EXPERT OPINION:

ADVANCING FERC'S METHODOLOGY FOR DETERMINING ALLOWED ROES FOR ELECTRIC TRANSMISSION COMPANIES

PREPARED FOR:
EDISON ELECTRIC INSITUTE

MAY 11, 2020

CEADVISORS.COM

TABLE OF CONTENTS

Authors:
James Coyne, Joshua Nowak and Julie Lieberman with analytical support from Peter Hoegler

SECTION 1:

INTRODUCTION

A. Purpose and Scope

The purpose of this paper is to respond to the important questions raised by the Federal Energy Regulatory Commission ("FERC" or the "Commission") pertaining to the cost of capital for regulated public utilities and the methodology used by FERC to determine the base return on equity ("ROE") for these companies. Concentric Energy Advisors Inc. ("Concentric") prepared this paper at the request of the Edison Electric Institute ("EEI"). The recommendations provided address the substantive methodological issues raised in the prior proceedings and Notice of Inquiry ("NOI") on these matters and will improve both the reliability and predictability of the results for all concerned parties. Reliable and predictable ROEs mitigate regulatory risk and reduce uncertainty, which are important considerations for investors and necessary to attract investment in critical infrastructure. These changes are both necessary and achievable with tools readily available to FERC and interested parties.

The body of evidence presented over the course of the past decade and evaluated in FERC's Opinions has been expansive, and to evaluate that full body of evidence is beyond the scope of this paper. Rather, we direct our attention to the methodology as it has evolved from Opinion No. 531 for the New England Transmission Owners ("NETOs"), Opinion No. 551 for the transmission owners in the Midcontinent Independent System Operator ("MISO"), the subsequent Briefing Orders for both proceedings, the NOI and most recently Opinion No. 569 in the MISO proceeding. We examine the individual models and inputs employed by FERC and questions posed in the NOI. Finally, we consider the methodology for establishing the "zone of reasonableness" from these models for the base ROE for the nation's electric transmission facilities.

Our recommendations to FERC on ROE methodology will improve both the reliability and predictability of the results under a variety of market circumstances. These recommendations are considered within the context of historical, current, and prospective capital market and economic conditions. These recommendations will resolve the key issues in dispute and pave the way for ongoing investment in needed transmission infrastructure with resulting rates of return that are fair to both investors and customers.

B. Summary of Recommendations

Concentric proposes several fundamental changes to the Opinion No. 569 version of FERC's methodology, but most are consistent with changes adopted by FERC in its Briefing Orders or considered in the NOI. In summary, we recommend:

- The Commission should utilize and give equal weight to the four models—Discounted Cash Flow ("DCF"), Capital Asset Pricing Model ("CAPM"), Expected Earnings, and Bond Yield Plus Risk Premium ("Risk Premium") — in both establishing the zone of reasonableness and determining a new base ROE for proceedings under both sections 206 and 205 of the Federal Power Act ("FPA");
- The Commission should center the composite zone of reasonableness, as calculated in the Briefing Orders, around the Commission's single cost of equity estimate (*i.e.*, average of the cost of equity estimates for the DCF model, CAPM, Expected Earnings, and Risk Premium models), thereby bringing consistency and symmetry between steps one and two of the Commission's FPA Section 206 analysis;
- In both section 206 and 205 proceedings, the range of presumptively just and reasonable base ROEs for most public utilities should be expanded to include the two central quartiles on either side of the measure of central tendency of the composite zone; the Commission retains discretion to determine higher or lower base ROEs in the top or bottom quartiles based on specific circumstances of the utility;
- The constant growth, single-stage DCF model relying exclusively on analyst growth rates should be employed;
- The Empirical CAPM ("ECAPM") should be adopted in place of the traditional CAPM;
- The market risk premium employed in the ECAPM should be determined by using all companies in the S&P 500 Index;
- The Commission should rely on projected interest rates. We recommend a five-year projection of the 30-year Treasury yield from a source of consensus forecasts;
- The Commission should allow alternative sources of adjusted Beta coefficients to be applied, if appropriately specified.
- The inclusion of a like-risk non-utility proxy group would benefit FERC's corroborative analysis to inform decision making;
- Erroneous results should be removed from the distribution of proxy group results, but it is not appropriate to remove legitimate high-end results that otherwise meet tests of economic logic and inform the range of reasonable returns, eliminating the need for a high-end outlier test; and
- The low-end outlier test should be modified and outliers that do not pass the test of economic logic should be removed based on the relationship between the utility risk premium and utility bond yields.

These recommendations maintain a rigorous methodological approach to determining a just and reasonable ROE while providing a robust data set that is less sensitive to the shortcomings of any one particular ROE model and allow for a reasonable level of discretion to address different market conditions. Practical modifications to the models proposed by the Commission better reflect available investor information, and taken together, will promote stability and predictability of results, create confidence in the resulting ROE determinations, and better connect the determination of the range of reasonableness to the base ROE. These recommendations do not completely revamp FERC's approach, but embrace those elements that make economic and financial sense and recognize the need for both structure and flexibility.

SECTION 2:

A BRIEF HISTORY OF FERC'S ROE METHODOLOGY FOR ELECTRIC TRANSMISSION COMPANIES

FERC has fundamentally shifted its approach to the determination of ROEs for regulated electric transmission facilities. In Opinion No. 531 involving the NETOs, FERC departed from its previous "one-step" DCF model and established a "two-step" DCF methodology for determining just and reasonable ROEs and set the ROE for the NETOs at the midpoint of the upper half of the zone of reasonableness produced by the analysis.[1] Opinion No. 531 was subsequently vacated and remanded by the United States Court of Appeals for the District of Columbia Circuit ("D.C. Circuit").[2] FERC then issued two orders proposing an alternative ROE methodology and established paper hearings on whether and how the new methodology should apply to ROE complaint proceedings involving the NETOs as well as another proceeding involving the MISO transmission owners. In October 2018, the Commission issued the "*Coakley* Briefing Order" in the NETO proceeding, which directed parties to revisit their data from the four sequential complaints to derive a cost of equity estimate using the CAPM, Expected Earnings and the Risk Premium in addition to the DCF it had adopted in Opinion No. 531.[3] Under the Commission's proposal, in the first prong of its test for complaints brought under section 206 of the FPA, the DCF, CAPM and Expected Earnings models would be used to determine a composite zone of reasonableness. In the second prong, for purposes of establishing a new just and reasonable base ROE when the existing base ROE has been shown to be unjust and unreasonable, FERC proposed relying on all four financial models (the DCF, CAPM, Expected Earnings, and Risk Premium) to produce four separate base ROE estimates that would then be averaged to produce a specific just and reasonable base ROE.[4]

FERC also opened an NOI proceeding seeking broad public input on the approach outlined in the *Coakley* Briefing Order. Specifically, FERC sought comment on several key methodological issues:[5]

- The role of FERC's base ROE in investment decision-making and what objectives should guide its approach;

---

1 *Coakley, Mass. Attorney Gen. v. Bangor Hydro-Elec. Co.*, Opinion No. 531, 147 FERC ¶ 61,234, order on paper hearing, 149 FERC ¶ 61,032 (2014), order on reh'g, 150 FERC ¶ 61,165 (2015) ("Opinion No. 531")

2 854 F.3d 9 (D.C. Cir. 2017) ("*Emera Maine*").

3 *Martha Coakley v. Bangor Hydro-Elec. Co.*, 165 FERC ¶ 61,030 (2018) ("*Coakley* Briefing Order"); FERC issued is a nearly identical order in the MISO Transmission Owner proceeding. *See Ass'n of Businesses Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 165 FERC ¶ 61,118 (2018) ("MISO Briefing Order"). The *Coakley* Briefing Order and MISO Briefing Order are collectively referred to as the ("Briefing Orders").

4 *Inquiry Regarding the Commission's Policy for Determining Return on Equity*, 166 FERC ¶ 61,207 (2019) ("NOI") at para 26.

5 NOI.

- Whether uniform application of FERC's base ROE policy across the electric, natural gas pipeline and oil pipeline industries is appropriate and advisable;
- The DCF model's performance;
- The composition of proxy groups;
- The choice of financial model(s) used;
- The mismatch between market-based ROE determinations and book-value rate base;
- How FERC determines whether an existing base ROE is unjust and unreasonable under the first prong of Federal Power Action section 206; and
- The mechanics and implementation of the models.

On November 21, 2019, FERC issued Opinion No. 569 in the contested docket involving the MISO transmission owners. In Opinion No. 569, the Commission revisited its 2016 decision that granted the complaint challenging the regional base rate established in 2002. FERC also revisited its methodological approach to ROE for the third time in this five-year period. Most significantly, FERC rejected the use of its proposed four-model approach from the *Coakley* Briefing Order and NOI and determined that a two-model approach, relying on the DCF and CAPM, was superior.

The process of determining a just and reasonable base ROE involves determining the composite zone of reasonableness and determining the appropriate ROE within that zone. Creation of a durable methodology is essential to this process. The balance of this report considers the appropriateness and impact of using four models as proposed in the *Coakley* Briefing order in determining the composite zone of reasonableness for determining the base ROE, the impact of and merits of approaches adopted in Opinion No. 569, and suggests alternatives.

SECTION 3:

STEP ONE – SETTING THE PRESUMPTIVE ZONE OF REASONABLENESS (SECTION 206 PROCEEDINGS)

A. Composite Zone of Reasonableness

CURRENT FRAMEWORK

In *Emera Maine*, the D.C. Circuit held that to satisfy the first prong of an FPA section 206 inquiry, FERC must make an explicit finding that an existing ROE is unjust and unreasonable.[6] In the *Coakley* Briefing Order, the Commission addressed the Court's concerns by proposing to establish a composite zone of reasonableness that defines a broad range of potentially lawful base ROEs for a public utility based on the evidentiary record. FERC has long relied on the zone of reasonableness to guide its evaluation of whether an existing or proposed base ROE is just and reasonable. In the Briefing Orders, the Commission proposed to establish the upper and lower bounds of the zone of reasonableness by averaging the high-end and low-end proxy group results[7] (after removal of outliers) across three financial models: the Two-Stage DCF, CAPM, and the Expected Earnings. The Briefing Orders also provided for explicit consideration of a public utility's risk profile by establishing three distinct ranges of presumptively just and reasonable base ROEs. FERC established these zones by dividing the entire zone of reasonableness into eighths and setting the bounds of the zone for an average risk utility on the quartile centered on the midpoint (or median for a single utility) of the entire zone, with the upper and lower zones established as quartiles immediately above or below the middle zone, such that there was a one eighth section at the very low end and high end of the composite zone of reasonableness that were not used.

6 *Coakley* Briefing Order at para 20.

7 FERC has employed an identical set of proxy group screening criteria in each of its recent ROE decisions, Opinion No. 531, Opinion No. 551, the *Coakley* Briefing Order, and Opinion No. 569. Those screening criteria are: (1) the use of a national group of companies considered electric utilities by Value Line; (2) the inclusion of companies with credit ratings no more than one notch above or below the utility or utilities whose ROE is at issue; (3) the inclusion of companies that pay dividends and have neither made nor announced a dividend cut during the six month study period; (4) the inclusion of companies with no merger activity during the six month study period that is significant enough to distort the study inputs; and (5) companies whose ROE results pass threshold tests of economic logic, including both a low-end and a high-end outlier test.

The Briefing Order explained that, pursuant to this framework, a finding that an existing base ROE fell within the applicable range of presumptively just and reasonable base ROEs would support a determination that the existing base ROE had not been shown to be unjust and unreasonable, absent additional evidence to the contrary.[8] Similarly, the Commission established a rebuttable presumption that an existing ROE that was outside the presumptive range of just and reasonable ROEs was unjust and unreasonable. FERC sought broad stakeholder input on the proposal in the *Coakley* Briefing Order by issuing an NOI.

The methodology proposed in the Briefing Orders, and on which FERC requested comment in the NOI, for determining the composite zone of reasonableness substantially improved on the previous single-model approach to defining the zone of reasonableness. The use of multiple methodologies, in addition to the DCF, added rigor to the analysis and better reflected the methods that investors use to make investment decisions. The revised approach also provided clarity around the bounds of just and reasonable ROEs.

IMPORTANCE OF MULTIPLE METHODOLOGIES TO ESTABLISH THE ZONE

The NOI cited four traditional methods investors rely upon to estimate the expected return on an investment for a utility or group of utilities. Those were the CAPM, DCF, Expected Earnings and Risk Premium methodologies. The DCF and CAPM are approaches that rely primarily on market inputs, but also incorporate non-market-based or projected inputs. The DCF relies on the expected dividend yield and the expected growth rate. The CAPM relies on the determination of Beta, a risk-free rate and equity risk premium. The advantage of a market-based approach is that it derives the implied investor returns from observable market data. However, as we have observed during the financial crisis in 2008-2009 and more recently amidst the Coronavirus 2019 ("COVID-19") pandemic, when markets are in turmoil, market-based approaches provide widely divergent and potentially unjust and unreasonable returns in contrast to other models.

8 *Coakley* Briefing Order at para 28.

Because each model employs assumptions that are affected differently by market conditions, the use of the Expected Earnings and Risk Premium methodologies in conjunction with the DCF and CAPM will minimize the reliance on any one set of assumptions that might be unduly affected by current market conditions, which is a more appropriate approach for long-lived assets. For example, Federal intervention in the market has affected interest rates, which affects the dividend yield in the DCF and the risk-free rate in the CAPM but has a less dramatic effect on the Expected Earnings or Risk Premium methodologies. Beta values have fluctuated sharply in recent months as financial markets have been whipsawed by the economic fallout from COVID-19. These alternative approaches rely to a lesser extent on direct market data but are informed by investor insights (Expected Earnings) and long-term historical relationships (Risk Premium), which are less subject to market volatility and are important sources of information for investors and regulators. When there is evidence that short-term market circumstances are unduly influencing the assumptions used in ROE estimation models, other methodologies require consideration.

The Expected Earnings model provides an accounting-based approach that relies on investment analysts' projections of earnings on book equity. This provides an important perspective, particularly for a regulated utility whose authorized return is being set on its book value (technically rate base) rather than on market value. This methodology also provides the important perspective of the analyst's expectations for future book earnings. It affords the benefit of analyst insights, knowledge and expertise in interpreting a given company's earnings prospects in the context of current market conditions. When markets are in turmoil, investment analysts must still interpret how market conditions will impact a specific company, and their consensus may differ significantly from the results of a DCF or CAPM analysis. Investors consider the opinions of trusted analysts in making their investment decisions. The Expected Earnings model, which relies on *Value Line* projections of ROE, has served as a principal tool for setting the allowed rate of return for regulated utilities for a long period.

Similarly, the Risk Premium approach provides an alternative perspective, by measuring the long-term relationship between bond yields and authorized equity returns. This historical relationship is applied to a current or projected corporate bond yield. This approach, importantly, captures the long-term relationship of ROEs and interest rates, thereby removing some of the short-term volatility that can occur in the DCF and CAPM approaches. While FERC relied on the Risk Premium approach in the *Coakley* Briefing Order for purposes of setting a new base ROE, it did not use it for determining the composite zone of reasonableness (as its results typically provide a point estimate and not a range). Later in this paper we introduce a methodology for utilizing the Risk Premium model so that its results contribute to the calculation of the composite zone of reasonableness.

The process laid out in the Briefing Orders and NOI that incorporates four methodologies adds rigor and important diverse perspectives to the Commission's analysis. Each methodology informs investors with a unique set of inputs and simplifying assumptions. Furthermore, investors do not rely on one single perspective in making investment decisions, but rather incorporate all available information. In the Briefing Orders, the Commission recognized the benefit of using multiple methodologies to accurately capture the cost of equity, and that combining estimates from four models provides a more accurate estimate than reliance on a single model. While FERC decided in Opinion No. 569 that the Risk Premium and Expected Earnings methodologies would not improve ROE determinations sufficiently to justify using those models,[9] we disagree and believe the addition of those models provides important depth and breadth to the analyses that could mitigate the effects of imperfect and limiting model assumptions based solely on potentially volatile market inputs. In this paper, we suggest enhancements to the models used by the Commission in the Briefing Orders. Using each of the four models better informs FERC's analysis in determining the zone of reasonableness and ROE and none should be discarded.

BENEFITS OF PROVIDING CLARITY ON THE PRESUMPTIVE ZONE OF REASONABLENESS

FERC's formulation of a clear and well understood range of just and reasonable ROEs within the composite zone of reasonableness will enhance stability and predictability by minimizing the occurrence of successive complaints that can result in uncertainty around the return investors will ultimately be allowed.

In recent years, FERC has allowed successive rate challenges to existing ROEs, often to the same ROE already under examination in a pending complaint. This practice has become known as "pancaked complaints." These complaints arise due to the expiration of the 15-month refund period established in an earlier and still pending complaint. By filing a second complaint just after the 15-month refund period applicable to the prior complaint, the complainants are able to extend the refund period beyond the 15-month statutory period. The existence of pancaked complaints is problematic because refund periods may extend indefinitely and the ROE (and any required refund due to an ROE that is found to be unjust and unreasonable) hangs in the balance until a decision is made. This undermines the predictability and stability of transmission ROEs, creates an unknown future refund obligation, and promotes regulatory uncertainty by forcing transmission owners to engage in lengthy and protracted litigation on each of the serial complaints.

Under FERC's revised approach, and consistent with the holding in *Emera Maine*, the complainant challenging an existing ROE must meet the evidentiary standard to show that the existing ROE is no longer just and reasonable prior to moving forward with the complaint. Clearly defining a range

[9] Association of Businesses Advocating Tariff Equity v. MISO Transmission Owners, Docket No. EL14-12-003, 169 FERC ¶ 61,129 (2018) ("Opinion No. 569") at para 31.

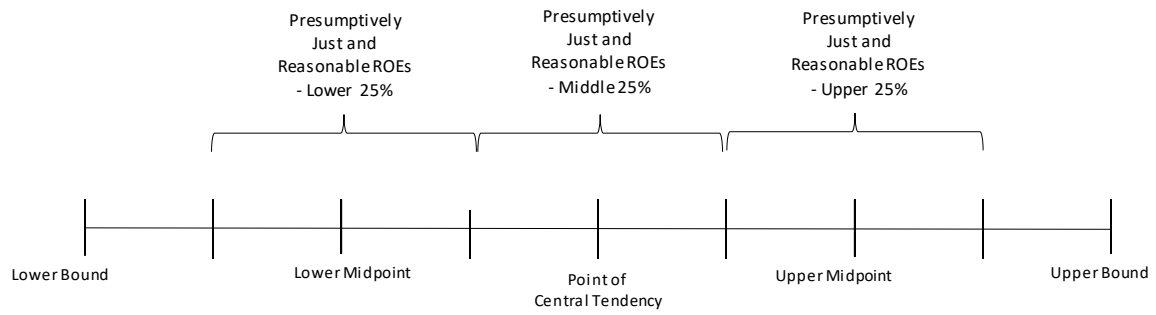
within which ROEs are presumed to be just and reasonable, will aid both FERC's and potential complainants' assessments of whether a return is just and reasonable. This provides FERC, transmission owners, and other stakeholders with an objective tool to assess whether an existing ROE may be unjust and unreasonable, which reduces litigation and enhances the predictability and certainty of ROEs. Accordingly, providing more clarity around the zone of reasonableness helps both complainants and transmission owners by providing greater regulatory certainty and transparency and thus discouraging complaints with a low potential for success while not restricting the Commission's ability to consider the circumstances of the case.

PROPOSED IMPROVEMENTS TO CONSTRUCTION OF THE ZONE OF REASONABLENESS

The approach described in the NOI, and affirmed in Opinion No. 569 of defining a range of presumptively just and reasonable ROEs in step one of the Commission's analysis, provides greater transparency and regulatory certainty than simply setting FPA section 206 complaints for hearing. While Concentric supports this approach, the following recommendations are offered to further refine the Commission's methodology. The recommendations promote further efficiencies, make use of the entire composite zone of reasonableness, and use the same four methodologies to determine the composite zone of reasonableness (Prong 1) as are used to establish the base ROE (Prong 2) of the Commission's analysis.

As noted above, the Commission's methodology for the construction of the composite zone of reasonableness relies upon dividing the zone into eighths such that the central quartile represents the zone of reasonableness for average risk utilities, and the quartiles directly above and below the central quartile reflect the zone for above-average and below-average risk utilities. Below, in Figure 1, is an illustration of the zone of reasonableness as proposed in the *Coakley* Briefing Order.

Figure 1: *Coakley* Briefing Order Proposed Zone of Reasonableness Quartiles



As Figure 1 shows, there are one-eighth sections of the composite zone of reasonableness at the top and at the bottom of the composite zone that are not accessible for purposes of determining whether an ROE is presumptively just and reasonable. This unutilized top and bottom of the range essentially serves as a second and redundant screen of high-end and low-end results, effectively eliminating

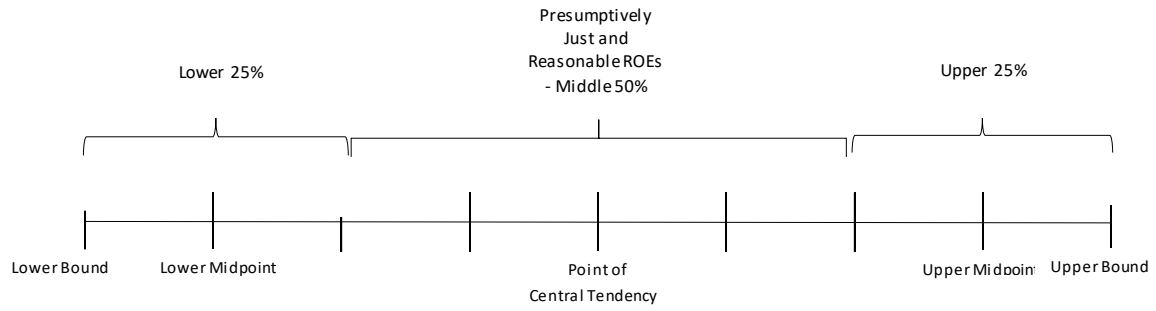
outliers twice: first in connection with application of outlier tests to model results; and second by eliminating results that fall within the top and bottom end of the range, unnecessarily compressing the zone of reasonableness from what had already been determined to be a range of reasonable results.

FERC's proposed quartile approach creates three ranges of presumptively just and reasonable base ROEs, without addressing specifically when placement in the high or low risk zones is appropriate. Most utilities, by FERC practice, will fall within the middle range of the composite zone of reasonableness. It is therefore unduly restrictive to constrain this middle zone to a very narrow segment of the range, which is only 1/8th of the zone to either side of the central tendency. The Commission should expand the middle range of just and reasonable ROEs to better reflect the valid distribution of estimated returns for the proxy group which cover a much broader range than those currently utilized by FERC. It is inconsistent to unduly limit the range of presumptively just and reasonable ROEs to a narrow range of the composite zone derived from a proxy group designated comparable at the outset.

Recommendation

Concentric recommends the presumptively just and reasonable range of ROEs be expanded to include the two central quartiles on either side of the central tendency within the composite zone, as illustrated in Figure 2, below. While most utilities are likely to fall within the middle two quartiles, the Commission may find that the relevant range for its analysis for that utility is the upper quartile of the composite zone of reasonableness, based on unique utility-specific risk factors (*e.g.*, wildfire or storm risks).

Figure 2: Concentric's Proposed Zone of Reasonableness Quartiles



This would symmetrically expand the range of presumptively just and reasonable ROEs, thereby better reflecting the distribution of risk within the composite zone of reasonableness, while utilizing the entirety of the composite zone of reasonableness. This proposed approach provides a more stable and consistent range of presumptively just and reasonable base ROEs that is less likely to be affected by transitory, or short-term capital market conditions. Importantly, this would ensure that

ROEs that support investment in long-lived energy infrastructure would not be found unjust and unreasonable merely because they fall outside of a relatively narrow zone of reasonableness, only to be found just and reasonable in the next month when they again fall within the zone of reasonableness.

Concentric further recommends that the composite zone of reasonableness be established with the same methodologies that are used to determine a new base ROE. Directly incorporating the Risk Premium analysis into the construction of the composite zone of reasonableness will ensure that the range of presumptively just and reasonable base ROEs is directly connected to, and supported by, the full record of evidence and, if necessary, the determination of a new base ROE. In the NOI, the Risk Premium results were not given any weight in deriving the composite zone of reasonableness since that methodology did not provide a range of results for proxy companies, but instead a single point estimate. While this aspect of the Risk Premium model precluded FERC from directly averaging the Risk Premium result with the upper and lower ends of the range of results from the other models, the Risk Premium model provides useful information that FERC should consider in all phases of its ROE determinations.

Concentric proposes that the results of the Risk Premium model be used to construct a composite zone of reasonableness that the Commission would utilize in both steps one and two of its analysis under section 206 of the FPA. First, consistent with the Commission's proposal in the Briefings Orders, the Commission should establish a composite zone of reasonableness by averaging the high-end and low-end proxy group results (after removal of outliers) of the three financial models that rely on a proxy group. However, unlike the proposal in the Briefing Orders, the Commission would then shift the entire composite zone upwards or downwards such that it is centered on the cost of equity estimate that the Commission would calculate by averaging the single cost of equity estimates produced by each of the four financial models. By shifting the composite zone in this manner, the cost of equity estimate (*i.e.*, average of each of the four financial models) would thereby become the measure of central tendency for the composite zone of reasonableness that the Commission would utilize in steps one and two in FPA section proceedings.

For example, if the upper bound (as calculated in the Briefing Orders) of the composite zone is 12% and the lower bound is 7%, the width of the composite zone of reasonableness would be 5% (12% – 7%). The Commission would then compute a single cost of equity estimate by averaging the cost of equity estimates for each of the four financial models. For present purposes, we can assume that the single cost of equity estimate (*i.e.*, average of the four financial models) is 9.6% and the central tendency of the three-model composite zone is 9.5%. We propose shifting the 5% composite zone of reasonableness such that it is centered on the single cost of equity estimate of 9.6%, such that the lower bound and upper bounds of the composite zone would be 7.1% and 12.1%. This approach is consistent with that proposed in the Briefing Orders, but differs slightly to the extent that we would

incorporate the Risk Premium methodology in Prong 1 and would shift the composite zone such that the zone will be centered on the average point of central tendency for the four models (in this example, resulting in a shift of 10 basis points or "bps").

This proposed approach would allow FERC to utilize all four methodologies (including the Risk Premium analysis) in both prongs 1 and 2 of its Section 206 analysis, which provides for consistency and symmetry in FERC's analyses. As FERC has acknowledged, "any methodology has the potential for errors or inaccuracies. Therefore, relying exclusively on any single methodology increases the risk that the Commission could authorize an unjust and unreasonable ROE. There is significant evidence indicating that combining estimates from different models is more accurate than relying on a single model."[10]

Concentric's recommended approach is a fair and symmetrical approach that expands both the upper and lower end of the range for utilities and reduces the model risk associated with the use of only the DCF and CAPM models, as FERC has done in Opinion 569, to derive a range of presumptively just and reasonable ROEs.

B. The DCF Model

As stated in the NOI, FERC has long relied on the DCF model for setting allowed returns for jurisdictional utilities:

> *Since the 1980s, the Commission has used the DCF model to develop a range of returns earned on investments in companies with corresponding risks for purposes of determining the ROE for regulated entities.*[11]

The model is also widely adopted by regulators at the state-level and utilized by investors and financial analysts. Despite the broad acceptance of the model, the issues raised in the NOI indicate that FERC remains concerned with the appropriate inputs and assumptions that determine "the robustness of the DCF model over time and under differing investment conditions."[12] Concentric shares these concerns and for several years in expert evidence presented on this topic before regulators in the U.S. and Canada, we have pointed to the challenges of the DCF model under contemporary market conditions. As suggested elsewhere in this paper, reliance on alternative models is a key part of the solution, but the DCF model remains an important regulatory tool and its performance can be improved with some basic changes to its inputs. One of the attractions of the DCF model is its apparent simplicity. Given certain assumptions, an investor's required return can be estimated as the sum of a stock's expected dividend yield and growth in earnings. The reliability

10 Opinion No. 569 at para 38.
11 NOI at para 4.
12 *Ibid*.

of the model therefore pivots on the reasonableness of these underlying assumptions and two key inputs: expected dividend yields and earnings growth. The following discussion addresses the principal issues raised by FERC in the NOI in relation to the utilization of the DCF model and subsequent developments in Opinion No. 569.

THE DCF APPROACH FOR OIL & GAS PIPELINES

In regulatory settings, DCF models are typically presented with the constant growth model as the base case, although alternative specifications are also considered. In the "standard" model, earnings (as a proxy for dividends) are expected to grow at a constant rate over time. The growth rate may vary around this expected value, but is expected to equal the mean over time.[13] The issue of expected earnings growth has been central to FERC's deliberations as it has periodically (if not continuously) wrestled with alternative specifications of this input.

For the regulation of natural gas and oil pipelines, FERC adopted its "two-step, constant growth DCF methodology" in a progression of orders in the 1990s.[14] This methodology incorporates two estimates of earnings growth. The first is based on Institutional Brokers' Estimate System ("IBES") five-year analyst growth forecasts for the short-term growth projection. The second is based on GDP growth for the long-term projection. But the time element in these projections does not actually carry through the model. Rather, FERC applies a two-thirds weight to the analyst forecasts for each company, and a one-third weight to GDP growth, so each growth rate represents an average of the two components.[15] In an earlier iteration, FERC applied a 50/50 weight to each component.[16] The record of these decisions makes it clear that FERC has consistently placed reliance on analyst growth rates for the short-term dividend growth estimate, but has struggled to gain a comparable degree of comfort on the long-term estimate.[17] FERC explained this dilemma pertaining to natural gas pipeline cases in 1998:

> *While determining the cost of equity nevertheless requires that a long-term evaluation be taken into account, long-term projections are inherently more difficult to make, and thus less reliable, than short-term projections. Over a longer period, there is a greater likelihood for unanticipated developments to occur affecting the projection. Given the greater reliability of the short-term projection, we believe it is appropriate to give it greater weight. However, continuing to give some effect to the long-term growth*

13 *See* Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc. 2006), at 256.
14 Docket No. PL07-2-000 Policy Statement, issued April 17, 2008, para 6.
15 *Ibid*.
16 Opinion No. 531 at para 21, citing Opinion No. 396-B, 79 FERC at 62,383.
17 *Id.,* at para 17- 23.

> *projection, will aid in normalizing any distortions that might be reflected in short-term data limited to a narrow segment of the economy.*[18]

FERC has continued to use this approach for natural gas and oil pipelines since 1998, with the only material change being the treatment of master limited partnerships (MLPs) in proxy groups. If included, FERC adopts a one-half GDP growth rate for the MLP, rationalizing that MLPs have less growth potential than corporations.[19]

THE DCF APPROACH FOR ELECTRIC TRANSMISSION

On the electric side, FERC adopted an alternative approach to the DCF model with its "One-Step DCF Methodology" that also evolved over time. Even though characterized as "One-Step," there were several components to the calculation. First, two dividend yields were calculated for each company in the proxy group, based on high and low stock prices and prevailing dividend levels for the prior six-month period. Dividend growth was next calculated based on two methods. The first was based on IBES analyst growth rates, just as utilized for gas and oil and pipelines. The second was based on the "sustainable growth" formula, derived from *Value Line* estimates of expected returns on book equity. FERC would apply the higher of the two growth estimates to the high dividend yield, and reciprocally for the low estimate and low dividend yield. These high and low estimates formed the boundaries of the "zone of reasonableness" with the midpoint determining the base ROE for multiple utilities, and the median determining the base ROE for a single utility.[20] In adopting this approach, which differed from its methodology for the natural gas and oil pipelines, FERC defended its position based on its finding that "significant differences exist in the electric utility industry and the natural gas pipeline industry which warrant the continued use of different growth rates in the DCF models for each."[21] But, FERC reversed this position in Opinion No. 531 when it determined that its two-step methodology for gas and oil pipelines should also be utilized for public utilities which FERC affirmed in Opinion No. 569.[22]

Significantly, as FERC adopted its two-step approach for electric transmission utilities, it drew several fundamental conclusions:

> *[I]ncluding a long-term estimate of dividend growth in the constant growth DCF model, as is done in natural gas/oil pipeline cases, will now bring the public utility ROE approach into full alignment with the underlying theory of the DCF model.*
>
> *…*

---

18 Opinion No. 531 at para 21, citing Opinion No. 414-A, 84 FERC at 61,423-24.
19 *Id*., at para 22, citing *Proxy Group Policy Statement*, 123 FERC ¶ 61,048 at para 12 and 106.
20 *Id.*, at para 24-26.
21 *Id.*, at para 27-29, citing *S. Cal. Edison Co*., Opinion No. 445, 92 FERC ¶ 61,070, at 61,261 (2000).
22 Opinion No. 569 at para 18-19.

> *While pipeline IBES growth projections are consistently higher than projections of long-term growth in GDP growth, that is not true of public utilities.*
>
> *…*
>
> *Over the long-run, a regulated firm may reasonably be expected to grow at the rate of the average firm in the economy; growth either significantly above or below the growth of the economy as a whole is unlikely to continue indefinitely.*[23]

FERC's rationale for bringing electric utilities into alignment with gas and oil pipelines is premised on the assumption that long-run earnings growth will ultimately be limited to growth in the overall economy. Concentric has examined the rationale for FERC's decisions on the use of various growth rates and has conducted historical analyses to determine the most appropriate growth rates to use over time.

Earnings Growth

The theoretical construct that equity earnings are limited by future growth in GDP may hold for aggregate corporate earnings in a closed economy with constant P/E ratios, constant dividend payout ratios, and where a company's growth exactly matches that of the economy,[24] but these are not realistic assumptions for an individual firm. In reality, these factors are in constant motion and our economies are now highly integrated at a global level. The broader economy is comprised of numerous companies, some of which thrive, and others fail. The basic measure of GDP is:

$$GDP = C + I + G + (X - M) \qquad \text{[Equation 1]}$$

Where:

C = consumption, I = investment, G = government spending, X = exports, M = Imports

GDP is clearly a broad economic measurement with many moving parts unrelated to utility earnings. To determine the reasonableness of applying a GDP measure as a proxy for long-term utility earnings, Concentric compared actual earnings and dividend growth for as long a period as data was consistently available for two proxy groups of North American utilities. The first contained a proxy group of 14 U.S. electric utilities, the second a group of 4 U.S. gas utilities. These companies were selected based on proxy screening criteria similar to those used by FERC and state and provincial utility regulators. The data on actual earnings and dividend growth for these companies is contrasted with U.S. GDP growth over the same period, and is summarized below:

---

23 Opinion No. 531 at para 36-38.

24 *See* MSCI Barra Research Bulletin, Is There a Link Between GDP Growth and Equity Returns? (May 2010).

Table 1: Long-Term Earnings and Dividend Growth Analysis

	History 1999-2019			% Growth Difference		% Growth Multiple	
	EPS Growth	DPS Growth	GDP Growth	EPS v GDP	DPS v GDP	EPS v GDP	DPS v GDP
U.S. Electric Proxy Group	6.41%	7.39%	4.08%	2.33%	3.31%	1.6	1.4
U.S. Gas Proxy Group	6.92%	6.42%	4.08%	2.85%	2.34%	1.7	1.6
Average	6.67%	6.91%	4.08%	2.59%	2.83%	1.6	1.7

Growth rates expressed as compound annual growth. Sources: Bloomberg; Bureau of Economic Analysis

As shown in Table 1 above, the earnings and dividends of utilities can, and do, exceed GDP growth for sustained periods, and by a substantial margin. In both groups, both long-term historical earnings growth and dividend growth have exceeded GDP growth. Over this 20-year period, average earnings growth for the U.S. electric proxy group (best reflecting electric utilities utilized in a FERC proxy group) exceeded historical GDP growth by 2.33%, and dividend growth exceeded GDP growth by 3.31%. Looking to the future, it is therefore not unreasonable to rely on analyst EPS growth projections, as we and other experts commonly do, just because they exceed GDP growth.

Companies are constantly searching for new avenues of growth and have levers such as capital resource allocation and productivity to achieve growth greater than GDP. There is no reason to expect that an individual corporation competing for capital would be content to limit earnings or dividend growth to GDP. In our opinion, limiting growth in the DCF model to long-term GDP is an unfounded constraint. The impact of this constraint reduces the DCF midpoint result (vs. a constant growth version based on analyst forecasts) by 88 basis points using current data, which is consequential. The ultimate impact would depend on how FERC weights the DCF with other models.

Looking to the future, the electric utility industry is, and will continue to be, heavily influenced by the ongoing transition to a lower carbon economy and a smarter grid enabling a growing array of distributed resources. This is not an industry in equilibrium. This transition will continue to require substantial capital investments in transmission and distribution infrastructure in addition to accelerated retirements of older generation to be replaced by lower carbon utility scale and distributed resources. There is likely to be a continued evolution of the power sector requiring growth in both capital investments and earnings.

Dividend Yield

While not as subject to controversy as the earnings growth component of the model, FERC in the NOI questioned whether six months of average high/low historical monthly stock prices is an appropriate measure for the current stock price. In Concentric's experience, six months is a reasonable period of market data, and a sufficient basis for calculating the dividend yield. Six months is long enough to smooth out the effects of near-term market volatility, but not so long as to lose the currency of recent market information and stock valuations.

Recommendation

FERC should rely on a constant growth, single-stage model that relies exclusively on analyst growth rates. Use of GDP growth is not justified by the historical relationship between actual earnings or dividend growth, and there is no basis for assuming so in the future. To the extent FERC finds value in a link to GDP growth, it should follow the approach adopted by some equity analysts and use a *multiple* of GDP based on prior experience as a long-term trend expectation. With this approach, the relationship between earnings (or revenue) growth for the subject company is compared to GDP over some historical period (*e.g.*, past 10 years) to establish a trend, and the multiple is applied to GDP because forecasts of GDP are more readily available than long-term forecasts for individual companies. Based on the data above for this group of U.S. electric utilities the long-term dividend trend would equate to 1.4x GDP growth. Without inclusion of the 1.4 multiple, the estimate is downwardly biased and ignores the historical experience which is measurable.

An additional improvement to FERC DCF methodology would be to expand the use of analyst growth rates from alternative sources. Understanding FERC's well documented adherence to IBES as a source, there are instances where proxy companies that would otherwise satisfy FERC's screening criteria are eliminated due to a lack of an IBES growth estimate. In these cases, it is appropriate to include a consensus from an alternative provider as available, such as Zacks Investment Research or Bloomberg. In doing so, the robustness of the proxy group would be improved without any significant increase in complexity or decrease in the primary reliance on IBES.

If FERC adopts the recommended approach of a single stage constant growth approach for the DCF, the question of how to treat the "0.5g" dividend yield adjustment for the long-term growth rate would no longer be necessary. The conventional practice of adding 0.5g to the dividend yield would apply without need for this consideration.

C. Capital Asset Pricing Model

The CAPM is a risk premium approach that estimates the market cost of equity for a given security as a function of a risk-free return plus a risk premium (to compensate investors for the non-diversifiable or "systematic" risk of that security). Based on the theory underlying the CAPM,

investors should be concerned only with systematic or non-diversifiable risk because unsystematic risk can be diversified away. Non-diversifiable risk is measured by the Beta coefficient. The variance of the market return is a measure of the uncertainty of the general market, and the covariance between the return on a specific security and the market reflects the extent to which the return on that security will respond to a given change in the market return.

EMPIRICAL CAPM

The CAPM is widely used by regulators at the state jurisdictional level and utilized by investors and financial analysts. While FERC had previously used the CAPM as an alternative analysis, and as a check on the reasonableness of the DCF approach,[25] recently FERC has proposed giving the CAPM the same weight as the DCF approach in determining the zones of reasonableness and the determination of a just and reasonable ROE.[26] In these recent cases, the specific formulation of the CAPM that FERC has applied includes a size adjustment to recognize the difference in the size of the subject companies and the companies that are used to estimate the Market Risk Premium. In support for this conclusion, FERC cites to Dr. Roger A. Morin's, *New Regulatory Finance.*[27]

We agree that the CAPM approach is a meaningful market-based analysis that is appropriate to consider in determining investor-required ROEs. Further, we agree that FERC has appropriately included modifications to the traditional CAPM formulation by including adjustments for firm size. FERC's support of the recognition of the "size effect" includes a quotation from Morin's findings:

> *Investment risk increases as company size diminishes, all else remaining constant. Small companies have very different returns than large ones, and on average they have been higher. The greater risk of small stocks does not fully account for their higher returns over many historical periods.*[28]

Further consideration should be given to the empirical research on the difference between predicted and observed traditional CAPM return estimates. That is, "currently available empirical evidence indicates that the simple version of the CAPM does not provide a perfectly accurate description of the process determining security returns."[29] Specifically, CAPM-based estimates of the cost of capital underestimate the return required from low-beta securities, which is particularly "pertinent for public utilities whose betas are typically less than 1.00."[30] Such empirical research does not

---

25 *See*, *e.g.* Opinion No. 531 at para 147-149, and Opinion No. 531-B at para 37.
26 *Coakley* Briefing Order at para 16-17, and Opinion No. 569 at para 425-427.
27 Opinion No. 531-B at para 117, citing to Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc. 2006), at 187, and Opinion No. 569 at para 298-300 citing to Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc. 2006), at 181-183.
28 Opinion No. 569 at para 299, citing to Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc. 2006), at 181.
29 Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc. 2006), at 176.
30 *Id.*, at 175-176.

invalidate the conceptual basis for CAPM-based models, but rather suggests that the traditional CAPM is an incomplete model that can be refined to improve its accuracy in estimating ROEs. Morin continues:

> *Several attempts to enrich the CAPM's conceptual validity and to ameliorate its applicability have been advanced. One popular explanation of the CAPM's inability to explain security returns satisfactorily is that Beta is insufficient and other systematic risk factors affect security returns. The implication is that the effects of these other independent variables should be quantified and used in estimating the cost of equity capital.*[31]

To help address these issues, additional refinements, such as the use of the ECAPM, can be made to the specification of CAPM-based models. Significantly, the quotation from Morin's empirical findings on the "size effect" is one of several independent variables that contributes to the difference between predicted and observed traditional CAPM return estimates. Specifically, Morin discusses the "size effect" in the context of several other factors that should be considered "to enrich the CAPM's conceptual validity."[32] Other factors in addition to the "size effect" include "dividend yield effect," "skewness effect," and "hedging effect."[33] Morin recognizes the validity of refined versions of the CAPM that make explicit adjustments for these effects that, "typically produce a risk-return relationship that is flatter than the CAPM prediction in keeping with the actual observed risk-return relationship."[34] That observed risk-return relationship is described in more detail:

> *At the empirical level, there have been countless tests of the CAPM to determine to what extent security returns and betas are related in the manner predicted by the CAPM. The results of the tests support the idea that beta is related to security returns, that the risk-return tradeoff is positive, and that the relationship is linear. The contradictory finding is that the risk-return tradeoff is not as steeply sloped as predicted by the CAPM. With few exceptions, the empirical studies agree that the implied intercept term exceeds the risk-free rate and the slope term is less than predicted by the CAPM… This is one of the most well-known results in finance.*[35]

To account for this phenomenon that is well-documented in financial literature, the ECAPM can be used to apply the empirical observations of the difference between the predicted and observed risk-return relationship.

---

31 *Id.*, at 177.
32 *Ibid.*
33 *Id.*, at 177-188.
34 *Id.*, at 189.
35 *Id.*, at 175-176.

The traditional CAPM is shown in Equation 2, below:

$$k_e = r_f + \beta(r_m - r_f) \qquad \text{[Equation 2]}$$

Where:

k_e = the required market ROE

β = Beta coefficient of an individual security

r_f = the risk-free rate of return

r_m = the required return on the market as a whole

The ECAPM makes use of an "alpha" term, in which all of the factors that contribute to the difference between the predicted and observed risk-return relationship are accounted for as the constant "ά" in Equation 3, below:

$$k_e = r_f + \dot{\alpha} + \beta(r_m - r_f) \qquad \text{[Equation 3]}$$

Where:

$\dot{\alpha}$ = Alpha of the risk-return line

In Morin's specification of the ECAPM, he points to a pragmatic form of the equation for an alpha that is in the range of 1% to 2%. This pragmatic form is shown in Equation 4, below:

$$k_e = r_f + 0.25(r_m - r_f) + 0.75\beta(r_m - r_f) \qquad \text{[Equation 4]}$$[36]

As Morin describes, this approach is somewhat conservative as "[a]n alpha in the range of 1%-2% is somewhat lower than that estimated empirically. The use of a lower value for alpha leads to a lower estimate of the cost of capital for low-beta stocks such as regulated utilities."[37] This pragmatic form of the ECAPM has been used for more than 25 years in utility rate proceedings before the New York Public Service Commission (referred to as the "Zero-Beta CAPM" in such proceedings), since it was included in the Recommended Decision in the Proceeding to Consider Financial and Regulatory Policies for New York State Utilities.[38] Similarly, the Public Service Commission of the State of Montana has recently relied on the ECAPM as its primary analytical method for determining the ROE.[39]

---

36 *Id.*, at 189-190.

37 *Id.*, at 190.

38 New York Public Service Commission, Case 91-M-0509, *Proceeding on Motion of the Commission to Consider Financial and Regulatory Policies for New York State Utilities, Recommended Decision*, (issued July 19, 1994), at 24.

39 Public Service Commission of the State of Montana, Docket No. D2017.9.80, *In the Matter of the Joint Application for Approval to Change and Establish Natural Gas Delivery Service Rates for Energy West Montana, Inc. and Cut Bank Gas Company*, Order No. 7575c, Final Order, (issued September 26, 2018), para 114.

Further, an important clarification that Morin provides is that the ECAPM is consistent with the application of adjusted Beta coefficients[40] used by common sources of Beta coefficient estimates, including *Value Line* and Bloomberg, which apply the Blume adjustment.[41]

As such, the application of the ECAPM does not require a change in any other input estimation relative to the traditional CAPM. It merely recognizes the "most well-known" empirical findings in finance and corrects for the difference in the observed performance versus the predicted performance.

Recommendation

The Commission should rely on the ECAPM in place of the traditional CAPM, specifically, the pragmatic and conservative form of the ECAPM defined in Equation 4, above. This form of the ECAPM calculates the product of the adjusted Beta coefficient and the market risk premium and applies a weight of 75% to that result. The model then applies a 25% weight to the market risk premium, without any effect from the Beta coefficient. This approach is consistent with FERC's prior recognition that the traditional CAPM fails to account for the "size effect" and the appropriateness of a size adjustment, but further recognizes the several other factors that have led to a well-supported empirical finding indicating that the risk-return relationship is different (in essence, flatter) than estimated by the traditional CAPM.

MARKET RISK PREMIUM

In FERC's prior specifications of the traditional CAPM, it has applied a forward-looking estimate of the market risk premium. Specifically, FERC stated:

> *The expected return can be estimated either using a backward-looking approach, a forward-looking approach, or a survey of academics and investment professionals. A CAPM analysis is backward-looking if the expected return is determined based on historical, realized returns. A CAPM analysis is forward-looking if the expected return is based on a DCF analysis of a large segment of the market. Thus, in a forward-looking CAPM analysis, the market risk premium is calculated by subtracting the risk-free rate from the result produced by the DCF analysis.*[42]

FERC further specified the application of a Constant Growth DCF analysis of the composite companies of the S&P 500 Index and using the 30-year Treasury bond yields as the appropriate approach to estimate a forward-looking estimate of the market risk premium. In response to arguments against this methodology, FERC stated:

---

40 Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc. 2006), at 191.
41 Marshall E. Blume, "On the Assessment of Risk," *The Journal of Finance*, Vol. 26, No. 1, March 1971, at 1-10.
42 *Coakley* Briefing Order Appendix at 41.

> *We are also unpersuaded that the growth rate projection in the NETOs' CAPM study was skewed by the NETOs' reliance on analysts' projections of non-utility companies' medium-term earnings growth, or that the study failed to consider that those analysts' estimates reflect unsustainable short-term stock repurchase programs and are not long-term projections. As explained above, the NETOs based their growth rate input on data from IBES, which the Commission has found to be a reliable source of such data. Thus, the time periods used for the growth rate projections in the NETOs' CAPM study are the time periods over which IBES forecasts earnings growth. Petitioners' arguments against the time period on which the NETOs' CAPM analysis is based are, in effect, arguments that IBES data are insufficient in a CAPM study.*
>
> ***
>
> *While an individual company cannot be expected to sustain high short term growth rates in perpetuity, the same cannot be said for a stock index like the S&P 500 that is regularly updated to contain only companies with high market capitalization, and the record in this proceeding does not indicate that the growth rate of the S&P 500 stock index is unsustainable.*[43]

However, FERC recently recommended further modifications to the estimate of the market risk premium, by excluding any S&P 500 Index companies with growth rates that are negative or in excess of 20%.[44]

Each component of the ECAPM, or traditional CAPM if FERC does not use ECAPM, (*i.e.* risk-free rate, Beta coefficient, market risk premium) must be a forward-looking estimate in order to reflect investors' expectations. Accordingly, FERC's general approach of applying a DCF analysis to the component companies of the S&P 500 Index is consistent with the traditional CAPM or ECAPM's requirement for forward-looking estimates. However, the limitations that FERC places on the companies to be included in the analysis (dividend-paying companies with IBES earnings growth estimates between 0% and 20%) are overly restrictive and do not reflect the risk premium of the overall market.

The purpose of the market risk premium is to estimate the total return that investors would require for an investment in the broad market, as measured by the S&P 500 Index. If an investor were to purchase an investment that tracks the S&P 500 Index, the return that the investor would receive includes companies that do not pay dividends, companies with both high growth rates and low or negative growth rates, companies that have reduced or eliminated their dividend, and companies that might encounter financial distress or bankruptcy. In the context of the DCF model, companies

43 Opinion No. 531-B at para 109-111.
44 Opinion No. 569 at para 267.

that do not pay dividends can be assumed to have a dividend yield of 0%, such that the total return is comprised solely of its rate of capital appreciation, which is estimated by its earnings growth rate. Further, this is likely a conservative estimate as some companies tend to use stock buybacks as a cash flow to investors rather than dividends. In fact, recent evidence suggests "that the payout yield, which includes both dividends and buybacks, is more predictive of changes in expected returns than the dividend yield."[45] Excluding a company due to its method of providing cash flows to investors introduces a bias in the estimate of the of the market return since the S&P 500 Index includes several companies that have regularly provided stock buybacks, but not dividends.

In addition, excluding a subset of companies from the market risk premium estimate introduces an inconsistency with the estimates of Beta coefficients, which are typically calculated by comparing the relative volatility of a given company to the overall market. *Value Line* calculates Beta coefficients relative to the New York Stock Exchange index, and Bloomberg calculates Beta coefficients relative to the S&P 500 Index. Since these indices include non-dividend paying companies, and companies with growth rates outside the range of 0% to 20%, using a market risk premium calculated for a different subset of the market introduces an inconsistency between measures of the broad market as applied to the Beta coefficient and the market risk premium.

Calculating a market return based on a DCF analysis of all companies included in the S&P 500 Index is corroborated by S&P's published dividend yield and five-year projected growth rate for the S&P 500 Index as a whole. For example, as of March 31, 2020, a market return on a DCF analysis of all companies included in the S&P 500 Index estimates a required market return of 13.75% compared to S&P's published dividend yield and five-year projected growth rate, which suggests an estimated required market return of 14.04%.[46]

Recommendation

FERC's decision in Opinion No. 569 to exclude non-dividend-paying companies and companies with growth rates outside of a range of 0% to 20% is inconsistent with other components of the traditional CAPM or ECAPM. As such, we recommend estimating the market risk premium by using all companies in the S&P 500 Index, regardless of whether or not a company's growth rate is between 0% to 20%. In addition, we recommend including non-dividend paying companies, which can be assumed to have a dividend yield of 0%, such that the total return comprised solely of its rate of capital appreciation, which is estimated by its projected earnings growth rate. We believe this is

[45] Philip U. Straehl and Roger G. Ibbotson, "The Supply of Stock Returns: Adding Back Buybacks," Working Paper, December 17, 2015.

[46] S&P Dow Jones Indices, S&P 500 Earnings and Estimate Report March 31, 2020 (Constant Growth DCF using S&P estimates: 2.31% x (1+(50% x 11.60%)) + 11.60% = 14.04%).

likely conservative given that for some companies, total cash flows to investors will include stock buybacks, which represent an alternative form of cash flows to investors.

RISK FREE RATE

In FERC's prior specifications of the traditional CAPM, it has used the 30-year U.S. Treasury average historical bond yield over a six-month period.[47] However, we recommend placing primary reliance on forecasted interest rates in CAPM-based models. The ROE is being estimated for a future period when the utility's rates will be in effect. Therefore, investors' current valuations may be different than those expected during the period that a utility's rates will be in effect. This is especially true in current market conditions. As an example, yields on government bonds have been suppressed by the Federal Reserve's accommodative monetary policy and do not reflect unfettered market forces. Conversely, financial markets are expecting interest rates on government bonds to increase in the long-term. As equity investors consider their return requirements, they factor in expectations for higher interest rates on government bonds. Regardless of the level of monetary policy intervention, ultimately it is investors' expectations for the period rates will be in effect that is most relevant to the ROE determination. CAPM-based models should reflect investors' expectations, which are best reflected in interest rate projections for the risk-free rate.

Recommendation

We recommend that a five-year projection of the 30-year Treasury yield from a source of consensus forecasts, such as Blue Chip Financial Forecasts, be utilized as a reasonable basis to estimate investors' expectations of the risk-free rate for the period in which a utility's rates will be in effect.

ESTIMATES OF THE BETA COEFFICIENT

FERC has consistently used *Value Line* adjusted Beta coefficients in its specification of the traditional CAPM approach.[48] While *Value Line* adjusted Beta coefficients are a reasonable estimate, FERC should allow alternative sources of adjusted Beta coefficients to be used provided that the source includes long-term return data to ensure the statistical significance of the estimate. A single source may not be appropriate in all capital market conditions, at all times.

47 *See, e.g.*, Opinion No. 569 at para 238.
48 *See, e.g.*, Opinion No. 569 at para 297, Opinion No. 531-B at para 109.

D. Bond Yield Plus Risk Premium Approach

In general terms, this approach is based on the fundamental principle that equity investors bear the residual risk associated with ownership and, therefore, require a premium over the return they would have earned as a bondholder. That is, since returns to equity holders are more risky than returns to bondholders, equity investors must be compensated to bear that risk. Risk premium approaches estimate the ROE as the sum of the equity risk premium and the yield on a particular class of bonds. Both academic literature and market evidence indicate that the equity risk premium is inversely related to the level of interest rates.[49] Such an analysis can be developed based on a regression of the risk premium as a function of debt yields. Authorized ROEs for electric utility companies represent the returns available to investors in companies with similar risk, and therefore serve as the measure of required equity returns. The yield on long-term utility bonds represents the measure of interest rates, so the risk premium is simply the difference between those two points.

While some components of the Risk Premium analysis are not directly market-based, the Risk Premium model is based on authorized ROEs and the corresponding interest rates at the time the regulatory decisions were issued. Further, investors are informed by allowed ROEs from rate case decisions to frame their return expectations. One of the fundamental principles in setting a just and reasonable return is that the return must be comparable to returns available to investors in companies with similar risk. In that regard, the returns that have been authorized for other electric utilities are a relevant consideration for investors to establish their return expectations for comparable risk companies. In addition, FERC establishes authorized ROEs, not actual or guaranteed, costs of equity. Therefore, the returns that have been authorized for other utilities are a relevant consideration for investors as a measure of relative return. Further, authorized ROEs are determined by market-based models, and the allowed ROEs are based on the interpretation of the results in the context of the prevailing capital market conditions. As such, the authorized ROEs reflect the interpretation of market-based information.

CONSIDERING RISK PREMIUM ROE ESTIMATES IN THE ZONE OF REASONABLENESS

When FERC first introduced the Risk Premium approach in the *Coakley* Briefing Order as one of the four models to be averaged in the determination of a just and reasonable ROE, it explicitly excluded the Risk Premium model from the proposed framework for determining whether an existing ROE remains just and reasonable (*i.e.,* the first prong of the Section 206 analysis).[50] Specifically, FERC observed:

---

[49] *See e.g.*, S. Keith Berry, "Interest Rate Risk and Utility Risk Premia during 1982-93," *Managerial and Decision Economics*, Vol. 19, No. 2 (March 1998). *See also* Robert S. Harris, "Using Analysts' Growth Forecasts to Estimate Shareholders Required Rates of Return," *Financial Management*, Spring 1986, at 66.

[50] *Coakley* Briefing Order at para 16-17.

> *Unlike the DCF, CAPM, and Expected Earnings models, the output of the Risk Premium model is a numerical point and therefore, it does not produce a range which can be used to determine a zone of reasonableness. Accordingly, we propose to use the Risk Premium model output in the second prong of the FPA section 206 analysis where we determine a specific just and reasonable ROE, but not in the first prong of the analysis, which requires models that produce a range that can be used to determine a zone of reasonableness.*[51]

While the Risk Premium result is composed of a single numerical point, the model still provides useful information that should be used in the determination of the composite zone of reasonableness.

In the Briefing Orders, the Commission proposed to establish the upper and lower bounds of the composite zone of reasonableness by averaging the high-end and low-end proxy group results (after removal of outliers) across three financial models: the DCF, CAPM, and the Expected Earnings models. This approach is reasonable for determining the range of the zone of reasonableness, but it is somewhat detached from the measure of central tendency.

As discussed above, Concentric recommends that the Commission incorporate the Risk Premium model into the Commission's construction of the composite zone of reasonableness. This is necessary to ensure that the composite zone of reasonableness reflects the range of returns produced by the DCF, ECAPM, and Expected Earnings analyses *and* aligns with the measure of central tendency (*i.e.*, midpoint/median) produced by all four of the financial models. This would ensure that the composite zone of reasonableness is directly informed by the Risk Premium estimate.

In effect, the Risk Premium analysis would indicate if the other three models overstate or understate the ROE. If the Risk Premium result is higher than the measure of central tendency of the other three models, it would adjust the zone of reasonableness upward. Conversely, if the Risk Premium result is lower than the measure of central tendency of the other three models, it would adjust the zone of reasonableness downward.

Recommendation

The Risk Premium model has a sound basis in financial theory and a long history of regulatory practice; therefore, it should be given full and equal weight in determining both the zone of reasonableness and the median/midpoint base ROE estimate. Authorized ROEs are determined by regulatory commissions based on prevailing capital market conditions. Further, investors are informed by allowed ROEs from rate case decisions to frame their return expectations. Accordingly,

[51] *Id.*, at para 17, footnote 45.

the Risk Premium model is consistent with the fundamental principle that a just and reasonable return must be comparable to returns available to investors in companies with similar risk.

As explained in greater detail above, once appropriately constructed, we recommend adjusting the composite zone of reasonableness such that it is centered on the measure of central tendency (*i.e.*, midpoint/median) as determined by averaging the results of all four models (*i.e.*, DCF, ECAPM, Expected Earnings, and Risk Premium). This would give the Risk Premium model equal weight with the other three models (DCF, ECAPM, and Expected Earnings) in both establishing the composite zone of reasonableness (Prong 1) and the determination of base ROEs (Prong 2) of the Commission's analysis.

APPLICATION OF INTEREST RATES

The Risk Premium analysis included in Briefing Orders included both the current level and projected level of utility bond yields to estimate the cost of equity. Ultimately, the Commission relied on the average of the two estimates to determine a Risk Premium numerical point estimate.

Recommendation

Consistent with the recommendation discussed in the context of the risk-free rate of the CAPM approach, we recommend placing primary reliance on forecasted interest rates. The ROE is being estimated for a future period when the utility's rates will be in effect. Therefore, investors' current valuations may be different than the those expected during the period that a utility's rates will be in effect. As such, the Risk Premium model should reflect investors' expectations, which are best reflected in interest rate projections.

However, unlike the risk-free rate, we believe that the appropriate measure of interest rates in the context of the Risk Premium approach is utility bond yields. We recommend that a five-year projection of the 30-year Treasury yield from a source of consensus forecasts, such as Blue Chip Financial Forecasts, provides a reasonable basis to estimate investors' expectations for interest rates. While utility bond yield projections are not as readily available as Treasury bond yield projections, a suitable proxy would be applying the current interest rate spread (between utility bond yields and long-term Treasury bond yields for an average of six months) to forecasts of long-term Treasury bond yields.

E. The Expected Earnings Model

The Expected Earnings model is a variation of the comparable earnings model and has a sound basis in financial theory and a long history of regulatory practice. While the CAPM has gained acceptance over the past few decades as a viable alternative to the DCF, the Expected Earnings model has been, and remains, a viable alternative as well. It has served as a principal tool for setting the allowed rate

of return for regulated utilities for a long period. In his book on regulatory finance published in 1991, Dr. Howard E. Thompson characterized the lay of the land this way:[52]

> *The methods of discounted cash flow (DCF) and comparable earnings are two traditional approaches to determining the allowed rate of return for a utility.*

Thompson goes on to explain the theoretical basis for both the DCF and comparable earnings models, and their applicability to the legal standards for determining a fair return:

> *The comparable earnings method derives its credibility as a standard for the allowed return on equity from the legal history surrounding Willcox v. Consolidated Gas Company, 212 U.S. 19 (1909), Bluefield Waterworks and Improvement Company v. Railway Commission of Georgia, 262 U.S. 625(1923) and Federal Power Commission v. Hope Natural Gas Company 320 U.S. 591 (1944). In Hope the court seems to establish it as a standard when it stated that*
>
> > *... the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. [p.603]*
>
> *On the other hand, the DCF method gains its credibility from the principles of financial theory applied to the continuation of the court's discussion of the "comparable earnings" standard which stated:*
>
> > *That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain credit and to attract capital. [p.603]*
>
> *Since both now from the same paragraph in the Hope decision which emphasizes the need for revenues being high enough to cover the operating revenues and capital costs it has become customary to think of both the comparable earnings and DCF as methods of estimating the cost of capital.*

So, while the utilization of the Expected Earnings model seemed a "new" development for FERC in Opinion No. 531 where it found "the risk premium analysis, the CAPM, and Expected Earnings analyses informative"[53] in determining the ROE, there has been a long history of reliance on the model at both the federal and state levels. FERC elaborated on its expanded approach to the consideration of multiple models, including the Expected Earnings model, in the *Coakley* Briefing Order:

---

52 H.E. Thompson, *Regulatory Finance*, Kluwer Academic Publishers, Boston, MA (1991), Traditional Models: DCF and Comparable Earnings, at 27.

53 Opinion No. 531 at para 146.

> *In the Coakley Briefing Order, the Commission proposed to change its approach to determining base ROE by giving equal weight to four financial models, instead of primarily relying on the DCF methodology. The Commission stated that evidence indicates that investors do not rely on any one model to the exclusion of others. Therefore, relying on multiple financial models makes it more likely that our ROE determination will accurately reflect how investors make their investment decisions.*
>
> *Specifically, the Commission proposed to rely on three financial models that produce zones of reasonableness—the DCF model, CAPM, and Expected Earnings model—to establish a composite zone of reasonableness. The zone of reasonableness produced by each model would be given equal weight and averaged to determine the composite zone of reasonableness.*[54]

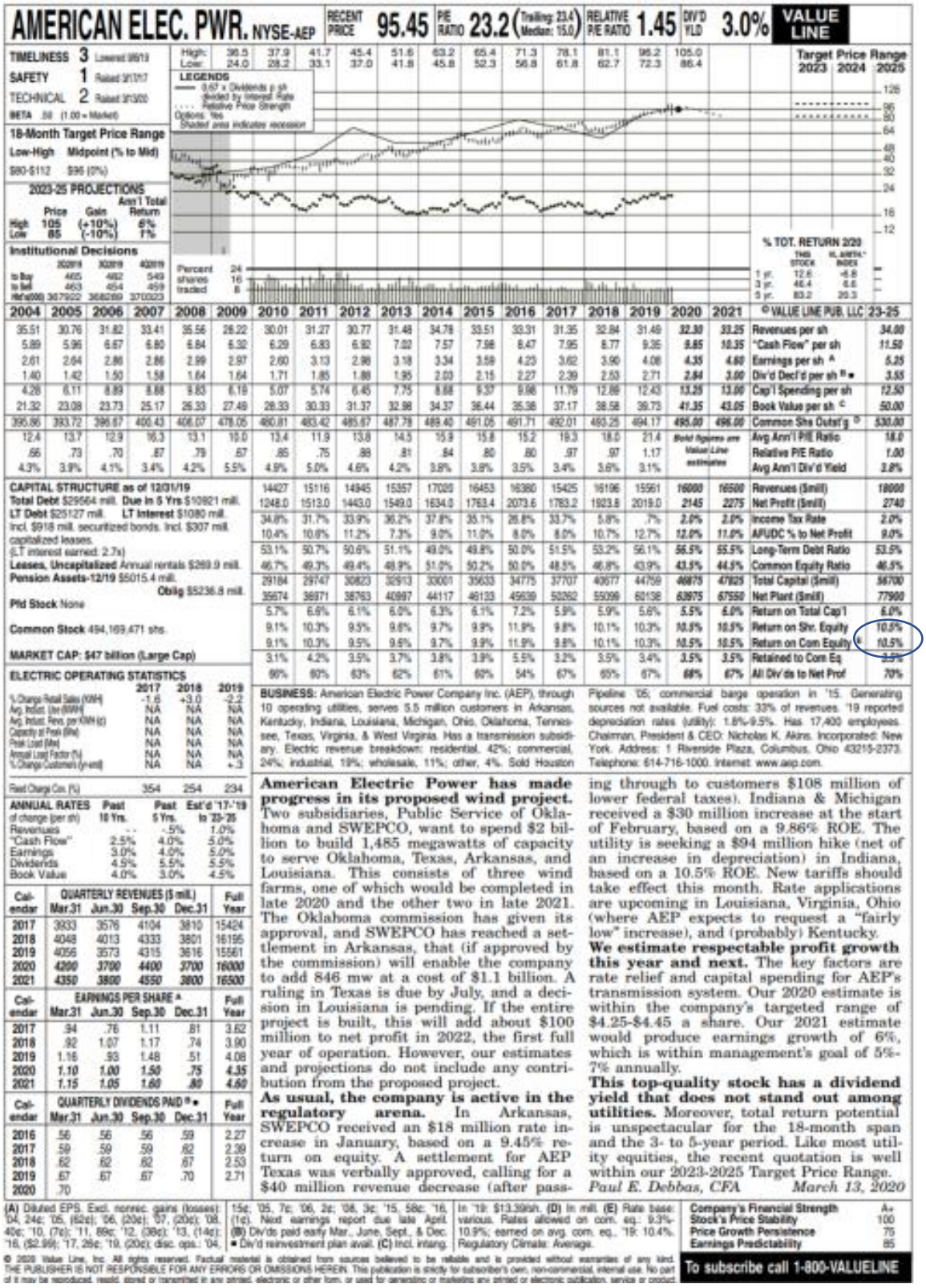
Despite inclusion of the Expected Earnings model in the NOI, FERC chose not to use it in Opinion No. 569. Perhaps the most fundamental concern raised by FERC in Opinion No. 569 was that the Expected Earnings model would not satisfy the requirements of *Hope* because the expected return on a utility's book value does not reflect returns in investments in other enterprises because book value does not reflect the value of any investment that is available to an investor in the market.[55] Secondly, FERC could not conclude that investors relied on the Expected Earnings model to inform their investment decisions.[56] Finally, FERC concluded that Expected Earnings results overstated investors' required returns because the accounting book values of firms are typically lower than market values (as measured by market-to-book ratios), and therefore a return computed against a book value would overstate the required return on market value.[57]

The heart of the Expected Earnings approach is an expected return for like-risk companies, which is a core strength of the model and consistent with the basic tenets of *Hope*. This is because the heart of the Expected Earnings approach is an expected return for like-risk companies. As noted above by Thompson, this is a core strength of the model and reinforces its link to the basic tenet of *Hope: "*the return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks." The typical application of Expected Earnings is the projected earnings on the book value of equity for a comparable group of proxy companies. The proxy companies may be utilities or like-risk non-regulated enterprises. The picture below presents a recent report for American Electric Power Company, Inc. ("AEP"), for example, where this data is captured.

---

54 Opinion No. 569 at para 11-12, citing to the *Coakley* Briefing Order.
55 *Id*., at para 201-202.
56 *Id*., at para 210.
57 *Id*., at para 211-212.

Figure 3: Value Line Investment Report



AMERICAN ELEC. PWR. NYSE-AEP — RECENT PRICE 95.45 — P/E RATIO 23.2 (Trailing: 23.4 / Median: 15.0) — RELATIVE P/E RATIO 1.45 — DIV'D YLD 3.0% — VALUE LINE

TIMELINESS 3 (Lowered 9/6/19)
SAFETY 1 (Raised 3/17/17)
TECHNICAL 2 (Raised 3/13/20)
BETA .50 (1.00 = Market)

18-Month Target Price Range
Low-High: Midpoint (% to Mid)
$80-$112: $96 (0%)

2023-25 PROJECTIONS

	Price	Gain	Ann'l Total Return
High	105	(+10%)	6%
Low	85	(-10%)	1%

Institutional Decisions

	3Q2019	4Q2019	1Q2020
to Buy	465	482	549
to Sell	463	454	459
Hld'g(000)	367922	368269	370023

Target Price Range: 2023 | 2024 | 2025

% TOT. RETURN 2/20

	THIS STOCK	VL ARITH. INDEX
1 yr.	12.6	+6.8
3 yr.	46.4	6.6
5 yr.	83.2	39.3

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	© VALUE LINE PUB. LLC	23-25
35.51	30.76	31.82	33.41	35.56	28.22	30.01	31.27	30.77	31.48	34.78	33.51	33.31	31.35	32.84	31.49	32.30	33.25	Revenues per sh	34.00
5.89	5.96	6.67	6.80	6.84	6.32	6.29	6.83	6.92	7.02	7.57	7.98	8.47	7.95	8.77	9.35	9.85	10.35	"Cash Flow" per sh	11.50
2.61	2.64	2.86	2.86	2.99	2.97	2.60	3.13	2.98	3.18	3.34	3.59	4.23	3.62	3.90	4.08	4.35	4.60	Earnings per sh A	5.25
1.40	1.42	1.50	1.58	1.64	1.64	1.71	1.85	1.88	1.95	2.03	2.15	2.27	2.39	2.53	2.71	2.84	3.00	Div'd Decl'd per sh B ■	3.55
4.28	6.11	8.89	8.88	9.83	6.19	5.07	5.74	6.45	7.75	8.68	9.37	9.98	11.79	12.89	12.43	13.25	13.00	Cap'l Spending per sh	12.50
21.32	23.08	23.73	25.17	26.33	27.49	28.33	30.33	31.37	32.98	34.37	36.44	35.38	37.17	38.58	39.73	41.35	43.05	Book Value per sh C	50.00
395.86	393.72	396.67	400.43	406.07	478.05	480.81	483.42	485.67	487.78	489.40	491.05	491.71	492.01	493.25	494.17	495.00	496.00	Common Shs Outst'g D	530.00
12.4	13.7	12.9	16.3	13.1	10.0	13.4	11.9	13.8	14.5	15.9	15.8	15.2	19.3	18.0	21.4	Bold figures are Value Line estimates		Avg Ann'l P/E Ratio	18.0
.66	.73	.70	.87	.79	.67	.85	.75	.88	.81	.84	.80	.80	.97	.97	1.17			Relative P/E Ratio	1.00
4.3%	3.9%	4.1%	3.4%	4.2%	5.5%	4.9%	5.0%	4.6%	4.2%	3.8%	3.8%	3.5%	3.4%	3.6%	3.1%			Avg Ann'l Div'd Yield	3.8%
14427	15116	14845	15357	17020	16453	16380	15425	16196	15561	16000	16500	Revenues ($mill)	18000
1248.0	1513.0	1443.0	1549.0	1634.0	1763.4	2073.6	1783.2	1923.8	2019.0	2145	2275	Net Profit ($mill)	2740
34.8%	31.7%	33.9%	36.2%	37.8%	35.1%	26.8%	33.7%	5.8%	.7%	2.0%	2.0%	Income Tax Rate	2.0%
10.4%	10.8%	11.2%	7.3%	9.0%	11.0%	8.0%	8.0%	10.7%	12.7%	12.0%	11.0%	AFUDC % to Net Profit	9.0%
53.1%	50.7%	50.6%	51.1%	49.0%	49.8%	50.0%	51.5%	53.2%	56.1%	56.5%	55.5%	Long-Term Debt Ratio	53.5%
46.7%	49.3%	49.4%	48.9%	51.0%	50.2%	50.0%	48.5%	46.8%	43.9%	43.5%	44.5%	Common Equity Ratio	46.5%
29184	29747	30823	32913	33001	35633	34775	37707	40617	44759	46875	47925	Total Capital ($mill)	56700
35674	36971	38763	40997	44117	46133	45639	50262	55099	60138	63975	67550	Net Plant ($mill)	77900
5.7%	6.6%	6.1%	6.0%	6.3%	6.1%	7.2%	5.9%	5.9%	5.6%	5.5%	6.0%	Return on Total Cap'l	6.0%
9.1%	10.3%	9.5%	9.6%	9.7%	9.9%	11.9%	9.8%	10.1%	10.3%	10.5%	10.5%	Return on Shr. Equity	10.5%
9.1%	10.3%	9.5%	9.6%	9.7%	9.9%	11.9%	9.8%	10.1%	10.3%	10.5%	10.5%	Return on Com Equity E	10.5%
3.1%	4.2%	3.5%	3.7%	3.8%	3.9%	5.5%	3.2%	3.5%	3.4%	3.5%	3.5%	Retained to Com Eq	3.5%
96%	60%	63%	62%	61%	60%	54%	67%	65%	67%	68%	67%	All Div'ds to Net Prof	70%

CAPITAL STRUCTURE as of 12/31/19
Total Debt $29564 mill. Due in 5 Yrs $10821 mill.
LT Debt $25127 mill. LT Interest $1080 mill.
Incl. $918 mill. securitized bonds. Incl. $307 mill. capitalized leases.
(LT interest earned: 2.7x)
Leases, Uncapitalized Annual rentals $269.9 mill.
Pension Assets-12/19 $5015.4 mill. Oblig $5236.8 mill.
Pfd Stock None
Common Stock 494,169,471 shs.
MARKET CAP: $47 billion (Large Cap)

ELECTRIC OPERATING STATISTICS

	2017	2018	2019
% Change Retail Sales (KWH)	-1.6	+3.0	-2.2
Avg. Indust. Use (MWH)	NA	NA	NA
Avg. Indust. Revs. per KWH (¢)	NA	NA	NA
Capacity at Peak (Mw)	NA	NA	NA
Peak Load (Mw)	NA	NA	NA
Annual Load Factor (%)	NA	NA	NA
% Change Customers (yr-end)	NA	NA	+.3
Fixed Charge Cov. (%)	354	254	234

ANNUAL RATES

of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '17-'19 to '23-'25
Revenues	--	-.5%	1.0%
"Cash Flow"	2.5%	4.0%	5.0%
Earnings	3.0%	4.0%	5.0%
Dividends	4.5%	5.5%	5.5%
Book Value	4.0%	3.0%	4.5%

Calendar	QUARTERLY REVENUES ($ mill.) Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2017	3933	3576	4104	3810	15424
2018	4048	4013	4333	3801	16195
2019	4056	3573	4315	3616	15561
2020	4200	3700	4400	3700	16000
2021	4350	3800	4550	3800	16500

Calendar	EARNINGS PER SHARE A Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2017	.94	.76	1.11	.81	3.62
2018	.92	1.07	1.17	.74	3.90
2019	1.16	.93	1.48	.51	4.08
2020	1.10	1.00	1.50	.75	4.35
2021	1.15	1.05	1.60	.80	4.60

Calendar	QUARTERLY DIVIDENDS PAID B ■ Mar.31	Jun.30	Sep.30	Dec.31	Full Year
2016	.56	.56	.56	.59	2.27
2017	.59	.59	.59	.62	2.39
2018	.62	.62	.62	.67	2.53
2019	.67	.67	.67	.70	2.71
2020	.70				

BUSINESS: American Electric Power Company Inc. (AEP), through 10 operating utilities, serves 5.5 million customers in Arkansas, Kentucky, Indiana, Louisiana, Michigan, Ohio, Oklahoma, Tennessee, Texas, Virginia, & West Virginia. Has a transmission subsidiary. Electric revenue breakdown: residential, 42%; commercial, 24%; industrial, 19%; wholesale, 11%; other, 4%. Sold Houston Pipeline '05; commercial barge operation in '15. Generating sources not available. Fuel costs: 33% of revenues. '19 reported depreciation rates (utility): 1.8%-9.5%. Has 17,400 employees. Chairman, President & CEO: Nicholas K. Akins. Incorporated: New York. Address: 1 Riverside Plaza, Columbus, Ohio 43215-2373. Telephone: 614-716-1000. Internet: www.aep.com.

American Electric Power has made progress in its proposed wind project. Two subsidiaries, Public Service of Oklahoma and SWEPCO, want to spend $2 billion to build 1,485 megawatts of capacity to serve Oklahoma, Texas, Arkansas, and Louisiana. This consists of three wind farms, one of which would be completed in late 2020 and the other two in late 2021. The Oklahoma commission has given its approval, and SWEPCO has reached a settlement in Arkansas, that (if approved by the commission) will enable the company to add 846 mw at a cost of $1.1 billion. A ruling in Texas is due by July, and a decision in Louisiana is pending. If the entire project is built, this will add about $100 million to net profit in 2022, the first full year of operation. However, our estimates and projections do not include any contribution from the proposed project.

As usual, the company is active in the regulatory arena. In Arkansas, SWEPCO received an $18 million rate increase in January, based on a 9.45% return on equity. A settlement for AEP Texas was verbally approved, calling for a $40 million revenue decrease (after passing through to customers $108 million of lower federal taxes). Indiana & Michigan received a $30 million increase at the start of February, based on a 9.86% ROE. The utility is seeking a $94 million hike (net of an increase in depreciation) in Indiana, based on a 10.5% ROE. New tariffs should take effect this month. Rate applications are upcoming in Louisiana, Virginia, Ohio (where AEP expects to request a "fairly low" increase), and (probably) Kentucky.

We estimate respectable profit growth this year and next. The key factors are rate relief and capital spending for AEP's transmission system. Our 2020 estimate is within the company's targeted range of $4.25-$4.45 a share. Our 2021 estimate would produce earnings growth of 6%, which is within management's goal of 5%-7% annually.

This top-quality stock has a dividend yield that does not stand out among utilities. Moreover, total return potential is unspectacular for the 18-month span and the 3- to 5-year period. Like most utility equities, the recent quotation is well within our 2023-2025 Target Price Range.

Paul E. Debbas, CFA *March 13, 2020*

(A) Diluted EPS. Excl. nonrec. gains (losses): '04, 24¢; '05, (62¢); '06, (20¢); '07, (20¢); '08, 40¢; '10, (7¢); '11, 89¢; '12, (38¢); '13, (14¢); '16, ($2.99); '17, 26¢; '19, (20¢); disc. ops.: '04, 15¢; '05, 7¢; '06, 2¢; '08, 3¢; '15, 58¢; '16, (1¢). Next earnings report due late April. (B) Div'ds paid early Mar., June, Sept., & Dec. ■ Div'd reinvestment plan avail. (C) Incl. intang. In '19: $13.39/sh. (D) In mill. (E) Rate base: various. Rates allowed on com. eq.: 9.3%-10.9%; earned on avg. com. eq., '19: 10.4%. Regulatory Climate: Average.

Company's Financial Strength	A+
Stock's Price Stability	100
Price Growth Persistence	75
Earnings Predictability	85

To subscribe call 1-800-VALUELINE

This report says, based on *Value Line's* equity research, that it expects AEP will earn 10.5% on its book equity over the 2020-2025 period. This is an independent source of projected returns that would be of value to investors and inform their return expectations and decisions. This is how *Value Line* describes its business profile:

> *Investors rely on Value Line for independent, unbiased investment research of the highest caliber. Through an array of digital and print products, Value Line serves both the retail and professional investor markets. Our analyst commentaries and proprietary ranks and ratings are consistently recognized for their accuracy in forecasting the performance and investment potential of companies that we cover, so our customers can make smart investment decisions.*[58]

These reports are relied upon by a broad group of investors and inform their investment decisions. Presumably, FERC's exclusive reliance on *Value Line* betas for the CAPM model expresses trust in this source.[59] Arguably, an investor would also consider current market valuations in deciding between companies of like risk, but that does not diminish the value of the expected return on book value. We agree with the Commission's assessment in the Briefing Order:

> *The returns on book equity that investors expect to receive from a group of companies with risks comparable to those of a particular utility are relevant to determining that utility's cost of equity, because those returns on book equity help investors determine the opportunity cost of investing in that particular utility instead of other companies of comparable risk. Because investors rely on Expected Earnings analyses to help estimate the opportunity cost of investing in a particular utility, we find this type of analysis useful in determining a utility's ROE.* [60]

On the issue of whether it is appropriate to reflect an investment option that is not available in the market, it is important to recognize the fundamental role of the regulator, which is to determine a fair and reasonable return on the utility's investment. This can be accomplished with direct market data (*e.g.*, dividend yields in the DCF model, or beta in the CAPM), or expert opinion (*e.g.*, analyst growth rates in the DCF model, or projected interest rates in the CAPM and Risk Premium models), or a combination. There is no such thing as a pure market-based solution, otherwise the cost of equity would be directly observable, as is the cost of debt. In most jurisdictions, including at FERC, that determination is ultimately made in relation to a return on book equity. Market returns, calculated using the DCF or CAPM model, are typically applied to book equity without adjustment. Consequently, a focus on book value should not eliminate a model that directly computes a return on

58 https://www.valueline.com/About/InvestorRelation.aspx.
59 *See, e.g.*, Opinion No. 569 at para 297, Opinion No. 531-B at para 109.
60 *Coakley* Briefing Order Appendix at 42, citing to Opinion No. 531-B [citations removed].

book equity, as does the Expected Earnings model. It is the one model where such an adjustment would not be required. Morin captures this point well:

> *If regulation's role was to duplicate the competitive result perfectly, then the market cost of capital would be applied to the current market value rate base assets employed by utilities to provide service. But because the investment base for ratemaking purposes is expressed in book value terms, a rate of return on book value, as is the case with Comparable Earnings, is highly meaningful.* [61]

On the issue of overstating required returns, it should be remembered that the output of the model is the expected return on book equity. When that return is estimated based on an analyst's expectation of earned return on book equity for a comparable set of companies, there is no inherent upward bias in that estimate. This is not the same return an investor could expect to earn with shares purchased in the secondary market that would fluctuate with daily market circumstances. An inherent advantage of the comparable earnings approach is its greater stability in a variety of market conditions, as reinforced by the recent capital market turmoil.

Another issue raised in Opinion No. 569 and the NOI is circularity, referring to the need for a forecast of earned returns when utilizing the forward-looking Expected Earnings model. As noted in the NOI, these concerns also squarely exist for the DCF model.[62] There are two inputs to the DCF model, the dividend yield (based on prevailing stock prices and dividends) and the earnings projection. One could correctly argue that both reflect investor expectations about regulator actions. This does not render the model ineffective. If potential circularity is a concern, it can be mitigated though selection of a proxy group of similar companies to avoid the direct connection between expectations for a specific company and the model derived return.

Recommendation

The Expected Earnings model should be given full and equal weight in determination of both the zone of reasonableness and the median/midpoint ROE estimates. To the extent FERC remains concerned about potential circularity—although this issue also exists for the DCF model—the use of suitable electric industry and/or like-risk nonregulated proxy groups can be employed to mitigate this concern. Utilized together, all four models bring a balance of direct market inputs and independent sources of expected returns providing FERC with a comprehensive set of data for its analysis.

---

61 Roger A. Morin, *New Regulatory Finance* (Public Utilities Reports, Inc. 2006), at 395.
62 NOI at para 38, H.2.c.2. and H.2.c.2.i.

F. Results that Fail to Satisfy Tests of Economic Reason: Outlier Tests

In the Briefing Orders, FERC formalized its high-end and low-end outlier tests. It found that high-end outliers should be determined by removing any proxy group results that exceeded 1.5 x the median result of the applicable model (before removal of outliers). It also found that low-end outliers should be removed on the basis of failure to meet tests of economic logic and that ROE results within 100 bps of the Baa utility bond yield would fail such tests. In Opinion No. 569, FERC recognized that in a very low interest rate environment the measure of risk premium that defines the bounds of economic logic will move upwards with the utility risk premium or inversely to interest rates; and that the return required for equity investment was substantially greater than 100 bps. As a result, in Opinion No. 569, FERC proposed a dynamic low-end test that removes illogical results that differ from a benchmark of 20% of the market risk premium (used in the CAPM analysis) added to the Baa utility bond yield.

While we view FERC's determination to remove low-end outliers based on a dynamic low-end test to be an improvement over its previous approach, we see a number of fundamental issues with FERC's proposed approach. First, FERC's proposed approach relies on a market risk premium calculation from the CAPM analysis, the results of which may vary widely depending on the timing of and approach to the calculation. This threshold number would not be known with certainty until FERC decides on an appropriate market risk premium in a given proceeding. Secondly, we find little support for the use of the market risk premium to approximate the movement in utility risk premiums or whether 20% is an appropriate factor. Below, we recommend an approach better supported by market data and determined with more certainty.

Recommendation

Concentric proposes that FERC set its threshold for removal of low-end results based on the relationship between the utility risk premium and utility bond yields, as determined in the Risk Premium methodology. This is a dynamic approach grounded by the long-term linear relationship between the utility risk premium and the Baa utility bond yield. The approach adjusts the FERC's 100 bps low-end utility risk premium to reflect the inverse relationship between bond yields and the utility risk premium, such that as bond yields decrease the low-end risk premium would be adjusted upwards, and vice versa. In our example, we have used the long-term average of the utility Baa bond yield as the base bond yield. The adjustment to the 100 bps adder is calculated by finding the difference between the current bond yield and the base bond yield and applying the regression coefficient for the long-term linear relationship of FERC utility risk premiums and Baa utility bond yields. This general approach, originally put forward by Adrien McKenzie,[63] adjusts FERC's former

[63] *See* Direct Testimony of Adrien McKenzie, O/B/O Jersey Central Power & Light Company, Docket ER20-227-000 (October 30, 2019) at 44 of 81.

100 basis point risk premium approach based on the sensitivity of the utility risk premium to changes in bond yields.

For example, if FERC found the 100 bps threshold to be appropriate when Baa utility bond yields were equal to the long-term average of roughly 7.0%, and interest rates have since fallen to 4.00%, we would know that the slope of the regression line between utility risk premiums and utility Baa bond yields is -0.60. We would adjust the 100 bps long-run low-end risk premium by the change in the Baa utility bond yield (from the base yield - a decrease of 3 percentage points) and apply the -0.60 slope coefficient to arrive at an adjustment of 180 bps. Accordingly, an upward adjustment of 180 bps would be made to the 100 bps long-run adder to produce a 280 bps low-end utility risk premium, such that the low-end threshold for proxy results would be set at 6.80% (4.00% + 2.80%).

This approach provides a reasonable threshold test of economic logic that is responsive to changes in market conditions. Further, this approach can be applied with certainty once FERC has established the bond yield upon which its low-end test is premised. We envision that the slope coefficient would be a direct outcome of the Risk Premium analysis, which should not vary significantly among witnesses. This test will provide greater certainty around the determination of logical results than the methodology put forth by FERC in Opinion No. 569.

In statistics, the removal of outliers is controversial. Removal of results that do not meet tests of economic logic makes intuitive sense. Analysts do not want to include non-sensical data in analyses. On the low-end, we know that investors will not invest in utility equity if the equity return is not sufficiently distinguishable from the debt return. However, this straightforward intuition becomes less clear when we consider removing outliers on the high end. High-end results that are determined to be erroneous due to data entry or measurement errors should be identified and removed, but the treatment of legitimate, albeit perceived as extreme, high-end results is less clear. Such results do not fail tests of economic logic but stand out as an extreme result relative to the proxy sample. Extreme values that are part of the proxy group can provide valuable information, *i.e.*, that the range of projected returns among comparable-risk utilities is quite large. Without a compelling reason to remove the data, they should remain in the dataset.[64]

[64] F. J. Anscombe and Irwin Guttman, *Rejection of Outliers*, Technometrics, Vol. 2, No. 2 (May 1960) at 123-147.

FERC has long relied on measures of central tendency, such as the median and midpoint, to identify the center of the range of reasonableness. Arguably, reliance on measures of central tendency obviate the need to remove extreme but legitimate data from the analysis. It is appropriate to remove illogical results from the distribution of proxy group results, but it is not appropriate to remove legitimate results that meet tests of economic logic and inform the range of reasonable returns simply because they may be perceived as too high. FERC's reliance on upper and lower bounds of the zone of reasonableness, which truncate the range of reasonable returns at the upper and lower bounds of the zones, and FERC's reliance on measures of central tendency within those zones to set ROE perform the necessary function of finding the central range and point for each risk category and obviate the need for any further removal of outliers. Accordingly, our recommendation is to limit the removal of individual proxy group results from ROE analyses to circumstances where proxy group results do not meet tests of economic logic. The FERC's high-end outlier test should be discontinued and only high-end data that is incorrect or does not meet tests of economic logic should be eliminated.

SECTION 4:

STEP TWO – DETERMINING THE ROE (SECTION 205 AND 206 PROCEEDINGS)

A. Background

The Briefing Orders described the process for setting a new just and reasonable ROE, where the existing ROE had been shown to be unjust and unreasonable (*i.e.*, the second prong of the FPA section 206 analysis). FERC has continued to propose this process in the NOI:

> *We propose to rely on all four financial models in the record—i.e., the three listed above [the DCF, CAPM, and Expected Earnings models], plus the Risk Premium model—to produce four separate cost of equity estimates. We propose to then give them equal weight by averaging the four estimates to produce the just and reasonable ROE. For each of the DCF, CAPM, and Expected Earnings models, we propose to use the central tendency of the respective zones of reasonableness as the cost of equity estimate for average risk utilities. We would then average those three midpoint/median figures with the sole numerical figure produced by the Risk Premium model to determine the ROE of average risk utilities. We would use the midpoint/medians of the resulting lower and upper halves of the zone of reasonableness to determine ROEs for below or above average risk utilities, respectively.*[65]

FERC's proposed methodology in *Coakley* is an improvement over its prior Section 206 evaluation and rate setting processes. By clarifying how it intends to address both prongs of a Section 206 analysis, it has enhanced transparency and predictability to the transmission rate-setting process. By incorporating the results of four models, as opposed to one, it has captured data that investors consider in making their investment decisions and moderates errant results of any individual model. Further, developing an analytical process that both defines the range of just and reasonable ROEs and establishes a new base ROE at the central tendency of the appropriate range better ensures that the ROE results are appropriately connected to and supported by the appropriate ranges within the composite zone of reasonableness. We have proposed in this paper that this connection should be further strengthened by inclusion of the Risk Premium methodology in the derivation of the composite zones of reasonableness.

65 *Coakley* Briefing Order at para 17 [Model information added] and footnotes excluded.

B. Recommendation

Even with the adaptation of a four-model methodology (DCF, ECAPM, Expected Earnings, and Risk Premium), as described herein, it is important for the Commission to view the results of its application of these financial models in the context of investor expectations and market conditions. FERC should therefore retain discretion to determine the base ROE, as appropriate, based on a particular company's circumstances. No single model provides reasonable results under all capital market conditions and a pure mechanistic approach to setting base ROEs without consideration of prevailing market conditions or unique circumstances that a company or group of companies may face could lead to unjust and unreasonable results.

As discussed above, the Commission can and should utilize all four financial models discussed in the Briefing Orders and NOI in creating the composite zone of reasonableness in both steps one and two of its FPA section 206 analysis. Because our proposal centers the composite zone of reasonableness around the single cost of equity estimate (*i.e.*, the average of the cost of equity estimates of the four models), the central tendency in step one will be the same as the cost of equity estimate used in step two. While in most instances the characteristics of the proxy group are appropriate for the company or RTO at issue, there may be instances where a specific utility differs from the proxy group. If there are specific factors affect its ability to attract capital, the Commission should use its discretion to adjust the placement of the base ROE anywhere within the applicable range of just and reasonable ROEs. For most utilities this will be the middle 50% of the composite zone of reasonableness, but may be in either the top or bottom quartile for others. FERC should retain flexibility and use its discretion to set the ROE in the appropriate range of presumptively just and reasonable base ROEs if, based on the evidentiary record, it is shown that the applicant's circumstances affect its ability to attract capital and warrant an adjustment from the starting point.

Below is a non-exhaustive list of the types of factors FERC should consider in moving away from the starting point (*i.e.*, measure of central tendency) in establishing a new just and reasonable ROE:

- Whether current capital market conditions reflected in model results are consistent with long-term historical trends and investor expectations for long-term investments with comparable risk;
- Unique risk factors that are not shared by the proxy group, such as extreme vulnerability of catastrophic loss, unpreventable system disruption due to extreme weather, environmental events, or legislative or regulatory frameworks that remain a persistent threat in the location of the public utility service;
- Supplemental evidence of investors' required returns in comparable risk assets based on the results of alternative analyses and benchmarks;

- Support for Congressional directives and policy objectives, including reliability, resiliency, economic efficiency, and movement to new sources of generation as appropriate; and
- Relative riskiness of transmission investment versus distribution investment, consistent with the Commission's prior findings that electric transmission is more risky than electric distribution service.[66]

[66] *See* FERC Opinion No. 531, at para 149.

SECTION 5:
RECOMMENDATIONS AND CONCLUSIONS

A. Recommendations

Our specific recommendations, as supported by the assessments provided in the previous sections of this report, are as follows:

Zone of Reasonableness

Composite Zone of Reasonableness - Concentric recommends that the Commission establish a composite zone of reasonableness by first averaging the high-end and low-end proxy group results (after removal of outliers) of the three financial models that rely on a proxy group. The Commission should then shift the entire composite zone upwards or downwards such that it is centered on the cost of equity estimate that the Commission would calculate by averaging the single cost of equity estimates produced by each of the four financial models. By shifting the composite zone in this manner, the cost of equity estimate (*i.e.*, average of each of the four financial models) would thereby become the measure of central tendency for the composite zone of reasonableness that the Commission would utilize in steps one and two in FPA section proceedings.

Range of Presumptively Just and Reasonable Base ROEs - Concentric recommends that the range of presumptively just and reasonable base ROEs for most public utilities be expanded to include the two central quartiles on either side of the measure of central tendency of the composite zone.

DCF Model

Growth Rates - The Commission should rely on a constant growth, single-stage model that relies exclusively on analyst growth rates.

Dividend Yield - The Commission should continue its practice of using six months of market data for calculating the dividend yield.

Capital Asset Pricing Model

ECAPM - The Commission should rely on the Empirical CAPM in place of the traditional CAPM. This form of the ECAPM calculates the product of the adjusted Beta coefficient and the market risk premium and applies a weight of 75% to that result. The model then applies a 25% weight to the market risk premium, without any effect from the Beta coefficient.

Market Risk Premium - The Commission should estimate the market risk premium by using all companies in the S&P 500 Index, regardless of whether or not its growth rate is between 0% to 20%. In addition, we recommend including non-dividend paying companies, which can be assumed to have

a dividend yield of 0%, such that the return comprised solely of its rate of capital appreciation, which is estimated by its earnings growth estimate.

Risk Free Rate - The Commission should rely on projected interest rates. We recommend that a five-year projection of the 30-year Treasury yield from a source of consensus forecasts, such as Blue Chip Financial Forecasts.

Beta – The Commission should allow alternative sources of adjusted Beta coefficients to be applied, if appropriately specified.

Bond Yield Plus Risk Premium Approach

Weight **–**The Commission should utilize the risk premium model and provide it equal weight with the other three models (DCF, ECAPM and Expected Earnings) in both constructing the composite zone of reasonableness and establishing a new base ROE (Section 206 and 205 proceedings).

Bond Rate - Consistent with the recommendation discussed in the context of the risk-free rate of the ECAPM approach, we recommend placing primary reliance on forecasted interest rates. We recommend a five-year projection of the 30-year Treasury yield from a source of consensus forecasts, such as Blue Chip Financial Forecasts. While utility bond yield projections are not as readily available as treasury bond yield projections, a suitable proxy would be applying the current interest rate spread (six-month average between utility bond yields and long-term Treasury bond yields) to forecasts of 30- year Treasury bond yields.

Expected Earnings Model

Weight **–** The Commission should utilize the Expected Earnings model and provide it equal weight with the other three models (DCF, ECAPM and Risk Premium) in both constructing the composite zone of reasonableness and in establishing a new base ROEs (Section 206 and 205 proceedings).

Proxy Groups - The use of suitable electric industry and/or like-risk nonregulated proxy groups should be employed.

Proxy Group Construction

Alternative Proxy Groups - The inclusion of a like-risk non-utility proxy group would benefit FERC's analysis as corroborative analysis to inform the Commission's decision making.

Outlier Tests

Illogical, erroneous, and non-sensical results should be removed from the distribution of proxy group results. High-end results that are legitimate, but perceived as extreme, should remain in the dataset as they inform the range of returns for a comparable risk utility and therefore FERC should eliminate the high-end outlier test. Low-end outliers that do not pass the test of economic logic should be removed based on the relationship between the utility risk premium and utility bond yields.

B. Conclusions

The Commission has laid the groundwork for a successful approach to both meet the requirements of *Hope* and *Bluefield* and pave the way for continued critical investment in the nation's electric transmission infrastructure. Through its succession of opinions and orders over the past decade, the Commission has explored solutions that provide the basis for an approach that will satisfy those requirements and arrive at just and reasonable base ROEs. The recommendations here build on that track record and provide the Commission with sufficient flexibility to use the methodological tools at its disposal under a variety of market circumstances.

These recommendations maintain a rigorous methodological approach to determining base ROEs, while providing a robust data set that is less sensitive to the shortcomings of any particular financial model and allows for a reasonable level of discretion to address different market conditions. Practical modifications to the models proposed by the Commission better reflect available investor information and, taken together, will promote stability and predictability of results, create confidence on the resulting ROE determinations, and better connect the construction of the composite zone of reasonableness with the establishment of new base ROEs. These recommendations do not completely revamp FERC's approach, but embrace those elements that make economic and financial sense, as well as recognize the need for both structure and flexibility.

About Concentric

Concentric Energy Advisors specializes in management consulting and financial advisory services with a focus on the North American energy industry. Our energy industry experts have held positions with utility companies, regulatory agencies, integrated energy companies, regional transmission organizations, retail marketing companies, and utility management consulting firms. Many members of our team have been working together for more than 30 years. Concentric Energy Advisors was founded in 2002 by a small group of executive-level consultants who were committed to establishing a mid-sized energy consulting firm with capabilities and a reputation unsurpassed by any firm in North America. Since its inception, Concentric has grown more than eight-fold and has significantly expanded its service offerings, while remaining focused on achieving the highest standards of consulting excellence in the energy field. Concentric has approximately 60 employees who work out of the corporate headquarters in Marlborough, Massachusetts, or in offices in Washington, DC, Chicago, Illinois, and Calgary, Alberta, Canada. Through our subsidiaries, CE Capital Advisors, Concentric Advisors ULC, and Concentric Energy Publications, we provide capital market advisory support, consulting services in Canada, and publish *The Foster Report*.

Our cost of capital team is comprised of several testifying expert witnesses who have filed testimony on cost of capital matters before numerous state and provincial regulatory commissions as well as before FERC and the Canadian Energy Regulator ("CER"). Concentric's cost of capital witnesses are backed by a team of consultants who are highly experienced in all aspects of developing the financial, economic and technical data filed in the proceedings. The cost of capital team has provided expert testimony and support to our clients in more than 100 cost of capital cases in 23 jurisdictions across North America. Our clients include regulated utilities, regulatory commissions and staff, and large customers.

Concentric's approach to providing expert analysis on capital structure and cost of capital balances the theoretical application of the traditional models with a market-based view of the cost of capital. We consider how equity investors respond to current and expected market conditions, and we reflect how those conditions affect the determination of the appropriate cost of equity for regulated utilities. Our expertise incorporates academic research on the traditional financial models used to estimate the cost of equity, including the DCF, CAPM, Risk Premium, and Comparable Earnings analyses. We understand the theoretical derivation of these various methods, as well as the underlying assumptions that are required for each method. We also utilize research supporting the application of alternative models to estimate the appropriate cost of equity for specific utilities under different market conditions. Concentric understands the critical issues that frame the models used, inputs selected, and the importance of the ultimate ROE determinations on all affected parties.