we are splitting the difference in a range of market-to-book ratios, not a range of recommended ROEs. With recommended ROEs splitting the difference leads to excess returns on equity and where eliminating these excess returns is the objective the lowest reasonable ROE is the one that will minimize or eliminate excess returns. Here we are considering an ROE *above the cost of equity*, and splitting the difference in market-to-book ratios is a way of minimizing the impact of that on ratepayers.

of that range in market-to-book ratios, approximately 1.5, is an *upper limit* to anything that could be said to be *balancing* consumer and investor interests. It already gives greater weight to the investor than the consumer (in the interest of trying to moderate the rate of decline in market-to-book ratios). In Mr. Copeland's words: "More [than a return resulting in a market-to-book ratio of approximately 1.5] is not needed, and less would more fairly balance ratepayer interests with the interests of Otter Tail and its shareholders and investors."¹²⁶

With his judgment that an ROE of 8.50 percent, roughly corresponding to a market-to-book ratio of 1.5, was an *upper limit* to a fair reasonable rate of return on equity under the present circumstances, he concluded that a reasonable *range* would be 8.0 to 8.5 percent.¹²⁷ Staff recognizes that the Commission, on its review of the facts and concerns presented in Mr. Copeland's testimony, might well reach another conclusion about what should be the *upper limit* of a zone of reasonableness for return on equity at the present time. But based upon the table on the last page of Mr. Copeland's testimony, Staff believes that any ROE above 8.75 percent cannot reasonably be considered to fairly balancing consumer and investor interests. In that table Mr. Copeland presents two rows of numbers, one for the sample of comparable companies, and one for Otter Tail. The reason these differ is because the relationship between ROE and market-to-book ratio is a function of dividend yield, and Otter Tail's dividend yield is lower than the average dividend yield for the group of comparable companies.¹²⁸ For the data with respect to the group of comparable companies, the ROE that would result in a market-to-book ratio of 1.5 is somewhere between 8.50 percent and 8.75 percent. An ROE of 8.75 percent would correspond to a market-to-book ratio of 1.53 percent. That is slightly above the mid-point of the 1.1 to 1.85 range that should be used to consider possible ROEs in relation to market-to-

¹²⁶ S1, Page 88, Lines 8-11.

¹²⁷ This is based on his decision to adopt a range of 50 basis points (25 basis points on either side of 8.25 percent), S1, Page 43, Line 1 through Page 44, Line 14 (where Mr. Copeland's upper limit of 8.50 percent is explained in further detail).

¹²⁸ S1, Page 28, Line 8.

book ratios. Anything higher is simply further aggrandizing the investors' interest at the expense of ratepayers.

Before we suggest our recommended findings of fact on this matter, we should discuss Otter Tail's response to all of this. Otter Tail's primary response is basically two-fold, with each response inconsistent with the other. The first response is Mr. Hevert's contention that the Commission has no real power over market-to-book ratios, that they reflect factors that cannot be captured or measured by cost of capital.¹²⁹ This agnosticism has echoes of John M. Keynes's "animal spirits" or Robert Shiller's "irrational exuberance," i.e., that market prices (and thus market-to-book ratios) reflect factors that cannot be explained by simple market models of rational economic behavior. Thus Mr. Hevert testified:

So, even if Mr. Copeland deems it proper for utility commissions to target specific Market/Book ratios, they cannot manage utility stock prices to do so; the price formation process is far too complex and involves far too many variables.¹³⁰

The Commission might well wonder then why Mr. Hevert even bothered with DCF or CAPM, since these are *explicitly* models of "the price formation process." In his Rebuttal Testimony Mr. Hevert quoted from testimony before the New Hampshire Public Utilities Commission that a stock price:

...is forward-looking, and is a function of many variables, including (but not limited to) expected earnings and cash flow growth, expected payout ratios, measures of "earnings quality," the regulatory climate, the equity ratio, expected capital expenditures, and the expected return on book equity."¹³¹

But these "many variables" are all – some implicitly, and some explicitly – reflected in the DCF model of "the price formation process."¹³² Cash flow and earnings growth are reflected in the "g" of the basic DCF model, as are expected payout ratios and expected return on equity. They are also reflected in the dividend yield. Measures of "earnings quality," the regulatory climate, the

¹²⁹ TR 78-79, OTP-1, Page 42, Lines 14-22.

¹³⁰ Ibid.

¹³¹ OTP-2, Page 48, Lines 18-22.

¹³² TR 38-44.

equity ratio, and capital expenditures all potentially influence investors' assessment of risk, reflected in the "k" of the DCF model. So, the DCF model, while simplified, is a model of the "price formation process," and Mr. Copeland's inferences regarding the relationship between ROE and market-to-book ratio derive *directly* from the mathematical properties of the DCF model.¹³³ The DCF model is not invalidated simply because it "simplifies" the price formation process. Here the Commission might well take notice of a saying attributed to an acclaimed statistician, George Box: "all models are wrong, some are useful."¹³⁴ All models are "wrong" in the sense that to one degree or another they make *simplifying assumptions* about whatever it is they model. That does not render them useless or unreliable. The DCF model has been widely recognized for its usefulness and utility in estimating the cost of equity for public utilities:

The DCF method "has become the most popular technique of estimating the cost of equity, and it is generally accepted by most commissions. Virtually all cost of capital witnesses use this method, and most of them consider it their primary technique."¹³⁵

If there are murmurings afoot after all these years suddenly questioning the utility of DCF perhaps these sentiments should be questioned—*sequere pecuniam* or *cui bono*—rather than jump to the conclusion that the thousands of commission and court decisions upholding the use of DCF for several decades now were misguided. In any case, Mr. Hevert's remonstrances against the ability of DCF to yield meaningful assessments of the relationship between ROE and market-to-book ratios are inconsistent with his reliance upon *models* of the price formation process (DCF and CAPM in particular) and should be recognized for what they are: special pleading.

Whereas Mr. Hevert would have the Commission believe that it cannot "manage stock

¹³³ That Mr. Copeland's inferences about the relationship between the market-to-book ratio and return on equity derive directly from the DCF model is undisputed: see Mr. Hevert's Rebuttal Testimony, OTP-2, Page 50, Line 20 through Page 51, Line 4, where he works through the mathematical relationships that underpin Mr. Copeland's XROE analysis.

¹³⁴ "A Life in Statistics, George Box: a model statistician," *Significance*, September 2010, The Royal Statistical Society, online: <https://rss.onlinelibrary.wiley.com/doi/pdf/10.1111/j.1740-9713.2010.00442.x>, accessed 4/5/2018.

¹³⁵ *Illinois Bell Telephone Co. v. FCC*, 988 F. 2d 1254, 1259, Footnote 6 (1993), citing J. Bonbright et al., *Principles of Public Utility Rates* (2nd ed. 1988), 317-318.

prices” through targeting a market-to-book ratio, Mr. Moug, Otter Tail’s Chief Financial Officer, averred that Mr. Copeland’s recommendations would cause such a drastic decline in market-to-book ratios as to result in “a billion dollar reduction in our market capitalization.”¹³⁶ There are two important assumptions behind this assessment, one recognized by Mr. Moug, and the other by Mr. Copeland. Mr. Moug prefaced his billion dollar estimate stating that it assumes that all jurisdictions, not just South Dakota, follows Mr. Copeland’s recommendation. The Commission is aware, of course, how that South Dakota only represents a small portion (approximately 10 percent) of Otter Tail’s regulated operations. The Commission does not determine the authorized return in any jurisdiction but its own, and should only be concerned about the impact its decisions will have on the investor interest, not hypothetical influences extracted to other jurisdictions. The other consideration, by Mr. Copeland, is that Otter Tail has a market-to-book ratio much higher than the average for the sample of comparable companies—2.6 versus 1.85—and that in some measure this is the result of Otter Tail’s unregulated lines of business.¹³⁷ Even if all jurisdictions adopted an ROE consonant with Mr. Copeland’s recommendations—8.25 percent—that would only have the effect of reducing market prices relative to book value about 26 percent, compared to the 52 percent Mr. Moug inferred.¹³⁸ When we factor in the fact that South Dakota only accounts for about 10 percent of Otter Tail’s regulated operations, the 26 percent reduction system wide would fall to 2.6 percent. A 2.6 percent reduction in the share price of \$49.50 would reduce it to \$48.21. But even if it were much more, as long as the market-to-book ratio remains above 1.1, the investor interest standard in *Hope* is satisfied.

Whatever one thinks about the magnitude of these numbers, the Commission must ultimately reach a decision that takes consumer or ratepayer interests into consideration,

¹³⁶ TR 134.

¹³⁷ TR 115.

¹³⁸ The relevant reduction would be the reduction in market-to-book ratio for the comparable companies of 1.85 (S1, Schedule 5) to a market-to-book ratio of 1.37 associated with an ROE of 8.25 percent (S1, Page 88, Lines 3-4): $(1.85 - 1.37)/1.85 = 0.26$ or 26%; the reduction in market value according to Mr. Moug was $(\$49.50 - \$23.63)/\$49.50 = 0.52$ or 52%.

something these numbers by themselves, being solely hypothetical impacts upon the investor interest, do not do. It is nevertheless instructive to observe that arguments similar to those being made here by Otter Tail were considered *and rejected* in the 1993 Illinois Bell decision by the DC Court of Appeals. In that case the applicant had a witness who testified that the rate impact of the commission decision under appeal would reduce the stock value of the affected companies—Bell Regional Holding Companies—by *78 billion dollars*. The Court was unimpressed. First, they noted (similar to Mr. Copeland with respect to Otter Tail) that the decision under consideration only affected a certain portion of the total revenues of the companies, and *also* concluded:

If the cause of the current market-to-book ratios is in fact an excessive rate of return on interstate access service (instead of other regulated activities), Ameritech can hardly complain about the reduction in the rate.¹³⁹

This is consistent with the legal analysis in Part II above showing that the relevant constitutional considerations do not necessarily prevent a reduction in the value of shareholder property.

Finally, another argument made by Otter Tail to detract the Commission from recognizing the usefulness and utility of market-to-book ratios was to point to the market-to-book ratios of unregulated utilities. One of the sources cited by Mr. Hevert, Charles F. Phillips, author of *The Regulation of Public Utilities – Theory and Practice*, states:

Many question the assumption that market price should equal book value, believing that ‘the earnings of utilities should be sufficiently high to achieve market-to-book ratios which are consistent with those prevailing for stocks of unregulated companies.’¹⁴⁰

Mr. Copeland addressed this both in his Direct Testimony, and at the hearing on questions from Commissioner Nelson.¹⁴¹ There is a fundamental distinction between the returns authorized utilities receive under the *Hope* standard, and the returns often earned by unregulated firms.

¹³⁹ *Illinois Bell Telephone Co. v. FCC*, 988 F. 2d 1254, 161, and Footnote 9.

¹⁴⁰ OTP-2, Page 40, Lines 1-4. It is perhaps notable that the witness whose estimate of a 78 billion dollar loss that was rejected by the DC Court of Appeals in the Illinois Bell case is none other than the “authority” cited here by Mr. Hevert: Charles F. Phillips.

¹⁴¹ S1, Page 35, Line 4 through Page 37, Line 20; TR 110-113.

The authorized return under the *Hope* standard is a *cost*, the *cost of capital*. Unregulated firms, especially those in industries on the forefront of technological progress or social innovation frequently earn returns *higher* than the cost of capital. These higher returns are what economists call “economic profits.”

Mr. Copeland explained it this way:

In competitive product markets innovative firms will earn economic profits as new products and facilities to produce them are brought to market. The term “economic profit” has a very specific connotation and refers to returns that are above the “cost of equity capital.” In economic terms, the “required return” on capital is a cost, it is not “profit.” In competitive markets innovation would never occur without the attraction of earning abnormal rates of return (in relation to the cost of equity).¹⁴²

The following image, from an elementary economics textbook, explains the concept further by comparing economic profit with normal profit:¹⁴³

Zero Economic Profit Is Not as Bad as It Sounds

Economic profit is usually lower (never higher) than accounting profit because economic profit is the difference between total revenue and total cost, where total cost is the sum of explicit and implicit costs, whereas accounting profit is the difference between total revenue and only explicit costs. Thus, it is possible for a firm to earn both a positive accounting profit and a zero economic profit. In economics, a firm that makes a zero economic profit is said to be earning a **normal profit**.

Normal profit = Zero economic profit

Normal Profit

Zero economic profit. A firm that earns normal profit is earning revenue equal to its total costs (explicit plus implicit costs). This is the level of profit necessary to keep resources employed in that particular firm.

“Normal profit” includes the cost of capital. At this point “economic profit” is zero. As Mr. Copeland put it, under competition “*economic profits* will begin to fall ... “[a]t the margin economic profit dissipates.”¹⁴⁴ At this point, “economic profit” is zero and the firm is just earning a “normal profit.” This is what regulation attempts to emulate under the *Hope* standard; allow the firm a “normal profit” so that it can attract capital, but prevent it from earning the kinds of excess returns associated with economic profits. Economic profits are appropriate only for firms that are bringing new and risky technology, products, or social innovation to market. Such profits are often described as speculative or entrepreneurial. These economic profits will

¹⁴² Id., Page 35, Lines 10-16.

¹⁴³ Roger A. Arnold, *Economics*, 8th ed. (2008), 411.

¹⁴⁴ S1, Page 36, Lines 1-2.

produce high market-to-book ratios and it is inappropriate to compare these market-to-book ratios with utility market-to-book ratios. In answer to a question about the Dow (Dow Jones Index) from Commissioner Nelson, Mr. Copeland explained that “the Dow’s going to have the movers and shakers of technology that are earning economic profits...[the] Utility index should only have companies in it earning their cost of capital.”¹⁴⁵ So, the effort to justify high market-to-book ratios for utilities by comparison to the high market-to-book ratios of unregulated firms and industries is inapt and should be ignored.

With respect to the relationship between ROE and market-to-book ratios the Staff recommends the following findings:

1. Market-to-book ratios are relevant and useful metrics for balancing investor and ratepayer interests.
2. The relationship between ROE and market-to-book ratio is a corollary of the DCF model, and the DCF model remains a useful and relevant model of utility stock price formation.
3. A market-to-book ratio of slightly above one, sufficient to prevent the stock price from falling below book value from flotation costs and dilution when new stock is issued, satisfies the investor interest standard of *Hope*. A market-to-book ratio of 1.1 is, absent other considerations, sufficient to satisfy the investor interest standard of *Hope*.
4. Present expected returns on book equity for utilities have led to elevated market-to-book ratios which indicate that they are earning excessive rates of return. Any ROE that gives due consideration to the consumer interest is going to be lower than the returns on book equity currently being earned, and will result in a decline in market price and market-to-book ratio. There are no statutory or constitutional requirements against such stock price declines so long as the market-to-book ratio remains 1.1 or higher.
5. Because of how high current market-to-book ratios are (1.85 for the set of comparable companies), it is prudent to be cautious in adopting an ROE that will reduce market price and market-to-book ratio. An ROE that would sustain a market-to-book ratio measurably above 1.5 does not give adequate weight to the need to reduce the ROE to a level that more fairly balances ratepayer and investor interests. A rate of return on equity of 8.0 to 8.5 percent has been shown to approximately correlate to market-to-book ratios in the range of 1.4 to 1.5. This establishes an upper limit to the zone of reasonableness regarding what authorized ROE fairly balances investor and consumer interests.
6. Comparisons to the high market-to-book ratios of unregulated companies are inappropriate because they frequently reflect speculative profits above the cost of equity capital that regulation is intended to prevent.

L. Small company size, flotation costs, and the Tax Cuts and Jobs Act (TCJA)

¹⁴⁵ TR 113.

do not warrant adjustments or an incrementally higher ROE.

Mr. Hevert testified that in determining a return on equity for Otter Tail that some consideration should be given to its small size.¹⁴⁶ While he proffered specific estimates of what an appropriate “size premium” might be, he declined to adopt one specifically, and states that he simply chose to consider “the small size of OTP in [his] assessment of business risks to determine where, within a reasonable range of returns, OTP’s required ROE appropriately falls.”¹⁴⁷ In the vast array of results in his original Direct Testimony, which produced a range of cost of equity estimates from a low of 7.91 percent to a high of 13.13 percent, the median was 9.97 percent.¹⁴⁸ Presumably reflecting the subjective weight he gave various considerations, including size, he adopted a range above this median, 10.0 to 10.6 percent, as Otter Tail’s cost of equity.¹⁴⁹

Mr. Copeland testified that while the evidence for a size premium is disputed, what evidence exists is inapplicable to the cost of equity for public utilities.¹⁵⁰ He supported this with two different arguments. The first, demonstrated by charts on Pages 76 and 77 of his direct testimony, is that the size effect is a phenomenon associated with small companies *with above average market risk*. In the chart on Page 77 of his testimony, the above average market risk is clearly demonstrated by the stock beta of 1.39 associated with the “decile” that Mr. Hevert claims that Otter Tail would be placed in. But like all other market traded electric utilities, Otter Tail is of below average market risk and has a beta of less than 1.0. Thus, the evidence for a size effect, such as it is, simply does not apply to electric utilities generally or Otter Tail specifically.

The second line of evidence presented by Mr. Copeland against a size premium for utilities was a study showing that the “alpha” parameter of the CAPM model is not statistically

¹⁴⁶ OTP-1, Page 40, through Page 43, Line 11.

¹⁴⁷ Id., Page 43, Lines 15-17.

¹⁴⁸ S1, Page 46, Lines 5-16.

¹⁴⁹ OTP-1, Page 68, Lines 10-13.

¹⁵⁰ S1, Page 76, Line 11 through Page 78, Line 12.

significant for public utilities.¹⁵¹ The “alpha” parameter of the CAPM model is, in theory, *supposed to be zero*. But the “alpha” parameter for small companies of above average risk is sometimes positive and the fact that it seems to correlate with small size is what has led to speculation about a size effect or size premium. But since the “alpha” parameter for public utilities is zero, none of this size effect literature applies to public utilities.

In his Rebuttal Testimony, Mr. Hevert simply referred back to the evidence he presented in his Direct Testimony, and did not directly respond to or rebut Mr. Copeland’s arguments against the applicability of the size effect to public utilities. Footnote 61 of his Rebuttal Testimony cites Pages 40 and 42 as presenting evidence that a size effect is applicable to public utilities.¹⁵² Nothing on Page 42 of Mr. Hevert’s Direct Testimony directly addresses Mr. Copeland’s arguments.¹⁵³ On Page 40 of Mr. Hevert’s Direct testimony is a quote from a Public Utilities Fortnightly article claiming that the size effect is applicable for utilities.¹⁵⁴ That cite fails as a rebuttal to Mr. Copeland’s arguments. First, it was published in 1995, before the publication of the evidence Mr. Copeland cited for a zero “alpha” for public utilities.¹⁵⁵ Second, the article cited by Mr. Hevert is simply a recitation of the standard evidence for a size effect similar to the evidence shown in the charts on Pages 76 and 77 of Mr. Copeland’s testimony.¹⁵⁶ Because it relates to small companies of above average market risk, it simply does not apply to utilities.

Commissioner Fiegen questioned Mr. Hevert about the premium for small size.¹⁵⁷ Mr. Hevert’s response was somewhat ambiguous, but in response to a follow-up question (“So what

¹⁵¹ S1, Page 78, Lines 2-12.

¹⁵² OTP-2, Page 31, Lines 5-6.

¹⁵³ The words “utility” or “utilities” are simply not found on that page.

¹⁵⁴ OTP-1, Page 40, Lines 8-11. The source is cited in Footnote 44.

¹⁵⁵ S1, Page 69, Line 15-26.

¹⁵⁶ The Commission can corroborate this by looking at a copy of the article cited by Mr. Hevert which is in the Commission’s files for Otter Tail’s 2010 rate filing, Docket EL10-011. Here is a direct link to the article: <https://puc.sd.gov/commission/dockets/electric/2010/e110-011/hevert/stockeffect.pdf>. Note how the beta for the smallest companies in “Decile 10” is 1.47. This is proof positive that the small size effect here does not apply to public utilities, since their betas are below one. The language from the article cited by Mr. Hevert was a gratuitous effort by the author of the article to imply applicability to public utilities unsupported by any evidence whatsoever.

¹⁵⁷ TR 76-77.

you're saying in your statement is it's nonutilities?") he answered "It's nonutilities."¹⁵⁸ Whether he intended to or not, Mr. Hevert here is saying that the size premium does not apply to utilities. But ultimately, Staff's position here is based on the evidence presented by Mr. Copeland that any size effect is applicable only to small companies *of above average market risk*. The evidence for that stands unrebutted.

A second adjustment Mr. Hevert would make to the authorized return would be to allow a return for flotation costs. Staff does not oppose taking into consideration the effect of flotation costs. It is the major reason for allowing an ROE that would result in a market-to-book ratio sufficiently above 1.0 to avoid dilution when new stock is issued. For this case, the issue is two-fold. First, what is the correct or most appropriate way to calculate an adjustment for flotation costs, and second, is a specific adjustment required in this case? Mr. Hevert used a method that presumes that new stock is being issued every year.¹⁵⁹ Mr. Hevert's citation to standard sources supporting his method in his Rebuttal Testimony failed to address this criticism.¹⁶⁰ But as Mr. Hevert concedes "the difference in our approaches does not have a material effect on the difference between our recommendations."¹⁶¹ In Mr. Copeland's words, he saw no reason to make an explicit allowance for flotation costs because he was "recommending a rate of return on equity that is substantially greater than the cost of equity ... [and which would] more than compensate OTTR and its investors for flotation costs. If the Commission adopts a rate of return on equity above the range of reasonable estimates of the cost of equity—7 to 7.7 percent—there is no need to allow a specific adjustment for flotation costs.

Another factor that Mr. Hevert would have the Commission consider as a reason for a higher ROE for Otter Tail is the recent Tax Cuts & Jobs Act (TCJA). Commissioner Hanson

¹⁵⁸ Ibid.

¹⁵⁹ S1, Page 79, Lines 10-11.

¹⁶⁰ OTP-2, Page 31, Line 21 through Page 32, Line 4.

¹⁶¹ Id., Page 32, Lines 7-8.

asked Mr. Hevert about this.¹⁶² In his response, Mr. Hevert noted that “[t]here were some jurisdictions that approved higher equity ratios, for example, to mitigate the effect of the lost cash flow.”¹⁶³ Mr. Copeland, in his Direct Testimony, acknowledged that rating agencies have expressed some concern, but stated:

Rather than use something like this as justification for a higher rate of return on equity, a more appropriate and measured response is to consider whether it (e.g., TCJA) will negatively impact utilities’ capital structure. Specifically, in the case of OTC there is no indication that the effect of the TCJA will negatively impact its capital structure.¹⁶⁴

And as if to drive home Mr. Copeland’s point, responding to questions from Mr. Rislov, Otter Tail’s CFO, Mr. Moug testified:

The other thing that happens is we get credit from the ratings because we maintain a healthy balance sheet. Our equity ratio at Otter Tail Power is roughly around 52, 53 percent equity to total cap. We get credit for that.

And I have – in my exhibits to my Direct Testimony I have the ratings methodologies that Moody’s uses to rate a company’s debt. And we’re getting credit for having a stronger balance sheet than other utilities.¹⁶⁵

With a strong balance sheet Otter Tail has the cash flow to negate the negative impact of the TCJA that the rating agencies have expressed concern about.

With respect to these various arguments to which Mr. Hevert appealed to justify a higher ROE, Staff proposes the following findings:

1. Any evidence of a small size premium for cost of equity is based on market returns for small companies with above average market risk. Public utilities have below average market risk. The small size premium does not apply to public utilities.
2. The issue of flotation costs is moot. The rate of return on equity which the Commission is authorizing in this case will maintain a market-to-book ratio sufficient to recover flotation costs even were we to adopt the Company’s approach to calculating flotation costs.
3. Were we to take flotation costs into consideration explicitly, we would find that an ROE sufficient to maintain a market-to-book ratio of 1.1 is adequate to cover flotation costs and prevent dilution (share prices that are below book value when new stock is issued).
4. Any concerns about the cash flow implications of the Tax Cut & Jobs Act (TCJA)

¹⁶² TR 70-71.

¹⁶³ Ibid.

¹⁶⁴ S1, Page 83, Lines 10-14.

¹⁶⁵ TR 157.

should be considered in the equity ratio used to develop an overall rate of return, not the rate of return on equity. There is no evidence at all that Otter Tail needs a higher equity ratio to accommodate the cash flow implications of the TCJA than what the parties stipulated to in the settlement agreement.

M. The range of reasonable returns (or “zone of reasonableness”) is 7 to 8.5 percent.

Staff acknowledges that this case presents unusual challenges to the Commission.

Ordinarily the challenge of rate of return testimony is to sift through the cryptic minutia of cost of capital testimony and come up with a reasonable estimate of the cost of equity supported by substantial evidence. From that effort the Commission should reach a conclusion regarding the range or zone of reasonable returns, and explain the basis for the return that it decides is appropriate. On that basis, Staff contends that the range of reasonable returns would be no more than 7 to 7.7 percent. Otter Tail Power’s cost of equity *must* be below 8 to 8.3 percent because that is the return that would be appropriate for a stock of average market risk, and the record is clear that as an electric utility Otter Tail’s market risk is less than the average risk for the market as a whole.

But a rate of return on equity in the range of 7 to 7.7 percent could potentially cause a marked decline in share price. While Staff has shown that there are no *per se* statutory or legal objections to a rate of return that causes a marked decline in share price, the Commission may wish to take a more measured and prudent response to adopting a rate of return that would be associated with a reduction in the elevated market-to-book ratios currently existing for electric utilities. In Section K, Staff proposed a finding that the upper end of a rate of return on equity of 8 to 8.5 percent would support a market-to-book ratio of about 1.5, compared to the median 1.85 market-to-book ratio enjoyed by the sample of comparable utilities. Since this is roughly midway between a market-to-book ratio of 1.1 (where the market-to-book ratio should be under ideal circumstances) and 1.85 (where it is now), Staff contends that this is a reasonable *upper limit* to anything that can be said to constitute a reasonable *balancing* of investor interests. Indeed, as Mr. Copeland testified, it should be lower, but from the ratepayer perspective this is

better than simply ignoring market-to-book ratios and approving an ROE that would perpetuate market-to-book ratios like the median 1.85 currently enjoyed by the comparable companies.¹⁶⁶

When all is considered, the two ranges yield a “zone of reasonableness” of 7 to 8.5 percent. Staff’s recommendation of an authorized ROE of 8.25 percent is more than fair and reasonable to Otter Tail power and its shareholders. It is approximately equal to the overall market return for a company of average market risk. From a consumer or ratepayer perspective, the ROE should be much lower. But 8.25 percent is a step in the right direction.

With respect to a zone of reasonableness, Staff recommends the following findings:

1. After carefully considering all the testimony on rate of return and cost of equity, we find that there is substantial evidence that the cost of equity for Otter Tail and comparable electric utilities is presently in the range of 7 to 7.7 percent. Since Mr. Hevert rejected out of hand any evidence of a cost of equity below 8 percent, both his recommended range of 10.0 to 10.6 percent, and all of the individual estimates that he developed are unreasonable and hereby rejected.
2. There is substantial evidence that market-to-book ratios are much higher than what is appropriate to fairly balance consumer and investor interests and the current book returns on equity that are supporting those high market-to-book ratios are above the cost of equity. Any reasonable return on equity will therefore be less than the current book returns on equity that are supporting those high market-to-book ratios.
3. An authorized return lower than the current book returns on equity that are supporting high market-to-book ratios will in theory, and perhaps in practice, result in lower stock prices and lower market-to-book ratios. Indeed, it should produce lower market-to-book ratios. But there are no *per se* statutory or constitutional objections to a return on equity that causes a lower market price if the price is still sufficient to support the investor interest and capital attraction standard of *Hope*.
4. While we find that current book returns on equity for utilities comparable in risk to Otter Tail are higher than the cost of equity, and that any appropriate authorized ROE should result in lower market-to-book ratios, we agree with Staff that some caution is appropriate in taking steps that would reduce market-to-book ratios. When this is taken into consideration, we find the zone of reasonableness to be 7 to 8.5 percent.
5. Staff’s recommended ROE of 8.25 percent is within the zone of reasonableness. While the market-to-book ratio of 1.37 which Staff associates with an ROE of 8.25 percent is just an *estimate*, and not something known with mathematical precision, it is far enough above a market-to-book ratio of 1.1 as to raise no substantive concerns over whether the authorized ROE satisfies the investor interest and capital attraction standard of *Hope*. We find that the ROE for developing just and reasonable rates for Otter Tail Power should be 8.25 percent.

¹⁶⁶ TR 94 (“It should be lower, but that’s a step in the right direction.”)

IV. Conclusion

Otter Tail has the burden to establish that the rate of return it seeks is just and reasonable. Otter Tail failed to meet that burden. Further, Otter Tail failed to establish that the rate of return recommended by Staff does not result in just and reasonable rates. By attempting to rely on enumerated factors not relevant to fixing a rate of return, Otter Tail would have the Commission manufacture its own settlement, rather than rule on a litigated issue.

ROE analysis is not like cellphone technology; it does not necessarily get better with time. Rather, it involves mathematical determinations that maintain their relevance for very long periods of time. There has been no fundamental paradigm change in the U.S. economic system that would somehow render meaningless analyses that have been tried, tested, and approved throughout several decades. Further, it is nonsensical to accept Otter Tail's fundamental premise that a market-to-book ratio should only rise in order for the company and ratepayers to be treated fairly. Utility companies have been investing and growing for decades while the DCF as constructed by Mr. Copeland has been the primary tool for determining reasonable returns. To now abandon that methodology simply because it is showing lower returns are reasonable is simply cherry-picking methodologies to support Otter Tail's basic premise as evidenced in the hearing that market-to-book ratios should never decrease.

Otter Tail's cost of equity *must* be below 8 to 8.3 percent because that is the return that would be appropriate for a stock of average market risk, and the record is clear that as an electric utility Otter Tail's market risk is less than the average risk for the market as a whole. Staff has shown that the "zone of reasonableness" is 7 to 8.5 percent. Staff's recommendation of an authorized ROE of 8.25 percent is more than fair and reasonable to Otter Tail and its shareholders. It is approximately equal to the overall market return for a company of average market risk. To go beyond the zone of reasonableness would merely force the ratepayers to pad further the pockets of the shareholders without providing any benefit to the ratepayers.

Dated this 23rd day of April 2019.

A handwritten signature in blue ink that reads "Kristen Edwards". The signature is written in a cursive style and is positioned above a horizontal line.

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