

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Inquiry Regarding the Commission's
Policy for Determining Return on
Equity

Docket No. PL19-4-000

**COMMENTS OF THE ALUMINUM ASSOCIATION, THE AMERICAN
CHEMISTRY COUNCIL, THE AMERICAN FOREST & PAPER
ASSOCIATION, THE AMERICAN PUBLIC POWER ASSOCIATION,
THE ELECTRICITY CONSUMERS RESOURCE COUNCIL, THE
INDUSTRIAL ENERGY CONSUMERS OF AMERICA, THE
NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION,
AND THE TRANSMISSION ACCESS POLICY STUDY GROUP**

June 26, 2019

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I. INTRODUCTION

The Aluminum Association, American Chemistry Council, American Forest and Paper Association, American Public Power Association, Electricity Consumers Resource Council, Industrial Energy Consumers of America, National Rural Electric Cooperative Association, and Transmission Access Policy Study Group (collectively, “Associations”) hereby provide their comments in response to *Inquiry Regarding the Commission’s Policy for Determining Return on Equity*, 166 FERC ¶ 61,207 (2019) (the “NOI”).¹ Associations appreciate the opportunity to provide their collective view² on these important issues.

The Federal Power Act’s consumer-protection standard, as elaborated upon by decades of Commission and judicial case law, requires that base Returns on Equity (“ROEs”) stay attuned to the cost of equity, as that cost rises or falls over the years. Considered in light of that objective, the approach floated in the NOI (and in the *Coakley* and MISO Briefing Orders it references³) is seriously flawed. Among other problems, three stand out as especially grievous:

- There is no rational basis to treat the expected Earnings-to-Book (“E/B”) ratios of exchange-traded holding companies as estimates of the return opportunities available to utility investors;
- The Capital Asset Pricing Model (“CAPM”) should not be distorted by pretending that a market-wide equity portfolio can sustain long-term growth vastly exceeding GDP growth; and

¹ Abbreviations and defined terms are used as those terms are used in the Notice of Inquiry. We refer to particular stocks by their exchange tickers.

² These Comments respond to the NOI, and necessarily (like the NOI itself) reference other pending proceedings to which individual members of the various associations are parties. Nothing in these Comments is intended to modify the position of individual parties in those proceedings.

³ *Coakley v. Bangor Hydro-Elec. Co.*, 165 FERC ¶ 61,030 (2018) (“*Coakley* Briefing Order”); *Ass’n of Bus. advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 165 FERC ¶ 61,118 (2018) (“*MISO* Briefing Order”).

- There is no statutory basis to presume that existing allowed ROEs remain just and reasonable despite exceeding the current cost of equity.

The Associations have sponsored expert testimony from two witnesses. The first is Dr. Bradford Cornell, Emeritus Professor of Finance at Anderson Graduate School of Management at the University of California, Los Angeles, who is a leading academic in the field of finance. His testimony, marked Exhibit A-1, addresses the choice between financial models, issues related to book values and market/book ratios, as well as details of how the Discounted Cash Flow (“DCF”) and CAPM models should be used. Dr. Cornell’s principle recommendations are that the Expected Earnings model not be used and that the specification of the DCF and CAPM models account for long-term limits to growth.

The second is Michael Gorman, Managing Principal of Brubaker & Associates, who has frequently testified on cost of capital issues before the Commission and numerous state regulatory commissions. His testimony, marked Exhibit A-2, addresses issues that have arisen in the Commission’s cases, including specific issues related to the conduct of the DCF, CAPM, Expected Earnings, and Risk Premium methodologies.

II. DESCRIPTION AND INTERESTS OF ASSOCIATIONS

The American Public Power Association (“APPA”) is the national service organization representing the interests of not-for-profit state, municipal and other locally owned electric utilities throughout the United States. More than 2,000 public power utilities provide over fifteen percent of all kilowatt-hour sales to ultimate customers and to businesses in every state except Hawaii. Collectively, public power systems serve over forty-nine million people. APPA utility members’ primary goal is providing customers in the communities they serve with reliable electric power and energy at the lowest reasonable cost, consistent with good environmental

stewardship. This orientation aligns the interests of APPA member electric utilities with the long-term interests of the residents and businesses in their communities.

The National Rural Electric Cooperative Association (“NRECA”) is the national service organization representing the interests of the nation’s almost 900 member-owned, not-for-profit rural electric utilities. Rural electric cooperatives provide electric service to approximately forty-two million people in forty-seven states, representing twelve percent of the nation’s electric customers, while delivering about thirteen percent of all electric energy (kilowatt-hours) sold in the United States. NRECA’s member cooperatives include 831 distribution cooperatives and sixty-two generation and transmission (“G&T”) cooperatives. The distribution cooperatives provide power directly to their end-of-the-line member-consumers. Nearly eighty percent of the distribution cooperatives are member-owners of G&T cooperatives that generate and transmit power to them. The remaining distribution cooperatives receive power directly from other generation sources within the electric utility sector. Both distribution and G&T cooperatives share an obligation to serve their members by providing safe, reliable, and affordable electric service. Many electric cooperatives are transmission customers of public utilities subject to the Commission’s jurisdiction and thus will be directly affected by the Commission’s policies to determine the allowed ROE in public utilities’ transmission rates.

The Electricity Consumers Resource Council (“ELCON”) is the national association representing large industrial consumers of electricity. ELCON member companies produce a wide range of products from virtually every segment of the manufacturing community. ELCON members operate hundreds of major facilities and are consumers of electricity in the footprints of all organized markets and other regions throughout the United States. Reliable electricity supply at just and reasonable rates is essential to our members' operations.

The Transmission Access Policy Study Group (“TAPS”) is an association of transmission-dependent utilities (“TDUs”) in more than thirty-five states promoting open and non-discriminatory transmission access.⁴ Representing entities entirely or predominantly dependent on transmission facilities owned and controlled by others, TAPS has long recognized the need for a robust transmission infrastructure to provide non-discriminatory transmission access and foster competition, thereby enabling TAPS members to meet their load reliably and affordably. As TDUs, TAPS members pay transmission rates that are substantially increased when the Commission allows ROEs that exceed the cost of equity. TAPS has therefore participated actively in numerous Commission proceedings concerning transmission planning, pricing, and incentives policies.

The Aluminum Association (“Association”), based in Arlington, VA, represents U.S. producers and sellers of primary aluminum, aluminum recyclers, producers of fabricated aluminum products, and industry suppliers. Overall, the aluminum industry directly and indirectly contributes nearly 1% of the U.S. GDP. The Association’s policy priorities are focused on trade, infrastructure and transportation, environment and recycling, energy, and workforce development. In the energy area, the Association helps facilitate industrial access to diverse, affordable and reliable energy and raw materials and supports market-oriented, transparent and modernized regulations on energy transmission and ratemaking that reflect the needs of energy-intensive industries and other electricity consumers.

The American Chemistry Council (“ACC”) represents the leading companies engaged in the business of chemistry. ACC members apply the science of chemistry to make innovative products and services that make people’s lives better, healthier and safer. ACC is committed to

⁴ David Geschwind, Southern Minnesota Municipal Power Agency, chairs the TAPS Board. Jane Cirrincione, Northern California Power Agency, is TAPS Vice Chair. John Twitty is TAPS Executive Director.

improved environmental, health and safety performance through Responsible Care®; common sense advocacy designed to address major public policy issues; and health and environmental research and product testing. The business of chemistry is a \$526 billion enterprise and a key element of the nation's economy. It is among the largest exporters in the nation, accounting for ten percent of all U.S. goods exports. Chemistry companies are among the largest investors in research and development. Safety and security have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's critical infrastructure.

The American Forest & Paper Association (“AF&PA”) serves to advance a sustainable U.S. pulp, paper, packaging, tissue and wood products manufacturing industry through fact-based public policy and marketplace advocacy. AF&PA member companies make products essential for everyday life from renewable and recyclable resources and are committed to continuous improvement through the industry’s sustainability initiative –Better Practices, Better Planet 2020. The forest products industry accounts for approximately 4% of the total U.S. manufacturing GDP, manufactures over \$200 billion in products annually, and employs approximately 900,000 men and women. The industry meets a payroll of approximately \$50 billion annually and is among the top 10 manufacturing sector employers in 45 states. AF&PA members own and operate facilities throughout the United States that rely upon the transmission of electricity by FERC-jurisdictional transmission owners. Accordingly, any changes to the Commission’s transmission incentives policy will have a direct financial impact on AF&PA members.

The Industrial Energy Consumers of America (“IECA”) is a nonpartisan association of leading manufacturing companies with \$1.0 trillion in annual sales, over 3,700 facilities

nationwide, and with more than 1.7 milling employees worldwide. It is an organization created to promote the interests of manufacturing companies through advocacy and collaboration for which the availability, use and cost of energy, power or feedstock play a significant role in their ability to compete in domestic and world markets. IECA membership represents a diverse set of industries including: chemicals, plastic, steel, iron ore, aluminum, paper, food processing, fertilizer, insulation, glass, industrial gases, pharmaceutical, building products, automotive, brewing, independent oil refining, and cement.

III. COMMENTS

Our comments are organized to track the NOI outline. Each subpart begins by quoting (in italics) the NOI Question(s) to which it principally responds. Where doing so adds clarity and avoids repetition, we group and respond collectively to multiple consecutive questions.

A. *The Commission's base ROE policy should be designed to keep allowed base ROEs aligned with the cost of equity*

1. A sound approach will detect changes to financial market conditions or to the riskiness of the subject utility, and otherwise hold steady

A1. To what extent would the ROE methodology described in the Coakley and MISO Briefing Orders impact the predictability of ROE determinations and the costs for market participants of making or intervening in such proceedings?

A2. How would using the ROE methodology described in the Coakley and MISO Briefing Orders affect an investor's ability to forecast the ROE the Commission would establish in a litigated proceeding and the ability of participants to propose, contest, and settle base ROEs as compared to using only the DCF methodology?

A3. Currently, public utilities in different Independent System Operators (ISOs) or RTOs may receive different ROEs, despite all using national proxy groups, due primarily to differences in when FPA section 205 or 206 proceedings were initiated. Are such variations justified, and, if not, should the Commission consider applying the same ROE to all utilities in RTOs/ISOs based on the most recent proceeding?

These three questions are inter-related; they all concern the predictability and variability of the proposed “new approach”⁵ described in the *Coakley* and MISO Briefing Orders (hereinafter, the “Proposed New Approach” or “PNA”). Before addressing them, it is worth taking a step back to identify the objectives that should frame review and adjustment of base ROEs. These objectives should not be controversial.

- Base ROEs should be set at, and adjusted to stay attuned to, the cost of equity, as that cost rises or falls over the years.⁶
- The approach⁷ used to estimate the cost of equity should achieve reasonably consistent and predictable results across cases and over time. This objective requires that the approach and its underlying methods take account of changed financial market conditions, without being overly sensitive to minor variations in proxy group composition or study period. When the regulated entity at issue is more or less risky (compared to one at issue in another contemporaneous case), or when financial market conditions change moderately, the approach used should produce *commensurately* higher or lower results.
- The approach used to identify the cost of equity should be designed to do that specific job well. Base ROEs (which apply to utilities’ entire rate bases, including facilities built long ago) should not be distorted in pursuit of policy goals related to providing incentives for new construction or other initiatives. Rather, those policy goals should be addressed through explicit, tailored, and explicitly justified incentives. And the approach used to determine base ROEs should not be distorted in an effort to produce ranges that have a desired effect in allowing or cabining incentive ROE adders.
- These objectives, not past practice, should drive the resolution of the issues raised in the NOI. This means that techniques other than the Commission’s longstanding DCF

⁵ *Coakley* Briefing Order PP 19, 31.

⁶ See Part III.F.3, *infra* (addressing NOI Question F3).

⁷ As discussed in Parts III.E and III.H.1.b), *infra*, in future cases, the Commission could reasonably employ a combination of market-based techniques for estimating the cost of equity, such as DCF, CAPM, and risk premium. We will hereafter use the singular “approach” to encompass integration of multiple techniques—but we do so for ease of reading, not to prejudge that issue.

method should be used *if but only if* doing so promotes accurate and predictable equity cost estimation. It also means that practices that were adopted to deal with past case-specific situations should be discarded if they are no longer useful.

An approach that meets these objectives will advance the Commission's primary mission of keeping regulated rates cost-based, and produce a host of other benefits. If the ROE determination method is sound, it will produce similar results over time, absent a substantial change to financial market conditions or to the riskiness of the subject utility. Consequently, absent such changes, neither regulated entities nor potential complainants would find it worthwhile to seek to change an existing allowed ROE. And if they did, by producing consistent and predictable results, a well-designed approach will promote settlement and otherwise enable more rapid resolution of ROE litigation. Relatedly, a well-designed approach would keep the focus of ROE litigation on issues that will be instructive for subsequent cases, rather than on one-off controversies such as whether particular companies belong in the proxy group for a particular case.

Unfortunately, the PNA does not meet these design objectives. The particular flaws in its underlying cost-estimating methods will be addressed below, in the Parts addressing specific techniques.⁸ But one over-arching flaw bears discussion here, because it goes directly to NOI Question A1 regarding predictability.

Any approach that relies on *ranges* of proxy results (that is, on the single lowest and single highest retained result among the larger number of results generated by a sizeable proxy group), rather than utilizing all of the information found in the *distribution* of retained proxy group results, is antithetical to predictability. Elementary statistics teach that the extremes of ranges vary widely from sample to sample. Consequently, discarding information on the

⁸ See Parts III.E and III.H, *infra*.

distribution of proxy results and considering only their extremes is statistically indefensible.⁹

Reviewing courts have likewise recognized this point.¹⁰ *Emera Maine v. FERC*¹¹ found it significant that the 10.57% percent base ROE of Opinion No. 531 “was higher than 35 of the 38 data points FERC used to construct its DCF zone of reasonableness.”¹² The reason is obvious: each of the retained proxy results from a properly-conducted study provides important information on the cost of equity. The midpoint of a range is ““an obvious place to begin”” only when there is no other information provided by the distribution of results within that range. *See Emera Maine* at 30 (quoting *Tenn. Gas Pipeline Co. v. FERC*, 926 F.2d 1206, 1213 (D.C. Cir. 1994)).

Here is an experiential proof of this point. Select at random fifteen of the U.S.’s fifty states, and rank them by land area.¹³ Your sample’s median-size (eighth-largest) state is similar in size to Wisconsin and Florida (each about 53,000 square miles), right? But what’s the sample’s smallest state? It will vary widely, depending on whether or not you happened to draw Rhode Island, or Delaware, or neither. And what’s the sample’s largest state? It too will vary widely, depending on whether or not you happened to draw Alaska, or Texas, or neither.

Objections have frequently been raised regarding the Commission’s use of the midpoint of the proxy group range of returns to set the authorized base ROE for transmission owners (“TOs”) in ISO-NE and MISO, with parties arguing that use of the midpoint places too much emphasis on highest and lowest proxy group results. While Associations are gratified that the

⁹ See, e.g., *S. Cal. Edison Co.*, 131 FERC ¶ 61,020 (2010), reh’g denied, 137 FERC ¶ 61,016 (2011) review granted in part and denied in part sub nom. *S. Cal. Edison Co.*, 717 F.3d 177 (D.C. Cir. 2013); *Nw. Pipeline Corp.*, 99 FERC ¶ 61,305 (2002).

¹⁰ See *S. Cal. Edison Co v. FERC*, 717 F.3d 177 (D.C. Cir. 2013).

¹¹ 854 F.3d 9 (D.C. Cir. 2017).

¹² *Id.* at 28.

¹³ This example is based on the sortable list of state land areas by size at column six of https://en.wikipedia.org/wiki/List_of_U.S._states_and_territories_by_area.

Commission may be willing to consider revisiting that policy,¹⁴ the PNA, as proposed, would rely on ranges in contexts where that problematic measure has not previously been used. For example, if “applying the same ROE to all utilities in RTOs/ISOs based on the most recent proceeding” (as proposed in Question A3) meant extending to other Regional Transmission Operators (“RTOs”) the range-based (midpoint, or upper midpoint) technique heretofore used only in MISO and New England, the result would be arbitrary. Such an approach would erroneously discard the Commission’s correct and judicially-affirmed determination that medians serve better than midpoints in capturing the representative value from a proxy distribution. Much the same can be said of the PNA’s “quartile” proposal, under which an existing ROE would be presumed to remain just and reasonable unless it exceeded the center of a composite range by one eighth of a composite range width.¹⁵ Beyond the other shortcomings of that proposal,¹⁶ relying on one eighth of the range width would give erratic, range-based measures new and wider significance.

A fortiori, the Commission should not consider applying the same ROE to all utilities in RTOs/ISOs based on the most recent ROE proceeding, as proposed in Question A3. Such an approach would err in ignoring differences between different RTO participants and rate contexts. For example, in *New York Independent System Operator, Inc.*¹⁷ the Commission approved a settlement agreement that incorporated a 9.65% base ROE for New York Transco, LLC, an RTO participant¹⁸. In Docket No. ER19-1553, Southern California Edison (“SCE”) is contending that wildfire-related risks make California transmission ownership uniquely risky and warrant a base

¹⁴ See Part III.D.6, *infra* (addressing Question D10).

¹⁵ See Part III.G, *infra*.

¹⁶ See *id.*

¹⁷ 161 FERC ¶ 61,161 (2017).

¹⁸ See N.Y. Transco LLC, Explanatory Statement in Support of Offer of Settlement at 6 (Aug. 21, 2017), eLibrary No. 20170821-5036.

ROE of 17.12%.¹⁹ An approach under which the most recent RTO-participant transmission ROE result controls the ROE for all RTO-participating TOs, such that both SCE and N.Y. Transco would receive the same base ROE, would imply either *per se* disregard of SCE's claim to unique risks, or that SCE's allowed ROE would control the allowed base ROE for N.Y. Transco, notwithstanding its 2017 settlement. Neither approach would be reasonable. SCE's allowed ROE should reflect the record evidence as to SCE's particular cost of transmission equity, and that outcome should not be imputed to N.Y. Transco.

2. "Vintage" ROEs would fail to track the capital costs of continued ownership

A4. Should the ROE reflect the cost of capital at the time of the investment or be subject to adjustment to reflect the contemporary ROE required by investors?

A4.a. Should the Commission consider a "vintage approach," with ROE fixed for the life of the asset at the time that each asset was completed?

A4.b. Would such a "vintage approach" need to be coupled with an annual national default ROE for investments made in that year, so as to minimize the need for numerous annual litigated ROE proceedings for each public utility that made an investment during that year? What procedure should be used to determine such a default ROE?

A utility company's cost of equity is the return that equity investors require in order to be induced to have their capital invested in the company's assets used to provide regulated utility service.²⁰ But investors invest in the utility company, not in particular assets. The utility company's current cost of the equity invested in a long-lived utility asset is not the cost (or, rather, costs²¹) of equity when the asset was built, or its costs when the asset entered service, any

¹⁹ See SEC, Transmission Owner Tariff Transmission Rate Filing, Transmittal Letter at 11 (Apr. 11, 2019), eLibrary No. 20190411-5001; see also *S. Cal. Edison Co.*, 167 FERC ¶ 61,214 (2019) (establishing hearing procedures).

²⁰ See *Coakley* Briefing Order P 36 n.73 ("A utility's cost of equity is the return that the utility must provide its shareholders in order to induce them to invest their capital in that utility. A utility's ROE is the return that the utility generates by using that invested capital in its operations."); MISO Briefing Order P 38 n.68 (same).

²¹ Construction takes time, and transmission projects may be completed and placed into service in phases. Thus, in addition to the conceptual error addressed in the text, a "vintage approach" would require more than one allowed base ROE per rate base asset.

more than the cost of natural gas or coal burned in a generating plant stays tied to the low, or high, costs that the relevant fuel had when the plant was being built or entered service. Because capital is mobile, at any given time the original cost of inducing it to stay invested in a utility company is the market-based cost of capital attraction, which equals the return then available in capital markets for other investments of comparable risk. For example, the vast majority of new equity capital raised by utilities or their parents is raised by retaining earnings (rather than issuing new stock). The cost of inducing shareholders to allow their company's earnings to be reinvested rather than paid out to shareholders is those shareholders' "opportunity cost," meaning the return that "stockholders themselves could earn on alternative investments of equivalent risk."²²

If a "vintage approach" to ROEs were correct, a logical way to apply it to electric utilities would be to permanently tie each asset's ROE to its Allowance for Funds Used During Construction ("AFUDC") rate, as specified in the Uniform System of Accounts, 18 C.F.R. pt. 101, Electric Plant Instruction No. 3(17), including its weighted reflection of the cost of short-term debt. But that approach would be erroneous, because the short-term debt and other funds that finance the initial construction of a long-lived asset do not remain invested in that asset permanently. Rather, they are refinanced when they mature or the cost of capital declines, whichever comes first.

The proposed approach likewise runs contrary to settled law. The capital attraction standard of *Hope*²³ and *Bluefield*²⁴ contemplates that ROE results will vary over time as the cost

²² Michael C. Ehrhardt & Eugene F. Brigham, *Corporate Finance: A Focused Approach* at 344-45 (4th ed. 2011), <https://epdf.pub/download/corporate-finance-a-focused-approach-4th-edition-2010.html>.

²³ *FPC v. Hope Nat'l Gas Co.*, 320 U.S. 591, 603 (1944) ("Hope") (A just and reasonable return is "commensurate with returns on investments in other enterprises having corresponding risks" and "should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain [a utility's] credit and to attract capital.").

²⁴ *Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm'n*, 262 U.S. 679, 693 (1923) ("Bluefield") ("The

of capital changes: “A rate of return may be reasonable at one time and become too high or too low by changes affecting opportunities for investment, the money market and business conditions generally.”²⁵ When the cost of capital rises, that means investors expect a correspondingly higher cost-based return, even if the utility in which their capital has been invested does not issue new shares or increase its net rate base. As debt rolls off a prudent utility’s balance sheet and is replaced with new debt bearing a different interest rate (whether due to re-financing or bond issuances reaching maturity), the utility’s cost of debt changes. In effect, a comparable form of capital cost updating applies to equity, only it occurs continuously rather than as debt revolves. Indeed, a utility’s capital structure generally will vary over time, in part because the relative cost of debt and equity changes over time. Nobody would contend that a utility that meets the standards for application of an actual capital structure should have multiple asset-by-asset capital structures with each asset’s capital structure permanently tied to what it was during construction. Capital structures change. This variation proves that over the course of its long life, a given utility asset is not funded exclusively by the financing that was in place when it entered service.

In short, the capital cost of continuing to own an asset is not fixed at the cost of capital prevailing when it was built or completed. Accordingly, a “vintage approach” would depart from the ongoing cost of continuing to finance assets.

In addition to being conceptually erroneous, a “vintage approach” risks causing financial distress to utilities or their customers. When inflation, interest rates, and the cost of equity soared

return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties.”).

²⁵ *Id.*; see also *Hope* at 615 (“This is not an order for all time. The Act contains machinery for obtaining rate adjustments.”).

in the 1970s, utility rate bases largely consisted of assets that had entered service when capital costs were much lower. If their allowed ROEs had been pegged to pre-1970s costs of equity, they would have greatly under-recovered their capital costs, suffering an extreme version of “regulatory lag” at a time of rising costs. Conversely, vintage ROEs established when capital costs are high could become excessive when capital costs decline. If adopted, the “vintage approach” described in the NOI would set the industry up for either scenario. In extreme circumstances, a public utility might claim a vintage approach deprives it of the return required by the Constitution and the FPA, and measures to avoid that result could devolve into a one-way street in which too-low vintage ROEs are raised to market levels but excessive vintage ROEs remain in place—inflate the company’s overall allowed return.

B. *Pipeline stocks’ E/B ratios illuminate those ratios’ disconnection from the cost of equity*

B3. Given the tendency of the Expected Earnings methodology to produce more high-end outliers than the other methodologies, would there be a sufficient number of natural gas and oil pipeline proxy members to implement the Expected Earnings methodology for gas and oil pipelines?

Associations’ relevant interests center on electric transmission issues, and Associations therefore take no collective position in these comments on issues specific to ROEs for pipelines. However, Question B3 bears on electric transmission ROEs, because the E/B ratios of pipeline stocks illuminate how arbitrary it would be to view E/B ratios as indicating the cost of equity. The “Expected Earnings” component of the PNA would look to the E/B ratios forecast by Value Line for the period three-to-five years ahead.²⁶ For exchange-traded major stocks classified by Value Line as in the “oil/gas distribution” industry (the sector in which Value Line classifies pipeline stocks), those forecasts currently include 37.0% for Cheniere Energy;²⁷ 22.0% for

²⁶ Coakley Briefing Order PP 49-50.

²⁷ May 31, 2019 Value Line report for LNG (forecast return on shareholder book equity).

Enterprise Product Partners, L.P.,²⁸ 42.0% for Magellan Midstream Partners, L.P.,²⁹ 26.5% for Oneok, Inc.,³⁰ and 16.0% TransCanada Corp.³¹ Because Commission-allowed pipeline ROEs are much lower, if those E/B ratios corresponded to pipelines' actual costs of equity, pipelines would be vastly under-recovering their cost of equity, and consequently would not be investing in new assets. But the facts are to the contrary.

Accordingly, the fundamental problem with the E/B method is not that it produces too few data points to be used for pipelines. The fundamental problem is that the data points it produces do not indicate the cost of equity.

C. *The DCF model performs well across wide variations in interest rates and stock prices*

C1. The DCF model assumes stock prices are equal to the present value of projected future cash flows. Is there evidence of situations when these assumptions are inaccurate?

C2. Have current and projected proxy company earnings over the last 10 to 20 years increased in a manner that would justify any increases in their stock prices over the same period, consistent with DCF model assumptions?

C3. How does the DCF methodology perform over a wide range of interest rate conditions?

C3.a. What specific assumptions of the DCF model, if any, do not work well in low or high interest rate environments?

C3.b. Is there evidence that the volatility of price-to-earnings ratios over the last 10 to 20 years, assumed to be constant in the DCF methodology, has been driven by the wide swings in interest rates over this period? If so, would the constant P/E assumption impact the award of reasonable ROEs?

The use of DCF modelling is well-accepted among both academic researchers and finance industry practitioners, including for electric utility stocks. The DCF model does assume that stock prices are equal to the present value of projected future cash flows, but that is an

²⁸ May 31, 2019 Value Line report for EPD (forecast return on partners' book capital).

²⁹ May 31, 2019 Value Line report for MMP (forecast return on partners' book capital).

³⁰ May 31, 2019 Value Line report for OKE (forecast return on shareholder book equity).

³¹ May 31, 2019 Value Line report for TRP (forecast return on book common equity).

entirely reasonable assumption: future cash flows are what investors receive in exchange for putting present liquid funds into stocks, and there is no evidence that stock prices fail to reflect the discounted present value of investors' projected future cash flows. As Mr. Gorman explains,³² the DCF method is especially well-suited to electric utility stocks, given that both the method and utility stocks focus on present and future dividends as the means through which investors obtain returns.

Contrary to the NOI's implicit premises, none of the DCF method's assumptions depends on a specific interest rate environment or on a constant price-to-earnings ("P/E") ratio. Indeed, when the Commission first embraced the DCF method—in the early 1980s—interest rates were much more historically atypical than they are now. *See, e.g., Generic Determination of Rate of Returns on Common Equity for Pub. Utils.*, Order No. 420 31 FERC ¶ 61,168, FERC Stats. & Regs. at 31,344 (concluding that DCF-based benchmark public utility ROE of 15.25% was consistent with the "12.0-12.25 percent average interest rate on U.S. government bonds for the base year" and the "13.5 percent interest rate on newly issued public utility bonds for the base year").³³ Similarly, P/E ratios varied widely from the time the Commission began considering use of the DCF method (in the late 1970s³⁴), through its early 1980s embrace of the method, and thereafter.³⁵ The Commission relied on the DCF method, alone, through widely diverse financial

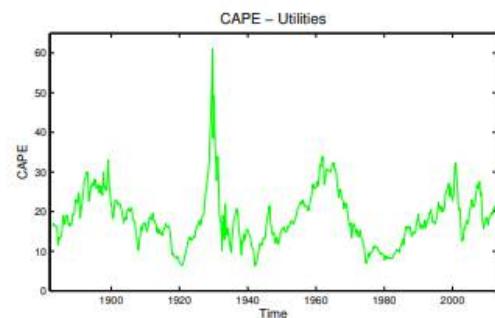
³² *See* Ex. No. A-2, § C3.

³³ *Reh'g denied*, Order 420-A, 32 FERC ¶ 61,257 (1985).

³⁴ *See Coakley v. Bangor Hydro-Elec. Co.*, Op. No. 531, 147 FERC ¶ 61,234, P 14 n.26 (2014) ("The Commission first took cognizance of the DCF methodology in public utility cases as far back as the 1970's. *See, e.g., Minn. Power and Light Co.*, 3 FERC ¶ 61,045, at 61,132-33 (1978). . . .")

³⁵ *See* Oliver D. Bunn & Robert J. Shiller, Cowles Found. Discussion Paper No. 1950, *Changing Times, Changing Values: A Historical Analysis of Sectors Within The US Stock Market 1872-2013* at 17 (June 2014), <https://cowles.yale.edu/sites/default/files/files/pub/d19/d1950.pdf>. These leading authors on P/E ratios present this chart of cyclically-adjusted utility P/E ratios:

market conditions, such as those of study periods that encompassed the exceptionally strong economic recovery of 1984–85,³⁶ the market turmoil following the terrorist attacks of September 2001,³⁷ the financial crisis of late 2008,³⁸ and the recovery of mid-2010.³⁹ Dr. Morin, in the textbook cited by the NOI, enumerates both “[t]he four crucial assumptions of the general DCF model” and four additional assumptions underlying the mathematically more tractable “standard DCF model.”⁴⁰ None of these eight assumptions requires a constant interest rate or a constant P/E ratio.⁴¹ In a later passage labelled “Musings on DCF,” Morin asserts that the “infinite growth DCF model assumes a constant market valuation multiple, that is, a constant price/earnings (P/E) ratio,”⁴² but this assertion is tied to the flawed model in which first-stage earnings growth is assumed to continue forever.⁴³



³⁶ See *Bos. Edison Co. v. FERC*, 885 F.2d 962, 965-66 (1st Cir. 1989) (affirming exclusive reliance on DCF analysis for a study period of November 1984–April 1985).

³⁷ See *Midwest Indep. Transmission Sys. Operator, Inc.*, 99 FERC ¶ 63,011, P 33, aff'd, 100 FERC ¶ 61,292 (2002), reh'g denied, 102 FERC ¶ 61,143 (2003), remanded sub nom. *Pub. Servs. Comm'n of Ky. v. FERC*, 2004 WL 222900, on remand, 106 FERC ¶ 61,302 (2004) (“MISO”), aff'd in part sub nom. *Pub. Serv. Comm'n of Ky. v. FERC*, 397 F.3d 1004 (D.C. Cir.) (“PSCKY”), on remand, 111 FERC ¶ 61,355 (2005).

³⁸ See *S. Cal. Edison Co. v. FERC*, 717 F.3d 177, 180 (D.C. Cir. 2013).

³⁹ See *Atl. Grid Operations A LLC*, 135 FERC ¶ 61,144, PP 94-95 & n.62 (2011).

⁴⁰ Roger A. Morin, *New Regulatory Finance* at 251-52, 255-56 (Pub. Utils. Reports 2006).

⁴¹ The terminal stock price variant of the DCF model assumes a constant ratio, but the Commission has not used that variant, and should not adopt it now.

⁴² *Id.* at 432.

⁴³ See *id.*; see also *id.* at 433-34 (providing a hypothetical that turns on equating investors’ expected return with their return over a single year next during which the P/E ratio rises, rather than the long-term expected return provided through expected dividends and the price appreciation they induce).

Thus, when Question C2 asks whether utility proxy company earnings have increased in recent decades “in a manner that would justify any increases in their stock prices over the same period, consistent with DCF model assumptions,” it misstates what the DCF model assumes. This error has multiple dimensions. First, the DCF model is forward-looking, and forward expectations of utility earnings can increase even if past earnings have been flat. Second, the earnings-related factor that is central to the DCF method projects earnings *growth* (not earnings as such), because the earnings growth rate is a key factor in predicting the sustainable rate of growth in dividends. Third, if investors’ willingness to defer consumption increases—that is, if the discount rate for which the DCF method solves decreases—then share prices will increase even if nothing else changes, because future dividends will have a higher present value. Fourth, “[a] utility’s cost of equity is determined, at least in part, by comparison with other potential investments. As the return on those investments fluctuates, so too will the utility’s cost of equity and, by extension, the ROE needed to service that cost of equity.”⁴⁴

Fifth and most fundamentally, the market price of stocks, including the electricity sector stocks referenced in Question C2, reflects supply and demand. Both of those factors reflect the returns available on other, risk-comparable investments,⁴⁵ and both can change for reasons independent of the stock’s risk. As shown in the figure below (reproduced from the Credit Suisse *Global Wealth Report*⁴⁶), total global wealth has nearly *tripled* since 2000, as China’s economy boomed, Eastern Europe transitioned to market economics, *etc.* Even before most of this growth,

⁴⁴ Coakley Briefing Order P 29; MISO Briefing Order P 31.

⁴⁵ The demand side of this equation is intuitively obvious. The supply side may not be as obvious, but it too exists; low debt costs make it more likely that utilities needing new financing will issue debt rather than new equity shares.

⁴⁶ Credit Suisse Research Inst., *Global Wealth Report 2018*, at 13 fig. 2 (2018) <https://www.credit-suisse.com/corporate/en/research/research-institute/global-wealth-report.html>.

Ben Bernanke, who subsequently chaired the Federal Reserve, observed⁴⁷ the existence of a “global savings glut” that was increasing security prices. Meanwhile, population growth has slowed,⁴⁸ and with it the demand for investments in new durable assets to serve growing populations. For example, the sizeable increase in European wealth (shown in the second-from-bottom band of Credit Suisse’s Figure 2 below) occurred even while “[f]ertility in all European countries is now below the level required for replacement of the population in the long run (around 2.1 births per woman, on average) and, in most cases, has been below the replacement level for several decades.”⁴⁹ Contemporaneously, foreign capital has flooded into U.S. utility ownership. As of 2017 (the most recent year available), foreign *direct* investment in U.S. electric power generation, transmission, & distribution totaled almost \$76 billion, a 23% increase over five years,⁵⁰ and foreign ownership of shares of U.S. utility equities is likely several times larger.⁵¹ Much as electricity consumers should benefit when fuel supplies outstrip fuel demand

⁴⁷ Ben S. Bernanke, *The Global Saving Glut and the U.S. Current Account Deficit* (Mar. 10, 2005), <http://www.federalreserve.gov/boarddocs/speeches/2005/200503102/>.

⁴⁸ See U.N. Dep’t of Econ. & Soc. Affairs, Population Div., *World Population Prospects 2019*, <https://population.un.org/wpp/> (last visited June 21, 2019). Using the U.N.’s interactive data query function, from 1950-1990, the average annual rate of population change (averaged in five-year increments) ranged from 1.78% to 2.05%. That average declined steadily from 1990 to 2015, declining from 1.51% to 1.18%. Currently (from 2015 to 2020, combining actual data with projections), it is 1.09%. Over the succeeding 40 years, it is projected to continue declining steadily, from 0.98% to 0.38%.

⁴⁹ U.N. Dep’t of Econ. & Soc. Affairs, Population Div., *World Population Prospects: Key Findings and Advance Tables*, at 5 (rev. 2017), (https://population.un.org/wpp/Publications/Files/WPP2017_KeyFindings.pdf).

⁵⁰ Org. for Int’l Invest., *Foreign Direct Investment in the United States 2018*, App. B (2018), <https://ofii.org/dmfile/FDIUS-2018-Report.pdf>.

⁵¹ Data on such ownership broken out by sector is not readily available, but taking U.S. equities as a whole, non-U.S. investors currently hold approximately \$7.3 trillion of U.S. corporate equities. See Bd. of Governors of the Fed. Reserve Sys., *Financial Accounts Guide*, tbl.L.133 (June 6, 2019), <https://www.federalreserve.gov/apps/FOF/guide/L133.pdf>. That is 24% of U.S. equities’ market capitalization, which was \$30.4 trillion as of year-end 2018. See World Bank, *Market Capitalization of Listed Domestic Companies (Current US\$)*, (last visited June 21, 2019) <https://data.worldbank.org/indicator/CM.MKT.LCAP.CD?locations=US>. Applying that 24% ratio to the year-end 2018 market capitalization of the 43 utility equities included in the Edison Electric Institute Index (\$731 billion, see Edison Elec. Inst., Stock Performance tbl.XI (Q4 20-18), <http://www.eei.org/resourcesandmedia/industrydataanalysis/industryfinancialanalysis/QtrlyFinancialUpdates/Pages/default.aspx>, one can estimate that non-direct, portfolio investment by foreign investors in U.S. utilities is approximately \$175 billion.

and thereby decrease the market price of fuel, electricity consumers should benefit when capital supplies outstrip capital demand and thereby decrease the market price of capital.

In short, the cost of equity identified by the DCF method reflects factors such as investors' relative preference for current dollars in comparison to future dollars, investors' risk perceptions of utilities, returns on alternative investments, and capital supply and demand. Consequently, utility stock prices can vary if any of these factors change, even with no change to realized or expected utility earnings.⁵²

⁵² See *Generic Determination of Rate of Return on Common Equity for Pub. Utils.*, Order No. 489, 42 FERC ¶ 61,122, FERC Stats. & Regs. at 30,990 (finding that prices in the DCF model change in response to “expectations about the real interest rates, the expected rate of inflation, and the ‘risks’ associated with owning a particular stock.”), *reh'g denied*, Order No. 489-A, 42 FERC ¶ 61,390 (1988); Berry Aff., Initial Paper Hearing Brief of MISO Complainant-Aligned Parties, Ex. No. OMS-100, P 23, *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, No. EL14-12-003 (Feb. 13, 2019), eLibrary No. 20190213-5140; See also *id.*, Solomon Test., Ex. No. JCI-100, at 22-23 (the required rate of return for which the DCF formula solves “certainly changes over time and is influenced by a myriad of factors in addition to expected growth in earnings/dividends. Such factors include expected opportunity costs, or expected returns that might be earned on alternative investments, changes in risk perceptions, changes in risk tolerance, changes in a desire for current income versus longer-term capital gains, expectations about inflation, expectations about real interest rates, expectations about the U. S. economy in general and various sectors of the U. S. economy specifically as well as expectations about the global economy, among others. Under the DCF theory, as those factors change, stock prices will change even if earnings or expected growth

D. When setting electric utility ROEs, dividend-paying U.S. electric utility stocks screened by credit ratings can provide risk-comparable and amply-sized proxy groups

1. Risk comparability is the core consideration in forming proxy groups, and in most cases can be achieved through bright-line standards

D1. Should proxy groups for electric utilities, as well as natural gas and oil pipelines, consist only of companies with corresponding regulated businesses?

D1.a. For companies with a combination of regulated and unregulated businesses, should a company be required to derive a certain percentage of its revenues from the applicable regulated business in order for that company to be included in the proxy group that is used to determine an ROE for a company in that regulated business?

D1.b. Are the corresponding proxy groups sufficiently large given the continued consolidation in the industries?

D2. Should risk be considered both in the proxy group selection and in the placement within the zone of reasonableness?

D2.a. Should the Commission's approach to proxy group selection change depending on which financial models it considers when determining the just and reasonable ROE and, if so, how?

D3. Should the Commission consider non-energy companies when selecting proxy groups?

D3.a. What non-energy industries or securities have comparable risk to public utilities and natural gas and oil pipelines, if any?

D3.b. Do certain non-energy industries or securities feature fewer outliers?

Opinion No. 531 correctly recited precedent setting forth the purpose of proxy groups, and the corresponding touchstone in determining what companies to include:

[T]he purpose of the proxy group is to ‘provide market-determined stock and dividend figures from public companies comparable to a target company for which those figures are unavailable. . . . It is thus crucial that the firms in the proxy group be comparable to the regulated firm whose rate is being determined. In other words, as the court emphasized in *Petal*, the proxy group must be risk-appropriate.⁵³

in earnings/dividends do not change.”)

⁵³ Opinion No. 531, P 46 n.184 (quoting *Petal Gas Storage, L.L.C. v. FERC*, 496 F.3d 695, 699 (D.C. Cir. 2007)) (internal quotation marks omitted); *Composition of Proxy Groups for Determining Gas and Oil Pipeline Return on*

Thus, the primary consideration in forming proxy groups is that they be tightly representative of the subject utility's risk. An important secondary consideration is that all else equal, a larger group provides more assurance that a reasonable statistical interpretation of the results from financially modelling that group will resemble what would result if the subject utility could be modeled directly.⁵⁴ In practice, those two goals are in tension: loosening proxy group composition criteria enlarges the resulting proxy group, but brings in companies that are less representative.

The best way to balance these competing considerations depends on how the proxy group results are used. If the Commission were to focus on the *range* of proxy results (erroneously, in our view⁵⁵) then the proxy group should be small and very tightly representative, as the disparate results from modeling less-representative proxies are likely to determine the range.⁵⁶ In the remainder of this subpart, however, we will assume that the Commission avoids that error, and looks to the median (or other applicable percentile) of the proxy group distribution.⁵⁷ In that case, the best way to balance individual-proxy representativeness with larger-group statistical reliability would involve three principles. The Commission should

- One, promulgate generally-applicable criteria for proxy group formation that will produce amply-sized proxy groups in the great majority of cases;

⁵⁴ *Equity*, 123 FERC ¶ 61,048, at P 48 (2008).

⁵⁵ All else equal, with a larger proxy, the unavoidable respects in which any one proxy group member differs from the subject utility will be offset by countervailing differences of other proxy group members.

⁵⁶ See Part III.A.1, *supra*, and Parts III.D.2 and III.D.6, *infra*.

⁵⁷ See *Ark. Elec. Coop. v. ALLETE, Inc.*, 155 FERC ¶ 63,030, PP 51-53 (2016) (characterizing as “sound,” and applying, argument that where range ends determine the allowed ROE, a “conservative” (i.e., restrictive) approach should be taken in admitting candidate stocks into the proxy group), *corrected*, No. EL15-45-000 (July 1, 2016), 156 FERC ¶ 63,004 (2016), and 165 FERC ¶ 63,021 (2018).

⁵⁸ The *Coakley* Briefing Order suggests an intention to “continue to use the midpoint of the zone of reasonableness as the appropriate measure of central tendency for a diverse group of average risk utilities and the median as the measure of central tendency for a single utility.” *Id.* P 17 n.46. The representative distribution’s median (or other risk-appropriate percentile) certainly should continue to be used in single utility cases, but, as discussed herein, the Commission should reconsider its proposal to rely on the midpoint of the zone of reasonableness when establishing an RTO-wide ROE.

- Two, identify a minimum number of proxies and provide that some criteria may be relaxed if necessary to gather that minimum number; and
- Three, provide that where proxy group composition criteria are relaxed in order to gather more proxies, the placement of the allowed base ROE within the proxy group distribution will be adjusted to reflect any resulting lack of proxy-utility risk comparability.

We further suggest the following specific population targets for the first and second principles, in electric utility cases. The generally-applicable proxy group criteria should be designed to usually produce initial proxy groups with ten to thirty members. That is, the generally-applicable criteria should be considered overly stringent if they usually identify fewer than ten candidate proxies, and overly loose if they usually produce more than thirty candidate proxies. In a particular case where the standard bright-line criteria and any further judgmental criteria (such as excluding companies engaged in substantial mergers or acquisitions) produce a group with fewer than four members (the minimum proxy group size identified in prior case law, and reasonably so⁵⁸), the proxy group composition criteria should be loosened for that case, and the third principle should then come into play.

In that framework, each of the PNA's three bright-line exclusion criteria is reasonable. These criteria require exclusion of companies that either (1) are not classified by Value Line as exchange-traded U.S. electric utility stocks; (2) have no credit rating from either Moody's or S&P, or have a rating from either source that is more than one notch different from that of the subject utility; or (3) either pay no dividends or have made or announced a dividend cut during

⁵⁸ See *High Island Offshore Sys., L.L.C.*, 110 FERC ¶ 61,043, PP 117, 118, 124, *reh'g denied*, 112 FERC ¶ 61,050, *clarified*, 113 FERC ¶ 61,280 (2005), *aff'd in part and vacated in part sub nom. Petal Gas Storage L.L.C. v. FERC*, 496 F.3d 695 (D.C. Cir. 2007); *Kern River Gas Transmission Co.*, Op. No. 486, 117 FERC ¶ 61,077 (2006), *on reh'g*, Op. No. 486-A, 123 FERC ¶ 61,056 (2008), *on reh'g*, Op. No. 486-B, 126 FERC ¶ 61,034, *reh'g denied*, Op. No. 486-C, 129 FERC ¶ 61,240 (2009), *reh'g denied*, Op. No. 486-D, 133 FERC ¶ 61,162 (2010); *S. Cal. Edison Co.*, Op. No. 445, 92 FERC ¶ 61,070 (2000), *reh'g denied*, 108 FERC ¶ 61,085 (2004).

the six month study period.⁵⁹ Each of these criteria is simple to apply and usefully promotes risk comparability between the proxy group and the subject utility. There is no need to degrade risk comparability by referencing as proxies entities that lack qualifying utility-industry participation or risk-comparable bond ratings, or which have recently been forced to take the extraordinary step of cutting dividends. Applied conjunctively, these criteria will usually leave ten to thirty eligible proxy candidates, as there are currently around forty stocks classified by Value Line as U.S. electric utilities, and in most cases the credit rating and dividend screens will admit more than one-quarter but fewer than three-quarters of those forty stocks. Absent extraordinary circumstances, therefore, it would not be productive to invite litigants to argue that companies excluded by one or more of these bright-line tests are nonetheless “comparable” to companies engaged in rate-regulated electric transmission.

The Question D1.a suggestion of a further criterion requiring a minimum percentage of revenues from the applicable regulated business is sound in theory, but not practical as applied to electric transmission ROEs. Few, if any, exchange-traded companies consistently receive the majority of their revenues from rate-regulated electric transmission.⁶⁰ Segmented reporting is not uniform across companies, making it difficult to compare across candidate proxies the share of revenues, earnings, or assets associated with rate-regulated electric transmission. Accordingly, the practical test for substantiality of regulated electric business, which should be retained, is the PNA’s bright-line requirement that a stock be classified by Value Line as a U.S. electric utility in order to be included in an electric case proxy group. That said, the use of proxy results should

⁵⁹ See Coakley Briefing Order, P 49.

⁶⁰ ITC Holdings did so, but has been acquired by Fortis, Inc. Eversource Energy may now be the stock with the highest share of its revenues derived from U.S. electric transmission, but even for it, electric transmission contributed only about 41% (\$427.2 million of \$1.033 billion) of 2018 earnings. See News Release, Eversource Energy, *Eversource Energy Reports Full Year 2018 Results* (Feb. 20, 2019), https://www.eversource.com/content/docs/default-source/investors/eversource-fourth-quarter-earnings-2018.pdf?sfvrsn=2909cb62_0.

recognize that exchange-traded stocks are imperfect proxies for regulated operating utilities, and even less perfect as proxies for those utilities' transmission segments. The fact that no individual proxy maps directly to regulated utilities' transmission risks is another reason to reference the distribution rather than range of proxy group results. Relatedly, to the extent ranges are referenced, the share of revenues, earnings, or assets associated with the business segment for which an ROE is at issue should be considered as a basis for excluding outliers.

A further criterion is needed, however, if the Commission relies on the "Expected Earnings" method, despite that method's lack of cost basis and other flaws.⁶¹ Candidate proxies' E/B results are highly correlated with their M/B ratios⁶² and capital structure equity ratios.⁶³ Accordingly, a study of proxy companies' E/B ratios will not meaningfully indicate the E/B ratio that subject utility would have as a stand-alone entity, unless the proxies, for purposes of that study, are limited to companies that are similar to the subject utility in terms of M/B ratios and equity ratios. As operating utilities that are not publicly traded generally⁶⁴ have no visible M/B ratio, it will generally be unclear whether the first of these two criteria is met, but the equity ratio criterion can readily be applied. One way to do so would be to utilize, for purposes of an E/B study, a proxy group consisting of a subset of the proxies used for other purposes, selecting those with equity ratios closest to that of the subject utility. For example, if thirty proxies were used for

⁶¹ See Parts III.A.1, III.E.1, III.F, III.H.1, and III.H.2.c).

⁶² Woolridge Aff., Ex. No. CAP-500, at 50-51, CAPS' Paper Hearing Principal Initial Brief, *Coakley v. Bangor Hydro-Elec. Co.*, No. EL11-66 (Jan. 11, 2019), eLibrary No. 20190111-5238 ("CAP-500"); Solomon Test., Ex. No. JCI-200, at 33 n.47, Initial Paper Hearing Brief of the MISO Complainant-Aligned Parties, *Ark. Elec. Coop. Corp. v. ALLETE, Inc.*, No. EL15-45 (Feb. 13, 2019), eLibrary No. 20190213-5141 ("The market-to-book ratios for the MISO II Proxy Group, before the application of economic outlier tests, range from 1.15 to 3.38 and the median and midpoint values are 1.60 and 2.27, respectively"); *id.* at 46-49 ("there is a clear trend where utilities that have a higher expected return on book common equity generally have a higher market-to-book ratio, demonstrating that investors bid up the share price as a result of their required rate of return being less than the utility's projected book rate of return"); *id.*, Ex. No. JCI-205, at 1.

⁶³ See Ex. No. CAP-500, at 55-57 and the subsidiary exhibits cited therein.

⁶⁴ As discussed in Part III.F.2, *infra*, there are exceptions to this generality: from time to time, operating utilities or an asset-defined portion thereof are purchased at an identifiable price, thus identifying an operating utility M/B ratio.

the DCF and CAPM studies, the E/B study could look to the ten of those proxies whose equity ratio is closest to that of the subject utility.

If the application of proxy group formation criteria results in a group that is not representative of the subject utility, that difference should be taken into account in placing the allowed ROE within the proxy group distribution. The need for the latter measure should generally be avoidable, because it should usually be possible to form a representative proxy group. However, there will be exceptions, as where it is necessary to relax proxy group formation criteria in order to form a proxy group of sufficient size. Another such exception would arise if the filtering for equity ratios discussed above does not produce a proxy group with equity ratios resembling that of the subject utility. In that case, if E/B ratios are referenced, an adjustment based on equity ratios should be made to the proxy group E/B result in inferring the expected E/B ratio of the subject utility. The need for an above- or below-center placement of the allowed base ROE on such grounds should be considered on a case-by-case basis.

2. A properly distribution-based use of proxy group results would diminish the need to filter outlier results; with an (erroneous) range-based approach, improved filtering would be needed.

D4. What, if any, are appropriate high- and low-end outlier tests?

D4.a. The Commission currently excludes from the proxy group companies whose ROE fails to exceed the average 10-year bond yield by approximately 100 basis points. Should the low-end outlier test continue to be based on a fixed value relative to the costs of debt or (a) should it be based on its value relative to the median (i.e., less than 50 percent of the median); or (b) still reflect the cost of debt but vary based on interest rates?

D4.b. How, if at all, should the Commission's approach to outliers vary among different financial models?

When the Commission applies range-based ROE determination methods—when it (a) uses midpoints (or lower or upper midpoints) to distill the distribution of proxy results to a single value; or (b) uses a range-based measure (such as the midpoint of a range plus half a

“quartile” of the range, i.e., the point 5/8 of the way up a range); or (c) uses the top of a range rather than some other metric to cap ROE incentive adders—it elicits erratic outcomes and an undue focus on locating the range ends. As the Commission recognized in 1984, “[t]he data used in cost of capital analyses of individual companies may vary for reasons having nothing to do with those companies’ cost of equity capital. In the industry average, these spurious variations tend to cancel each other out.”⁶⁵ The same is true of the median statistic, as the “spurious variation[]” present in a proxy value taken from the thick of a results distribution is bounded by countervailing variations related to its near neighbors.⁶⁶ But it is not true of range statistics, as the two most extreme values in a proxy distribution may well have come to occupy those positions because of such spurious variation.

The erratic outcomes that result from reliance on ranges are exemplified by the implausibly different proxy-result ranges found in, respectively, Opinion No. 551 and the Docket No. EL14-86 Initial Decision.⁶⁷ These two decisions applied virtually identical proxy groups⁶⁸ and virtually identical study periods.⁶⁹ For these very similar studies, Opinion No. 551 found and retained proxy results ranging from 7.23% to 11.35%, whereas the EL14-86 Initial Decision

⁶⁵ *Generic Determination of Rate of Return on Common Equity for Electric Utilities*, Order No. 389, 28 FERC ¶ 61,068, FERC Stats. & Regs. at 31,021, reh’g denied, Order No. 389-A, 29 FERC ¶ 61,223 (1984).

⁶⁶ CAP-500, § VI.D, at 75-77; *Woolridge Test.*, Ex. No. CAP-1, at 54-74, ENE (Env’t Ne.) v. Bangor Hydro-Elec. Co., No. EL13-33 (Dec. 30, 2014), eLibrary No. 20141230-5278; *Rebuttal Testimony and Exhibits of Professor J. Randall Woolridge*, Ex. No. CAP-19, at 47-52, ENE (Env’t Ne.) v. Bangor Hydro-Elec. Co., No. EL13-33 (May 18, 2015), eLibrary No. 20150518-5306.

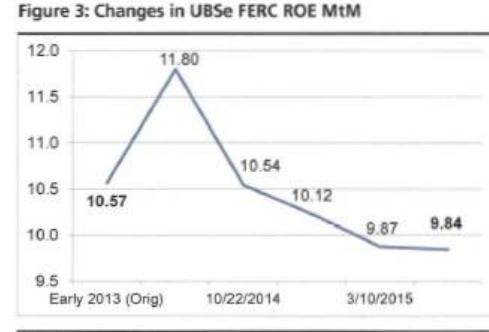
⁶⁷ *Ass’n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, Op. No. 551, 156 FERC ¶ 61,234 (2016); ENE (Env’t Ne.) v. Bangor Hydro-Elec. Co., 154 FERC ¶ 63,024, corrected, 155 FERC ¶ 63,006 (2016).

⁶⁸ The groups were formed using identical criteria (Value Line U.S. electric utility stocks, and credit ratings ranging from BBB- to A. All 33 members of the Opinion No. 551 proxy group likewise appear as members of the EL14-86 proxy group. The only difference is that the latter added four proxies due to merger activity having ended (SCANA Corp., Exelon Corp., PNM Resources, and Utilil Corp.); none of those added proxies affected the latter decision’s results range.

⁶⁹ Respectively, November 2014-April 2015 and January-June 2015. Thus, four overlapping months were used for both decisions’ study periods.

found and retained proxy results ranging from 7.04% to 12.19%.⁷⁰ The 84 bias-point rise of the range top reflected a transient fluctuation in the last-published IBES growth estimate for TECO. The IBES estimate for TECO was “6.43 percent on January 31, 2015, 7.08 percent in February and March, 9.20 percent from March through June, and 7.68 percent on July 13, 2015.”⁷¹ Opinion No. 551 used TECO’s IBES growth rate as of July 13, 2015—7.68%,⁷² whereas the EL14-86 ID used TECO’s IBES growth rate as of May 22, 2015—9.20%.⁷³

The unstable capriciousness of range-based measures has troubled Wall Street. Deutsche Bank cited this “quirk” as an example of “the considerable uncertainty and volatility inherent in the commission’s two-step DCF model as currently formulated.”⁷⁴ Deutsche Bank also noted that basing ROEs on such fluctuating ranges is an “inherent inefficienc[y] in FERC’s new model which is creating significant uncertainty for investors—precisely the opposite of FERC’s intent in last year’s New England decision,” and characterized this effect on the DCF model as “capricious.”⁷⁵ Similarly, UBS has taken to producing frequent updates of its “MtM” (mark-to-market) quantification of the Top Quarter of an Op. No. 531 method “FERC ROE,” highlighting to investors the variability of that quantification, as depicted in the inset “Figure 3.”⁷⁶ Wolfe Research has similarly noted that with



⁷⁰ Op. No. 551, P 65; *ENE (Env’t Ne.)*, 154 FERC ¶ 63,024, P 524.

⁷¹ See *Ass’n of Bus. Advocating tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 153 FERC ¶ 63,027, P 101 (2015), aff’d, Op. No. 551, 156 FERC ¶ 61,234 (2016).

⁷² See *id.*, P 90, P 102, App. B.

⁷³ See *ENE (Env’t Ne.)*, 154 FERC ¶ 63,024, P 909 (Initial Decision reproducing Ex. No. NET-2004).

⁷⁴ Deutsche Bank Mkt. Research, *Transmission ROE Flash* at 1 (June 8, 2015), Ex. No. CAP-135, *ENE (Env’t Ne.) v. Bangor Hydro-Elec. Co.*, No. EL13-33, eLibrary No. 20150709-5192.

⁷⁵ Deutsche Bank Mkt. Research, *Transmission ROE Flash* at 1 (June 12, 2015), Ex. No. CAP-135, *supra*.

⁷⁶ “Figure 3” (numbering in the original) is excerpted from Ex. No. CAP-119, at 3, *ENE (Env’t Ne.) v. Bangor*

a range-based approach, the “timing of the data is key,” as the “ALJ rec[commendation] in the latest NE-ISO case will use 6-months of data through 5/26/15” [sic], thereby “determin[ing] the ZoR [zone of reasonableness]”, making the DCF input timing “everything.”⁷⁷ Wolfe’s appraisal: “FERC seems to not appreciate the uncertainty it is creating.”⁷⁸

While these criticisms focused on erratic variation of the DCF range (because under the Commission’s then-applicable approach, only the DCF range factored directly into the result), their gist also applies to ranges found using other methods. For example, over the course of the four New England complaints, the E/B range top, as presented by NETO’s paper hearing witness, varied from 16.1% to 15.66% to 18.24% to 19.59%. Focusing on Dominion Resources (which generally set the E/B range top during 2012-17, due to its contemporaneous, especially high, M/B ratio and capital structure equity ratio), its E/B as calculated by the same witness rose from 15.12% as of a study period that ended January 2015⁷⁹ to 18.24% as of a study period that ended three months later.⁸⁰

More recently, FirstEnergy Corp. (“FE”) has commonly provided transmission owner witnesses’ highest E/B result.⁸¹ It does so because Value Line’s fifth-year E/B projection for that company jumped from 12.5% as of February 16, 2018 to 15.5% as of May 18, 2018.⁸² Between those two consecutive quarterly Value Line reports, FE’s projected share count and projected

⁷⁷ *Hydro-Elec. Co.*, No. EL13-33, eLibrary No. 20150709-5192 (UBS Global Research, *US Electric Utilities & IPPs: How Low is Too Low? MISO Transcos Strike Back* (Apr. 27, 2015)).

⁷⁸ Wolfe Res., Utilities & Power: Don’t you FERCed about ROE, Don’t Don’t Don’t Don’t! at 1, 11 (Apr. 6, 2015), Ex. No. NET-1602, *ENE (Env’t Ne.) v. Bangor Hydro-Elec. Co.*, No. EL13-33, eLibrary No. 20150709-5128.

⁷⁹ *Id.* at 1.

⁸⁰ See MTO-8 in EL14-12 (providing E/B for D as of pre-update study period in that docket).

⁸¹ See NET-1706 in EL14-86. Elimination of outliers based on the 150%-of-median test discussed the *Coakley* and MISO briefing orders (at PP 54 and 55, respectively) may mitigate some of this variability, but introduces a different form of erraticism, as high values may come in and out of the retained proxy results depending on whether they are just over or just under the outlier test.

⁸² Ex. No. A-2, at 61:3-4.

⁸³ *Id.* at 61:4-6.

dividends did not change, and its projected earnings and earnings/share actually declined. The change that drove the increase in FE's projected E/B ratio was a 25% decrease in projected book value per share, from \$24 to \$18, apparently due to accounting changes associated with the bankruptcy filing of FE's nonregulated subsidiaries.⁸³ While that drastic decrease in the denominator of FE's E/B ratio had an outsized effect on the highest E/B ratio to be found among electric utility stocks, there is no basis to infer a corresponding change to such stocks' *representative* E/B ratio, much less the ratio representative of operating utility companies.

An undue focus on non-representative results can be seen in the NOI itself. The NOI devotes considerable attention to outlier screening and to tests for excluding companies engaged in merger and acquisition ("M&A") activity. Seven NOI questions focus on these issues directly,⁸⁴ and other NOI questions relate to them as well.⁸⁵ Case-specific ROE adjudications before the Commission also commonly focus on these issues.⁸⁶ This NOI, of course, is not the place to address case-specific issues; the disputes referenced in the preceding footnote will have to be resolved based on the records of those dockets. We note them here because the NOI's rethinking of ROE determination policy presents a golden opportunity to return ROE litigation to its proper focus: not which proxy companies and sample results should be trimmed or added at

⁸³ *Id.*

⁸⁴ Questions D3.b, D4, D4.a, D4.b, D8, D8.a, and H.1.4.a.

⁸⁵ See, e.g., Questions G3, G4, and G4.a.

⁸⁶ For example, Opinion No. 531 addressed at length whether PSEG should be excluded at the DCF range bottom, and whether the growth rate used for UIL Holdings at the DCF range top should be sampled according to the *ex ante* procedural schedule or based on NETOs' motion for an *ad hoc* further update. The pending paper hearing briefs in the subsequent New England ROE complaint matters address at length the New England TOs' proposal to add ITC Holdings to the DCF range top in Docket No. EL13-33, customers' proposal to remove TECO from the DCF range top in Docket No. EL14-86, and the New England TOs' proposal to add Algonquin Utilities to the DCF range top, while excluding NWE, IDA, AEP, and PCG from the range bottom, in Docket No. EL16-64. Similarly, the pending paper hearing briefs in the MISO ROE complaint matters address at length the MISO TOs' proposals in Docket No. EL14-12 to remove OGEE, ED, and PSEG from the DCF range bottom and add ITC to the E/B range top; MISO CAPs' proposal in Docket No. EL14-12 to exclude TECO from the proxy group due to M&A activity; MISO TOs' proposals in Docket No. EL15-45 to remove IDA, CNP, and OGEE from the DCF range bottom; and MISO CAPs' proposal in Docket No. EL15-45 to exclude Vectren from the E/B range top.

the margins, but rather, for the many stocks whose use as proxies is not subject to genuine dispute, what study-period cost of equity they collectively imply.

As a policy for future cases, therefore, we recommend a new approach. The Commission should stop relying in any respect on the *range* of proxy results. Instead, the Commission should look to an applicable percentile⁸⁷ of the proxy distribution, both to evaluate whether an existing base ROE remains just and reasonable and to set a replacement ROE.⁸⁸ The Commission should do so both in individual-utility cases or when determining a common ROE for multiple utilities. (By referring to an “applicable percentile,” we contemplate that the median (i.e., the 50th percentile) would be the principal measure employed, while recognizing that in cases where an accurately risk-comparable proxy group cannot be assembled, it may be necessary to apply a higher or lower percentile.⁸⁹) With that change and the continued availability of large proxy groups in most cases, the significance of whether low and high outlier results are retained would be greatly diminished, as the median or other applicable percentile would be determined from the thick cluster of proxy results at the distribution’s center, and the addition or exclusion of results at either end of the distribution would have little or no effect. Accordingly, it would be

⁸⁷ By “applicable percentile,” we contemplate that the median (i.e., the 50th percentile) would be the principal measure employed, while recognizing that in cases where an accurately risk-comparable proxy group cannot be assembled, it may be necessary to apply a higher or lower percentile, such as the 25th percentile applied in *Potomac-Appalachian Transmission Highline, LLC*, Opinion No. 554, 158 FERC ¶ 61,050 (2017) (“PATH”).

⁸⁸ As we discuss in Part III.G, *infra*, Associations maintain that the statutory evaluation of whether an existing base ROE remains reasonable requires a direct comparison of the ROE charged at a given time to the contemporaneous study-indicated cost of equity. However, even if the Commission were to adopt a rebuttable presumption that existing ROEs exceeding the cost of equity by some margin remain just and reasonable, that margin should be based on a percentile of the proxy results distribution rather than some fraction of the range of proxy results. Whether ranges should serve as a bound on incentive ROE adders is at issue in Notice of Inquiry, *Inquiry Regarding the Commission’s Electric Transmission Incentives Policy*, Docket No. PL19-3, particularly Question No. 97. As the Commission noted in that question, an upper bound on ROE adders can be established without using ranges of proxy results to quantify that upper bound.

⁸⁹ For example, the Commission set the ROE at the 25th percentile where the subject utility was not an operating company and served solely to recover the abandoned plant costs associated with a cancelled project. See *PATH*.

reasonable in that context to adopt bright-line tests for filtering of low and high proxy results, thereby eliminating most or all judgment calls and the associated litigation of these issues.

One such approach would be to retain all proxy results (of an amply-sized proxy group) for purposes of determining the proxy group median, eliminating at one swoop all disputes over “natural break” tests, comparisons to bond yields at the low end, and statistical tests for skew at the high end. Tests for the economic “logic” of low and high proxy results are can be dispensed with where the effect of a sample result that is arguably illogical on its own is limited to influencing the determination of which *other*, central, individually logical proxy results are most representative of the distribution of results for the proxy group as a whole. For example, when the first-stage growth rate estimates for a proxy company are so low that its DCF-implied cost of equity is below the benchmark utility bond yield, the specific DCF result found for that proxy may be economically “illogical,” but it is not illogical to conclude that the true DCF-indicated cost of equity for that proxy company is somewhere below the DCF median, and to therefore retain that proxy result solely for the purpose of identifying the proxy group median. A parallel observation applies to high outliers. Retaining all proxy results while using those retained results only to identify the median (or other applicable percentile) of a large proxy group would both simplify ROE litigation and produce results that, over the run of cases, would be both more stable and more accurately cost-based. This approach would also go a long way toward addressing the arbitrariness and unpredictability that has troubled Wall Street commentators.

If range-based measures are applicable, however, outlier tests will be needed, and should be stringent, transparent, and evenhandedly applicable to low-end and high-end outliers alike. The specific tests suggested in the PNA do not meet those standards, and should be reconsidered.

First, the PNA provides no reasoned basis for its use of a large multiplier (150%) in identifying the high-outlier threshold.⁹⁰ Under any regimen that places significance on range ends, some such test is needed to, in the Commission’s words (*id.*), “identify those companies whose cost of equity under the model in question is so far above the cost of equity of a typical proxy company as to suggest that it is the result of atypical circumstances not representative of the risk profile of a more normal utility.”⁹¹ However, the PNA’s proposed high-end outlier test (under which the median of a pre-exclusions proxy distribution would be multiplied by 150%) is arbitrary and unsupported. There are several accepted and objective statistical tests for outliers.⁹² From among them, Associations would recommend using two standard deviations as the high-outlier threshold.⁹³

Second, the PNA’s “natural break” standard is too vague and open to dispute, thus inviting result-oriented manipulation of its application.⁹⁴ To avoid arbitrary results, if the ROE determination relies on ranges rather than medians (or other percentiles), an objective quantification of the “natural break” standard would be necessary. Witness in the MISO and

⁹⁰ See Coakley Briefing Order P 53.

⁹¹ Cf. PSCKY at 1011 (approvingly citing the Commission’s “acknowledge[ment] that some distributions are *too* skewed for such an analysis,” i.e., to support reliance on their midpoint).

⁹² See, e.g., Frank Grubbs, *Sample Criteria for Testing Outlying Observations*, 21 Annals of Mathematical Statistics 27 (1950), https://projecteuclid.org/download/pdf_1/euclid.aoms/1177729885; Armin Böhrer, *One-Sided and Two-Sided Critical Values for Dixon’s Outlier Test for Sample Sizes up to n = 30*, 23 Econ. Quality Control 5 (2008), <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.560.8754&rep=rep1&type=pdf>.

⁹³ See *Affidavit of Dr. J. Randall Woolridge*, Ex. No. CAP-500, at 7-9, Docket Nos. EL11-66 *et al.*, eLibrary No. 20190111-5238 (Jan. 11, 2019) (describing the merits of using two standard deviations as the high-outlier threshold).

⁹⁴ For example, the PNA would continue to apply the Opinion No. 531, P 123 finding that the 101 bp jump in the Opinion No. 531 Appendix (First Complaint DCF) distribution between El Paso Electric (7.03%) and PSEG (5.62%) constitutes a “natural break” that supports excluding PSEG’s low result, while not finding that the nearly identical (107 bp) jump from Dominion to UIL warrants excluding UIL at the high end. Similarly, *MISO* Briefing Order, P 55, proposes to retain Vectren’s 15.21% E/B ratio (because it is 116 bp below the next-highest result) even though that 15.21% is also 127 bp above the next-lowest result (13.94% for CMS), indicating that the “natural break” in that distribution is located *below* Vectren.

New England paper hearings have suggested specific tests for this purpose.⁹⁵ The Associations support those tests.

3. Credit ratings should continue to be used to form risk-comparable proxy groups

D5. How, if at all, does the Commission's use of credit ratings in ROE determinations incentivize public utilities to behave in certain ways, such as issuing more debt, and does this affect public utilities' credit ratings?

D6. What would be the impact of the Commission modifying the credit rating screen to include all investment-grade utilities in the proxy group?

D7. To what extent do credit ratings correspond to the ROE required by investors?

Credit ratings are a primary indicator of relevant risks—widely publicized, produced by reputable third-party sources, easy to apply, and well-established in Commission precedents and practice.⁹⁶ Although it is sometimes claimed that credit ratings address debt rather than equity risks, in fact they address both: if revenues are insufficient to cover debt obligations, equity investors must make up the difference. And notwithstanding contrary data-mining in an EEI whitepaper, credit ratings do correspond to DCF results and the cost of equity⁹⁷—as one would expect, given the fundamental relationship between risk and return. Consequently, the impact of modifying the credit rating screen to include as proxies all stocks with investment-grade credit

⁹⁵ See, e.g., *Affidavit of Dr. J. Randall Woolridge*, Ex. No. CAP-500, at 7-9, Docket Nos. EL11-66 et al., eLibrary No. 20190111-5238 (Jan. 11, 2019); *Affidavit of Jonathan A. Lesser*, Ex. No. EMC-0200, Docket No. EL11-66 et al., eLibrary No. 20190111-5120 (Jan. 11, 2019); *Direct Testimony and Exhibits of J. Bertram Solomon*, Ex. No. JCI-200, at 12-16, Docket No. EL15-45-000, eLibrary No. 20190213-5141 (Feb. 13, 2019).

⁹⁶ See Op. No. 531, P 106; Op. No. 445, at 61,264; *Potomac-Appalachian Transmission Highline, L.L.C.*, 122 FERC ¶ 61,188, P 101-102 (2008), on reh'g, 133 FERC ¶ 61,152 (2010).

⁹⁷ Compare Edison Elec. Inst., *Transmission Investment: Revisiting the Federal Energy Regulatory Commission's Two-Step DCF Methodology for Calculating Allowed Returns on Equity* at 22 (Dec. 2017), <http://www.eei.org/issuesandpolicy/transmission/Documents/ROE%20White%20Paper.pdf>, with Am. Pub. Power Ass'n, *A Customer Coalition Response to the Edison Electric Institute's Whitepaper on the Federal Energy Regulatory Commission's Two-Step DCF Methodology for Calculating Allowed Returns on Equity* at 9 & attachment 2 (June 2018), <https://www.cooperative.com/programs-services/government-relations/regulatory-issues/Documents/Final%20Customer%20Coalition%20Whitepaper%20Response.pdf>.

ratings would be to make proxy groups less risk-representative, degrading the accuracy of the resulting studies of equity's cost.

We are not aware of any evidence that utilities game their credit ratings as suggested by Question D5—issuing debt in order to secure a lower credit rating and thereby obtain a higher ROE associated with higher-risk companies. That would likely be a losing game: even though it might marginally raise the ROE allowed to the utility in rates regulated by FERC, those rates represent a small share of most utilities' business, and an increase therein would be offset by higher costs of debt for both the utility and its parent.

4. A properly distribution-based use of proxy group results would enable simplified, bright-line screening of proxies for significant merger and acquisition activity

D8. The Commission excludes from the proxy group companies with merger activity during the six-month study period that is significant enough to distort study inputs. Should the Commission continue using our existing merger screen?

D8.a. If so, should the Commission revise its standards for what conduct constitutes merger and acquisition activity?

The Commission should continue screening for M&A, although it may be possible to simplify and improve this screening. In Part III.D.2, *supra*, we explain that by relying on *distribution* rather than the *range* of proxy results, the Commission could reduce judgment calls about proxy group composition and the filtering of results. This point also applies to ex ante screening for M&A activity by candidate proxies. If distortion of an individual proxy's result due to M&A activity will be attenuated through reference to the distribution (not range) of a large proxy group, each individual proxy result will have relatively little effect on the ultimate decision. In that context, therefore, the test for significant M&A activity that leads to exclusion from the proxy group could be made simpler and more bright-line. For example, a candidate proxy could be excluded for M&A activity if, but only if, the candidate is directly or indirectly

acquiring or disposing of assets or entity/ies valued at or above some large fraction (say, one third) of the candidate proxy.⁹⁸

5. When a reasonably risk-representative proxy group cannot be formed, the available proxy group's results should be distilled to a percentile other than the median

D9. What circumstances or factors, if any, warrant an adjustment from the midpoint/median to other points within the zone of reasonableness (e.g., lower or upper midpoint/median)?

In electric utility ROE cases, it will usually be possible to form a proxy group that is both risk-representative and adequately sized. *See Part III.D.1.* In that prevalent situation, the evaluation of whether the existing base ROE remains reasonable, and the selection of a replacement base ROE if it does not, should apply the median of the resulting, representative distribution.

In the few cases where a risk-representative proxy group is infeasible, the best available course is to form a sub-optimally representative proxy group of adequate size, and apply a percentile other than the median, deviating from the median based on an informed judgment as to the direction and extent to which the sub-optimal proxy group's median overstates or understates the subject utility's equity cost. Opinion No. 554 rightly followed this approach, applying the 25th percentile because the subject utility, as the owner of a non-operating, abandoned transmission project for which cost recovery is assured by a formula rate, is less risky than the operating utility parents that are available as exchange-traded proxies.⁹⁹

However, it would be arbitrary to restrict the choice of percentiles to the 50th percentile (median) in cases where the proxy group is risk-representative, the 25th percentile where it is riskier than the subject utility, and the 75th percentile it is less risky than the subject utility. As

⁹⁸ Such a bright-line test would exclude from the proxy group a candidate proxy that is being acquired, as in that case the acquisition would be of the entire candidate proxy, not a fraction thereof.

⁹⁹ Op. No. 554, PP 268-273.

the Commission held, and the D.C. Circuit confirmed in *Emera Maine*, “requiring the ROE to be set at one of only three possible positions in the range established by reference to the proxy companies does not give the Commission the necessary flexibility required to evaluate the specific circumstances of each case.”¹⁰⁰ For example, where the subject utility is operating and has a credit rating, but the standard “one notch” credit rating screen would leave too few proxies to form an adequately-sized proxy group, the screen criteria can be relaxed until sufficient proxies are identified. The equity cost significance of each notch of deviation can then be assessed, by, e.g., quantifying the change in the equity cost indication that results from varying the credit rating criteria and/or benchmarking against the bond yield differences associated with different bond ratings. Such comparisons can lead to the identification of a reasonable case-specific substitute percentile, rationally connected to, and selected on the basis of, the record evidence in that proceeding.

6. Midpoints are inherently erratic and unrepresentative; the Commission should extend to RTO-wide ROEs the statistically superior policy, already applicable to most public utilities and all pipelines, of relying instead on medians

D10. The Commission currently uses midpoints to determine the central tendency of the zone of reasonableness when determining RTO-wide ROEs. Should the Commission adopt a policy of using medians for this purpose?

D10.a. Would the use of multiple ROE methodologies, as proposed in the Coakley Briefing Order, undercut the Commission’s current rationale for using the midpoint in RTO-wide base ROE?

D10.b. Should the size of the proxy group be considered in this decision?

¹⁰⁰ *Transcontinental Gas Pipeline Corp.*, Op. No. 414-A, 84 FERC ¶ 61,084, at 61,427-3 (1998) (subsequent history omitted); *see also* Op. No. 531, P 151 n.306 (quoting same); *Emera Me. v. FERC*, 854 F.3d 9, 30 (D.C. Cir. 2017) (quoting Op. No. 531, and holding that by assuming the upper midpoint was the only available above-midpoint ROE, the Commission failed to rationally connect its base ROE placement to the record).

ROE determinations should reflect all retained proxy results, not just the extreme ones, so that estimation errors cancel out instead of being amplified.¹⁰¹ Each proxy result contains measurement error, and a more accurate cost of equity result is obtained by combining those results in a way that makes those errors tend to cancel out. Medians do that; midpoints don't.

The witness most commonly employed by TOs nationwide, including both the MISO and New England TOs for the ongoing paper hearings, has conceded that there is no basis to vary the measure of central tendency as between regional and single-utility cases. He testifies that using midpoints in one and medians in the other is unreasonable, because “differentiating between a proceeding involving a single transmission utility and a joint filing of multiple RTO members ignores the requirements of investors, which are based on comparable-risk opportunities available in the capital markets.”¹⁰² Given the Commission’s correct and judicially-affirmed finding that the median best represents investor requirements in single-utility cases, it follows that the median should be applied in all cases.

The Commission has previously offered only two rationales for using the midpoint rather than the median in regionwide-ROE cases: *stare decisis*, and minimizing the extent to which a single regional base ROE is unsuited for the region’s least- and most-risky utilities. But neither has any rational application in conjunction with the PNA.

¹⁰¹ See Ex. No. A-2, §§ D9-D10; see also *Direct Testimony of Professor J. Randall Woolridge*, Ex. No. CAP-1 at 54-74, Docket No. EL13-33-002 *et al.*, eLibrary No. 20150709-5192 (focused on estimation errors in the context of a DCF study, though applicable to estimation errors in CAPM and E/B studies); Brief on Exceptions of the Complaint-Aligned Parties, at 55-56, Docket No. EL16-64-002, eLibrary No. 20180426-6392 (Apr. 26, 2018) (demonstrating that the inclusion or exclusion of companies in the proxy group has significant impact on the midpoint results but very little impact on the median results).

¹⁰² *McKenzie Answering Test.* at 20-21, Ex. No. SER-0001, *Ark. Elec. Corp. v. ALLETE Inc.*, EL17-41 (Mar. 20, 2019), eLibrary No. 20190320-5185.

Stare decisis. Past practice is the PNA’s only stated basis for referencing the midpoint.¹⁰³

But the PNA’s proxy group screening criteria provide for inclusion of proxies whose bond ratings are within “one notch” of those of the group of firms at issue, thus potentially encompassing a range of risks that is even broader than the broad risk range of the public utilities participating as TOs in an RTO with a region-wide rate. Given the resulting proliferation of proxies and the PNA’s radical changes to what had been established Commission methodology,¹⁰⁴ adherence to a past practice cannot support the continued use of a statistically invalid midpoint approach. Even if reference to the *DCF* midpoint could somehow be considered a settled practice, there is *no* precedent, nor any statistical basis, for referencing the midpoint of E/B and CAPM distributions, rather than their medians (to the extent they are considered at all). There is no one-to-one mapping of proxy results to the cost of equity of individual public utility RTO participants; rather, given the large number of proxies with relatively high risks, the proxy group results will tend to include a highest result that exceeds the costs of equity of the riskier participants.

Moreover, the PNA does not actually propose to set the base ROE at the midpoint of its proposed zone of reasonableness. As illustratively quantified in *Coakley* Briefing Order (PP 57 and 59), the *midpoint* of the zone of reasonableness would be 10.3%. Yet the PNA would set the base ROE higher, at 10.41%, by bringing a risk premium result into the average. This eleven-basis-point difference belies the statement in *Coakley* Briefing Order that “[w]e are not making an adjustment above the midpoint/median as we did in Opinion No. 531.”¹⁰⁵

¹⁰³ See *Coakley* Briefing Order P 17 nn.45-46, P 57 n.114.

¹⁰⁴ If *stare decisis* does not prevent, for example, direct reliance on expected earnings on book equity, notwithstanding the contrary precedents cited in Part III.H.2.c)(1), *infra*, then neither does it justify reference to the midpoint.

¹⁰⁵ *Coakley* Briefing Order P 44.

Second, in *Midwest ISO*, the Commission also required that all of the proxy companies be located in the same region as the subject companies.¹⁰⁶ The Commission subsequently abandoned the regional proxy group requirement and currently relies on national proxy groups for electric utilities.¹⁰⁷ Third, the Commission is now proposing to reference risk premium studies that include no screening of the risk premium inputs for risk comparability to MISO TOs, and studies of per-book earnings in which there is no screening of the proxies for capital structure and market/book comparability to the MISO TOs.

Because the PNA would deviate from the DCF midpoint, and because there is no precedent for referencing the midpoints of other methods, the Commission cannot reasonably stand on precedent in failing to address the equity cost indications provided by the medians of its adopted studies.

Fitting disparate-risk RTO participants. The past practice referenced in *Coakley* rests on *Midwest Independent Transmission System Operator, Inc.*, 106 FERC ¶ 61,302 (2004) (“*MISO*”), *aff’d in relevant part sub nom. Pub. Serv. Comm’n of Ky. v. FERC*, 397 F.3d 1004 (D.C. Cir. 2005) (“*PSCKY*”). The Commission there reasoned that where the members of the proxy group and the Regional Transmission Organization participants sharing a single regional ROE were substantially identical, using the midpoint as the single regional base ROE would make that ROE a better fit for the region’s least- and most-risky utilities. That is, under “unique . . . circumstances” where “the proxy group used to define the range of reasonableness . . . consist[ed] of a subset of the Midwest ISO TOs to which the ROE will

¹⁰⁶ *Midwest Indep. Transmission Sys. Operator, Inc.*, 100 FERC ¶ 61,292 (2002), remanded *sub nom. Pub. Serv. Comm’n of Ky. v. FERC*, 2004 WL 222900 (D.C. Cir. 2004).

¹⁰⁷ *S. Cal. Edison Co.*, 13 FERC ¶ 61,020, PP 27-30.

actually apply,”¹⁰⁸ the midpoint rationally “emphasize[d] the endpoints of the proxy group range, ensuring that outlier as well as average TOs receive just and fair compensation.”¹⁰⁹

The PNA approach, in contrast, presents no reason to assume that the range ends of the retained DCF, CAPM, and E/B results correspond to the return requirements for the least and most risky RTO participants. Any such rationale would fail at the outset given the Commission’s declarations that MISO TO and NETOs are “of average risk.”¹¹⁰ And even if the Commission were to set those declarations aside, there still would be no basis to infer any correspondence between the proxy group range ends and the most disparate-risk public utilities that place their transmission systems under RTO functional control. In fact, any such inference would fail for multiple reasons:

- In each of the six pending MISO TO and NETO ROE cases, there is no remaining dispute that the proxy group will be national, with many more members than there are respondents in those cases. A larger proxy group inherently tends to produce a more dispersed range of proxy group results.¹¹¹ Consequently, the dispersion of proxy group results does not indicate the dispersion of RTO participants’ costs of equity.
- Under the “one notch” test used in forming those proxy groups,¹¹² the proxy groups’ risk range as measured by bond ratings is intentionally broader than that of the respondent TOs.
- The distribution of the proxies’ bond ratings is skewed toward the risky end of their range.
- Other proxy characteristics that raise the top of the CAPM and Expected Earnings distributions, when those methods are applied in the manner suggested by the PNA—

¹⁰⁸ *MISO* PP 8-9.

¹⁰⁹ *PSKCY*, 397 F.2d at 1008 (summarizing *MISO* at 62,192-93).

¹¹⁰ See MISO Briefing Order P 58; *Coakley* Briefing Order P 57.

¹¹¹ Observe the mid-day traffic passing by Commission headquarters outside 888 First Street NE. The range of passing vehicle lengths will be wider over the course of an hour than over a minute. See Ex. No. A-2, at 35.

¹¹² See MISO Briefing Order P 50; *Coakley* Briefing Order P 49.

e.g., the “size adjustment” made to the CAPM results, and the use of proxies with unusually high market-to-book ratios in referencing E/B ratios)—disconnect the tops of those ranges from any correspondence to specific respondent TOs.

- The PNA’s reference to *separate* DCF, CAPM, and Expected Earnings ranges, rather than using those three methods together to estimate each proxy’s equity cost and *then* identify the range of those estimates, makes the three methods’ range ends and midpoints especially susceptible to the *Coakley* and MISO Briefing Orders’ asserted “model risk.” *See Part III.E.3, infra.*
- As referenced in the PNA, the E/B ratio for each proxy is based on the projection of a single Value Line analyst¹¹³ for a single five-year-ahead period, which Value Line then rounds using its idiosyncratic convention.¹¹⁴ Given this basis, the range ends under that application of the E/B method are inherently imprecise.
- When RTO planning processes function properly and in compliance with Order No. 1000¹¹⁵, they result in major new transmission projects being assigned to, and built by, entities whose capital and other costs are relatively low. Thus, construction assignments will be inversely proportionate to equity costs. This is an important change in circumstances from *PSCKY*. In this new context, those RTO participants who have relatively high equity costs will tend to avoid the risks associated with building new facilities, which over time will reduce their riskiness and cost of equity.¹¹⁶

¹¹³ See *Coakley v. Bangor Hydro-Elec. Co.*, 166 FERC ¶ 61,013, P 8 & n.26 (2019) (identifying bases for illustrative calculations, including NET-709 as the basis for the E/B portion); Docket No. EL11-66, NET-709 (sourcing its forecast E/B ratios from Value Line); Op. No. 551, P 62 (Value Line estimates represents a single analyst estimate, not a consensus); *Nw. Pipeline Corp.* 87 FERC ¶ 61,266, at 62,059 (1999) (same), *on reh’g*, 92 FERC ¶ 61,287 (2000), *review denied in part and dismissed in part sub nom. Canadian Ass’n of Petroleum Producers v. FERC*, 308 F.3d 11 (D.C. Cir. 2002).

¹¹⁴ See, e.g., NET-709, col. a, and the underlying workpapers at NET-710 at 1-56. The expected returns on book equity (prior to the column c adjustment to “covert year-end return to an average rate of return”) are presented as if they were precise to a tenth of a percent, but they all end with a zero or five.

¹¹⁵ *Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities*, Order No. 1000, 136 FERC ¶ 61,051 (2011), *reh’g denied*, Order No. 1000-A, 139 FERC ¶ 61,132, *on reh’g*, Order No. 1000-B, 141 FERC ¶ 61,044 (2012), *review denied sub nom. S.C. Pub. Serv. Auth. v. FERC*, 762 F.3d 41 (D.C. Cir. 2014) (per curiam), *reh’g en banc denied*, No. 12-1232 (D.C. Cir. Oct. 17, 2014).

¹¹⁶ Cf. Op. No. 554.

The bottom line is that in both New England and MISO, the distribution of proxy results provides useful information on the cost of equity for the public utility operating companies participating as transmission owners in the respective RTO, and that information should not be discarded in identifying the region-wide base ROE. The median (or other risk-appropriate percentile) reflects that distribution information and should be the take-away from the proxy-based methods; the midpoint does not, and it should not be used.

7. Associations are not commenting on proxy group size in pipeline cases

D11. Can the Commission continue to construct proxy groups of sufficient size for natural gas and oil pipeline companies using the DCF methodology, or in general for the alternative methodologies, particularly considering the increased amount of merger and acquisition activity involving master limited partnerships (MLPs) and the multiple recent conversions of MLPs to C-corporations?

Associations take no collective position on this pipeline-related question.

E. *Combining multiple financial models advances reasonable ratemaking only if the added models are well-designed to identify the market cost of equity*

1. Models based on E/B ratios or unrealistic equity portfolio returns do not aid in identifying the cost of equity

E1. What models do investors use to evaluate utility equities?

E2. What role do current capital market conditions play in the choice of model used by investors to evaluate utility equities?

E2.a. If capital market conditions factor into the choice of model, how do investors determine and evaluate those conditions?

E3. Are any models thought to be superior or inferior to others? If so, why?

We read these questions as inquiring about widely applied models for inferring the values of exchange-traded utility-sector stocks from financial market information.¹¹⁷ The common

¹¹⁷ There are so many investors, and so many investment decisions are made in private, that it is impossible to characterize all of the methods investors apply. And it is clear that some investors apply irrational methods that would not withstand judicial review if applied by the Commission, such as astrology. See Simon van Zuylen-Wood,

foundation of such models is the Efficient Market Hypothesis, which is solidly established among not only investors but also academia and the D.C. Circuit.¹¹⁸ It holds that publicly available information is efficiently incorporated into the prices of exchange-traded stocks.¹¹⁹ All of the methods collected in the NOI's touchstone textbook as "Cost of Capital Methodologies"—namely, DCF, CAPM, and risk premium¹²⁰—build on that analytical foundation. The investment community's practical application of this bedrock understanding is exemplified by Credit Suisse, *Estimating the Cost of Capital: A Practical Guide to Assessing Opportunity Cost* (2013).¹²¹ Consistent with the DCF model, it states that "[t]he cost of capital is the rate at which you need to discount future cash flows in order to determine the value today."¹²² In explaining how to estimate that discount rate for a particular company, it emphasizes a CAPM model, in which (as of the guide's publication date, October 8, 2013) "the model developed by Credit Suisse's equity strategy group implied a warranted ERP [Equity Risk Premium] of 4.5 percent."¹²³

Dr. Cornell explains that surveys of financial professionals in 2010 and 2013 showed that between 79% and 87% of respondents use DCF techniques for investment valuation generally and the CAPM model for estimating a firm's cost of equity.¹²⁴ The academic literature confirms that the DCF and CAPM are the most established and widely used financial models.¹²⁵

Is the Key to Beating the Market Written in the Stars?, Business Week (July 27, 2018), <https://www.bloomberg.com/news/features/2018-07-27/is-the-key-to-beating-the-market-written-in-the-stars>.

¹¹⁸ See Part III.H.1.b), *infra*; *Tenn. Gas Pipeline Co. v. FERC*, 926 F.2d 1206, 1210-11 (D.C. Cir. 1991).

¹¹⁹ See *id.*

¹²⁰ See Morin, *supra*, at 427-28. Morin's list includes a separate entry for a CAPM variant known as the "Arbitrage Pricing Model" ("APM"). It too is based on the Efficient Market Hypothesis.

¹²¹ https://research-doc.credit-suisse.com/docView?language=ENG&source=ulg&format=PDF&document_id=805810190&serialid=OI/G4SnLqh5FOIYS9MKXLzznvRJnu1XiYUvUZAo%2BIE%3D.

¹²² *Id.* at 3.

¹²³ *Id.* at 13.

¹²⁴ Ex. No. A-1, § E1.

¹²⁵ *Id.*

Notwithstanding the claims, based on supposedly “anomalous” market conditions, that advocates of high ROEs have presented to the Commission in recent years, there is no evidence that actual investors in electric utility stocks—that is, those who want to accurately assess what a given security will yield and what other investors will be willing to pay for that security—have lost faith in DCF or other market-based valuation techniques, or peg their choice of financial models (as distinguished from model inputs) to particular points on the business cycle.

The contrary is evidenced by the many years of annual documentation of “Long-Term Capital Market Assumptions” published by J.P. Morgan Asset Management (“J.P. Morgan”).¹²⁶ In 2012, the earliest year for which full documentation remains readily available, J.P. Morgan stated that for “as in previous years,” it used a “building blocks” approach to equity valuation under which its expectations for equity returns equaled “Inflation + real earnings growth + dividend yield +/- impact of valuation changes.”¹²⁷ This was essentially a DCF model, in which the long-term earnings growth term is decomposed into inflation plus real earnings growth, and provision is then made for other factors that might impact valuation. While the 2009 iteration of this document predates J.P. Morgan’s posted archive, a contemporaneous J.P. Morgan presentation shows that it employed the same approach then.¹²⁸ Following a non-cyclical refinement of this model in 2015, for 2019, J.P. Morgan continues to base its equity return forecasts on “EPS growth . . . × Price return / EPS growth (valuations) + Dividends”¹²⁹—again, essentially a DCF model, adjusted for reversion of P/E ratios toward historical norms. Thus, J.P.

¹²⁶ <https://am.jpmorgan.com/global/institutional/library/lcmra-previous-versions>.

¹²⁷ J.P. Morgan Asset Mgmt., *Long-Term Capital Market Return Assumptions: 2012 Estimates and the Thinking Behind the Numbers* at 6 (2011), <https://am.jpmorgan.com/blobcontent/1414922158825/83456/lcmra-2012.pdf>.

¹²⁸ J.P. Morgan Asset Mgmt., *On the “non-normality” of Asset Classes*, at 32 (2009) (estimating 9.0% return over 10-15 years on U.S. large cap stocks purchased at that market low, based on “Sum of below building blocks (U.S. Large Cap EPS Growth (nominal) + Dividend Yield + P/E return impact”).

¹²⁹ J.P. Morgan Asset Mgmt., *Turning a Corner: Returns Hold Steady at 2* (2018), <https://am.jpmorgan.com/gi/getdoc/138358177246>.

Morgan has applied a DCF-based model for at least ten years (and likely longer), encompassing the Great Recession, today's much better financial market and economic conditions, and all intervening years and conditions. Dr. Cornell confirms that there is no basis in academic theory for the claim that investors' model choices vary with capital market conditions.¹³⁰

Notably, none of these sources reference E/B ratios as a measure of the cost of equity. By 1985, that approach had been "thoroughly discredited" and "replaced by three market-oriented (as opposed to accounting-oriented) approaches: (i) the DCF method, (ii) the bond-yield-plus-risk-premium method, and (iii) the CAPM, which is a specific version of the generalized bond-yield-plus-risk-premium approach."¹³¹ As summarized by a leading textbook on corporate finance:

[W]e can employ the principles described in Chapters 6 and 7 to produce reasonably good estimates for the cost of equity. Three methods are typically used: (1) the Capital Asset Pricing Model (CAPM), (2) the discounted cash flow (DCF) method, and (3) the over-own-bond-yield-plus-judgmental-risk-premium approach. These methods are not mutually exclusive: When estimating a company's cost of equity, we generally use all three methods and then use an average, weighted on the basis of our confidence in the data used for each method.¹³²

A published, peer-reviewed "comprehensive survey that describe[d] the current practice of corporate finance"¹³³ based on responses by 392 chief financial officers, concludes that "executives use the mainline techniques that business schools have taught for years, NPV[¹³⁴]"

¹³⁰ Ex. No. A-1, § E2.

¹³¹ Eugene F. Brigham, Dilip K. Shome, & Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, 14 Fin. Mgmt. 33, 33 (1985).

¹³² Ehrhardt & Brigham, *supra*, at 345.

¹³³ John R. Graham & Campbell R. Harvey, *The Theory and Practice of Corporate Finance: Evidence from the Field*, J. Fin. Econ. 61 (2001), <https://faculty.fuqua.duke.edu/~jgraham/website/SurveyPaper.PDF>.

¹³⁴ NPV refers to Net Present Value, discount-rate-based project-specific technique that is based on the same principles as the DCF method for estimating the discount rate investors apply to an entire publicly-traded company.

and CAPM, to value projects and to estimate the cost of equity.”¹³⁵ It found *no* evidence that anyone uses E/B ratios.

Although investors consider earnings in gauging utilities’ future profitability and financial health, they “parse the information in earnings in order to estimate *growth*.”¹³⁶ Even that use is limited: A comprehensive study of the information affecting stock market prices over twenty years (1993-2013) found that

[W]hereas the information contribution of analysts and SEC nonaccounting filings increased markedly over the past 20 years (in 2013, SEC filings and analysts forecasts contributed 25 percent and 20 percent, respectively, of total information used by investors), the contribution of the financial reports (including earnings announcement and quarterly and annual filings with the SEC) decreased by almost a half (from 10 percent to 5-6 percent).¹³⁷

More to the point, there is simply no evidence that investors consider earnings/book equity (E/B) *ratios*—the focus of the “Expected Earnings” method—to be any kind of measure of the return that investors expect, or require, from their investments in market-priced utility stocks.¹³⁸ One will search in vain to find any institutional investor, investment analyst, market opinion leader, chief financial officer, or academic economist still referencing E/B ratios as a measure of equity’s cost. The reason is plain: Investors have no opportunity to purchase stock at its book rather than market value.

As explained by Ehrhardt and Brigham, the “opportunity cost” that companies must pay their equity investors to attract their reinvestment through retained earnings is what

¹³⁵ *Id.* at 21.

¹³⁶ Stephen D. Hasset, *The RPF Model for Calculating the Equity Market Risk Premium and Explaining the Value of the S&P with Two Variables*, 22 J. Applied Corp. Fin. 118, 120 (2010) (emphasis added).

¹³⁷ Baruch Lev & Feng Gu, *The End of Accounting and the Path Forward for Investors and Managers* 45 (John Wiley & Sons 2016).

¹³⁸ See Ex. No. A-1 at 6.

“stockholders themselves could earn on alternative investments of equivalent risk.”¹³⁹ Or as explained to investors by Credit Suisse: “The opportunity cost an investor demands is based on the prevailing asset price, not the level at which the company recorded the debt or equity on the balance sheet.”¹⁴⁰ Accordingly, there is no rational basis to conclude that E/B ratios indicate the return that investors expect to receive on their alternative, comparable-risk investment opportunities, and, therefore, would require in order to be attracted to having their funds invested instead in the subject utility’s regulated operations.¹⁴¹

To be sure, current investors’ expectations of utility stocks’ earnings per book equity are generally high. But that is because utility stocks’ market/book ratios are generally well above unity, which signifies that the earnings/book that investors expect utilities’ parent companies to realize significantly exceeds the returns that investors require on their own investments. As the Commission is well aware, the *Hope* and *Bluefield* standards do not guarantee investors any particular level of expected profits, only the level of return required to attract investment and maintain the financial health of the utility.¹⁴² That level is tied to what investors require on their own investment, not their expectations as to utility holding companies’ earnings/book ratios.

2. Combining multiple market-based models is reasonable if each applied model is well-designed

E4. How are alternative models redundant or complementary with each other and/or the DCF model?

E5. To what extent do alternative models avoid any deficiencies of the DCF model and/or operate better in diverse capital market conditions?

¹³⁹ Ehrhardt & Brigham, *supra*, at 344-45 (emphasis omitted).

¹⁴⁰ *Estimating the Cost of Capital*, *supra* n.121, at 8.

¹⁴¹ See also Parts III.A, III.E.1, III.F, III.H.1.b) and III.H.2.c).

¹⁴² *FPC v. Hope Nat. Gas Co.*, 320 U.S. 591 (1944) (“*Hope*”); *Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm’n*, 262 U.S. 679, 692-693 (1923) (“*Bluefield*”).

Estimating the unobservable cost of equity somewhat resembles estimating the length of an unseen fish that slipped the hook. If you know what fish were running that day, you can attempt to infer what species it may have been, and then consult data on those species' usual size in that season; if you know what fish were caught in those same waters on the same day, you can apply a statistically valid summary (such as the median) of that sample, etc. Associations are not contesting herein the common-sense proposition that applying multiple good techniques can assist in reaching a best feasible estimate. But common sense also instructs that if you want an accurate estimate, you won't get one by asking anglers to tell tales about "the one that got away." In short, the issue facing the Commission is not whether multiple models are better than one, but whether the specific models that have been proposed for use alongside the proven DCF model are well-founded and well-designed, such that they deserve similar trust. As Dr. Cornell observes, it would not be unreasonable for the Commission to continue using DCF alone, adhering to an established and judicially affirmed agency practice. *See* Ex. No. A-1, § E1, at 5 n.4.

The burden to prove the trustworthiness of each proposed additional model properly lies on those advancing a change in Commission policy to reference non-DCF methods. Prior to Opinion No. 531, the Commission had consistently rejected reliance on CAPM, E/B, and Risk Premium studies. Eleven years ago, the Commission noted that DCF "is a well established method of determining the equity cost of capital, and other methods such as the risk premium model have [i.e., had then] not been used by the Commission for almost two decades [now three decades]." ¹⁴³ The Commission continued to reject CAPM, E/B, and RP studies in electric transmission ROE cases decided both shortly before and after Opinion No. 531.¹⁴⁴

¹⁴³ *Composition of Proxy Grps. for Determining Gas & Oil Pipeline Return on Equity*, 123 FERC ¶ 61,048, P 53

The burden to prove the trustworthiness of each proposed additional model cannot be carried by a claim of “anomalous” market conditions. The rationale originally invoked for referencing risk premium and other non-DCF methods in Opinion No. 531—that financial market conditions were “anomalous” as of the underlying October 2012-March 2013 study period, in a way that made the DCF model less reliable—has not withstood the test of time, as the supposedly short-term “anomaly” of 10-year treasury yields below 3% persisted for years, and can now be seen to be aligned with the long-term decline in treasury yields from their Volker-era peak.¹⁴⁵ In any event, a conclusion that the DCF model should not be relied upon on its own cannot validate the specific additional models that would be used to dilute its result. Thus, claims of “anomalous market conditions” provide no insight as to what additional models should be used, nor as to how to specify those additional models’ implementing parameters.

Nor is the burden to prove the trustworthiness of each proposed additional model carried by assertions that “the DCF methodology may no longer singularly reflect how investors make their decisions” because they “have increasingly used a diverse set of data sources and models to inform their investment decisions,” and that reliance on multiple models reduces “model risk.”¹⁴⁶ Accepting those unsupported assertions for the sake of argument, they provide no basis

(footnote omitted), *reh’g dismissed*, 123 FERC ¶ 61,259 (2008).

¹⁴⁴ See, e.g., *Pac. Gas & Elec. Co.*, 141 FERC ¶ 61,168 (2012); *S. Cal. Edison Co.*, 131 FERC ¶ 61,020, PP 114-116 (2010), *reh’g denied*, 137 FERC ¶ 61,016 (2011), *aff’d in relevant part sub nom. S. Cal. Edison Co. v. FERC*, 717 F.3d 177 (D.C. Cir. 2013); Op. No. 554, PP 270-271 & n.489 (placing the ROE at 8.11% and relying exclusively on DCF analysis and the riskiness of the subject company relative to the DCF proxy group, after considering the company’s “Brief on Exceptions 35-39”). The referenced Brief on Exceptions (Brief on Exceptions of Potomac-Appalachian Transmission Highline, LLC, on Behalf of PATH West Virginia Company, LLC and PATH Allegheny Transmission Company, LLC, *Potomac-Appalachian Transmission Highline, LLC*, Docket No. ER09-1256-002 (Oct. 14, 2015), eLibrary No. 20151014-5330), cites (at 38) “Dr. Avera’s analyses of the same alternative benchmark methodologies that the Commission found reliable in Opinion No. 531.”

¹⁴⁵ See *Rebuttal Testimony and Exhibits of Professor J. Randall Woolridge*, Ex. No. CAP-19, at 11-12 & Figure 2, *ENE (Env’t Ne.) v. Bangor Hydro-Elec. Co.*, No. EL13-33 (May 18, 2015), eLibrary No. 20150518-5306 (reproducing and discussing chart and study by former Federal Reserve Chairman Bernanke which displayed and concluded that “[l]ow interest rates are not a short-term aberration, but part of a long-term trend”).

¹⁴⁶ *Coakley* Briefing Order PP 38, 40.

for reliance on E/B, or on the particular forms of CAPM or RP commonly urged by transmission owners seeking higher allowed returns. There is no evidence that investors rely on *those* models, or anything like them.

Tellingly, the support cited in the *Coakley* Briefing Order for the proposition that investors “appear to base their decisions on numerous data points and models, including the DCF, CAPM, Risk Premium, and Expected Earnings methodologies” consisted of: (1) testimony and an academic reference to the effect that *CAPM* analysis is widely used; (2) NETOs’ testimony that risk premium analysis was referenced in Opinion No. 531; and (3) NETOs’ testimony that ““expected earned returns on invested capital provide a direct benchmark for investors’ opportunity costs.””¹⁴⁷ Investors’ widespread use of CAPM analysis is not evidence that they likewise rely on E/B or RP methods, and the CAPMs on which they rely do not utilize equity risk premiums or equity portfolio returns nearly as high of those of NETOs’ witnesses. The Commission’s reference to RP analysis in Opinion No. 531 is not evidence that investors rely on that method. And expected returns on book-value equity are *not* a direct benchmark for the returns available on investors’ *market*-priced investment opportunities.

It is also significant that the only indicator of financial market anomaly cited in Opinion No. 531 was that “bond yields are at historic lows.”¹⁴⁸ Relatedly, the *Coakley* Briefing Order (PP 41-42) notes that yields on U.S. treasuries generally exceeded 4% from the mid-1980s to 2008. Unlike the DCF method, the risk premium method (and to a lesser extent, the CAPM method) rely directly on bond yields. They are therefore *more* exposed to distortion due to the claimed anomalous market conditions than is the DCF method. Moreover, the risk premium method requires a linear relationship (not necessarily 1:1, but necessarily linear) between debt yields and

¹⁴⁷ See *Coakley* Briefing Order P 40 & nn.81-82.

¹⁴⁸ Op. No. 531, P 145 n.285.

equity costs. It also implicitly assumes that the subject utility's equity is risk-comparable to the utilities at issue in the historic data-set cases used in estimating past risk premiums (that is, it makes no provision for comparing the risks of the subject utility and data-set utilities, and thus implicitly assumes they are identical). Due to these inherent features of the risk premium approach, if low interest rate conditions somehow make the DCF method unreliable, they make the risk premium method even less reliable.

E/B ratios are likewise more susceptible than the DCF method to behaving strangely during periods of low bond yields or other “unusual” financial market conditions. When the earnings of utilities’ exchange-traded parents increase because they or their subsidiaries are able to refinance high-cost debt at reduced interest rates, their equity market prices increase commensurately, but their equity book value does not. Consequently, E/B ratios are *more* exposed to distortion by “unusual” interest rates than is the DCF method. Similarly, when expected or realized corporate tax cuts or inflation produce heightened nominal-dollar forecast earnings, they have no effect on accounting book values per share, and they therefore increase E/B ratios. In contrast, the DCF method accounts for the effect of taxes and inflation in ways that properly offset—e.g., inflated dollars produce both higher nominal-dollar dividends and higher nominal-dollar stock prices, producing a dividend yield that is not distorted by inflation.

To support referencing multiple methods, the *Coakley* Briefing Order cites (indirectly) *Distrigas of Massachusetts Corp.*, Op. No. 241, 41 FERC ¶ 61,205, at 61,550 (1987) (“*Distrigas*”), *reh’g granted*, Op. No. 291-A, 42 FERC ¶ 61,225, *reh’g denied*, 43 FERC ¶ 61,192 (1988).¹⁴⁹ *Distrigas* explains that “[t]he weight to be given the results of each such methodology rests on the accuracy and sensibleness of the judgmental i[n]puts and factors that

¹⁴⁹ See *Coakley* Briefing Order P 40 n.82 (citing NET-1300 at 27, which in turn cites *Distrigas*).

the respective witnesses employed.”¹⁵⁰ By that standard, the “Expected Earnings” method should be given no weight, because E/B ratios do not measure at all, much less measure accurately and sensibly, the return that investors require in order to invest in the market-priced equity that in turn funds public utilities’ transmission-related assets. Moreover, the E/B method produces excessive ROEs when utility holding companies are looking profitable and insufficient ROEs when those companies are looking distressed, and is thus poorly equipped to provide sound regulatory outcomes over time.

3. The technique used for combining multiple models should integrate model results for each proxy

E6. To the extent that investors use multiple models, should the Commission combine them in its analysis or use the “best” one that would apply in all market conditions?

E7. If the Commission were to consider multiple models, how should it weigh them?

If the use of multiple methods improves cost estimation accuracy (as the PNA posits), then it follows that the identification of each proxy’s equity cost is improved if the multiple methods are combined in identifying *that proxy*’s equity cost. Accordingly, rather than forming the “composite range” by averaging the range bottoms of the DCF, CAPM, and E/B methods to set the composite range’s bottom, and then averaging the range tops of the DCF, CAPM, and E/B methods to set the composite range’s top, the order of operations should produce a composite distribution in which each proxy’s return is estimated by averaging that particular proxy’s DCF and CAPM results (along with its E/B result, if used). That modified composite distribution would then be used to locate the composite median, or other applicable percentile.

The range-based computational sequence used in the PNA would wrongly treat its three proxy-based methods as if they were studying three different proxy groups. Doing so would

¹⁵⁰ *Distrigas* at 61,550-51.

erroneously ignore that each of the three methods is attempting to estimate the same thing: each proxy's cost of equity. *See Coakley Briefing Order P 53* (recognizing that each model's result for each proxy company represents an estimate of *that proxy's* "cost of equity"). Given that common underlying reality, the proper sequence is: (i) determine each proxy's cost of equity under each of the utilized methods, (ii) average those multiple results to get a single cost of equity estimate for each member of the proxy group, and (iii) create a composite proxy group distribution and range using these averaged results for each proxy group member.

Because the methods that would be combined presently remain under review, it is difficult to speak to what weighting should be applied in that combination. As a general proposition, leaving the weighting for resolution in a case-specific dispute would invite unproductive, result-driven testimony and briefing in which each side seeks greater weight for those studies currently producing a result closer to their desired allowed ROE. Better use would be made of participant and Commission resources by devoting ample attention now to ensuring that all utilized methods are well-designed to produce reliably market-based indications of a subject utility's market-based cost of equity and then weighting those models' results equally.

4. Simple versus complex models

E8. To what extent is it reasonable for the Commission to use a simplified version of a model that does not reflect all the variables that investors consider?

E8.a. Is the use of a simplified model justified for ease of administration and predictability of result?¹⁵¹

The Commission cannot practicably hope, and should not try, to capture every one of the myriad models or variables employed by some subset of the world's many equity investors. It should apply no more than a handful of well-tested, market-based, academically-supported

¹⁵¹ We intentionally skip here from Question E8.a to Question E11. Questions E9–E10, concerning reference to state-allowed ROEs, are addressed in Part III.E.6, *infra*.

methods.¹⁵² And those methods' integrity should be respected. That is, the Commission should not let itself be led into selective complexification, in which standard models are "refined" by adding features that tend to move their result in a particular direction, while omitting other refinements, supported by the same sources or reasons, that would have a countervailing effect.

See, e.g., Part III.H.2.b)(3), *infra* (addressing attempts to selectively make a "size effect" adjustment to the CAPM while ignoring countervailing adjustments supported by the same sources used to justify a size adjustment). As Dr. Cornell explains, adding more variables can actually increase measurement error and is almost certain to lead to unnecessary controversy.¹⁵³

5. Models versus "judgment"

*E11. To what extent, if any, should the Commission exercise judgment in using financial models to set ROEs under various capital market conditions?*¹⁵⁴

The Commission should exercise careful judgment in selecting methods and the continuing features of implementing models. A good model will work in a very wide range of capital market conditions (as the DCF model does), so there is no good reason to vary the choice of model (as distinguished from the specific study-period data that is input to the model) by financial market condition. *See Part III.C, supra.*

Having specified reliable models, the Commission should trust them. Applying "judgment" to override good models' indication of what equity costs would amount to allowing preconceived notions of what ROEs should be allowed to override the best available empirical

¹⁵² See Ex. No. A-1, § E8 ("All models are simplifications. Adding more variables does not necessarily increase accuracy. Importantly, the Commission should use models tested and endorsed by the academic literature as well as investors.")

¹⁵³ *Id.*

¹⁵⁴ See, *infra*, Section III.E.6 for responses to Questions E9 and E10.

evidence of what equity actually costs.¹⁵⁵ As such, it would evoke this exchange from the Marx Brothers movie *Duck Soup* (Paramount 1933):

Teasdale: Your Excellency, I thought you left.
 Chicolini: Oh no. I no leave.
 Teasdale: But I saw you with my own eyes.
 Chicolini: Well, who ya gonna believe me or your own eyes?

Market-based empirical models are the only available “eyes” through which the Commission can perceive the cost of equity, and they should be believed.

To be clear, model-based determination of what equity *costs* does not preclude the application of regulatory judgment to decide to set the allowed ROE for a particular utility above or below the costs of equity, on incentive or other grounds. For example, if the Commission seeks to avoid large, rapid changes in allowed ROEs (as Opinion No. 551 stated¹⁵⁶), it could craft stabilization rules that would limit the rapidity with which a utility’s allowed ROE may change, in either direction. As discussed in Part III.E.6, *infra*, such stabilization could be accomplished by referencing state-allowed ROEs. But all such deviations from cost-based ROEs should be explicit, explicitly justified, and designed to be fair to both ratepayers and shareholders as the cost of equity varies bi-directionally over time.

6. If properly used, state-allowed ROEs can provide a lagging, but useful, indicator of utilities’ equity costs.

E9. How, if at all, should the Commission consider state ROEs?

E9.a. How and why do state ROEs vary by state?

E9.b. How are certain state ROEs more or less comparable to Commission ROEs?

¹⁵⁵ See Ex. No. A-1, § E11 (“both the CAPM and the DCF model reflect capital market conditions and offer different perspectives on the same problem. . . . However, without a new and better model, exercising judgment to adjust the ROEs determined by academically tested and endorsed models likely introduces additional measurement error and speculation.”)

¹⁵⁶ See Op. No. 551, PP 262-63.

E10. If the Commission considers state ROEs, how should it compare FERC-jurisdictional transmission ROEs with state ROEs that apply to utilities that are (a) distribution and transmission companies; or (b) distribution, generation, and transmission companies?

State ROEs exhibit considerable gradualism and lag,¹⁵⁷ which presently (in the current declining-equity-cost era) means they tend to overstate the cost of equity. Nonetheless, there are reasonable ways in which the Commission can reference state-allowed ROEs. One way is through a Risk Premium study.¹⁵⁸ To the extent the Commission relies on Risk Premium results based on past regulatory outcomes, it could look to ROEs allowed by state commissions. Notwithstanding the intuitive appeal of using past FERC allowances to set FERC-jurisdictional rates, reference to state allowances is reasonable if they are properly used. State-allowed ROEs:

- Are collected and published by third-party sources—in particular, by Regulatory Research Associates (“RRA”), the source recommended by Morin’s *New Regulatory Finance*.¹⁵⁹
- Are closely aligned with the information on which investors rely, as RRA’s reports are part of S&P Market Intelligence (formerly SNL Financial), an investor-oriented research service.¹⁶⁰
- Are generally the allowed base ROE for a specific company, not a group of unrelated companies, and without inventive adders.
- Provide a large and thus reliable set of recent inputs.
- Reflect the fact that most transmission-owning public utilities receive the lion’s share of their transmission revenues through bundled retail rates, outside of federal rate regulation.

¹⁵⁷ See Ex. No. A-2, at 41.

¹⁵⁸ The Commission could also moderate ROE changes in either direction by consistently referencing the representative value from a large number of recent state-allowed ROEs for comparable utilities.

¹⁵⁹ See Morin, *supra*, at 123.

¹⁶⁰ See CAP-500 at n.70 & accompanying text.

- As compiled by RRA, have formed the basis for risk premium studies endorsed and presented by witnesses sponsored by transmission owners.¹⁶¹

When taken out of context, certain state-allowed ROEs may appear to be out of line with industry norms, even though the resulting pre-incentive WACC is in line with industry norms. Such variations make the *range* of state-allowed ROEs uninformative in identifying either the cost of equity or a reasonable ROE stabilization method.¹⁶² Thus, for any purpose, in regulating typical transmission ROEs, the Commission should look to recent state commission decisions concerning non-generator electric utilities, because investors perceive the cost-recovery risks associated with the transmission segment and distribution segment as being similar, and perceive both of these “wires” segments as being less risky than generation.¹⁶³

F. No “mismatch” results from applying the market cost of equity to net plant rate base

1. The cost that utilities incur to attract equity is determined in financial markets

F1. Does the mismatch between market-based ROE determinations and a book value rate base support current market values? Is this mismatch a problem?

Question F1 seeks comment on the theory that market-based ROE determinations are conceptually mismatched with rate bases measured by depreciated original cost. It thereby raises

¹⁶¹ See testimony submitted by the New England Transmission Owners in EL11-66 *et. al.* (NET-02200, at 94:10-12; NET-1320; NET-1708). We are not suggesting that any aspect of this study be repeated for use in future proceedings, other than the general fact of its reference to state commission allowances, as it included a clearly erroneous mismatch. It used *average* utility bond yields to compute the bond yield difference between the multi-year baseline period and the six-month study period, and then added the resulting equity risk premium to higher-yield, *Baa-rated* bond yields. This study also made a dubious choice by including ROEs for retail power sales by generation-owning utilities.

¹⁶² Ex. No. A-2 at 41 (explaining the problem, and stating that it “can be avoided through an approach that combines a large number of recent state-allowed ROEs, by utilizing them for risk premium analysis or by referencing their median or mean”).

¹⁶³ *Id.* at 43. For example, Standard & Poor’s documentation of its credit rating methodology for utilities, S&P Global RatingsDirect, *Key Credit Factors for the Regulated Utilities Industry* (Nov. 19, 2013) categorizes as less risky (and is therefore more tolerant of higher leveraging) if “[a] vast majority of operating cash flows come from regulated operations that are predominantly at the low end of the utility risk spectrum (e.g., a ‘network,’ or distribution/transmission business unexposed to commodity risk and with very low operating risk).” *Id.* at 17.

the question whether the allowed ROE should reflect the E/B method, which divides projected earnings by an equity book value that supposedly matches the net book value rate base to which the allowed ROE will apply. While we address the main issues with the E/B method in Parts III.H.1 and III.H.2.c), *infra*, we here address this “matching” theory. For multiple reasons, the E/B approach does *not* provide an allowed ROE that better matches a net book value rate base than the longstanding approach of applying a market cost of equity to net plant rate base.

First, the “mismatch” theory is based on a fundamental conceptual error. The cost of equity to a regulated utility is not the accounting return that it, or comparable firms, have received or expect to receive on book value equity. Several leading academic texts confirm that economic rates of return are not the same as accounting-based rates of return. Dr. Cornell cites several leading academic texts that demonstrate that “accounting based rates of return do not provide meaningful estimates of economic rates of return,” and that accounting-based rates of return should not be used to estimate ROEs for regulated utilities.¹⁶⁴

As the Commission has recognized, the cost of equity to the utility is the return that equity investors require in order to be induced to have their capital invested in the assets used to provide regulated utility service.¹⁶⁵ Because capital is fungible and mobile, at any given time the original cost of inducing it to stay invested in utility assets is the market-based cost of capital attraction, which equals the return then available in capital markets for other investments of comparable risk. Thus, there is no mismatch in applying a cost-based ROE found by estimating the market cost of equity capital to a cost-based net plant rate base. When utilities procure other inputs (e.g., land or labor) at a price determined by competitive markets, nobody contends that including those competitively-priced costs in rates based on net original cost is any kind of

¹⁶⁴ Ex. No. A-1, § F1 (citing Fisher & McGowan (1983), Robichek (1978), and Lev & Gu (2016)).

¹⁶⁵ See Coakley Briefing Order P 36 n.73.

“mismatch.” There is likewise no “mismatch” when ROEs set at the market-indicated cost of equity are applied to net plant values. Rather, the reasonableness of this approach is the fundamental teaching of *Hope*, which has served long and successfully as the bedrock of ROE determination and rate-setting policy under the Federal Power Act and Natural Gas Act. In the modern financial world, where more than a hundred trillion dollars in fluid global capital hunts opportunities to earn returns, utilities that offer such risk-comparable market returns will be able to attract capital.

If the allowed return on the equity-funded share of the rate base is kept in line with the market cost of equity as it varies over time, then at any given time, investors will (by definition) be allowed the same return on their rate-based investments as they would have earned on an investment in a comparable-risk unregulated enterprise. It follows that over the economic life of each rate base asset, the cumulative allowed return will align with what investors would have received by investing in comparable-risk unregulated enterprises. An example provided by Alfred Kahn demonstrates that the supposed “inconsistency” between a market-determined cost of equity and original-cost accounting incoherently “assumes at one and the same time that the commission allows returns on equity (r) in *excess of* and *equal* to the cost of capital (k).¹⁶⁶ More recent academic texts confirm that a firm’s “market-to-book value exceeds 1.0 when investors expect ROE to consistently exceed the cost of equity for the firm.”¹⁶⁷

It might be contended that the market value of utility assets generally exceeds their regulatory book value, and that it would somehow promote fairness to apply a higher ROE to a rate base valued by the latter measure. That argument was rejected in *Hope*. It is also belied by

¹⁶⁶ I Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions* at 49-50 & n.72 (M.I.T. Press 1988) (emphasis altered).

¹⁶⁷ Ex. No. A-1, § F2 (citing Penman (2016) and Holthausen & Zmijewski (2019)).

the Commission's provision for recovery of "stranded investment" in Order No. 888.¹⁶⁸ Utilities argued then that the advent of robust competition for generation sales left the market value of certain generation investments below their regulatory book value. The Commission accepted that premise and provided procedures for recovery of the difference. The Commission has similarly protected "stranded" investment in transmission assets whose market value, due to technological progress, has fallen below their book value.¹⁶⁹ If it is fair to provide for recovery of a market cost of equity on book value that exceeds market value, then it is likewise fair to provide for recovery of a market cost of equity on book value that is below market value.

Second, the factual premise of the "mismatch" theory is false. The equity book value of utility companies' traded parents (the divisor of the E/B ratio) is *not* equivalent to utilities' book-value rate base. To be sure, transmission owner witnesses have repeatedly suggested this analogy, as a rationalization for referencing the E/B ratio. But even at the parent (consolidated financial statement) level, large and pervasive differences exist between equity book value and net plant book value. This difference can readily be seen in the same Value Line reports from which the proposed E/B method would take its inputs.

For example, consider the February 15, 2019 Value Line for FirstEnergy Corp. (focusing on that parent company because it provided the highest proxy E/B ratio in a recent study presented to the Commission), looking to the same projection period (2022-24) as would be used

¹⁶⁸ See *Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Order No. 888, 75 FERC ¶ 61,080, FERC Stats. & Regs. at 31,788-89 (1996), *on reh'g*, Order No. 888-A, 78 FERC ¶ 61,220, *on reh'g*, Order No. 888-B, 81 FERC ¶ 61,248 (1997), *on reh'g*. Order No. 888-C, 82 FERC ¶ 61,046 (1998), *aff'd in relevant part sub nom. Transmission Access Policy Study Grp. v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom. New York v. FERC*, 535 U.S. 1 (2002).

¹⁶⁹ See *Smart Grid Policy*, 128 FERC ¶ 61,060, P 141 (2009) ("the Commission will allow single issue rate treatment of otherwise stranded costs for jurisdictional legacy systems being replaced by jurisdictional smart grid equipment, provided that proposals to recover these costs are supported by an equipment migration plan that minimizes the stranding of unamortized costs of legacy systems").

under the NOI's contemplated approach. For that company and period, the expected book value common equity is about \$10.7 billion.¹⁷⁰ Yet for the same company and period, the "Net Plant" is \$36 billion, and the equity ratio share of Net Plant is about \$12.1 billion.¹⁷¹ Thus, the supposedly equivalent book value and net plant values diverge by about \$1.4 billion, exceeding 13% of the book value common equity—a percentage larger than a typical allowed return on transmission equity. And in this case, the >13% difference relates to a holding company that has almost entirely shed its non-utility operations. For most proxies, the purported analogy between the equity book value of utility companies' traded parents and utility net plant is further confounded by the fact that at the parent-level, consolidated earnings commonly include substantial earnings on unregulated or diversified operations, which may well have a higher ratio of earnings to net plant.

For an example of this difference between parent-level and utility-level E/B ratios, consider Wisconsin Energy ("WEC"), which provided the highest proxy E/B ratio in the illustrative calculations of *Coakley* Briefing Order P 54, and referencing the March 22, 2013 Value Line report underlying that calculation.¹⁷² As of that study, WEC's most recent actual E/B (for 2012) was 13.2%, and its fifth-year projected E/B was a roughly similar 14.0%. But the same year's actual E/B at the operating-utility level, for WEC's principal subsidiary Wisconsin Electric Power Company, was 10.8%.¹⁷³ WEC's corporate annual report for that year¹⁷⁴ explains this difference. It shows that 36% of WEC's 2012 consolidated earnings came from "Non-

¹⁷⁰ Book value/share of \$19.50 x 550.00 million shares outstanding = \$10.725 billion.

¹⁷¹ "Net Plant" of \$36.000 billion x "Common Equity Ratio" of 33.5% = \$12.06 billion.

¹⁷² See Docket No. EL11-66, Ex. No. NET-709 and Ex. No. NET-710, at 55.

¹⁷³ See WEPCO's FERC Form 1 for 2012, eLibrary No. 20130501-8001, at 117, l. 78 (Net Income of \$367,328,610) and 112, l. 16 (Proprietary Capital of \$3,396,880,705). Taking those accounting entries' ratio, WEPCO's utility-level realized E/B for 2012 was 10.81%.

¹⁷⁴ Wis. Energy Corp., *Standing the Test of Time: 2012 Annual Report* (2013), https://s22.q4cdn.com/994559668/files/doc_financials/annual/wec2012_annualreport.pdf.

Utility Energy,” which “consist[ed] primarily of our PTF units (PWGS 1, PWGS 2, OC 1 and OC 2),” i.e., Port Washington Generating Station Units 1&2, and Oak Creek expansion Units 1 & 2.¹⁷⁵

Large differences between equity book value and net plant book value can arise for any number of reasons. These include timing differences in depreciation and tax accounting, and the application of “mark to market” accounting for some purposes at the parent-company level.¹⁷⁶ Major differences in E/B ratios also arise due to differences equity ratios at the traded parent and operating utility levels. Almost without exception, traded parents are more leveraged (have lower equity ratios) than their operating subsidiaries. In the same FE Value Line referenced above, FE’s most recent fully-historical (2017) equity ratio was only 15.7%, whereas the equity ratio of its transmission-owing subsidiary was approximately 58.0%.¹⁷⁷ Consequently, FirstEnergy’s parental E/B was exceptionally high in part because highly leveraged parental debt represented a balance sheet liability that reduced the divisor of that ratio.

Real-world differences like these belie the hypothetical example that Dr. Morin (showing his background as a witness retained by utilities to support their requested ROEs) presents as purported demonstration that “the DCF cost rate understates . . . the investor’s required return when stock prices are well above . . . book.”¹⁷⁸ His example is based on a simplistic, and factually incorrect, assumption that the rate base to which allowed ROE is applied equals the equity book value divisor of the M/B ratio. It also assumes a 100% equity capital structure for a

¹⁷⁵ *Id.* at F-13; *see id.* at F-7 (explaining acronyms and describing “Non-Utility Energy Segment”), F-9 (reporting consolidated earnings by segment).

¹⁷⁶ *See Ex. A-1 at 15-17.*

¹⁷⁷ *See Am. Transmission Sys., Inc., Annual Report (FERC Form 1), at 112, ll. 16, 24, (Mar. 30, 2018), eLibrary No. 20180330-8022*) (Total Proprietary Capital of \$1,514,011,052, and Total Long-Term-Debt of \$1,096,346,454; the ratio of the first figure to the sum of the two figures is 58.0%).

¹⁷⁸ Morin, *supra*, at 435.

publicly-traded operating company that has only rate-regulated revenues. In this unrealistic hypothetical, a utility with a 2:1 M/B ratio (per share, \$100 market price/\$50 book value) is allowed a 10% ROE, developed on a DCF-like basis by adding a 5% dividend yield to 5% growth, and applied to a rate base of \$50/share that exactly equals the \$50/share book value. On those contrived premises, the DCF-based 10% allowed ROE appears to produce only enough return to fund dividends, with no retained earnings left to fund growth. But suppose the true cost of equity is a constant 10%, and the utility again has per-share market value of \$100 and share book value of \$50, but also has net plant rate base of \$90/share, exceeding its share book value. (As shown above, there is no reason to assume the latter two amounts are identical, and ample reason to expect the plant asset base to exceed share book value.) In this revised scenario, the utility would be allowed \$9/share in return and would have \$4/share in retained earnings from which to fund growth. Moreover, while in this hypothetical the DCF method would initially produce a return 1% below the assumed cost of equity (9% rather than 10%), that model error would be self-correcting, because investors would value (price) the stock such that its dividend yield would rise until the sum of its dividend yield and growth aligned with the utility's cost of equity. That is because the DCF method's reference to market prices makes it self-correct differences between allowed returns and the cost of equity, whereas the E/B method perpetuates those differences.

2. The M/B ratios of utilities' *parents* exceed unity by much more than do the M/B ratios of utilities themselves

F2. Why have most or all utility market-to-book ratios consistently exceeded one?

Question F2 asks why "utility" market-to-book ratios typically exceed unity. This question, however, is imprecisely worded. As is recited elsewhere in the NOI, utility operating

companies are not publicly traded and, therefore, have no readily visible “market” stock price.¹⁷⁹ Accordingly, the market-to-book ratios of utilities themselves cannot be said to typically exceed unity.

One can, however, with considerable effort, extract benchmark M/B ratios at the operating company level from time to time, by scrutinizing the prices paid by holding companies or their subsidiaries to acquire operating utilities, such as NextEra’s recent acquisition (from Southern Company) of Gulf Power Company. The difficulty of such benchmarking is indicated by the fact that the price paid by NextEra does not appear in the public record of Docket No. EC18-117, where the Commission reviewed that transaction. It seems, however, that NextEra paid approximately Gulf Power Company’s net book value: On January 1, 2019, it paid “approximately \$4.47 billion in cash consideration” and assumed “approximately \$1.3 billion of Gulf Power debt,”¹⁸⁰ thus committing approximately \$5.77 billion. In exchange, it acquired an operating utility with a year-end 2018 regulatory book value of \$5.32 billion.¹⁸¹ Thus, this transaction indicates a utility-level M/B ratio of approximately 1.08, much closer to unity than the contemporaneous M/B ratios of NextEra (approximately 2.53¹⁸²) or Southern (approximately 1.78¹⁸³).

¹⁷⁹ See NOI Question H.1.3 (“The Commission adjudicates cases at the operating company level, for which there is no public data like stock prices, growth rates, and betas.”).

¹⁸⁰ NextEra, Inc., Annual Report (SEC Form 10-K) at 98 (Feb. 15, 2019).

¹⁸¹ Gulf Power Co., Annual Report (FERC Form 1) at 111, l. 85 (Apr. 17, 2019), eLibrary No. 201901418-8005 (“Total Assets” of \$5,320,620,672).

¹⁸² Yahoo Finance identifies NextEra Energy’s (ticker NEE) year-end 2018 market price as \$172.67. See <https://finance.yahoo.com/quote/NEE/history?p=NEE&.tsrc=fin-srch>. The February 15, 2019 Value Line for NEE estimates a year-end 2018 book value per share of \$68.30. Applying those amounts’ ratio, NEE’s year-end 2018 M/B was approximately 2.53.

¹⁸³ Yahoo Finance identifies The Southern Company’s (ticker SO) year-end 2018 market price as \$43.38. See <https://finance.yahoo.com/quote/SO/history?p=SO>. The February 15, 2019 Value Line for SO estimates a year-end 2018 book value per share of \$24.35. Applying those amounts’ ratio, SO’s year-end 2018 M/B was approximately 1.78.

An even lower M/B ratio for an operating utility is indicated by the April 2013 acquisition of Atlantic Path 15 by Duke-American Transmission Company. The seller received “a total sale price of approximately \$56 million,”¹⁸⁴ in exchange for an entity whose book value equity (“Total Proprietary Capital”) exceeded \$60 million.¹⁸⁵ Thus, the M/B ratio indicated¹⁸⁶ by that transaction is below unity.

Circa 2007, Alliant subsidiary Interstate Power and Light Company (“IPL”) sold its transmission system to the nascent ITC Midwest—not only selling the associated transmission assets, but doing so as a going concern with its transmission personnel transferred to ITC Midwest.¹⁸⁷ IPL expected to receive approximately \$165.7 million in “Net Proceeds Above Net Book Value of Assets,” which were estimated to be \$432.2 million at the anticipated time of closing.¹⁸⁸ Thus, this transaction indicates a utility-level M/B ratio of approximately 1.38,¹⁸⁹ a significant portion of which presumably reflected the market value of ITC Holdings’ substantial non-cost incentive ROE adders and ability to profit through double-leveraging. At the exchange-traded parent level, as of year-end 2007, ITC Holdings’ M/B ratio was approximately 4.3.¹⁹⁰

Similarly, when Monongahela Power Company sold its Ohio operations to Columbus Southern (a subsidiary of AEP) at year-end 2005, it did so for a utility-level M/B ratio of

¹⁸⁴ Atl. Power Corp. Quarterly Report (SEC Form 10-Q), at 12 (May 8, 2013).

¹⁸⁵ Atl. Path 15, LLC, Quarterly Report (FERC Form 3-Q), at 112, l. 16 (Apr. 30, 2013), (eLibrary No. 20130430-8004). The transaction also included assumption of debt, which is excluded from both sides of the foregoing comparison.

¹⁸⁶ The SEC Form 10-Q also states (at 12) that Atlantic Power “recorded a gain on sale of approximately \$7.0 million,” which would suggest an M/B ratio slightly more than unity rather than slightly less than unity.

¹⁸⁷ See generally *ITC Holdings Corp.* 121 FERC ¶ 61,229 (2007).

¹⁸⁸ See *In re Interstate Power & Light Co.*, No. SPU-2007-0011, Ex. No. CAH-1, sched. K (Iowa Utils. Bd. Mar. 30, 2007).

¹⁸⁹ That is, in \$ millions, $(165.7 + 432.2)/432.2 = 1.38$.

¹⁹⁰ According to the September 16, 2016, Value Line for ITC Holdings, its split-adjusted, year-end 2007 book value per share was \$4.37, and its contemporaneous market price was between \$12.6 and \$19.5; Historic Stock Price.com, <https://www.historicalstockprice.com>, specifies \$18.81. The ratio \$18.81/\$4.37 exceeds 4.3.

approximately 1.17—much closer to unity than the M/B ratios of either FE (1.64) or AEP (1.58).¹⁹¹

The logical next question is why the M/B ratios of extant¹⁹² proxy companies such as AEP, FE, NEE, and SO exceed unity by so much more than is the case for their operating electric utility subsidiaries. The reasons will vary by company, but the likely explanations include the following. One, proxies' business commonly includes substantial profitable activities that generate revenues mainly from human and intellectual capital rather than booked assets. Examples include power trading, non-utility home maintenance and energy efficiency services,¹⁹³ infrastructure services,¹⁹⁴ and more. Such revenue enlarges the numerator of the M/B ratio, without a corresponding increase to the divisor. A 2012 academic publication¹⁹⁵ explains:

In a growing number of companies, the role and the amount of intangibles (e.g., human, structural, managerial, technological and customer capital, patents, etc.) increase to such points that their value completely overwhelms the value of all the other assets combined (Hirschey et al. 2001; Daum 2003, Hand and Lev 2003). Nevertheless, these important assets are not captured on the balance sheet. For example, R&D and advertising expenditures are often regarded as investments in future value creation but, due to their uncertain nature, are being expensed, contributing to the gap between book and market value of equity.¹⁹⁶

Two, post-restructuring, power is sold at market prices disconnected from net plant. Again, the resulting revenue enlarges the numerator of the M/B ratio, without a corresponding increase to

¹⁹¹ Ex. No. A-2, at 64:1-4.

¹⁹² ITC Holdings is no longer publicly traded, having been acquired by Fortis and an entity owned by Singapore. See *Consumers Energy Co. v. Int'l Transmission Co.*, 165 FERC ¶ 61,021, P 10 (2018).

¹⁹³ See, e.g., BGE Home, <https://www.bgehome.com/>.

¹⁹⁴ See, e.g., CenterPoint Energy and Vectren Merger: Delivering Energy, Service and Value at 10 (Apr. 23, 2018), <http://investors.centerpointenergy.com/static-files/344a0236-4d9a-4aeb-bf04-ec646b55d75f> (Vectren Infrastructure Services Corp. is “[o]ne of the largest US providers of underground construction and repair services to LDCs and pipelines” and contributed 14% of Vectren’s 2017 net income; Vectren Energy Services, which provides project services involving “energy performance contracting” and “sustainable infrastructure,” contributed another 5%).

¹⁹⁵ M. Aleksanyan & K. Karim, *Searching for Value Relevance of Book Value and Earnings: a Case of Premium vs. Discount Firms*, 41 Rev. Quantitative Fin. & Acct 489 (2013), <http://eprints.gla.ac.uk/68615/>.

¹⁹⁶ *Id.* at 491-92 (footnote omitted).

the divisor. Three, market and book values diverge due to regulatory timing differences related to depreciation, taxes, and the like. Four, differential leveraging at the parent and operating subsidiary levels means that operating subsidiaries commonly receive an equity return on a higher equity ratio than applies at the consolidated, parental level.¹⁹⁷ In effect, the consolidated entity receives an equity-level return on assets funded by debt. The numerator of the M/B ratio is raised by the equity-level return, while the liability for the associated debt reduces the numerator of that ratio.¹⁹⁸ None of these situations constitute reasons to diverge from the longstanding rule that the market-based cost of equity is applied to book-value rate base.

3. As nearly as is practical, allowed base ROEs should be set at the cost of equity

F3. How should the ROE level be set relative to the cost of equity?

NOI Question F3 asks a simple question: “How should the ROE level be set relative to the cost of equity?” The correspondingly simple answer is that, in principle, the allowed ROE should be set *at* the cost of equity. As the Commission stated in 1988:

There is compelling economic justification for relying on the market cost of capital as the standard for rate of return decisions. Furthermore, a market cost of capital approach addresses both the comparable earnings and attraction of capital standards of the *Hope* decision.¹⁹⁹

The Federal Power Act aims to protect consumers from “exorbitant rates,”²⁰⁰ completely prevent “excessive rates and charges,”²⁰¹ and does not permit “even ‘a little unlawfulness.’”²⁰² As summarized by a leading textbook on corporate finance: “Because it has a monopoly, an

¹⁹⁷ See, *infra*, Part III.H.

¹⁹⁸ See generally, Ex. No. A-1, § F.2.

¹⁹⁹ Order No. 489, FERC Stats. & Regs. at 30,993.

²⁰⁰ *Am. Pub. Power Ass'n v. FPC*, 522 F.2d 142, 147 (D.C. Cir. 1975) (Bazelon, J., concurring).

²⁰¹ *Atl. Ref. Co. v. Pub. Serv. Comm'n*, 360 U.S. 378, 388 (1959).

²⁰² *Consumers Fed'n of Am. v. FPC*, 515 F.2d 347, 358 n.64 (D.C. Cir. 1975) (quoting *FPC v. Texaco, Inc.*, 417 U.S. 380, 399 (1974)).

unregulated electric . . . company could exploit its customers. Therefore, regulators (1) determine the cost of the capital investors have provided the utility and then (2) set rates designed to permit the company to earn its cost of capital, no more and no less.”²⁰³ The “no more” portion of this restatement has dispositive support in governing D.C. Circuit case law: ““The cost of capital is the *minimum* rate of return necessary to attract capital to an investment.””²⁰⁴

There are, of course, practical and statutory-procedures limitations to that principle. The cost of equity cannot be directly observed and must, therefore, be inferred through one or more of the time-tested techniques that translate study-period financial market data into a comparable-risk equity cost estimate. Consequently, each utility’s cost of equity cannot be re-studied and re-set every day. The proper occasions to do so are whenever an entity with standing to do so seeks an ROE change pursuant to FPA section 205 or 206. Incentive adders present separate questions; we address them in the companion response to the Docket No. PL19-3 Incentives NOI. But none of those qualifiers alter the basic principle: As nearly as practicable, the base ROE allowed in FERC-regulated rates should be set at the best available estimate of the contemporaneous market cost of the equity invested by utilities in the assets used to provide the associated FERC-regulated services. Allowing less risks depriving the utility of needed capital and compromising its ability to serve the public. Allowing more risks exploits consumers and allows utilities to earn monopoly rents, contrary to the Commission’s consumer-protection mission.

²⁰³ Ehrhardt & Brigham, *supra*, at 336 n.1.

²⁰⁴ *Tenn. Gas Pipeline Co. v. FERC*, 926 F.2d 1206, 1208 (D.C. Cir. 1991) (emphasis added) (quoting A. Lawrence Kolbe, et al., *The Cost of Capital: Estimating the Rate of Return for Public Utilities* at 13 (1984)).

4. The DCF model's dividend yield term should not be replaced with dividends divided by book value

F4. Should the Commission revise our use of these models to account for the mismatch between market-based ROE determinations and book-value rate base? If so, how? For example, should the Commission adjust the dividend yield used in the DCF model to represent a yield on book value rather than a yield on stock price?

Replacing the dividend yield term of the DCF model with dividends divided by book value would violate the basic principles of the DCF method, and was rightly rejected in *Orange & Rockland Utilities, Inc.*²⁰⁵

As explained by the D.C. Circuit, “The premise of the DCF model is that the price of a stock is equal to the stream of expected dividends, discounted to their present value.” *Williston Basin Interstate Pipeline Co. v. FERC*, 165 F.3d 54, 57 (D.C. Cir. 1999). Thus,

DCF analysis works from the proposition that the price of a stock is the current value of all expected future cashflows, discounted at the rate of return.⁶ The key equation, $[k] = D_1 / P_0 + g$, employs the current price of the utility, because that price is understood to represent the best possible assessment of the available information about the utility. See, e.g., Morin, Utilities’ Cost of Capital 119-20.

⁶This can be stated as $P_0 = D_1 / ([k] - g)$, i.e., the price of a stock equals the value of next year’s dividends divided by the cost of capital net of the steady future growth rate of dividends. See Kolbe, The Cost of Capital 54; Morin, Utilities’ Cost of Capital 82. This can then be restated to focus on what the regulator is seeking to discover, the cost of capital: $[k] = D_1 / P_0 + g$.

Tenn. Gas Pipeline Co., 926 F.2d at 1210 & n.6.²⁰⁶

Dividends/Book Value have no place in these equations, for the simple and dispositive reason that the price paid by study-period investors (“ P_0 ”) is the market price, not book value.

²⁰⁵ Op. No. 314, 44 FERC ¶ 61,253, at 61,952, *on reh’g*, Op. No. 314-A, 45 FERC ¶ 61,252 (1998), *reconsideration denied*, 46 FERC ¶ 61,036 (1999).

²⁰⁶ To avoid confusion when this passage is read together with other sources, we have re-lettered the variable representing the cost of equity as “ k ,” rather than “ r ” as in the original. Re-labelling the variable, of course, makes no substantive difference.

Consequently, substituting book value for the P_0 term of the equation “[k] = $D_1 / P_0 + g$ ” would result in miscalculation of k , the cost of equity.

5. ROEs should be set so as to track the cost of equity, not to drive M/B ratios towards unity

F5. Should the Commission consider adjusting ROEs to account for market-to-book ratios above or below one? Would doing so introduce circularity into Commission ROEs by setting the ROE at whatever level of earnings the market expected, rather than making an independent assessment of the appropriate ROE?

Question F5 appears to ask whether ROEs should be set so as to drive M/B ratios towards unity. We do not argue for doing so. There may have been arguments for that approach when operating utilities’ stock was traded publicly, utility revenues derived almost exclusively from regulated return on net plant, and utilities’ net plant rate bases and equity book values were equivalent. In that context, it was commonly argued that an M/B ratio exceeding unity indicated a market expectation that the utility would receive more than its cost of equity (and, conversely, that an M/B ratio below unity indicated a market expectation that the utility would receive less than its cost of equity), and that regulators could home in on allowing only the cost-based return by raising or lowering returns until M and B converged.²⁰⁷ But that context no longer applies.

First, utilities’ net plant rate bases and equity book values are not equivalent. As the Commission can readily confirm from the FERC Form 1 accounting information it collects, the equity-financed shares of utilities’ net plant rate bases consistently exceed their proprietary capital. For example, consider Florida Power & Light (“FPL”), one of the nation’s largest electric²⁰⁸ utility operating companies. Its 2018 FERC Form 1 reports factors that produce an

²⁰⁷ See, e.g., Robert J. Gelhaus & Gary D. Wilson, Note, *An Earnings-Price Approach to Fair Rate of Return in Regulated Industries*, 20 Stanford L. Rev. 287 (Jan. 1968); see also Kahn, *supra*, 48-50 & nn.69-70.

²⁰⁸ We use FPL for this example rather than, e.g., Pacific Gas & Electric, because FPL is not a combination gas-electric utility.

equity-ratio net book value of \$24.6 billion,²⁰⁹ considerably exceeding its \$21 billion²¹⁰ in proprietary capital. This difference arises, in part, because Accumulated Deferred Income Tax is subtracted only from the latter. Second, regulated investor-owned operating utilities are now generally owned as subsidiaries of holding companies and not exchange-traded themselves, and their parents are not rate-regulated. This parent-subsidiary relationship further disconnects the actual and projected E/B ratios of proxy companies from operating utilities' returns on net plant. It also means that trying to make the M/B ratios of exchange-traded, non-regulated holding companies converge on unity would be a dubious regulatory goal, if it could even be accomplished, as those companies' M/B ratios may well result from expectations of the profitability of non-utility and/or non-regulated business.

Conversely, however, high M/B ratios at the holding company level should not produce high allowed ROEs at the operating company level. Yet that would be the consequence if actual or projected E/B ratios were used to determine allowed ROEs. High M/B ratios translate directly into high E/B ratios, as the two ratios share a common denominator, and their respective numerators (M for Market value, also known as "P" for market Price) tend to move in tandem, because earnings inure to shareholders' benefit. Consequently, "[c]ompanies with relatively high rates of return on [book] equity generally sell at higher multiples of book value than those with low returns."²¹¹ But for the same reasons that counsel against attempting to steer the M/B ratios of utilities' exchange-traded parent toward unity, high M/B and E/B ratios at the exchange-traded parent level do not indicate the cost of equity to operating utilities. Consequently, the E/B

²⁰⁹ See Fla. Power & Light Co., Annual Report (FERC Form 1) at 112, ll. 16, 24, eLibrary No. 20190419-8034 (Total Proprietary Capital of \$21,021,282,579 and Total Long-Term Debt of \$11,636,301,317, i.e., an equity ratio of 64.4%); *id.* at 200, l. 15 (Net Utility Plant of \$38,213,486,574; multiplying that amount by 64.4% produces the referenced \$24.6 billion).

²¹⁰ See *id.* at 112, l. 16.

²¹¹ Ehrhardt & Brigham, *supra*, at 101.

method should not be used, and if it were to be used, it would be necessary to adjust its results to recognize that the E/B ratios of proxies (exchange-traded parents) with high M/B ratios are not representative of the E/B ratios associated with operating utilities.²¹²

Ironically, the difference between exchange-traded parents and operating utility companies attenuates concerns that proxy company earnings (whether actual or expected) are affected by the ROEs allowed by regulators, including FERC. Such a feedback loop could formerly be seen in the E/B studies wherein ITC Holdings Corp., with its entirely FERC-jurisdictional business model, former large incentive earnings, and an equity-heavy ratemaking capital structure at the operating utility level, had E/B ratios at or near the top of the E/B distribution.²¹³ However, where the FERC-allowed ROEs for the operating subsidiaries of ITC Holdings Corp. used to represent the lion's share of that parent's earnings, they now represent a considerably smaller share of the earnings of Fortis, Inc.²¹⁴ And because ITC's FERC-regulated allowed ROEs now represent a smaller portion of the numerator of its parent's E/B ratio, that ratio is now less sensitive to FERC-allowed ROEs. Such mixture of FERC-regulated earnings with larger non-FERC-regulated earnings is now typical of the exchange-traded parents that could be included in a risk-representative proxy group. Thus, there is now more reason to be concerned about whether the financial metrics associated with exchange-traded parents are representative of operating utilities than about whether operating utilities' allowed ROEs will feed back into parent-level financial metrics. To the limited extent that exchange-traded parents are representative proxies for operating utilities, however, allowing parental E/B ratios to feed

²¹² See Part III.F.2, *supra*.

²¹³ See, e.g., Docket No. EL14-12, Ex. No. MTO-31.

²¹⁴ See, e.g., Fortis's 2018 annual report to shareholders, *The Power of Focus: 2018 Annual Report* at 34 (2019), <https://www.fortisinc.com/docs/default-source/finance-regulatory-reports/annual-reports/fortis-2018-annual-report-final1.pdf> (the ITC segment contributed only \$361 million to Fortis' \$1,100 million in "Net Earnings Attributable to Common Equity Shareholders").

into operating companies' allowed ROEs would create an unreasonable feedback loop in which utilities' above-cost allowed ROEs would raise parental E/B ratios, and both would spiral up from there.

We address that feedback loop in case such feedback is what Question F5 means by "circularity." As used in the relevant academic literature, however, "circularity" has a different, and more important sense. It means a method that does not reference securities prices, and thus never enables market price information to correct starting-point differences between allowed ROEs and the cost of equity. As shown in Part III.H.2.c)(1) below, the E/B method is circular in that way.

G. *Base ROEs exceeding the cost of equity should not be presumed just and reasonable*

1. To assess whether existing ROEs remain just and reasonable, the Commission should compare them to the cost of equity indicated by well-designed market-based methods

G1. How should the Commission determine if existing ROEs are just and reasonable?

The "just and reasonable" standard of FPA sections 205 and 206 is meant to "afford consumers a complete, permanent and effective bond of protection from excessive rates and charges," *Atl. Ref. Co.*, 360 U.S. at 388, and permits "not even 'a little unlawfulness.'"'

Consumers Fed'n of Am., 515 F.2d at 358 n.64 (quoting *Texaco*, 417 U.S. at 399). "The 'just and reasonable' lodestar is no loftier under section 206 than under section 205. . . ."²¹⁵

Accordingly, FPA section 206 empowers the Commission to reduce any rate that is not the "lowest reasonable rate," even if the existing rate is within a "zone of reasonableness," *FPC v. Nat. Gas Pipeline Co. of Am.*, 315 U.S. 575, 585-86 (1942) (quoting Natural Gas Act § 5(a), 15

²¹⁵ *FirstEnergy Serv. Co. v. FERC*, 758 F.3d 346, 353 (D.C. Cir. 2014).

U.S.C. § 717d(a)), and mandates that whenever a rate is found to be unjust, unreasonable, or unduly discriminatory, the Commission “*shall*” fix a substitute rate.²¹⁶

These authorities, and the Commission’s foundational policy that base ROEs should track the cost of equity,²¹⁷ cannot be squared with the “quartile approach” discussed in Part III.A.1, *infra*, under which complaints would be dismissed unless the existing ROE, having been shown to exceed the cost of equity, was further shown to exceed the cost of equity by an arbitrarily wide margin. Such a policy would be legally erroneous, as the Commission has an unquestioned statutory obligation to reduce existing rates that are shown to have become unjust, unreasonable, or unduly discriminatory.

In short, the substantive standard for assessing whether an existing base ROE remains just and reasonable should be that an existing base ROE is no longer just and reasonable if it is found to exceed the cost of equity, as measured by the best available empirical tool(s), applied to an appropriate study period. As discussed elsewhere in these Comments,²¹⁸ the reasonable set of such empirical tools includes neither actual E/B ratios, nor forecast E/B ratios, nor implausible equity market risk premiums, nor miscalculated utility rate case risk premiums. We address an associated procedural issue in Part III.G.3, *infra*.

2. Base ROEs exceeding the indicated equity cost should not be presumed to remain reasonable

G2. Is the quartile approach that the Commission proposed in the Coakley and MISO Briefing Orders appropriate? If not, how should the Commission revise this methodology?

The referenced “quartile approach” would create a presumption under which FPA section 206 complainants challenging an existing base ROE would bear a special burden to show that it

²¹⁶ FPA § 206(a), 16 U.S.C. § 824e(a) (emphasis added).

²¹⁷ See, e.g., *Coakley Briefing Order P 36 & n.73.*

²¹⁸ See Parts III.E.1, III.F.1, III.H.2.b.(1), III.H.2.c), & III.H.2.d).

exceeds a level set above the indicated cost of equity (hereinafter, the “shield” level”). The shield level would be set above the center of a composite range, by adding one-eighth of that range’s width. If adopted, the presumption would contravene the FPA’s consumer-protection purpose, as cited in Part III.G.1, *supra*. It would also introduce an illegal asymmetry between the treatment of FPA section 205 and 206 filings; distort the D.C. Circuit’s *Emera Maine* decision; and be arbitrary in its specifics. The vague potential for “rebutting” the presumption does not cure its legal infirmities.

Illegal asymmetry: Such a presumption would introduce an unfair asymmetry between FPA section 205 and FPA section 206. Public utilities filing changes in rates under section 205 apparently would continue to be able to obtain approval of a proposed rate increase if they could show that their cost of equity exceeds their existing allowed ROE by *any* amount. But under the proposed presumption, customers filing section 206 complaints would have to show that the cost of equity is so far below the existing allowed ROE that the difference exceeds the “shield” margin.

Such divergent treatment cannot be squared with the statutory structure. As explained in the foundational *Mobile* and *Sierra* cases,²¹⁹ a rate increase filing made and suspended under FPA section 205 and rate decrease complaint filed under FPA section 206 are both subject to the same “scope and purpose”²²⁰ of Commission review. In both instances, the rates at issue are “subject to being modified by the Commission upon a finding that they are unlawful.”²²¹

This asymmetry also contravenes the 1988 Regulatory Fairness Act, Pub. L. No. 100-473, 102 Stat. 2299 (“RFA”), which, the Commission has found (citing legislative history), was

²¹⁹ *United Gas Pipe Line Co. v. Mobile Gas Serv. Corp.*, 350 U.S. 332 (1956) (“*MobileFPC v. Sierra Pac. Power Co.*, 350 U.S. 348 (1956) (“*Sierra*”).

²²⁰ *Mobile* at 341.

²²¹ *Id.*

“‘intended to add symmetry’ between the Commission’s treatment of section 205 rate-increase filings and section 206 complaints seeking rate decreases.”²²² As described by its principal Senate sponsor, the 1988 Regulatory Fairness Act was intended to make “the system for bringing utility rates down . . . similar to the system for bringing rates up.”²²³ The RFA’s principal House sponsor explained: “[w]hen utility costs go up, utilities deserve a rate adjustment. We do not change that. But . . . when the economic factors go in the other direction, consumers deserve just and reasonable rate reductions,” in “the same way that utilities receive just and reasonable rate increases.”²²⁴ Moreover, Congress expected that under the RFA, the Commission would “grant refunds under section 206 with comparable frequency to its granting of refunds under section 205.”²²⁵

Under section 205, when the Commission determines that a rate previously accepted subject to refund exceeds the just and reasonable cost-based rate by *any* amount, the Commission typically requires refunds such that the ultimately settled rate is conformed to the just and reasonable cost-based level. Correspondingly, refunds in FPA section 206 complaint proceedings should be applied such that refunds are due and owing if the existing ROE is found to exceed the

²²² *ENE v. Bangor Hydro-Elec. Co.*, 151 FERC ¶ 61,125, P 28 & n.73 (2015) (quoting *Consumer Advocate I*, 67 FERC ¶ 61,288 at 62,000, *order on reh’g*, *Consumer Advocate II*, 68 FERC ¶ 61,207, at 61,997 (citing 133 Cong. Rec. S10925 (daily ed. July 30, 1987) (statement of Sen. Chafee) (“[u]nder the current law, . . . section 205 and section 206 filings are not treated in the same manner, and this inequality serves to favor the wholesale supplier over the wholesale customers and their residential and commercial customers”); 134 Cong. Rec. H9030 (daily ed. Oct. 27, 1987) (statement of Rep. Bruce) (the Regulatory Fairness Act, in setting a “refund effective date for consumers . . . [uses] essentially the same system used to grant rate increases”); 134 Cong. Rec. H8095 (daily ed. Sept. 23, 1988) (statement of Rep. Gejdenson) (“[t]his legislation represents an attempt to make the current regulatory process more equitable, giving electric consumers the same protections and considerations that supplying utilities currently receive . . . ”)).

²²³ *Regulatory Fairness Act: Hearing Before the Comm. on Energy & Nat. Res.*, 100th Cong., S. Hrg. No. 100-542 at 2 (Nov. 18, 1987) (statement of Sen. Bumpers).

²²⁴ *Id.* at 26 (statement of Rep. Bruce).

²²⁵ S. Rep. No. 100-491, at 6 (1988), reprinted in 1988 U.S.C.C.A.N. 2684, 2688.

just and reasonable cost-based ROE, any amount, without application of a presumption that says an overcharge of up to one eighth of a composite range width is permissible.

Emera Maine: The *Coakley* Briefing Order (P 27) presents its shield level as responding to the D.C. Circuit’s observation in *Emera Maine* that there exists a “broad range of potentially lawful ROEs.”²²⁶ But nothing in *Emera Maine* calls for the Commission to create a range within which an existing ROE that is found to exceed the cost of equity is nonetheless shielded from section 206 challenge. *Emera Maine*’s reference to “broad range of *potentially* lawful ROEs” was to the full breadth of the DCF range,²²⁷ as to which *Emera Maine* specifically affirmed the Commission’s Opinion No. 531 ruling that the range is not one of immunity from section 206 rate reduction.²²⁸ Moreover, in the same passage, *Emera Maine* took no issue with the Commission “eventually reduc[ing] the zone of reasonableness to a *single* ROE.”²²⁹ Thus, *Emera Maine* held that although there is a broad range within which an existing ROE *potentially* remains just and reasonable, at any given time, and for the particular circumstances of each case, there is ultimately a *single* level that *is* just and reasonable. Nothing in *Emera Maine* contemplates a presumption that a broad range of base ROEs—extending well above the central estimated equity cost value—are all *finally* reasonable for use in setting cost-based transmission rates, such that an existing ROE anywhere in that range should be presumptively immunized against change. Such a presumption would fly in the face of the D.C. Circuit’s agreement that the zone of reasonableness finally collapses to a single ROE.

Rather than stating that a range of ROEs is presumptively shielded from reduction via section 206, *Emera Maine* presented the quoted observation about a “broad range” by way of

²²⁶ *Emera Maine* at 26.

²²⁷ *Id.* (emphasis added).

²²⁸ *See id.*

²²⁹ *See id.* (emphasis added).

explaining that bare identification of a new and lower cost of equity, *standing alone*, was not sufficient to explain why a prior, higher ROE was *necessarily* unreasonable. The court read Opinion No. 531-B as containing only a “bare conclusion” that any prior ROE standing below the newly determined level was “*per se* unjust and unreasonable,” without making any discernable “actual finding as to the lawfulness of Transmission Owners’ existing base ROE,” and without providing “*any* further explanation.”²³⁰ The court remanded the First Complaint so that the Commission could supply the required finding and explanation, not to vindicate the NETOs’ judicially-rejected argument that “FERC must accept as just and reasonable all ROEs within the discounted cash flow zone”²³¹ by adopting a similar policy of accepting as just and reasonable all ROEs within a sub-range of a broadened and elevated composite zone.

The court demanded further explanation because “a number of factors” might bear on the question whether an existing ROE remains reasonable,²³² and the Commission had not stated clearly which of those factors led it to conclude that the prior 11.14% ROE had become unreasonable. The “mere fact”²³³ that the Commission had found 10.57% to be reasonable did not inherently supply that explanation, because the Commission, having been overly terse, *might* have reached that conclusion on a basis that did not rule out other ROEs also being reasonable. Now, however, the *Coakley* Briefing Order has stated that the Commission intends to set base ROEs at the estimated cost of equity. The *Coakley* Briefing Order refers to the “cost of equity” repeatedly and pervasively—some 46 times in all, and recognizes that “a comparison between the existing ROE and the just and reasonable ROE that the Commission would establish under

²³⁰ *Id.* (emphasis added).

²³¹ *Id.* at 23.

²³² *Id.*

²³³ *Id.* at 26.

current circumstances is relevant—and, in some cases, determinative—for whether the existing ROE remains just and reasonable.”²³⁴

The policy that the Commission seeks to set the base ROE at its best estimate of the cost of equity was left implicit, not stated clearly, in Opinion No. 531-A. Paragraph 10 of that opinion, in which the Commission explicitly (albeit, perhaps overly tersely) explained what made the prior base ROE no longer reasonable, relied on but did not explicitly reference that policy. Once properly placed in the context of that policy, a finding that the rationally identified cost of equity is less than the existing base ROE compels the conclusion that the existing base ROE is no longer just and reasonable.

While this reasoning was unfortunately omitted from Opinion No. 531-A, it is far from novel. Opinion No. 551 affirmed rulings that a base ROE that ““authorized a utility to collect more than is necessary to satisfy the requirements of *Hope* and *Bluefield* would exploit consumers and, therefore, would be unjust and unreasonable,”” and that the burden borne by complainants is that of ““proving that [the existing] . . . Base ROE exceed[s] that level.””²³⁵ In *Bangor Hydro-Elec. Co.*, 122 FERC ¶ 61,038, P 14 (2008), the Commission explained that once it “determines the just and reasonable rate, here, an ROE, that particular rate should be used to calculate refunds, rather than the zone of reasonableness, because that specific rate is the product of the Commission’s considered reflection about what is just and reasonable in that particular case.” And in the foundational *Sierra* case, the Commission concluded that a contract rate that produced a 2.6% rate of return was unreasonably low, simply because it was determined (by stipulation) “that 5.5% was normally a reasonable rate of return for PG&E’s operations.”²³⁶ On

²³⁴ *Coakley* Briefing Order P 20.

²³⁵ Op. No. 551, PP 10, 13 (quoting Initial Decision, 153 FERC ¶ 63,027, P 24 (2015)).

²³⁶ *Sierra* at 353-54.

review, the Supreme Court stated that if the Commission had been correct in disregarding the contract rate, “no further findings were necessary”²³⁷—meaning that in a context where (as here) the allowed return is dictated by cost rather than contract, a finding that the existing return diverges from the cost-based return is a sufficient basis to find the existing return unreasonable.

Nothing in *Emera Maine* finds fault with, or casts any doubt on, that logic. Where the base ROE is intended to be cost-based, it is clearly logical to proceed from a rational finding that X represents the cost of equity to a ruling that it is not reasonable to continue setting rates using a base ROE of X+Y. The only problem with Opinion No. 531-A, in this respect, is that it left this logic unstated.

Emera Maine, in short, does not contemplate, let alone require, a presumption that an above-cost ROE remains just and reasonable unless it exceeds the cost-based level by more than one eighth of the composite range. *See Farmers Union Cent. Exch., Inc. v. FERC*, 734 F.2d 1486, 1503 (D.C. Cir. 1984) (holding that FERC may not, other than as a well-calibrated incentive, allow ““creamy returns”” that exceed the cost-based level, and citing as an example of such non-statutory excess *San Antonio v. United States*, 631 F.2d 831, 851-52 (D.C. Cir. 1980), in which rates would have been allowed to exceed the cost-based level by “seven percent.”).

The proposed presumption, moreover, would have the effect of presumptively barring small ROE reductions unless and until the difference between the indicated cost of equity and the allowed ROE became so large as to trigger a major reduction. In Opinion No. 551²³⁸ and in its brief to the D.C. Circuit in *Emera Maine*,²³⁹ the Commission expressed concern that investors

²³⁷ *Id.* at 354.

²³⁸ Op. No. 551, PP 262-63.

²³⁹ Brief of Respondent Federal Energy Regulatory Commission at 66, *Emera Maine* (D.C. Cir. 2016) (No. 15-1118) (“a 175 basis point decline . . . could be of a sufficient magnitude to undermine Transmission Owners’ ability to attract capital”) (citing Op. No. 531, P 150).

might be disconcerted by an overly large decrease implemented all at once. But the approach proposed in the *Coakley* Briefing Order would create a presumption against small ROE decreases. The proposed change of policy direction, from seeking to limit the size of large ROE decreases, to seeking to limit the frequency of small ROE decreases, is both striking and unexplained. The only consistent theme is that demonstrated reductions in the cost of equity would not be fully tracked by reductions in allowed ROEs. The resulting bias towards investors and upward departure from cost-based ROEs would be inconsistent with *Hope*, *Bluefield*, and the Federal Power Act.

Arbitrary “Quartile”: The PNA would use one eighth of the composite range’s width as the increment by which the existing base ROE can exceed the composite range’s center and still be found reasonable. The *Coakley* and MISO Briefing Orders rationalize reliance on this one-eighth increment by stating that if the subject utilities were riskier than average, their ROE would be set at the upper midpoint, and it “would be unjust and unreasonable for an average-risk utility to receive an ROE that is closer to the ROE that would be just and reasonable for a utility of above- or below-average risk.”²⁴⁰ While we take no issue with the quoted statement, it does not support the converse proposition, namely, that an ROE is reasonable if it exceeds the risk-appropriate ROE but is *closer* to the risk-appropriate ROE than it is to an even more risk-inappropriate ROE. The rates charged by an average-risk utility should be set using a base ROE that is no more than what would be just and reasonable for an average-risk utility. The observation that an ROE lies closer to the just and reasonable ROE than to some risk-inappropriate unjust ROE does not render that ROE just and reasonable. ROEs within the zone of reasonableness that are close to the just and reasonable ROE may be a little less unjust and

²⁴⁰ *Coakley* Briefing Order P 26; MISO Briefing Order, P 27.

unreasonable, but remain unjust and unreasonable nonetheless. As the D.C. Circuit has ruled, the just and reasonable standard does not permit ““even a little unlawfulness.””²⁴¹

The reference to “quartiles” and the resulting application of one eighth of the composite range rests an implicit and unfounded assumption that there are only three categories of utilities (low-risk, average-risk, and high-risk), as illustrated by the three brackets at the top of the *Coakley* Briefing Order’s Figure 1. The Commission could just as well divide the universe of utilities into, say, five categories (very-low-risk, moderately-low-risk, average-risk, and moderately-high-risk, and very-high-risk). In that case there would be five brackets at the top of a revised Figure 1, and the Order’s purported logic would then indicate that the presumptively reasonable additional increment should be measured by one twelfth, not one eighth, of the width of the composite range. *Emera Maine* specifically rejected the proposition that the midpoint of the upper half was the only available above-midpoint ROE.²⁴² It follows that it would be reversible error to set the shield level on the basis of the same unfounded assumption.

Even if some form of presumption were permissible, the arbitrariness of the Commission’s shield proposal is exacerbated by relying on the width of the composite range to determine the increment by which the shield level may exceed the distribution-indicated cost of equity, because that approach disregards the distribution of results within the composite range.

See Response to NOI Question A2, supra. This arbitrariness echoes an error for which *Emera Maine* reversed Opinion No. 531. The 10.57% base ROE adopted in Opinion No. 531 exceeded 35 of the 38 DCF proxy values, which the *Emera Maine* court noted as a ground for skepticism as to that placement of the base ROE.²⁴³

²⁴¹ *Consumer Fed’n of Am.*, 515 F.2d at 358 n.64 (quoting *Texaco*, 417 U.S. at 399).

²⁴² See *Emera Maine* at 29-30.

²⁴³ See *Emera Maine* at 28 (noting, skeptically, that the Commission had adopted a base ROE that “was higher than

“Rebuttable” character of presumption. The *Coakley* Briefing Order describes its identified “quartile” as one within which continued reasonableness would be merely “presumed,” but the Commission has provided only scant and self-contradictory guidance as to what showing could rebut the presumption. The *Coakley* Briefing Order states (P 29) that the presumption could be rebutted by “changes in the returns on investments in other enterprises having corresponding risks.” Well-conducted DCF and CAPM studies of corresponding-risk proxy groups *are* evidence of those returns, as are returns recently allowed by state commissions to generation-divested electric utilities. If such studies point to results below the existing allowed ROE, then those studies, by themselves, meaningfully “indicate that the existing ROE has become unjust and unreasonable,” *id.* See *Richmond Power & Light v. FPC*, 481 F.2d 490, 498 (D.C. Cir. 1973) (a Commission finding that a new rate is reasonable implies “that the [former] rate was unreasonable”). A Commission policy of rejecting the results of meaningful studies of what equity costs would be arbitrary, especially when those same studies are deemed sufficiently reliable to form the basis for the shield level. Thus, the same evidence used to quantify the presumption inherently rebuts it, making the presumption logically self-defeating.

To bootstrap its way out of that self-contradiction, the *Coakley* Briefing Order suggests (at P 28) that any rebuttal would have to involve “additional evidence.” But what that additional evidence might be is unknown. Under the Order’s proposed sequence, the presumption would be applied *after* all of the data and evaluation needed to apply four approved methodologies has been gathered, reviewed, and deemed sufficiently reliable to form the basis for quantifying the shield level. And the shield level then comes into play when that extensive analysis shows that

35 of the 38 data points FERC used to construct its DCF zone of reasonableness”).

the existing base ROE exceeds the cost of equity. Such a showing itself rebuts the presumption, and the presumption therefore serves no statutorily valid purpose.

3. Base ROE Complainants should remain obliged to present a *prima facie* case that the Base ROE being charged exceeds the equity cost indicated by applicable market-based empirical models

G3. When a successive complaint is filed while the current ROE is being adjudicated (i.e., a pancake complaint), should the subsequent complainant be required to make a prima facie showing of sufficient change in market conditions to meet the Coakley and MISO Briefing Order's proposed determination of whether an existing ROE remains just and reasonable? If so, what type of information or showing should the complainant provide to demonstrate that market conditions have changed, and what standard should the Commission apply when assessing whether to deny the subsequent complaint without setting it for hearing?

Whether or not a prior complaint remains pending, complainants challenging an existing base ROE should be required to make a *prima facie* showing that it exceeds the cost of equity. That is longstanding Commission policy; the Commission has, in fact, rejected ROE complaints that failed to present a sufficient *prima facie* showing.²⁴⁴ If by “sufficient change in market conditions” Question G3 means a change in the subject utility’s equity cost that brings its equity cost below its existing allowed base ROE, that is an appropriate standard. The straightforward way to meet it is to present equity cost studies, using the Commission’s approved market-based equity cost estimation method(s)—that is, a DCF study of a risk-comparable proxy group, accompanied by, and combined with, studies applying any other methods that will have been adopted by the Commission—and compare the resulting empirical indication of what equity now costs the subject utility to that utility’s allowed base ROE.

Importantly, a change in general financial market conditions is *not* the only type of change that could result in this approach indicating that an existing base ROE is excessive. If the

²⁴⁴ See, e.g., *La. Pub. Serv. Comm'n v. Sys. Energy Res., Inc.*, 124 FERC ¶ 61,003, P 15 (2008) (dismissing ROE complaint that failed to present essential supporting data, “such as a list of the utilities in the comparison group or the DCF methodology used for the DCF analysis,” and “only provided statistical evidence of a change in bond yields, without making clear what effect this information alone has on [the target utility’s] cost of equity.”).

subject utility has become less risky, then its cost of equity, as indicated by good empirical tools, will decline, even if general financial market conditions remain essentially unchanged. Such utility-specific cost reduction is currently prevalent, as the operating margins and credit ratings of operating utilities have improved markedly in recent years.²⁴⁵

Equally important, the pendency of a prior challenge to an existing base ROE should not preclude consideration of a subsequent challenge that can meet the *prima facie* standard. Because general financial market conditions and the riskiness of subject utilities changes over time, the allowed ROE resulting from a first-filed complaint, which will be pegged to a study period corresponding to the refund period for that complaint, may exceed the cost of equity that would result from a second-filed complaint. “Utilities are free to file for successively higher rate increases based on later common equity cost data without regard to the status of their prior requests, and a fair symmetry requires that complainants also be free to file complaints requesting further rate decreases based on later common equity cost data without regard to the status of their prior complaints.” *Consumer Advocate Div. v. Allegheny Generating Co.*, 67 FERC ¶ 61,288, at 62,000 (footnote omitted), *on reh’g*, 68 FERC ¶ 61,207 (1994). The FPA requires that complaints supported by a showing of equity-cost decline be reviewed on their merits. As described by its principal sponsors, the 1988 Regulatory Fairness Act was intended to make “the system for bringing utility rates down . . . similar to the system for bringing rates

²⁴⁵ See, e.g., S&P Global Ratings, *Industry Top Trends 2019: North America Regulated Utilities* at 2, chart 3 (Nov. 8, 2018),

<https://www.spratings.com/documents/20184/5665906/ITT+2019+North+America+Regulated+Utilities.pdf/28fe982a-3e70-5795-005c-965bf8f28e69> (showing that for “North America Regulated Utilities” from 2011 through 2018, there were far more ratings upgrades than ratings downgrades); Moody’s Investors Service, *Announcement: US Regulated Utilities 2018 Outlook Remains Stable* (Nov. 2, 2017), https://www.moodys.com/research/Moodys-US-regulated-utilities-2018-outlook-remains-stable--PR_374886 (“Since 2007, revenues have increased at an average rate of 2% per year, the majority of which has been spurred through investments in property, plant and equipment (PP&E). Additionally, utilities’ efforts to cut costs have paid off, as operating margins have grown to 36% today from 25% in 2007.”); Docket No. EL11-66, Ex. No. CAP-500 at 4-5 & fig. 1 (“the vast majority of utility bond rating changes in this time frame [2013 to 2017]—97.2% of them in 2014, and 70% to 75% of them in the other years—were rating upgrades”).

up.”²⁴⁶ That is, “[w]hen utility costs go up, utilities deserve a rate adjustment. We do not change that. But . . . when the economic factors go in the other direction, consumers deserve just and reasonable rate reductions,” in “the same way that utilities receive just and reasonable rate increases.”²⁴⁷ Moreover, any kind of “one complaint at a time” rule, under which the pendency of a section 206 proceeding would raise a hurdle to additional section 206 proceedings, would incent respondents to drag out complaints, by, e.g., insisting that they be litigated rather than settled.

The argument for a “one complaint at a time” rule rests on a false legal formalism. It is contended that because section 206(a) requires ROE complainants to identify the ROE that is in effect at the time they file, complaints may not be pursued where that ROE is subject to change through a prior proceeding.²⁴⁸ But section 206(a) requires only what it says—that complaints seeking to “initiate” a section 206 proceeding “state the change or changes to be made in the rate . . . then in force”²⁴⁹; it does not require that complaints predict the rate that will be in force at the time an extended section 206 proceeding ends. And a parallel (indeed, stronger) requirement to identify the rate to be changed appears in section 205(d), which provides that notice of section 205 rate changes “shall be given by filing with the Commission . . . new schedules stating plainly the change or changes to be made in the schedule . . . then in force . . .”²⁵⁰ Thus, if a rate change made in one proceeding were deemed to nullify all unresolved rate change filings that had identified the rate thereby superseded as the pre-existing

²⁴⁶ S. Hrg. No. 100-542, at 2.

²⁴⁷ *Id.* at 26 (statement of Rep. Bruce).

²⁴⁸ Compare Carmen Gentile, *Time to Put Kibosh on Pancaking Section 206 Complaints: FERC Must Act*, 157 Pub. Utils. Fortnightly, Apr. 2019, at 42 (Apr. 2019) with David Pomper, *Response to “Time to Put the Kibosh on Pancaking Section 206 Complaints,”* Pub. Utils. Fortnightly, June 2019, at 100.

²⁴⁹ 16 U.S.C. § 824e(a) (emphasis added).

²⁵⁰ 16 U.S.C. § 824d(d).

rate, then that rule would have to apply symmetrically to sections 205 and 206. The Commission, however, has long entertained, and addressed on their cost-based merits, pancaked rate increase filings under section 205. *See, e.g., Boston Edison Co.*, Op. No. 53, 8 FERC ¶ 61,077, at 61,277, *reh'g denied*, Op. No. 53-A, 9 FERC ¶ 61,002 (1979). The statutory language and history discussed above make clear that the Commission must symmetrically consider the cost-based merits of section 206 rate decrease filings.

In short, the statutory way to discourage unmeritorious follow-on complaints, without improperly burdening meritorious ones, is straightforward. The Commission should adhere consistently to an empirical approach that accurately estimates what utility equity costs at any given time. Filing and following through on an ROE complaint requires substantial legal and expert fees, and ratepayer representatives know that ratepayers ultimately bear both sides' litigation costs (especially if the utility has a formula transmission rate). Accordingly, they file and prosecute ROE complaints only when they predict that equity costs will be found to have declined substantially below the ROEs stated in rates. If the Commission's empirical approach is transparent, known, and stable, and produces predictable results, then all stakeholders will be able to predict litigation outcomes. With such predictability, complaints will be brought only when a utility's equity cost as measured by the Commission's known empirical approach has declined significantly, and is expected to stay low or decline further.

4. Any sub-range that would be added to the indicated equity cost of equity to determine the presumptively shielded level *should* be narrow, in both single-utility and regional ROE cases

G4. In single utility rate cases, the Commission determines the central tendency of the zone of reasonableness based on the median of the proxy group ROEs. Is the approach outlined in the Coakley and MISO briefing orders appropriate in single utility rate cases given that the proxy company ROEs tend to cluster near the center of the zone of reasonableness, making the middle quartile relatively narrow?

G4.a. Would it be reasonable to determine the central tendencies of the upper and lower halves of the zone of reasonableness for single utilities based on a midpoint analysis, so as to produce approximately equal ranges of presumptively just and reasonable ROEs for below average, average, and above average risk utilities?

The shield-level presumption underlying Questions G4 and G4.a should not be adopted.

See Parts III.G.1-2, supra. If the Commission were, nonetheless, to adopt a shield-level presumption, the shield level should not be tied in any way to the range ends of proxy results. This means it should not be set by adding one eighth of the composite range width to either the median or the midpoint of the composite distribution or range. Instead, following the *Coakley* Briefing Order's suggestion that the shield level should not be closer to that upper central tendency measure than it is to the middle central tendency measure, the shield level should be placed halfway between the median and the upper median. In this context, "halfway" could mean either the 62.5th percentile, or the average of the indicated returns for the proxies at the 50th and 75th percentiles. The former would be more statistically reliable, as it more fully embraces reliance on distributions rather than ranges.

The potential for such a percentile-based approach to produce "relatively narrow" quartiles—that is, the fact that the distance from the 50th percentile to the 62.5th percentile (or to the average of the indicated returns at the 50th and 75th percentiles) may be less than one eighth of the composite range width—is not a problem. Rather, the narrower the referenced increment, the narrower the difference between the process of evaluating existing base ROEs and the statutorily appropriate approach. Again, the existing base ROE (a point value) should be compared to the best available estimate of the cost of equity (another point value).

Moreover, if any increment must be added to the point-value indication of the cost of equity in evaluating whether an existing base ROE remains just and reasonable, it would be arbitrary to tie that increment to the width of the composite range, which varies erratically, and

effectively randomly, with variations in the most extreme study results.²⁵¹ At the broadest, any such increment should be measured by the number of basis points that will result in a rate consequence greater than the regulatory expense of re-determining the utility's equity cost. A recent Commission decision quantified a rate case's expense at \$1.103 million, for a case that encompassed ROE and numerous other issues.²⁵² Even at that hefty level, four years of a 20 basis point reduction applicable to a utility with a 50% equity ratio, 30% income tax-gross-up factor, and \$500 million rate base would more than justify the expense.

H. *The “mechanics and implementation” of equity cost estimation models should be designed to identify the study-period cost of equity*

1. General and multi-model issues

- a) Where the DCF distribution is what matters, analyst growth estimates should use a sources-weighted combination of IBES and a comparable aggregator

H.1.1 Are IBES data a good proxy for “investor consensus?”

H.1.1.a If not, are there better alternatives, such as Bloomberg, Zacks, S&P Capital, Morningstar, and Value Line?

H.1.1.b Should the Commission combine data from multiple sources?

H.1.1.c What weight, if any, should be given to an estimate if the number and identity of analysts contributing to the estimate is not available?²⁵³

H.1.5. Should growth rates be based on Value Line, IBES, or alternative estimates?

H.1.6. Should the same growth rate sources be used across models, if more than one model is used to determine the ROE?

The ideal sourcing of analysts' growth rates would capture all of the sources referenced by investors, weighted in proportion to their followership and influence; show transparently

²⁵¹ See Part III.D.6, *supra*.

²⁵² See *Midwest Indep. Transmission Sys. Operator, Inc.*, Op. No. 534, 148 FERC ¶61,206, P 218 (2014) (quantifying expense of rate case involving myriad issues; the ROE issues therein were litigated through prefiled testimony but settled prior to trial).

²⁵³ In order to streamline our discussion of analyst growth rate sourcing, we intentionally skip here from Question H.1.1c to Question H.1.5. The intervening questions are addressed in Part III.H.1.b), *infra*.

which and how many analysts contributed to each source; exclude estimates not contemporaneous with the applicable study period; exclude growth estimates for which the baseline period precedes the period reviewed in screening proxies for comparability; prevent gaming in which parties selectively reference only those sources that include growth rates favorable to their position; be sufficiently small in number to make data entry manageable; and cost nothing. Unfortunately, these multiple ideals are not all compatible.

The sources referenced by investors are myriad. Two-plus sources of “consensus” growth rates are currently available to the public without charge: IBES, as posted on either Yahoo Finance or reuters.com, and Zacks. However, the Yahoo Finance version of IBES shows neither the number of contributing analysts nor their identity, and the reuters.com version of IBES does not show the latter. Zacks shows neither. Value Line is widely available at low or no cost (e.g., through public libraries), but it presents an estimate from one source, not a consensus,²⁵⁴ and unlike the analysts who contribute to consensus estimates, it generally does not adjust baseline earnings (on which growth estimates depend) to remove nonrecurring events that can distort the resulting growth rate.²⁵⁵ Instead, its baseline uses GAAP-style earnings averaged over three past years—including years predating the period used in screening proxies for dividend cuts, M&A activity, and the like.

The other consensus growth rate sources recently referenced in DCF studies presented to the Commission by ROE witnesses are private or proprietary. These include (to extents that vary both across witnesses and in the same witness’s presentation as tailored from case to case) Bloomberg, S&P Capital IQ (each listed in the NOI²⁵⁶), and also FactSet, Nasdaq IR Insight

²⁵⁴ See Op. No. 551, PP 62-65, and other sources cited therein.

²⁵⁵ Ex. No. A-2, at 49.

²⁵⁶ Morningstar is also listed in the NOI, but it does not compile consensus estimates, and its proprietary standard.

(a.k.a. First Call), and SNL. Bloomberg and Nasdaq IR Insight are relatively transparent in their sourcing (showing the number of contributing analysts, and their identity where not masked by the contributor). But each of these sources requires a subscription, and according to recent testimony, these subscriptions cost \$15,000-\$30,000 per source, annually. If the Commission were to reconsider its prior statements indicating a preference for reliance on IBES,²⁵⁷ and instead invite reference to any or all of these sources, regulatory expenses would increase, and the Commission would find it difficult to guard against submissions that selectively rely on those sources that happen to collect favorable growth rates at a particular time.

The key to harmonizing the foregoing considerations, as on so many ROE issues, is to incorporate a reasonably comprehensive set of inputs into a combined proxy distribution, and then utilize all of the information in that distribution, instead of proliferating ranges and relying on their extremes. While the highest and lowest (and associated midpoint) growth rates applicable to a large proxy group will vary widely across sources, the median growth rate will not. For example, testimony on behalf of the transmission owners in Docket No. EL16-64 included six separate DCF distributions, based on analyst growth rates from six different aggregators: the midpoints of the six resulting distributions varied widely, ranging from 7.29% to 11.65%; the medians of the six resulting distributions were much closer to each other, ranging from 7.91% to 8.60%. Consequently, reliance on distributions rather than ranges will considerably lower the stakes involved in growth rate sourcing, reducing the incentive to data-

reports on individual stocks, while widely available at low cost, do not systematically present a multi-year earnings growth rate forecast. *Id.* at 50.

²⁵⁷ See Op. No. 551, PP 62-65; *Composition of Proxy Grps.*, 123 FERC ¶ 61,048, at P 84 (“the growth projections to be used in the DCF model are those reported by IBES. If they are the same growth projections posted by Thomson Financial Data on Yahoo.com, then they are acceptable for the DCF model.”); *Enbridge Pipelines (KPC)*, 100 FERC ¶ 61,260, P 234 (2002), *reh'g denied*, 102 FERC ¶ 61,310 (2003); *Nw. Pipeline Corp.*, 87 FERC ¶ 61,266, at 62,058-59 (1999), *on reh'g*, 92 FERC ¶ 61,287 (2000), *review dismissed in part and denied in part sub nom. Canadian Ass'n of Petroleum Producers v. FERC*, 308 F.3d 11 (D.C. Cir. 2002).

shop. Furthermore, if multiple sources are combined at the outset (averaging each of the utilized sources' growth rates for each proxy company to produce a composite growth rate for that company, rather than using each source to generate a distinct range), the resulting estimate of each proxy's DCF cost of equity will better mirror the process by which multiple analyst estimates contribute to price formation in the market for each proxy's stock. Doing so will also address the Commission's concern about relatively few analysts contributing to IBES.

Accordingly, the Commission should consider adopting the following policy, prospectively,²⁵⁸ for DCF studies of electric-utility parent stocks,²⁵⁹ and subject to case-specific variation where justified. The first-stage growth rate for each proxy could be based on the weighted average of two sources: the IBES aggregate (as reported on reuters.com or another IBES-based source that identifies the number of contributing analysts) and either Bloomberg or First Call (whichever is the witness's usual source), weighted by the number of contributing analysts.²⁶⁰ This averaged first-stage growth rate, combined with the GDP-based second-stage growth rate and other DCF inputs, would produce a combined-source DCF distribution, from which the median (or other applicable percentile) would provide the DCF component of the indicated cost of equity.

The foregoing is addressed mainly to actual DCF studies of electric-utility proxies, as distinguished from DCF studies of large-cap stocks (dividend paying members of the S&P 500) that are sometimes used in estimating an equity portfolio return for purposes of a CAPM study.

²⁵⁸ Given their considerable cumulative cost and the Commission's past statements that IBES is its preferred source, it would be unfair to penalize participants for not having referenced these sources in the past. On the other hand, the subscription cost it is not so large that it would be unreasonable to expect professional expert witnesses to subscribe to one (or more) of these sources following an announced change in the Commission's preferred sourcing.

²⁵⁹ Subscription cost aside, while referencing multiple sources would be feasible for proxy groups of several dozen utility-industry stocks, it would not be practical if that approach were extended to CAPM-input DCF studies of the approximately 400 dividend-paying members for the S&P 500, as suggested in NOI Question H.2.b.1.

²⁶⁰ Ex. No. A-2 at 51 (describing this approach).

In the latter context, the choice of growth rate sources is relatively unimportant, as each source will supply estimates for approximately 400 stocks, and the DCF-for-CAPM study will be used to produce a single portfolio growth value, inherently diminishing the significance of an unrepresentative growth rate for any one stock. In that context, a requirement to use sources that identify the number of analysts and to weight by the number of analysts (as recommended above for DCF studies proper) may not be warranted. It remains the case, however, that Value Line's earnings baselines, and thus Value Line's earnings growth rates, are derived differently than those aggregated by IBES and comparable sources. Consequently, Value Line growth rates should not be used for this purpose either.

- b) The Commission should rely on market-based models applied to exchange-traded proxies

H.1.2. To what extent does model risk affect all ROE methodologies?

H.1.3. The DCF model incorporates data at the parent/holding company level (e.g., stock price). The Commission adjudicates cases at the operating company level, for which there is no public data like stock prices, growth rates, and betas. What impact does this disparity have on the results of the DCF and other models?

H.1.4. Should the Commission continue to rely on the efficient market hypothesis, which underlies the DCF and CAPM models? Why or why not?

H.1.4.a. If yes, should the Commission continue to employ outlier screens, M&A screens, etc., for the DCF and CAPM models since these models need to incorporate all relevant information?

Some models are better than others; no model is perfect. Therefore, combining multiple credible market-based models can be sensible. But that is no reason to include models that are inherently disconnected from the market cost of equity. Models that apply well-honed techniques to market data on equity prices provide sound estimates of the cost of equity, because the efficient market hypothesis is sound.

That fundamental tenet is solidly established in the economic and financial literature, and in D.C. Circuit case law. The Commission has long been “quite wedded to DCF analysis,” and,

“as its theoretical mainstay,” to the “efficient market” proposition that the stock market “assimilates . . . with lightning speed” information concerning “money supply, inflation, [and] real economic activity.” *See Tenn. Gas*, 926 F.2d at 1211. The textbook cited pervasively in the NOI and related orders rightly calls the efficient market hypothesis a “cornerstone of modern investment theory.”²⁶¹ A leading corporate finance textbook explains:

[I]f stock prices deviate from their intrinsic values, investors will *quickly* take advantage of this mispricing by buying undervalued stocks and selling overvalued stocks. Thus, investors’ actions work to drive prices to their new equilibrium level based on new information. Even if some investors behave irrationally, as by holding losers too long and/or selling winners too quickly, this does not imply that the markets are not efficient. . . .

. . .

What is the bottom line on market efficiency? Based on our reading of the evidence, we believe that for most stocks, for most of the time, it is generally safe to assume that the market is reasonably efficient in the sense that the intrinsic price is approximately equal to the actual market price²⁶²

The efficient market hypothesis holds that all stocks (including proxy stocks) efficiently incorporate into their price all relevant public information. But that doesn’t mean that every stock must be included in a study based on security market prices, and does not make every stock a good proxy for a non-traded operating utility. The screening criteria and related issues discussed in Section III.D, *supra*, are designed to, and if properly applied will suffice to, assure that the distribution of results from models applied to referenced proxies is reasonably representative of what those models would show if they could be applied to the subject utility itself. Well-designed models will make their median results representative of the subject utility’s cost of equity.

²⁶¹ Morin, *supra*, at 279 n.3.

²⁶² Ehrhardt & Brigham, *supra*, at 292.

In order for a model's results to benefit from the wealth of information incorporated into security market prices, however, the model must *use* security market prices. Both the DCF and CAPM methods do so: The DCF method is based directly on study-period dividend yields (combined with forecasts of growth rates related to future dividends), and the CAPM method uses the relative volatility of proxy and market-wide equity prices. The RP method uses actual bond market prices to derive bond yields, and compares those yields to past ROE allowances that, if the RP data set is well selected, will in turn reflect past financial market prices. But the E/B method is completely disconnected from security market prices and, therefore, cut off from any reality check on the cost of attracting capital. This can be seen vividly in the E/B ratios of leading stocks such as Apple ("AAPL"), Amazon ("AMZN"), Facebook ("FB"), Alphabet ("GOOG"), and Microsoft ("MSFT"), as forecast by Value Line for the 2022-24 period in recent (circa May 2019) company-specific reports. The forecast E/B ratios for these titans of American industry are, respectively, 41.0%, 17.5%, 20.0%, 15.0%, and 39.0%. If these companies' costs of attracting capital were anything like those E/B ratios, they would not be attracting capital, as investors buying those stocks now have no hope of sustaining returns in that neighborhood. But they are attracting capital, because investors do not require returns resembling forecast E/B ratios to be attracted to market-priced stocks.

2. Model-specific questions

a) DCF

- (1) The longstanding composite-growth DCF model remains appropriate for electric utilities; if it were to be reconsidered, the Commission should apply a multi-stage model

H.2.a.1. Should the Commission continue to use a dividend DCF model or should the Commission use a different DCF model, for example, one based on free cash flow?

H.2.a.2. Could terminal stock value be used in place of long-term growth projections? If so, how should terminal stock value be determined?

H.2.a.3. Do investment analysts project earnings/dividends growth beyond five years, and if not, why not, and is GDP an appropriate proxy for long-term growth?

H.2.a.4 How should the Commission weight short-term and long-term earnings/dividend growth projections?

H.2.a.5. The Commission uses a constant growth DCF model. Should the Commission consider using a multi-stage DCF model? If so, how would the Commission determine the length of each stage of a proxy company's growth?

The composite-growth form of the DCF model, which the Commission has used for pipelines (both natural gas and oil) for over two decades,²⁶³ and for electric utilities since 2014,²⁶⁴ remains reasonable. When its outputs are distilled through a statistically valid measure (i.e., the median rather than midpoint), the group-indicated cost of equity is appropriately responsive to broader market trends, without being erratic, and is consistent with the results of other market-based estimation methods when those methods are reasonably applied. By weighting near-term earnings growth rates at two thirds in projecting the constant rate of dividend growth, the Commission's composite-growth method already assumes that this near-term growth will continue for decades.²⁶⁵ Accordingly, there is no compelling reason to revise the DCF model that the Commission uses to estimate each proxy's cost of equity.

²⁶³ See *Nw. Pipeline Corp.*, Op. No. 396-B, 79 FERC ¶ 61,309 (adopting constant dividend growth DCF model, with dividends' constant growth rate estimated as the simple average of the first-stage consensus (IBES) earnings growth rate forecast and a long-term multi-source GDP growth rate forecast), *reh'g denied*, Op. No. 396-C, 81 FERC ¶ 61,036 (1997), *review dismissed in part, remanded in part, and denied in part sub nom. Canadian Ass'n of Petroleum Producers v. FERC*, 254 F.3d 289 (D.C. Cir. 2001); *Transcontinental Gas Pipe Line Corp.*, Op. No. 414-A, 84 FERC ¶ 61,084 (modifying the weighting of the short-term and long-term growth forecasts used to produce the composite dividend growth rate, such that the short-term rate receives double weighting), *on reh'g*, Op. No. 414-B, 85 FERC ¶ 61,323 (1998), *review denied sub nom. N.C. Utils. Comm'n v. FERC*, 203 F.3d 53 (2000) (*per curiam*).

²⁶⁴ See Ops. Nos. 531, 551, 554, and *Midcontinent Indep. Sys. Operator, Inc.*, Op. No. 556, 161 FERC ¶ 61,059 (2017).

²⁶⁵ See generally *Williston Basin Interstate Pipeline Co.*, 104 FERC ¶ 61,036, P. 29 (2003) (this method "is equivalent to averaging 33 years of the short-term growth projection with 17 years of the lower long-term GDP growth rate"), *reh'g granted*, 107 FERC ¶ 61,164 (2004).

If any such revision were to be made, the Commission should switch from a fractional weighting of the first-stage and terminal-stage growth rates within a constant-growth form of the DCF model to a formally multi-stage DCF model that permits more precise intertemporal modeling of dividend growth rates. Dr. Cornell elaborates on this point. *See* Ex. No. A-1, § H.2.a.5.

Elimination or reduced weighting of the second-stage, GDP-based constraint on the per-share earnings that fund dividend growth would be error, for the reasons explained in Part III.H.2.b)(1), *infra*.

(2) A six-month DCF study period remains reasonable

H.2.a.6. Are six months of average high/low historical monthly stock prices an appropriate measure for the current stock price “P”?

As now-Justice Breyer explained in *Boston Edison Co. v. FERC*, 885 F.2d 962, 966 (1st Cir. 1989) (“*Boston Edison*”), the length of the DCF study period balances “such factors as the risk that aberrations will unfairly distort the results of a shorter time period against the risk that the longer time period will inappropriately weight the earlier results in a changing market.” The Commission has long held that a six-month study period appropriately balances these factors.

See id.; see also Generic Determination of Rate of Return on Common Equity for Public Utilities, Order No. 442, 33 FERC ¶ 61,426, FERC Stats. & Regs. at 30,086 (1985) (“The Commission believes the use of a 12-month moving average as suggested by some commenters would not provide a sufficiently current estimate of the dividend yield . . . [whereas] the use of the last preceding quarter, as originally proposed, creates too great a risk that an abrupt change will occur or that short-run volatility will greatly affect the outcome.”), *on reh’g*, Order No. 442-A, 35 FERC ¶ 61,323 (1986). After adopting six months as its standard DCF study period length

in the mid-1980s,²⁶⁶ the Commission has continued to apply that length through a wide variety of financial market conditions, ranging from the highly bullish markets of the mid-1980s, later 1990s, and later 2010s, to the multiple intervening recessions and bear markets. We see no reason to change it now.

b) CAPM

The *Coakley Briefing Order* explains that “the CAPM methodology estimates the cost of equity by taking the ‘risk-free rate’ and adding to it the ‘market-risk premium’ multiplied by ‘beta.’”²⁶⁷ Rearranging terms and noting that the “market risk premium” is the difference between the “equity market return”—that is, the return on a fully-diversified equity portfolio—and the risk-free rate, this basic CAPM equation can be restated as providing that each proxy’s implied equity cost equals: *equity market return – [market risk premium x (1 – β)]*. For typical utility stocks (which invariably have betas smaller than one), this equation means that the implied cost of equity will be less than the expected returns on a fully diversified equity portfolio. As we show below, the expected equity market return is now well under ten percent.

- (1) Assuming perpetual growth at analysts’ near-term rate does not produce a plausible equity-market risk premium

H.2.b.1. If the market risk premium is determined by applying the DCF methodology to a representative market index, should a long-term growth rate be used, as in the Commission’s two-step DCF methodology?

For a CAPM study to produce meaningful results, it is essential that the market-wide return used to identify the equity risk premium realistically represent the return that investors expect from a market-wide equity index or portfolio. Dr. Cornell, citing Aswath Damodaran’s influential paper, explains that the solution is to use a proper two-stage model and solve for the

²⁶⁶ The six-month study period that was affirmed in *Boston Edison* ended in April 1985. See *Bos. Edison Co.*, Op. No. 299, 42 FERC ¶ 61,374, at 62,093, *reh’g denied*, Op. No. 299-A, 43 FERC ¶ 61,309 (1988), *aff’d sub nom. Bos. Edison Co. v. FERC*, 885 F2d 962 (1st Cir. 1989).

²⁶⁷ *Coakley Briefing Order* at 61,182 (quoting Morin, *supra*, at 150); see also Op. No. 551, P 138.

discount rate.²⁶⁸ If that return is estimated using a DCF model (one of the several reasonable ways to do so), the DCF model should recognize what the NOI states at P 11 n.24:

Incorporating a long-term growth estimate in the DCF methodology is consistent with the underlying theory of the constant growth DCF model because

from the standpoint of the DCF model that extends into perpetuity, analysts' horizons are too short, typically five years. It is often unrealistic for such growth to continue in perpetuity. A transition must occur between the first stage of growth forecast by analysts for the first five years and the company's long-term sustainable growth rate. . . . It is useful to remember that eventually all company growth rates, especially utility services growth rates, converge to a level consistent with the growth rate of the aggregate economy.

Roger A. Morin, New Regulatory Finance 308 (Public Utilities Reports, Inc. 2006) (Morin).

Morin's textbook makes a similar point in its discussion of the CAPM model, in a passage cited by the *Coakley Briefing Order* (P 14): "The expected common stock return is based on long-term cash flows, regardless of an individual's holding time period. Utility asset investments generally have long-term useful lives and should be correspondingly matched with long-term maturity financing instruments."²⁶⁹

For the same reason that Opinion No. 531 et seq. extended to electric utilities the two-stage DCF method long used for pipeline ROEs, any DCF study used as the basis for the market risk premium must also account for the long-term constraints on near-term earnings growth forecasts. Neither utility stocks nor large-cap stocks can perpetually grow their earnings more rapidly than the economy as a whole. *See, e.g.*, Shlomit Azgad-Tromer & Eric Talley, *The Utility*

²⁶⁸ Ex. No. A-1, § H.2.b.1.

²⁶⁹ Morin, *supra*, at 151-52. *See also* Docket Nos. EL11-66 et al., CAP-500, Sections III.A & III.C (explaining that in conducting a CAPM study, the risk-free rate and the market-risk premium must be estimated over the same timeframe).

of Finance at 13 (Columbia Univ. School of Law, Ctr. for Law and Economic Studies, Working Paper No. 569, 2017) (“a long-term perpetuity growth rate for a firm in excess of the anticipated GDP growth rate would imply that the firm in question would mechanically come to dominate the entire economy in the long term . . .”); Order No. 420 FERC Stats. & Regs. at 31,344 (finding that inflated equity cost estimates result when analyses estimate risk premiums using “DCF estimates of the investors’ required rate of return” on “common stock,” because “the use of analysts’ short-term forecasts overstate[s] investors’ long term growth expectations”).

The witness appearing for respondents in both the *Coakley* and MISO paper hearings has elsewhere recognized that a CAPM study should reflect investors’ long-horizon expectations:

Unlike debt instruments, common equity is a perpetuity and as a result, any application of the CAPM to estimate the return that investors require must be predicated on their expectations for the firm’s long-term risks and prospects. This does not mean that every investor will buy and hold a particular common stock into perpetuity. Rather, it recognizes that even an investor with a relatively short holding period will consider the long-term, because of its influence on the price that he or she ultimately receives from the stock when it is sold. This is also the basic assumption underpinning the DCF model, which in theory considers the present value of all future dividends expected to be received by a share of stock.²⁷⁰

In inferring what investors expect as the long-term earnings growth associated with a market-wide equity portfolio, the Commission should heed Warren Buffet’s plain-spoken caution against believing that stocks’ long-term earnings growth could exceed GDP growth:

You know, someone once told me that New York has more lawyers than people. I think that’s the same fellow who thinks profits will become larger than GDP. When you begin to expect

²⁷⁰ Prepared Rebuttal Testimony and Exhibits of William E. Avera and Adrien M. McKenzie on Behalf of Entergy Services, Inc., Ex. No., ESI-123, at 57:4-12, *Entergy Ark., Inc.*, No. ER13-1508-001 (Dec. 11, 2014), eLibrary No. 20141211-5192.

the growth of a component factor to forever outpace that of the aggregate, you get into certain mathematical problems.²⁷¹

Mr. Buffet owns much of Berkshire Hathaway and, thus, indirectly owns large shares of MidAmerican Energy Co., NV Energy, and PacifiCorp, and as such may well be both the largest and most-followed individual investor in U.S. electric utilities.

Indeed, the caution against assuming long-term continuation of analysts' growth projections for a horizon ending at five years is *especially* applicable to the large-cap stocks that constitute the dividend-paying members of the S&P 500, as they already have large earnings and must find commensurately large new sources of profit if they are to sustain their dividend growth. Investors are well aware of these realities. For example, J.P. Morgan's 2019 annual report on "Long-Term Capital Market Assumptions" reminded investors that "[a]lthough the size of the gap between economic growth and returns varies, both as a function of the starting point and of the high volatility inherent in emerging equities, over most periods and most countries [equity market] returns lag real GDP growth on an average annualized basis."²⁷² The 2015 edition of this annual report explained why:

One common mistake is to assume that earnings and dividends received by investors can grow in line with—or even in excess of—overall economic growth (GDP) in perpetuity. Granted, it is almost a truism that *aggregate* earnings must grow at the same pace as the overall economy in the very long run; otherwise, profits would eventually outstrip the size of the entire economy or dwindle to an insignificant share of it. But not all of this earnings growth accrues to *existing* shareholders. On the contrary, a large portion of economic growth comes from the birth of new enterprises. Some commentators suggest (for example, Bernstein and Arnott, 2003; Cornell 2010) that new enterprises account for more than half of GDP growth in the U.S., while in some rapidly

²⁷¹ Mr. Buffet on the Stock Market, Fortune, Nov. 22, 1999, at 212, https://money.cnn.com/magazines/fortune/fortune_archive/1999/11/22/269071/.

²⁷² J.P. Morgan Asset Mgmt., *Long-Term Capital Market Assumptions: Time-Tested Projections to Build Stronger Portfolios* at 64 (2019), <https://am.jpmorgan.com/gi/getdoc/1383581744857>.

developing economies new enterprises may account for the lion's share of overall economic growth.²⁷³

There is no evidence that real-world investors expect sustained returns on a fully diversified equity portfolio (the foundation of the CAPM model) at the stratospheric levels (exceeding 12%) commonly presented by TO-sponsored witnesses. To the contrary, the 2019 release of J.P. Morgan's Long-Term Capital Market Assumptions projects a 5.25% total return on U.S. large-cap stocks.²⁷⁴

When the Commission adopted a two-stage DCF methodology, it did so as a general rule absent an industry-specific exception, based on a finding that "a projection limited to five years, with no evidence of what is anticipated beyond that point, is not consistent with the DCF model and cannot be relied on in a DCF analysis."²⁷⁵ This precedent correctly recognizes that, as summarized by a leading textbook on corporate finance, "analysts' forecasts often involve nonconstant growth," and should be averaged in the DCF model with a longer-term growth rate.²⁷⁶ Dr. Morin likewise favors "[a] multiple-stage DCF model that better mirrors the pattern of future dividend growth . . .".²⁷⁷

The Opinion No. 531 ruling that extended this approach to electric utilities terminated what had been an electric-industry-specific *exception* to that general rule, which had rested on two findings that differentiated electric utilities from all other industries. One, the Commission

²⁷³ David Sharp et al., J.P. Morgan Asset Mgmt., *Long-Term Capital Market Assumptions 2015 Estimates and the Thinking Behind the Numbers* at 25 (2014) (as quoted in Docket No. EL13-33, CAP-19, at 73-74), https://am.jpmorgan.com/blobcontent/1413613727995/83456/LTCMA_Assumptions_White_Paper_2015_US.pdf.

²⁷⁴ Pete Klingelkofer, et al., J.P. Morgan Asset Mgmt., *Turning a Corner: Returns Hold Steady* at 5 (2018), <https://am.jpmorgan.com/gi/getdoc/1383581777246>.

²⁷⁵ *Ozark Gas Transmission Sys.*, 68 FERC ¶ 61,032, at 61,105 (1994), *reh'g dismissed*, 71 FERC ¶ 61,138 (1995); *see also*, e.g., *Williston Basin Interstate Pipeline Co.*, 87 FERC ¶ 61,264, at 62,006, *on reh'g*, 88 FERC ¶ 61,301 (1999) ("in the absence of a reliable, industry-specific long-term growth projection, the best economy-wide approach to projecting long-term growth is to use growth in GDP").

²⁷⁶ Ehrhardt & Brigham, *supra*, at 354.

²⁷⁷ Morin, *supra*, at 308.

found that as of the turn of the millennium, one major investment firm “treat[ed] electric utilities differently from all of the other industrial companies when estimating growth rates.”²⁷⁸ Two, the Commission found that the electric industry was then just beginning a major restructuring transition from regulated, cost-based pricing to de-regulated, market-based pricing.²⁷⁹ Thus, the one-stage DCF methodology that was used for a time for electric utilities but has since been abandoned was an exception to the general rule. The exception applied only to a particular industry that had recently begun to transition from being regulated to being unregulated. Present electric utility stocks fall outside that exception, as do the non-utilities that make up most of the equity market (and, thus, most of the S&P 500).

In the subsequently-vacated Opinion No. 531-B, the Commission asserted that the earnings of the 390-company portfolio used to derive the market-wide return for the CAPM analysis referenced therein could be assumed to sustain those companies’ near-term growth rates, because “[w]hile 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.”²⁸⁰ This assertion glossed over four fatal flaws. First, the referenced CAPM analysis was based on a DCF analysis of 390 specific large-cap stocks, not the S&P index itself. Second, it referenced those 390 dividend-paying members of the S&P 500 as a proxy for the entire equity market, and, regardless of index

²⁷⁸ *S. Cal. Edison Co.*, Op. No. 445, 92 FERC ¶ 61,070, at 61,262 (2000) (emphasis added), *reh’g denied*, Op. No. 445-A, 108 FERC ¶ 61,085 (2004).

²⁷⁹ See *id.* at 61,261 (“We find that our rationale in Opinion No. 396-B does not support the use of GDP data in developing a growth rate estimate in this proceeding. Unlike the gas pipeline industry, which was nearly through with major restructuring at the time we issued Opinion No. 396-B, on June 11, 1997, the electric industry is just beginning a significant new phase of its restructuring. In particular, SoCal Edison had just begun to restructure from a vertically integrated utility when it made its filing in the instant proceeding.”). At that time, California was transitioning from traditional rate-regulated, service-territory retail service to de-regulated “retail choice.”

²⁸⁰ Opinion No. 531-B, P 113; see also NET-02700 (Revised) at 115:22-116:1.

composition, the equity market as a whole cannot sustainably grow faster than the economy.²⁸¹

Third, the S&P 500 index does *not* grow through this substitution effect; rather, when a stock that has recently reached the level of large-cap valuation (meaning it has a high price) replaces one that has recently lost that status (meaning it has a low price), the index value is held constant, as if the indexed portfolio traded a large number of shares representing a cross-section of the portfolio for a small number of the shares of the newly-added, high-priced stock. For example, when Amazon replaced AT&T in the S&P 500, the Wall Street Journal noted that “[w]henever S&P adds a company, it recalculates its divisor—the figure used to calculate the value of the index—to account for the difference in market capitalization between the company being added and the one deleted.”²⁸² Consequently, there is no basis to assume that such substitution results in a net increase in the earnings that will flow through to a portfolio investor. Fourth, multiple independent projections of the five-year earnings growth for the S&P 500 have been presented to the Commission in recent proceedings, and in each case, they are much lower than the result of assuming perpetuation of analysts’ near-term growth forecasts.²⁸³

Opinion No. 551 similarly asserted that “While it is often unrealistic and unsustainable for high short-term growth rates for an individual company to continue in perpetuity, the S&P 500 is regularly updated to only include companies with high market capitalization.”²⁸⁴ Again, regardless of its market capitalization, *no* company can continue in perpetuity short-term growth rates that outpace the growth of the economy into which it sells, and companies with high market

²⁸¹ See Ex. No. A-1, at 28.

²⁸² David A. Gaffen, *Amazon Joins Few Web Names In S&P 500*, Wall St. J. (Nov. 16, 2005), <https://www.wsj.com/articles/SB113207902652797811>.

²⁸³ See, e.g., Docket No. EL13-33, CAP-22 (Goldman Sachs report projecting 2013-18 S&P 500 EPS growth of 7.0%); CAP-19 at 87 & n.105 (discussing and extracting Goldman Sachs’ projection); Docket No. EL16-64EMC-0001 (Revised) at 50:12-13 (“The most recent IHS forecast shows average earnings growth for the S&P 500 as a whole for the five-year period 2017-2022 is 5.82%.”).

²⁸⁴ Op. No. 551, P 170.

capitalization and/or high initial growth rates are likely to hit their limits to growth even *sooner* than other companies. To contend otherwise is like contending that because baseball teams replace veterans with rookies, they can eventually hit more than one home run per at-bat.

Historically achieved returns provide a useful reference point in inferring a realistic forward-looking expected return on a market-wide equity portfolio. Historical returns are useful notwithstanding the forward-looking nature of investors' expectations for long-run equity market returns, because investors look to the past as a guide to the future. Indeed, the textbook cited in the NOI recommends averaging a forward-looking equity market risk premium with an historical one.²⁸⁵ The historical record demonstrates the absurdity of imputing to investors an expectation that the growth rates projected by analysis for the next three to five years will continue forever. Such imputation would suggest a long-term equity market return exceeding 12%,²⁸⁶ thus nearing or exceeding 10% after adjusting for inflation,²⁸⁷ even though long-term realized inflation-adjusted equity market returns have been approximately 7%,²⁸⁸ and even though future U.S. economic growth and equity market returns are expected to be *lower* than they were in the past.²⁸⁹

Duff & Phelps, whose forward-looking CAPM model is widely used in valuing U.S. investments, is currently projecting an equity market return of 9.0%, consisting of a 3.5%

²⁸⁵ See Morin, *supra*, at 157 (“The best estimate of the future risk premium is the historical mean,” because “over very long periods, investor expectations coincide with realizations; otherwise, investors would never invest any money”).

²⁸⁶ See, e.g., Docket No. NET-708 (applying, in the CAPM study referenced in the *Coakley* Briefing Order, a 12.5% equity market return derived on that basis).

²⁸⁷ In the Energy Information Administration’s 2019 Annual Energy Outlook central (“Reference”) case projection, the Consumer Price Index is expected to rise from 2.51 in 2018 to 5.24 in 2050, i.e., at a long-term annual average rate of 2.33% ((5.24/2.51)*(1/(2050-2018)=1.02327). See *id.*, App. B (Macroeconomic growth cases), tbl. B4, https://www.eia.gov/outlooks/aoe/section_appendices.php.

²⁸⁸ See Roger Grabowski, Carla Nunes, & James Harrington, *U.S. Equity Risk Premium Recommendation* (Feb. 19, 2019), <https://www.investopedia.com/ask/answers/042415/what-average-annual-return-sp-500.asp>.

²⁸⁹ See Robert J. Gordon, *The Rise and Fall of American Growth: The U.S. Standard of Living Since the Civil War* (2016); Bradford Cornell, *Economic Growth and Equity Investing*, Fin. Analysts J., (Jan.-Feb. 2010), at 54.

normalized risk-free return and an equity risk premium of 5.5%.²⁹⁰ Its past forecasts have been similar, and consistently far below the spurious equity market returns and equity risk premiums suggested by assuming perpetual growth at analysts' near-term forecast rates. After a comprehensive survey of both historical and forward-looking approaches to estimating the market-wide equity risk premium, the authors of a leading corporate finance textbook provided their similar bottom line: "we'd be suspicious of an estimated market premium that is less than 3.0% or greater than 6.5%."²⁹¹

Many of the Commission's international peers rely on CAPM models to estimate the cost of equity invested in electric transmission and other utility assets. When they reference equity portfolio DCF returns to estimate the equity market return and equity risk premium, their models apply two-stage or multi-stage growth rates that apply macroeconomic limits to growth.²⁹² The Commission should do so as well.

H.2.b.2. Beta is a measure of a security's risk relative to the broader market, such as the S&P 500, not of its absolute risk. Do CAPM's assumptions break down if both utility stocks and the broader market become riskier over time on an absolute basis, but the relative increase in risk in utility stocks rises more slowly?

As worded, NOI Question H.2.b.2 is ahistorical: There is no basis to conclude that utility stocks or the overall equity market have become riskier over time. For the overall market, risk as measured by volatility—the relevant measure for CAPM purposes, as it is the basis for the "beta" measure of risk used in that model—has generally declined over the almost three-decade history of the VIX index; it soared during the 2008 financial crisis and the Great Recession that followed, but more recently has been, and remains, below its average level from the index's 1990

²⁹⁰ <https://www.duffandphelps.com/insights/publications/valuation-insights/valuation-insights-first-quarter-2019/us-equity-risk-premium-recommendation>.

²⁹¹ Ehrhardt & Brigham, *supra*, at 351.

²⁹² See *Reply Affidavit of Dr. J. Randall Woolridge*, Ex. No. CAP-600 at 37-47, *Coakley v. Bangor Hydro-Elec. Co.*, No. EL11-66 (Mar. 8, 2019), eLibrary No. 20190308-5263.

launch through 2007.²⁹³ Applying a related measure that is available for a longer historical period, “stock market volatility since 2010 has been quite similar to past decades.”²⁹⁴

Nor have utility stocks become more risky. To be sure, studies of the overall equity market have indicated that the betas of most stocks tend to converge toward unity—high-beta stocks tend to become as volatile as the market, which means they tend to become less risky over time, and low-beta stocks tend to become as volatile as the market, which means they tend to become more risky over time.²⁹⁵ This general convergence is the basis of the “Blume” adjustment that Value Line and certain other sources of betas make to their observed results. Because utilities generally have betas below 1.0, it might therefore be expected that their betas will likewise converge toward 1.0, which in their case would mean they rise over time. However, a 2013 study of the betas of 57 exchange-traded U.S. public utility stocks from 1962-2007 demonstrated empirically that “public utility betas do not have a tendency to converge to 1”; rather, they converge toward 0.59.²⁹⁶ This utility-specific trend means that any CAPM study that uses utility proxy betas that include the usual “Blume” adjustment inflates the estimated equity costs for utilities.

In any event, the CAPM model does not depend on these absolute or relative risks staying constant over time, as Question H.2.b.2 seems to presume. Changes in the absolute risk of a diversified equity portfolio or index will be reflected in updated forward-looking measures of the equity risk premium, whether derived from surveys, properly-constructed DCF studies, or other

²⁹³ See <https://finance.yahoo.com/quote/%5EVIX/chart/>; see also Ex. No. A-1 § H.2.b.2 (charting market volatility and concluding there is no evidence of an upward trend).

²⁹⁴ Ray E. Levitre, *Is the Stock Market More Volatile Now Than Ever Before?* (July 5, 2018), <https://www.kiplinger.com/article/investing/T047-C032-S014-is-the-stock-market-more-volatile-now-than-ever.html>.

²⁹⁵ Marshall E. Blume, *On the Assessment of Risk*, 26 J. Fin. 1 (1971).

²⁹⁶ Richard A. Michelfelder & Panayiotis Theodossiou, *Public Utility Beta Adjustment and Biased Costs of Capital in Public Utility Rate Proceedings*, 60 Elec. J. 60, 67 (2013).

valid sources. Changes in the risk of proxy companies relative to the overall equity market will be reflected in their updated betas, as the sources of published betas use a defined look-back period that inherently focuses on recent information.²⁹⁷ To be sure, the CAPM method assumes continuity between the past and future when it uses data from the past several years to identify a proxy stock's volatility relative to that of the entire market. If a proxy stock's relative volatility was greatly different over the multi-year period used to derive betas than it was over an ROE case study period, then that stock's beta would not produce an accurate estimate of that stock's study-period cost of equity. However, the continuity in average betas for utility stocks over time²⁹⁸ indicates that this is not really a problem, provided the focus is properly kept on the distribution rather than range of proxy results.

- (2) Value Line betas for electric utilities are conservatively high, and should not be used in conjunction with a DCF-based equity market return for which the growth rate reflects analyst forecasts with only a five-year horizon

H.2.b.3. What are appropriate data sources for the beta value?

The conventional source of betas used in CAPM studies presented to the Commission (e.g., those referenced in the *Coakley Briefing Order*) has been Value Line. Other reputable sources publish estimates of beta too, though there are differences between their calculation methodologies.²⁹⁹ For example, Value Line observes each utility stock's weekly volatility compared to that of the NYSE Composite Index over the past five years, and then makes a "Blume" adjustment toward unity, i.e., generally upward.³⁰⁰ That is not an ideal source, when

²⁹⁷ See note 299, *infra*.

²⁹⁸ See note 296, *supra*.

²⁹⁹ Ex. No. A-1, § H.2.b.3.

³⁰⁰ See Andrew J. Cueter, *Using Beta* (Oct. 2, 2012), http://www.valueline.com/Tools/Educational_Articles/Stocks/Using_Beta.aspx#XMIhVDBKhjU ("At Value Line, we derive the Beta coefficient from a regression analysis of the relationship between weekly percentage changes in the price of a stock and weekly percentage changes in the NYSE Composite Index over a period of five years. In the

paired with an equity risk premium based, in part, on the expected growth of the approximately 400 dividend-paying members of the S&P 500. “For reasons of consistency, the market index employed should be the same as the market index used in deriving estimates of beta.”³⁰¹ Value Line betas are derived from a volatility comparison to the New York Stock Exchange (NYSE) Composite Index, which contains more than 2000 stocks and is, therefore, stabilized by diversification effects.³⁰² Thus, Value Line betas compare the proxy companies to a larger and more diverse set of stocks than are used for those studies’ equity risk premium. This imperfectly-matched comparison produces betas that are higher than would be found if the proxies’ volatility was compared to the same stocks as are used to estimate the equity market return.

Although their use of NYSE market variation and a “Blume” adjustment makes Value Line betas for electric utility proxy companies err on the high side, their use would remain on the reasonable side of “conservatively high,” provided it is recognized that utility stocks do not converge upward toward unity with any observable rapidity. Accordingly, Value Line betas should not be used in conjunction with a DCF-based equity market return for which the growth rate reflects analyst forecasts with only a five-year horizon. Also, the Commission should not make adjustments to the beta calculated by Value Line (or any other reputable publisher), as “such adjustments are likely to increase, not decrease, measurement error.”³⁰³

case of shorter price histories, a shorter time period is used, but two years is the minimum. Value Line then adjusts these Betas to account for their long-term tendency to converge toward 1.00. (Though the scope of this convergence is beyond our purposes here, readers can refer to M. Blume, “On the Assessment of Risk,” *Journal of Finance*, March 1971 for further details.)”).

³⁰¹ Morin, *supra*, at 159-160.

³⁰² Cueter, *supra*. This documentation of Value Line’s Beta is available to the Commission as Docket No. EL13-33, Ex. No. NET-1705. *See id.* at 1.

³⁰³ Ex. No. A-1, § H.2.b.3.

- (3) Selective changes to the standard CAPM model should be rejected

H.2.b.4. Should the Commission employ more sophisticated versions of the CAPM model that consider more variables instead of only beta, such as the Fama-French Model?

The standard CAPM model, as accurately described in the NOI (at P 14), requires only three inputs: (i) the risk-free rate, (ii) the equity market return (from which the risk-free rate is subtracted to identify the market-risk premium), and (iii) the beta for the subject stock (or for Commission purposes, the beta for each proxy stock). This simple model is widely used by investors and regulators.

Dr. Cornell recommends, and Associations urge, that the Commission rely on the basic version of the CAPM model unless and until the academic literature concludes that another model is clearly superior.³⁰⁴ Neither the original three-factor Fama-French model (which disaggregates the simple, volatility-based “Beta” measure of risk into three components: volatility, size, and M/B ratios) nor the subsequent five-factor Fama-French model (which adds two additional components, namely operating profitability and the rate of change in total assets)³⁰⁵ currently meets this standard.

In any event, the Commission should not accept selective “refinements” that systematically increase the resulting indicated cost of equity, such as the “size adjustment” that has been applied by transmission owner witnesses in recent cases. When either version of the Fama-French model applies a version of a size adjustment, it does so in conjunction with other factors, and it multiplies the size factor by a regression slope specific to that factor. In particular, the Fama-French model posits at least two factors beyond the standard Beta factor: (a) the

³⁰⁴ See Ex. No. A-1, § H.2.b.4.

³⁰⁵ See Eugene F. Fama & Kenneth R. French, *A Five-Factor Asset Pricing Model* (2014), <https://www8.gsb.columbia.edu/programs/sites/programs/files/finance/Finance%20Seminar/spring%202014/ken%20french.pdf>.

realized (and thus expected) returns of relatively small companies have been higher than predicted by a one-factor model, and (b) the realized (and thus expected) returns of companies with relatively low M/B ratios have been lower than predicted by a one-factor model. The former is known as the “SMB” (small minus big) factor, and the latter is known as the “HML” (high minus low) factor. *Both* of these revisions to the standard CAPM model should be used, if either is. Because operating utilities’ parent companies have lower M/B ratios than the overall market³⁰⁶ (and because the M/B ratios of operating utilities are even lower³⁰⁷), the “HML” factor produces a downward adjustment to the beta-indicated result. That adjustment should not be ignored if the “SMB” factor is applied in the other direction.

Similarly, when Morningstar/Duff & Phelps³⁰⁸ applies a different “size adjustment,” it does so in the context of a further industry-classification adjustment that, for utilities, points in the offsetting direction.³⁰⁹ And its quantification of its size adjustment is meant for use with observed betas, not betas which have been regressed toward 1.0 (i.e., increased, in the case of electric utility betas). Combining that adjustment with proxy CAPM results that use regression-increased betas wrongly exaggerates the size adjustment.³¹⁰

Taking a “size adjustment” out of these contexts and applying it on its own is not appropriate. To the contrary, academic research indicates that the size adjustment does not apply to electric utilities,³¹¹ and the same historical data that underlies application of the “size

³⁰⁶ See *Price and Value to Book Ratio by Sector (US)* (Jan. 2019) http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/pbvdata.html

³⁰⁷ See Part III.F.2, *supra*.

³⁰⁸ The data commonly used to “size adjust” CAPM results is the “Stocks, Bonds, Bills, and Inflation” series of yearbooks, also known as “SBBI.” This series was formerly published by Morningstar, and is now published by Duff & Phelps. Accordingly, we refer to these successive sources in the singular.

³⁰⁹ See Ex. No. A-2, § H.2.b.4.

³¹⁰ See Docket No. EL14-12, JC-100 at 18-19.

³¹¹ See Annie Wong, *Utility Stocks and the Size Effect: An Empirical Analysis*, 33 J. Midwest Fin. Ass’n 95 (1993).

adjustment” to non-utility firms demonstrates that no size adjustment is appropriate for firms that, like utility company proxies, have betas below 1.0.³¹²

The so-called “Empirical” CAPM advanced by certain transmission owner witnesses involves similar cherry-picking. This adjustment is identical in form to the “Blume” adjustment discussed in III.H.2.b)(2), *supra*, but uses a factor of 0.25 rather than 0.33 to regress observed betas toward unity. It rests on a study of the relationship between achieved equity returns and non-Blume-adjusted betas for the period 1926-1984, in which “the risk-free rate . . . was approximately 6% and . . . the [historical] market risk premium was 8%.”³¹³ There is no empirical or theoretical basis for applying this adjustment together with a “Blume” adjustment, especially given today’s much different financial market conditions, which feature a lower risk-free rate and a lower market risk premium.³¹⁴

c) Expected earnings

H.2.c.1 Should the use of utilities in the proxy group for the Expected Earnings model be predicated on the Expected Earnings analysis being forward-looking?

H.2.c.2. What, if any, concerns regarding circularity are there with using the Expected Earnings analysis to determine the base ROE, as opposed to using the analysis for corroborative purposes?

H.2.c.2.i. If there are circularity concerns, are there ways to mitigate these concerns for the Expected Earnings analysis? If these concerns exist, are these concerns more significant than those surrounding the DCF methodology, which effectively separates Expected Earnings and ROE into its dividend yield and growth rate subcomponents?

- (1) The ratio of earnings to book equity is disconnected from the cost of equity, and therefore circular

The “Expected Earnings” method, also known as E/B, is inherently circular, irrespective of whether the E/B ratios on which it is based are achieved or forecast, because at no point does

³¹² See Ex. No. A-2 at 60.

³¹³ Morin, *supra*, at 190 n.12.

³¹⁴ See Parts III.C and III.H.2.b)(1), *supra*.

that method reference security prices or other measures of *investor* opportunity costs and thereby align its outputs with financial market realities.

The circularity of E/B ratios and the need to reference *investors'* opportunity cost were explained in in a seminal 1972 article by Stewart C. Myers, *The Application of Finance Theory to Public Utility Rate Cases*.³¹⁵ Myers explained that reference to E/B ratios “ignores capital markets,” which is seriously problematic because “the variable of interest,” as specified by the Supreme Court in *Hope*, is ““the return to the equity owner,”” and

The shareholder is not directly interested in the ratio of book earnings to the book value of a company he invests in. He looks at anticipated dividends and capital gains relative to the stock price he has to pay. Thus, it is more relevant to interpret the opportunity cost of capital as the return on securities with risks similar to the stock of the utility in question.³¹⁶

Myers further explained that E/B ratios are circular, because utilities’ book returns “reflect past regulatory actions and thus do not provide an independent standard.”³¹⁷

Alexander A. Robichek, the President of the American Finance Association, elaborated on this circularity problem.³¹⁸ Robichek explained that the “comparable earnings” E/B approach “leads to circularity. If all regulatory commissions looked merely at each other, no deviations of any magnitude would ever occur even if economic conditions were to warrant a change.” He also identified the key to breaking this vicious circle: “Investments in equity shares are made by the purchase of shares at market prices. Therefore, the fairness of the rate of return to the investor

³¹⁵ 3 Bell J. Econ. & Mgmt. Sci. 58, 62 (1972) (quoting *Hope* at 603).

³¹⁶ *Id.*

³¹⁷ *Id.* at 77.

³¹⁸ Alexander A. Robichek, *Regulation and Modern Finance Theory*, 33 J. Fin. 693, 700 (1978).

must be judged from the investor's point of view in the market place and not on the basis of book value.”³¹⁹

The inherent disconnect between investors' opportunity costs and utility stocks' E/B ratios was explained in depth by economists associated with the Massachusetts Institute of Technology and Charles River Associates, published in the *American Economic Review*. It concluded that even *after* making numerous heroic assumptions, “[I]t is impossible to infer either the magnitude or direction of differences in economic rates of return from differences in accounting rates of return. This is because such inferences require not only correction for growth rates, but *also* knowledge of the time shapes of returns.”³²⁰

Rejection of reference to E/B ratios rapidly became the financial academy's equivalent of black-letter law. “This [E/B] procedure has now been thoroughly discredited (see Robichek [15]), and it has been replaced by three market-oriented (as opposed to accounting-oriented) approaches: (i) the DCF method, (ii) the bond-yield-plus-risk-premium method, and (iii) the CAPM, which is a specific version of the generalized bond-yield-plus-risk-premium approach.”³²¹ Even a textbook authored by experts who have often appeared before this Commission as witnesses for utilities seeking increased ROEs states emphatically: “[A]re book rates of return estimates of the cost of equity? . . . [T]he answer to this question is a resounding ‘no.’”³²²

From the 1980s until the about-face attempted in the vacated Opinion No. 531, the Commission agreed. It held that E/B does not measure the cost of equity; rather, it reports

³¹⁹ *Id.* at 701.

³²⁰ Franklin M. Fisher & John J. McGowan, *On the Misuse of Accounting Rates of Return to Infer Monopoly Profits*, 73 Am. Econ. Rev. 82, 89 (1983).

³²¹ Eugene F. Brigham, Dilip K. Shome, & Steve R. Vinson, *The Risk Premium Approach to Measuring a Utility's Cost of Equity*, 14 Fin. Mgmt. 33 (1985).

³²² Bente Villadsen, et al., *Risk and Return for Regulated Industries* 129 (Academic Press 2017).

“[a]ccounting rates of return are not reliable measures of the current cost of capital, since they do not reflect the current market prices that are determined in competitive capital markets.”³²³ The same perspective was advanced by the Edison Electric Institute (“EEI”) at that time, arguing in the Order No. 461 proceeding³²⁴ that returns on book equity were unrelated to the cost of equity and that ROEs should be set at “[t]he current market cost of common equity,”³²⁵ estimated via the DCF method.³²⁶

For the three decades that followed (until the arbitrary and subsequently vacated change of course attempted in Opinion No. 531), the Commission sought to base ROEs on the DCF-indicated “current market cost of common equity.” Attempts to revive the “thoroughly discredited” E/B method were rare, and never successful. For example, Opinion No. 429 reiterated that a methodology based on earnings divided by book value equity is not a “market oriented methodolog[y],”³²⁷ and that “[n]o direct market-determined cost rate can be derived from this approach because the nature of the analysis is related to book values.”³²⁸ It remains true that base ROEs should reflect the current market cost of common equity, even though E/B ratios now exceed, rather than understate, that market cost. Base ROEs should be set at the cost-based return that investors require on their *market-priced* equity investments—that is, “the return that

³²³ Order No. 420, FERC Stats. & Regs. at 31,367.

³²⁴ *Generic Determination of Rate of Return on Common Equity for Pub. Utils.*, Order No. 461, 37 FERC ¶ 61,287 (1986), *reh'g denied*, Order No. 461-A, 38 FERC ¶ 61,160 (1987).

³²⁵ Reply Comments of the Edison Electric Institute at 12, *Generic Determination of Rate of Return on Common Equity for Pub. Utils.*, No. RM86-12-000 (Sept. 30, 1986), eLibrary No. 19861002-0263. EEI advanced this position in response to comments by APPA, which had discussed the difference between the market-based cost of equity and book returns. Based on a risk-adjusted version of the latter, APPA had argued that allowed returns could be set below the market-indicated DCF level. See Comments of American Public Power Association, *Generic Determination of Rate of Return on Common Equity For Pub. Utils.*, No. RM86-12-000 (Sept. 2, 1986), eLibrary No. 19860904-0078. The Commission disagreed with APPA’s position, and the issue is now well-settled (or was, prior to Opinion No. 531).

³²⁶ See Reply Comments of the Edison Electric Institute, *supra*, at 5.

³²⁷ *Consumers Energy Co.*, Op. No. 429, 85 FERC ¶ 61,100, at 61,362 (1998), *on reh'g*, Op. No. 429-A, 89 FERC ¶ 61,138 (1989), *reh'g denied*, Op. No. 429-B, 95 FERC ¶ 61,084 (2001).

³²⁸ *Id.* (quoting Ex. CP 4, at 39).

the utility must provide its shareholders in order to induce them to invest their capital in that utility.”³²⁹

The NOI proposal to discard all of that learning and return to referencing E/B ratios—even though the significance of accounting reports in determining stock market prices has sharply *declined* in the interim³³⁰—is premised on the notion that these ratios “are relevant to determining [a regulated] 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.”³³¹ But that notion is not factual. Investors cannot buy into any investment’s actual or expected E/B ratio, because they must transact at shares’ market price. As stated in the textbook repeatedly cited in the NOI,

Accounting rates of return are not opportunity costs in the economic sense. . . . Only stock market price is sensitive to a change in investor requirements. Investors can only purchase new shares of common stock at current market prices and not at book value.³³²

The esteemed regulated-utilities economist Alfred Kahn made the same point: “comparable earnings” on book-value equity does not reflect what “purchasers of their [public utility companies’] stocks could obtain on their dollars elsewhere,” because “[t]he cost of capital, which is what a utility company must match if it is to attract funds, is what investors could obtain by buying the *securities* of other companies in the open market—not what the companies themselves earn on a dollar of additional investment.”³³³

³²⁹ Coakley Briefing Order, P 36 & n.73.

³³⁰ See note 137, *supra*.

³³¹ NOI P 15.

³³² Morin, *supra*, at 393.

³³³ Kahn, *supra*, at 52 & n.79.

Similarly, one of the witnesses most commonly employed by transmission owners has admitted that investors contemplating an equity investment in regulated utilities' parents have no opportunity to do so at the *book* value of those shares, but rather must pay the market price,³³⁴ and that E/B ratios therefore do not provide a market-based measure of transmission owners' cost of equity.³³⁵ Indeed, this method does not "attempt[] to estimate the cost of equity" at all.³³⁶

In other words, investors can only buy into shares' E/M ratio (a.k.a. E/P) — which is always smaller when M exceeds B, as it almost universally does for reasons discussed in Part III.F.2, *supra*. When an investor must pay more than book value to gain the right to the future expected earnings on book value, that investor must be expecting to earn something less than the forecast earnings per book value on the higher amount of investment in the company.³³⁷ That is why financial theory holds, as the Commission recognized in Opinion No. 314, that "when the price-to-book ratio is greater than one, the rate of return investors expect [the company] to earn on [book] common equity is greater than the rate of return investors require from their investment in [the company's] common stock."³³⁸

The mistaken contention that E/B ratios reflect "opportunity cost" is often attributed³³⁹ to Judge Learned Hand's opinion in *Consolidated Gas Co. v. Newton*, 267 F. 231, 237 (S.D.N.Y. 1920). But Judge Hand's discussion of opportunity costs was a comparison of investors' *market-priced* opportunities, i.e., "profits *available elsewhere*".

³³⁴ EL16-64 Tr. at 784:5-20.

³³⁵ *Id.* at 783:20-21 ("The expected earnings approach is not a market-based method" (McKenzie)); *Id.* at 786:6-7 ("It's not a market-based model"); *see also id.* at 447:1-20 (expected earnings model is not linked to the Efficient Market Hypothesis).

³³⁶ *Id.* at 786:6-7.

³³⁷ Morin, *supra*, at 395.

³³⁸ *Orange & Rockland Utils., Inc.*, Op. No. 314, 44 FERC ¶ 61,253, at 61,952, *on reh'r g.*, Op. No. 314-A, 45 FERC ¶ 61,252 (1988), *reconsideration denied*, 46 FERC ¶ 61,036 (1989).

³³⁹ *See, e.g.*, Charles F. Phillips, Jr., *The Regulation of Public Utilities: Theory and Practice* 397 & n.124 (Pub. Utils. Reports 1993).

The recurrent appeal to a just rate and a fair value assumes that the effort is to insure such a profit as would induce the venture originally and that the public will keep its faith so impliedly given. That, I think, involves a tacit comparison of the profit possible under the rate with *profits available elsewhere*; i.e., under those competitive enterprises which *offer an alternative investment*. The implication is that the original adventurer would compare future rates, varying as they would with the going profit, and would find them enough, but no more than enough, to induce him to choose this investment. By insuring such a return it is assumed that the supply of capital will be secured necessary to the public service. As the *profits in the supposed alternative investment* will themselves vary, so it is assumed to be a condition of the investors' bargain that their profit shall measurably follow the general rates.

Id. (emphasis added). “Stated another way, the opportunity cost of capital concept holds that ‘capital should not be committed to any venture unless it can earn a return commensurate with that *prospectively available* in alternative employments of similar risk.’”³⁴⁰ E/B ratios are disconnected from prospectively available returns because “[t]he book value is a record of the past, showing the cumulative amount that stockholders have invested, either directly by purchasing newly issued shares or indirectly through retaining earnings. In contrast, the market price is forward-looking, incorporating investors’ expectations of future cash flows.”³⁴¹ Thus, while the opportunity-cost concept supports using market-based financial metrics of comparable-risk companies to estimate the cost of equity for a particular at-issue utility, it does not support using those proxies’ E/B ratios.

Relatedly, NOI Question H.2.c.2.i. creates a false similarity between the DCF method and E/B models when it asserts that the DCF method “effectively separates Expected Earnings and ROE into its dividend yield and growth rate subcomponents.” In the E/B method, earnings (realized and/or expected) are divided by equity book value. In the DCF method, the divisor of

³⁴⁰ Phillips, *supra*, at 397 & n.123 (quoting testimony of a witness for Tampa Electric Company in the Florida Public Service Commission Docket No. 800011-EU; emphasis added).

³⁴¹ Ehrhardt & Brigham, *supra*, at 102.

the dividend yield term reflects market rather than book values; the growth rate term connects actual recent earnings to projected future earnings, and neither baseline nor projected earnings are divided by book value equity.

A clarifying hypothetical³⁴² will demonstrate the circularity inherent in the E/B method. Suppose that the U.S. electric transmission industry consisted of eleven public utilities, each exchange-traded, and each with a constant equity ratio that, multiplied by its net plant value rate base, happens to equal its equity book value. The utilities are regulated exclusively by this Commission, which adopts as its ROE determination method the median of the eleven utilities' expected E/B ratios, and does not allow incentive ROE adders. Investors expect that regulatory regimen to continue. In Year 1, they are earning (and are expected to continue earning) from 10.0% to 11.0% returns on their mid-year³⁴³ book value equity (and rate base), distributed equally over that range. Applying the proxy group median E/B ratio, the Commission sets the utilities' allowed ROEs at 10.5%. Now suppose that from Year 2 forward, those utilities' actual financial market equity cost is 12.5%. Because every utility in the proxy group would be expected to continue receiving the 10.5% ratio of every utility's earnings to its equity book value, their 10.5% allowed ROE would never change; updated financial market information would never interrupt the ceaseless replication of the starting-point 10.5%. Or, rather, it would change only when the utilities, unable to attract capital because their allowed ROEs fall short of equity's market cost and, thus, unable to replace aging facilities, began to suffer service

³⁴² That these assumptions are unrealistic creates further problems for the E/B method. *See Parts III.F.2. .5, supra.* But we here focus on what would be the best possible scenario for use of the E/B method, by assuming validity of the false analogy (between holding company equity book values and operating utility net plant values) that has been used to rationalize it.

³⁴³ To keep this hypothetical simple, we gloss over the minor adjustment for mid-year versus year-end book value that was made in the E/B exhibits referenced in the PNA.

degradation and lose load to self-supply and the like, leading to lower expected earnings, even further below the capital attraction level.³⁴⁴

- (2) The justifications proffered for using E/B ratios in the vacated Opinion No. 531-B were not valid

In the vacated Opinion No. 531-B, criticisms of Expected Earnings studies were dismissed on several invalid grounds. In light of the PNA's use of E/B ratios, we address those grounds here.

First, Opinion No. 531-B asserted, with no substantial evidentiary basis,³⁴⁵ that “[i]nvestors rely on both the market cost of equity and the book return on equity in determining whether to invest in a utility, because investors are concerned with both the return the regulator will allow the utility to earn *and* the company's ability to actually earn that return.”³⁴⁶ The proxy companies' “book return on equity,” i.e., their returns divided by their book equity, do not indicate utility companies' ability to actually earn a return on each dollar invested by present investors, because the proxy companies' book equity is not aligned with the market-priced equity sold to present investors.

Second, Opinion No. 531-B responded (P 128) to CAPs' citation of Opinion No. 314 by asserting that the specific proposal at issue there was to use the book value return on equity (r) for the subject utility as the divisor for its DCF dividend yield, and that the rejected proposal

³⁴⁴ Alternatively, suppose that from Year 2 forward, the actual cost of capital for those utilities is 8.5%. Again, that updated financial market information would never interrupt the ceaseless replication of the starting-point 10.5%. Or, rather, it would change only when the utilities, flush with cash in excess of their system re-investment needs because their allowed ROEs are well above the market cost of equity, used it to purchase diversified lines of business with even higher returns, leading to higher expected earnings, even further above the capital attraction level.

³⁴⁵ As its only basis for this assertion, Opinion No. 531-B, P 129 nn. 277-78, cited “Tr. 637:6-12.” But the referenced transcript citation has nothing to do with this subject; it consists of inapposite cross-examination testimony regarding NETOs' risk premium study. Although the cited transcript includes the truism that “[t]he allowed ROE is a starting point, and then there is the ability of the company to actually earn that,” nothing in that testimony supports reference to the proxies' return on *book* equity rather than on *market-priced* equity. Tr. at 637:8-9, May 8, 2013, *In re Coakley*, Docket No. EL11-66-001, eLibrary No. 20130508-4007.

³⁴⁶ Op. No. 531-B, P 129.

“would have had the effect of *setting* Orange & Rockland’s base ROE at Orange & Rockland’s own expected return on book equity.” Notwithstanding those attempted distinctions, the underlying finding in Opinion No. 314 (at 61,952) that “market determinations of capital cost” require reference to the expected return on market-priced equity (k) rather than expected return on book equity (r) is directly relevant to NETOs’ “expected earnings” studies. Those studies’ *only* input (prior to a minor adjustment for the difference between year-end and year-end book value equity) is expected return on book equity, (r), exactly the same input that was rejected in Opinion No. 314. Nor is there any meaningful distinction in the fact that the (r) rejected in Opinion No. 314 was the subject utility’s own (r) rather than proxy group (r) values. Whether the (r) belongs to a single utility or a group, it represents expected return on book equity, not expected return on any opportunity available to present utility investors.

Third, Opinion No. 531-B asserted that “all else being equal, an investor is more likely to invest in a utility that it expects will have the opportunity to earn a comparable amount on its book equity as other enterprises of comparable risk are expected to earn.”³⁴⁷ This assertion misses the point: “all else” is not equal, because market-to-book ratios vary, which makes the assertion meaningless as a justification for considering per-book earnings rather than earnings on market price.³⁴⁸ As explained by a leading treatise on public utility ratemaking:

If a . . . stock is selling for two times its book value, and earning 20 percent per year on book equity, it would be erroneous to suggest that a new or prospective investor in this stock would receive a return on his or her investment of 20 percent. The investor’s “book” value is the purchase price, and that return, given the assumptions would be 10 percent. Thus, comparing book returns of

³⁴⁷ Op. No. 531-B, P 129.

³⁴⁸ See CAP-500 at 47-51.

companies with quite different market to book ratios is highly questionable at best.³⁴⁹

For all these reasons, reference to proxy group E/B ratios distorts and inflates the estimation of investors' required return on market-priced equity. Accordingly, E/B analysis should be disregarded.

- (3) If E/B ratios are used, they should reflect multiple years' ratios

If return on holding companies' book equity is to be referenced at all, it is important that the referenced return accurately capture what investors can expect to earn from long-held investments in utility stock. Accordingly, rather than rely solely on Value Line's estimate of per-book earnings five years ahead (as was done in the NET-709 study that Op. No. 531 illustratively cites), any such study should be based on the proxies' representative return over the longest readily available period, both historic and projected.

At least four considerations commend this approach. First, the textbook cited in the NOI recommends that in any study of per-book earnings, "the time period should include at least one full business cycle that is representative of prospective economic conditions for the next cycle."³⁵⁰ Dr. Morin warns that selecting a short-term period may not be reflective of the firm's expected long-run earnings, and recommends that in order "to dampen cyclical aberrations and remove the effects of cyclical peaks and troughs in profitability, an average over several time periods should be employed."³⁵¹ Similarly, the pipeline witness in the *Trailblazer* case referenced in NOI P 32, Question B4 n.59, while not affirmatively supporting reliance on E/B

³⁴⁹ James C. Bonbright, Albert L. Danielsen & David R. Kamerschen, *Principles of Public Utility Rates* 330 (2d ed. 1988). Although the full quoted statement refers at the ellipsis to "nonregulated" stock, its mathematical observation obviously applies also to the stock of publicly-traded utility holding companies.

³⁵⁰ Morin, *supra*, at 383-84.

³⁵¹ *Id.* at 383.

ratios, testified that “[i]t is appropriate to consider a relatively long measurement period in the Comparable Earnings approach [encompassing both historical E/B ratios and projections] in order to cover conditions over an entire business cycle.”³⁵² One estimate five years out does not capture a full business cycle. Second, including in the reference period past years in which per-book earnings represent actual accounting figures will help to address the PNA’s stated reluctance to rely on the forward estimates of a single analyst.³⁵³ Third, including all three projection periods would be consistent with the Commission’s former use of multi-period Value Line “r” estimates as part of the *br+sv* form of DCF analysis.³⁵⁴ Fourth, the only utility investors with an “opportunity” to earn a return matching their firm’s E/B ratio are those who bought in decades ago, before market-to-book ratios grew to exceed unity. Thus, the only measure of E/B that bears even a passing resemblance to the *Coakley* Briefing Order’s basis for referencing E/B is long-term E/B.

- (4) If used, E/B ratios should be adjusted to account for how the proxies’ equity ratios differ from those of the subject utility, and for how the proxies’ M/B ratios differ from those of operating utilities

Proxy companies typically have considerably thinner equity ratios than do operating transmission-owning utilities, i.e., are considerably more leveraged.³⁵⁵ This equity ratio difference directly affects the proxies’ “expected earnings,” as more leverage entails more earnings for each dollar of book equity, raising the E/B ratio that (after a small adjustment for the difference between year-long and year-end earnings) constitutes each proxy’s “Expected

³⁵² Supplemental Direct Testimony of Paul R. Moul on Behalf of Trailblazer Pipeline Company LLC, Ex. No. TPC-0117, at 37:11-13, *Trailblazer Pipeline Co.*, No. RP19-922-002 (May 21, 2019), eLibrary No. 20190521-5165.

³⁵³ See *Coakley* Briefing Order, P 47.

³⁵⁴ See, e.g., *Midwest Indep. Transmission Sys. Operator, Inc.*, 100 FERC ¶ 61,292, PP 14-17 (2002).

³⁵⁵ See, e.g., Docket Nos. EL11-66 et al., Ex. No. CAP-500, § IV.A.

Earnings.” It is no surprise, therefore, that statistical analysis shows that proxies’ expected earnings correlate to their equity ratios.³⁵⁶

Accordingly, to the extent that the proxies’ expected earnings are referenced at all, the resulting indication of the *proxy companies*’ expected earnings cannot be considered a meaningful indicator of *subject utilities*’ expected earnings without adjusting for the difference between the equity ratios of proxy companies and operating utilities. With such adjustment, the expected earnings results align much more closely with the DCF results.³⁵⁷

Accounting for the equity ratio difference between the proxies and subject utilities themselves is essential to a meaningful application of E/B ratios, because E/B ratios themselves take no account of the proxy stocks’ market price. The Commission has declined to adjust *DCF* results for differences between proxy and subject-utility equity ratios, reasoning that the subject utilities’ equity ratios affect their credit ratings, which in turn bound the selection of proxies, so the DCF results already select for stocks with appropriately high credit ratings and associated low risk, and less-risky proxies generally have lower DCF results.³⁵⁸ But the reasons that less-risky proxies generally have lower DCF results is that investors bid up the market price of equities that offer a favorable reward for a given level of risk, reducing such proxies’ dividend yields and DCF results. No such effect reduces the E/B ratio of proxy companies whose equity ratio is not comparable to that of the subject utilities. Because the difference between proxy and subject utility equity ratios is not accounted for directly through E/B inputs, it must be accounted for after identifying the proxies’ E/B ratios.

³⁵⁶ See *id.*

³⁵⁷ See *id.*

³⁵⁸ See Opinion No. 551, P 288.

d) Risk premium

The Risk Premium (“RP”) method seeks to extrapolate a present cost of equity from past regulatory decisions by identifying a linear relationship between the cost of equity and cost of debt implicit in those decisions, and then adding the implied current difference to the present cost of debt. This method is inherently less accurate than a well-constructed DCF or CAPM study, as it relies on echoes of the financial market conditions referenced in past cases, whereas the DCF and CAPM methods apply a market-based method to primary data. Moreover, RP results tend to replicate the regulatory lag and inertial continuation of past returns that affected past regulatory decisions. Consequently, in this period of declining equity costs, RP results will tend to exceed the current cost of equity. Nonetheless, the RP method directly reflects current financial market conditions (at least, current bond market conditions) and given that feature and its simplicity, it remains in fairly common regulatory use. Accordingly, while we do not favor reference to RP, neither do we strongly oppose it, as a general method.

But that acquiescence is limited to the general concept of referencing some version of the RP method. It does not encompass the particular versions of RP that transmission owners have commonly presented to the Commission in recent cases. In particular,

- RP studies should not use two different bond yield measures to calculate the equity minus debt yield risk premium and the bond yield to which that risk premium is added—that is, after calculating the risk premium using low actual bond yields, they should not add the resulting risk premium to high projected bond yields;
- The data set of past regulatory decisions used in RP studies to identify the past cost of equity as an input to the equity risk premium should exclude, or adjust the bond yield comparison dates of, decisions that did not determine an updated base cost of equity; and

- RP studies should account for risk differences between the subject utility and the utilities at issue in the data set cases.

Below, we elaborate on these points and relate them to NOI Questions H.2.d.1 through H.2.d.3.ii.

- (1) Risk premium studies should compare the cost of equity as found for prior study periods to those study periods' contemporaneous actual bond yield

H.2.d.1 Should the analysis be historical or forward-looking?

The MISO I Initial Decision relied on MISO TOs' historical risk premium analysis, and rejected reliance on projected bond yields as "speculative":

Dr. Avera also produces a risk premium analysis using bond yields projected for 2016-20. This Initial Decision rejects those studies. Projected yields are speculative, and, therefore, a less reliable basis for a study than historical yields.³⁵⁹

On exceptions, the Commission affirmed this determination:

The Presiding Judge held that projected yields used in risk premium analyses are speculative and less reliable than historical yields, and rejected Dr. Avera's use of projected Baa-rated bond yields. . . [W]e agree with the Presiding Judge. . .³⁶⁰

That ruling remains sound. The issue here is not really one of choosing between "historical" and "forward-looking" analyses; it is which measure of bond yields should be added to the risk premium derived from historical data in order to produce a reliable forward-looking estimate of equity's cost. Given that purpose, as Mr. Gorman explains,³⁶¹ it would not be rational to derive a risk premium based on actual past utility bond yields, and then add that risk premium

³⁵⁹ *Ass'n of Bus. Advocating Tariff Equity v. Midcontinent Indep. Sys. Operator, Inc.*, 153 FERC ¶ 63,027, P 257 (2015) (footnote omitted), aff'd, Op. No. 551, 156 FERC ¶ 61,234 (2016).

³⁶⁰ Op. No. 551, P 194. See also *Potomac-Appalachian Transmission Highline, L.L.C.*, 122 FERC ¶ 61,188, P 102 (rejecting "speculative forecasting of th[e] indexed cost of debt" as a basis to raise the low-end test used to filter proxies' DCF results).

³⁶¹ See Ex. No. A-2, H.2.d.1.

to current forecasts of future utility bond yields. We have seen no instance in which transmission owners advocating for use of projected bond yields have presented an internally consistent RP study in which projected bond yields are used to derive the risk premium as well as the yield to which it is added.

Even if projected bond yields were used consistently to derive the risk premium as well as the yield to which it is added, such a study would not be useful. Projected bond yields are not actually available to study-period investors, and thus do not represent the known and measurable cost of capital. Projected bond yields are also highly unreliable, as bond investors know—which is why they price bonds at their present yield rather than waiting for bonds' prices to fall and yields to rise.³⁶² In recent years, economists' projections of future yields have generally exceeded current yields, and with equal consistency, their projections of yield increases have proved to be incorrect. Through a comparison of actual observable yields and projections of future changes in yields over the period December 2000 through December 2014, Mr. Gorman's study for the MISO ROE paper hearing demonstrated that using analysts' projected changes in yield does not produce a reliable estimate of what the actual cost of capital will be at some point in the future. Investors are aware of that reality, as the prices in bond markets demonstrate. Thus, projected bond yields do not accurately reflect investor return requirements, are not an actual depiction of changes in return requirements for future periods, and are not a known and measurable estimate of what the investor-required return on a bond or stock will be. Therefore, using projected bond yields in a Risk Premium analysis to measure the current market cost of equity is not reasonable.

Using actual utility bond yields consistently, a reasonable risk premium study can be conducted by comparing those bond yields to the base ROEs contemporaneously allowed by

³⁶² See Docket No. EL14-12, Ex. No. JCA-11, at 24-26; *id.* at 37-38 (Stephen Hill explaining why the use of projected bond yields in determining the current cost of equity capital produces unreliable results).

state commissions for generation-divested electric utilities.³⁶³ Use of state-allowed rather than FERC-allowed ROEs brings to bear a larger set of case results. It also avoids the distortion caused by treating cases in which FERC did not re-study the base cost of equity (e.g., simply approved an incentive ROE adder, extended to new MISO participants the 12.38% base ROE that had been identified as cost-based using a six-month study period encompassing September 11, 2001) as if they identified a refreshed cost of equity. As numerous witness have demonstrated,³⁶⁴ that misdirected approach makes false comparisons between older base ROEs and later bond yields, and thereby upwardly distorts the indicated risk premium and cost of equity.

- (2) The risk premium method assumes a linear relationship between cost of equity and bond yields; that assumption is not compatible with a finding of “anomalous capital market conditions”

H.2.d.2. Is a Risk Premium analysis compatible with a finding of anomalous capital market conditions? Why or why not?

As discussed in the introduction to this Part III.H.2.d), *supra*, the RP method relies directly on bond yields, requires a linear relationship between debt yields and equity costs, and assumes that the subject utility’s equity is risk-comparable to the utilities at issue in past cases. These assumptions make the risk premium method incompatible with a finding that bond yields, or other market conditions, are “anomalous.”

³⁶³ See, e.g., Dockets No. EL11-66 et al., Exhibit No. CAP-500, Affidavit of Dr. J. Randall Woolridge (Jan. 11, 2019), Part V.B., and the supporting exhibits referenced therein. Similarly, in *System Energy Resources, Inc.*, Docket Nos. EL17-41, et al., Dr. S. Keith Berry has presented risk premium studies based on annual average state-allowed ROEs collected by Regulatory Research Associates, for the 1991-forward period covered by RRA’s summary. See Ex. No. SAM-0001 (Direct Testimony of) at 38-41 and associated Exs. Nos. SAM-0015 and SAM-0023.

³⁶⁴ See, e.g., Dockets No. EL11-66 et al., Ex. No. CAP-500, Affidavit of Dr. J. Randall Woolridge (Jan. 11, 2019), Parts V.A and V.C.; Docket No. EL15-45, Ex. No. RPG-9 at 18-26, and the supporting exhibits cited in each of these testimonies.

This conceptual incompatibility was directly visible in two decisions issued on June 19, 2014: Opinion No. 531, and the contemporaneous decision in *SCE*,³⁶⁵ which has not been vacated and remains good law. Prior to those June 2014 decisions, the Commission had a policy of adjusting the allowable ROE as indicated by study-period DCF results so as to track trends in treasury yields from the study period to the final order date.³⁶⁶ Although not labelled as such, this was a risk premium method: it combined a measure of what equity cost in the past with bond yield trends to infer equity's updated cost. In the cited June 2014 decisions, the Commission determined that the relationship between bond yields and the cost of equity had become non-linear, and that it therefore would no longer apply an adjustment to track bond yield trends.³⁶⁷ Logically, that same finding also precludes use of the risk premium method.

- (3) If used, the risk premium method should be adjusted for the subject utility's relative risk

H.2.d.3. Unlike the financial models discussed above, the Risk Premium analysis produces a single ROE rather than a zone of reasonableness. Does this characteristic require the Commission to use the Risk Premium model differently than the other models?

H.2.d.3.i. Is there a method by which the Risk Premium ROE could be adjusted upward for an above average utility or downward for a below average risk utility? If not, is it reasonable to consider the results of a Risk Premium analysis when determining the ROE of an above or below average risk utility?

H.2.d.3.ii. Is it appropriate to use a Risk Premium analysis when conducting the first prong of the section 206 evaluation?

By combining erroneous assumptions about the RP method and the section 206 evaluation of whether an existing ROE remains reasonable, Question H.2.d.3 and its subparts create avoidable dilemmas. These questions assume that the first-prong section 206 evaluation must be based on ranges, rather than distributions, of proxy-based results. They also assume that

³⁶⁵ *So. Cal. Edison Co.*, 147 FERC ¶ 61,240 (2014) ("SCE").

³⁶⁶ See *id.* P 8 and cases cited therein.

³⁶⁷ See *id.* P 9.

the RP method necessarily produces only a single point value, applicable only to an average-risk utility. Although it would follow from these premises that the RP method should not be used within the first prong, nor used within the second prong for atypically low-risk or high-risk subject utilities, all of these premises are false. If the risk premium method is applied reasonably, it will produce alternately a risk-appropriate single indicated ROE, or a range of risk-appropriate ROEs; either measure can then be combined with other methods' results within both section 206 prongs.

Nature of first prong. Contrary to the PNA, the first prong of the section 206 evaluation—the assessment of whether an existing ROE remains just and reasonable—does not require that the assessment be restricted to methods that generate a range of results. Just as it would be unreasonable to continue a challenged 5.5% allowance for debt cost when the single best estimate of the utility's cost of debt is 5%, it would be unreasonable to continue a challenged 10% allowance for equity cost when the single best estimate of the cost of equity is 9.5%. *See Part III.G.2, supra.*

Risk comparability within RP method. It is true that in the versions described in the PNA and used by TO witnesses in the pending New England and MISO paper hearings, the RP method takes no explicit or systematic account of whether the subject utility and the data-set utilities are risk comparable. Rather, this version of the RP method purports³⁶⁸ to gather all transmission ROE allowance orders over a specified historical period. However, this is not an inherent characteristic of the RP method. The current bond yield to which the risk premium is added can be selected to match the utility's specific bond rating. As a clarifying hypothetical,

³⁶⁸ We say "purports" because as applied by TO witnesses, orders allowing relatively low transmission ROEs are commonly excluded based on claims that they involved non-risk-comparable utilities, whereas orders allowing relatively high transmission ROEs are included without undertaking any risk comparison between the utilities at issue therein to the subject utility for which the RP study is being performed.

suppose that the data set cases used to quantify the relationship between bond yields and the cost of equity all concerned utilities with BBB bond ratings, whereas both credit rating agencies maintain an A rating for the subject utility. To obtain an RP-based, risk-comparable indication of the subject utility's cost of equity, a risk premium that represents the difference between BBB utility bonds and BBB utilities' cost of equity could be added to the yield on A-rated utility bonds.³⁶⁹ Alternatively, the data set cases used to quantify the relationship between bond yields and the cost of equity could be screened to be limited to cases involving bond yields or other characteristics comparable to the subject utility. For example, if state-allowed ROEs are used as the data set,³⁷⁰ they can be limited to cases involving ROEs for generation-divested utilities, thus focusing on the lower risk of delivery services.

Output spread of the RP method. The NOI's statement that "the Risk Premium analysis produces a single ROE rather than a zone" should be reconsidered. Although most (though not all) of the TO exhibits referenced in the PNA distilled their risk premium results to a single value per study, that is not an inherent characteristic of the RP method. For example, rather than using only BBB bond yields to identify the data-set-period risk premium and the current bond yield to which it is added, the Commission could use a pair of ratings, each placed one (or two) "notch(es)" above and below that of the subject utility. Alternatively, the RP method could use an annual-average approach,³⁷¹ modified to group each year's allowed ROEs into those falling below and exceeding the annual average, and thereby identify low and high risk premiums each

³⁶⁹ While this approach would use different bond yields to (a) derive and (b) sum with the risk premium, that difference would not be a "mismatch" because it would serve to account for the risk difference between the data set utilities and subject utility.

³⁷⁰ See Part III.E.6, *supra*.

³⁷¹ Whereas RP studies referenced in the *Coakley* Briefing Order generated separate risk premiums for each of the dozens of cases in its 2006-forward data set, the RP study referenced in the MISO Briefing Order averaged case outcomes and bond yields within each calendar year so as to generate one risk premium per year. The suggestion made here is a variant of the latter approach.

year. Either of these approaches would generate a range of RP results rather than a point value. As discussed above, we see no need to generate a results range rather than point value, and we therefore do not affirmatively advocate either of these variants. But if it were deemed necessary to limit the section 206 first prong to methods that produce ranges of results, there is no technical reason why RP could not be one of those methods—and RP would serve better than E/B in that capacity.

CONCLUSION

The PNA referenced in the NOI is contrary to the Federal Power Act and the standards of reasoned decision-making. It should be revised as recommended above. Principally:

- The Commission should continue to rely heavily on the central value indicated by DCF studies of risk-representative proxy groups, using its longstanding DCF model, including its recognition that long-term GDP growth constrains long-term growth of earnings and dividends.
- E/B ratios should play no role in identifying the just and reasonable base ROE, as such estimates do not measure the return that investors require to be induced to invest in market-priced utility equities.
- CAPM studies should use a realistic market risk premium, such as one that recognizes long-term Gross Domestic Product growth as a normalizing constraint on the perpetual continuation of near-term forecasts of earnings growth.
- Any referenced risk premium study should be based on actual bond yields and exclude spurious data points.
- Base ROE determinations should be based on the medians (or for non-average-risk subject utilities, a different, risk-appropriate percentile), not the midpoints, of the utilized proxy groups and methods. There is no *stare decisis* basis for using midpoints in the new way contemplated by the PNA. Nor is that statistically unfounded and error-prone approach consistent with reasoned decision making.

- The three proxy-based methods (DCF, CAPM, and E/B) should not be treated as if they studied three different proxy groups. If those three studies are all to be referenced and given equal weight, then their individual-proxy outputs should be averaged to produce a composite return estimate for each proxy, before forming the composite range.
- With ranges (as distinct from distributions) of proxy results properly removed from playing any decisional role, many of the issues raised in the NOI and perpetually litigated in case-specific proceedings, such as proxy group composition and the tests for excluding high and low results outliers, will have appropriately diminished significance, and can therefore be resolved through bright-line tests.
- Complaints should not be dismissed based on a rebuttable presumption that existing ROEs remain just and reasonable unless they exceed a shield level set above the indicated cost of equity. Under the cost-based ratemaking, and consistent with *Emera Maine*, an existing ROE should be remedied if it exceeds the cost-based just and reasonable level, and not only if it exceeds an even higher level.

Respectfully submitted,

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ASSOCIATIONS EXHIBIT No. A-1

STATEMENT OF BRADFORD CORNELL, PH.D.

I, Bradford Cornell, Ph.D., hereby state:

I make this statement in support of the comments submitted by the Aluminum Association, American Chemistry Council, American Forest and Paper Association, American Public Power Association, Electricity Consumers Resource Council, Industrial Energy Consumers of America, National Rural Electric Cooperative Association, and Transmission Access Policy Study Group (collectively, “Associations”) to *Inquiry Regarding the Commission’s Policy for Determining Return on Equity*, 166 FERC ¶ 61,207 (2019) (the “NOI”).

I have personal knowledge of the matters stated herein.

I am currently Emeritus Professor of Finance at Anderson Graduate School of Management at the University of California, Los Angeles. Previously, I was a Visiting Professor of Financial Economics at the California Institute of Technology and I was a Professor of Finance and Director of the Bank America Research Center at the Anderson Graduate School of Management at the University of California, Los Angeles for 26 years.

I earned a master’s degree in Statistics from Stanford University in 1974 and earned my doctorate in Financial Economics from Stanford in 1975. I have served as an editor of numerous journals relating to business and finance and have written more than 120 articles and three books on finance and securities: *Corporate Valuation: Tools For Effective Appraisal and Decision Making* (1993), published by McGraw-Hill, *The Equity Risk Premium and the Long-Run Future of the Stock Market* (1999), published by John Wiley and Sons, and *Conceptual Foundations of Investing* (2018), published by John Wiley and Sons. To complement my academic writing, I have also authored articles published in the Wall Street Journal and the Los Angeles Times.

In 1988, I was cited by the Financial Management Association as one of the ten most prolific authors in the field of finance. I have received prizes and grants from my research from the Chicago Board of Trade, The Chicago Mercantile Exchange, and the Institute for Quantitative Research in Finance. My article, "Corporate Stakeholders and Corporate Finance," received the 1987 Distinguished Applied Research Award from the Financial Management Association. In 1999, I was awarded the Institutional Brokers' Estimate System ("I/B/E/S") prize for empirical work in finance and accounting (with Wayne Landsman and Jennifer Conrad). I received a Graham and Dodd Scroll Award in 2006 from the Financial Analyst Society with Richard Roll for our work on delegated agent asset pricing theory. I won this award again in 2011 for my work on economic growth and equity investing. My paper entitled "Luck, Skill, and Investment Performance" in The Journal of Portfolio Management won an Outstanding Article prize from the 11th Annual Bernstein Fabozzi/Jacobs Levy Awards. I won this award again in 2015 for my article "Tesla: Anatomy of a Run Up" (with Aswath Damodaran) and a third time in 2017 for my article, Does Past Performance Matter in Investment Manager Selection (with Jason Hsu and David Nanigian).

I have served as a Vice President of the Western Finance Association. I am also a past director of both the American Finance Association and the Western Finance Association. I have served as an associate editor on numerous journals including The Journal of Finance, The Journal of Futures Markets, The Journal of Financial Research, and The Journal of International Business Studies. I have served as a reviewer of nearly a dozen other professional journals.

My teaching and writing have focused on a number of different financial and economic issues, many of which are relevant to the subject matter of this statement. I currently teach

Applied Corporate Finance and Investment Banking at Caltech. Examples of other classes I have taught over the course of my academic career include Corporate Valuation, the Law and Finance of Corporate Acquisitions and Restructurings, Corporate Financial Theory, Security Valuation and Investments, and Applied Corporate Finance and Investment Banking.

I also provide fundamental valuation analysis as a senior advisor to Raylant Global Advisors and the Cornell Capital group. In this capacity, I am a registered Investment Adviser Representative.

I have served as a consultant and have given testimony for both plaintiffs and defendants in a variety of securities, regulatory, and commercial lawsuits. During my many years of experience as an expert witness and consultant, I have provided economic analyses and expert testimony (again, for both plaintiffs and defendants) related to valuation, corporate finance, portfolio management, and damages issues. I have been engaged as a damages expert in numerous high-profile cases that revolved around complex financial and securities transactions. My work in valuation has also been cited and relied upon by the Delaware Court of Chancery and the Delaware Supreme Court.¹

My background is described more fully in my curriculum vitae, which is attached as Appendix A. A list of my publications may also be found in Appendix A. A list of testimony I have given in deposition or at trial over the past four years may be found in Appendix B.

¹ See, e.g., *Delaware Open MRI Radiology Associates, P.A. v Kessler*, 898 A.2d 290, 331 n.102 (Del. Ch. 2006); *Andaloro v. PFPC Worldwide*, C.A. No. 20336, C.A. No. 20289, 2005 Del. Ch. LEXIS 125, at *71 n. 75 (Del. Ch. August 19, 2005); *In re Appraisal of Dell Inc.*, C.A. No. 9322-VCL, Memorandum Opinion (Del. Ch. May 31, 2016); and *ACP Master, LTD. v ClearWire Corporation*, Memorandum Opinion (Del. Ch. July 21, 2017).

I have been asked by counsel for the Associations to respond to various questions included in the NOI. I have organized this statement to track the NOI outline. Note, however, that I do not address all the questions in the NOI and in some cases questions have been combined to improve the exposition. I directly address the following NOI Questions:

- E1–E8 and E11, concerning the choice among possible financial models;
- F2 and F4–F5, concerning book values and market/book ratios;
- H2.a.1–5, concerning the DCF model;
- H2.b.1–4, concerning the CAPM model; and
- H2.c.1–2, concerning the Expected Earnings model.

My principal recommendations are that the Expected Earnings model not be used and that the specification of the DCF and CAPM models account for long-term limits to growth.

E1. What models do investors use to evaluate utility equities?

Investors are highly heterogeneous, so identifying which models investors use to evaluate utility equities cannot be answered in an unambiguous fashion. The manner in which investors determine their required rate of return on equity for utilities is likewise highly heterogeneous. However, surveys conducted in October 2010 and July 2013 by the Association for Financial Professionals (“AFP”) found that 79% and 85% of respondents in 2010 and 2013 respectively used discounted cash flow techniques for investment valuation generally,² and found that the Capital Asset Pricing Model (“CAPM”) is the most frequently used model for estimating a firm’s cost of equity for all industries. The 2010 survey reported that 87% of respondents used the

² 2011 AFP Current Trends in Estimating and Applying the Cost of Capital: Report of Survey Results, March 2011, Association for Financial Professionals (“AFP 2010 Survey”); and 2013 AFP Estimating and Applying Cost of Capital: Report of Survey Results, October 2013, Association for Financial Professionals (“AFP 2013 Survey”).

CAPM. This percentage changed to 85% in the 2013 survey. The Dividend Discount Model (referred to by the Commission and below as the DCF model, for Discounted Cash Flow) was used by 3% of respondents in 2010 and 4% in 2013. The only other model individually identified by the AFP surveys was the Arbitrage Pricing Model (a “factor model,” as I will discuss later), which was used by 1% of respondents in 2010 and 2% in 2013. In both 2010 and 2013, 9% of respondents indicated using other, unnamed models.

The academic literature is consistent with the AFP surveys’ results. In the academic literature, there are two classes of models; the DCF model and various asset pricing models. The CAPM and various factor models, including the Arbitrage Pricing Model and the Fama-French model, are asset pricing models. Leading textbooks such as Damodaran; Bodie, Kane and Marcus; Reilly and Brown; and Holthausen and Zmijewski describe the CAPM and DCF models in detail.³ Both of these models have been established for at least half a century and are widely used in practice. Until a consensus has been established regarding the use and specification of factor models or other alternative asset pricing models, I suggest using only these two models.⁴ Both the CAPM and the DCF model should work relatively well in the case of utilities as they typically have relatively stable earnings, relatively stable and sustainable growth rates, low firm-

³ Damodaran, Aswath, 2012, *Investment Valuation*, Wiley, New York, NY; Bodie, Zvi, Alex Kane and Alan J. Marcus, 2018, *Investments*, McGraw-Hill, New York, NY; Reilly, Frank, K. and Keith C. Brown, 2012, *Investment Analysis and Portfolio Management*, South-Western, Mason, OH; Holthausen, Robert W. and Zmijewski, Mark E., 2019, *Corporate Valuation Theory, Evidence & Practice*, Cambridge Business Publishers, LLC.

⁴ In my view, it also would not be unreasonable for the Commission to continue using DCF alone, as a matter of continued adherence to an established agency practice that has been judicially reviewed and approved. However, that would be a judgment based more on legal than financial analysis grounds. A potential third method, “Risk Premium,” is based on comparing and combining market-based bond yields and regulators’ past estimates of the cost of equity. It is being addressed by another expert sponsored by Associations in this proceeding, namely Michael Gorman.

specific volatility, more-predictable dividends, and more limited use of stock buybacks.

In regard to what the Commission calls the “Expected Earnings” model, it is important to distinguish between analyzing expected earnings and the book value of a firm in relation to an investment decision and using the Expected Earnings model (i.e., the anticipated ratio of earnings to book value, “E/B”) to estimate the cost of equity capital. Investors routinely forecast expected earnings and analyze a firm’s financial statements, including a firm’s book value, in making investment decisions. However, forecasting expected earnings and analyzing the book value of a firm is not the same as using the Expected Earnings model to estimate the cost of equity capital.

The academic literature does not endorse the Expected Earnings model as a procedure for estimating the cost of equity capital, because it is based on accounting measures rather than economic measures. Because it is an accounting-based method, it does not give a meaningful estimate of the rate of return that investors require to be attracted to invest in utilities’ market-priced equities. None of the leading textbooks recommend using an accounting based Expected Earnings model to estimate the required equity return.

E2. What role do current capital market conditions play in the choice of model used by investors to evaluate utility equities?

As noted above, investors are highly heterogeneous, so the models used by investors to evaluate utility equities cannot be answered in an unambiguous fashion. The same is true of the role that current capital market conditions play in investors’ choices among available models. However, the DCF model, CAPM, and factor models are designed to take account of current capital market conditions. As long as current inputs are used, the models will reflect current

market conditions. In the case of the CAPM, this preferably means using the long-term Treasury rate observed on the appraisal date and using estimates for Beta and the equity market risk premium based on information available as of that date.⁵ In the case of the DCF model, this preferably means using the stock price set as of the appraisal date and dividend growth expectations as of that date.⁶ If such current inputs are used, further adjustments are unnecessary and are likely to lead to estimation errors because they introduce ad hoc changes into the models.

In short, I am not aware of evidence demonstrating that investors' model choices vary with capital market conditions, and there is no basis in academic theory for such variation. In my opinion, any assertion that either the CAPM or DCF model receives less investor credence because of current capital market conditions than they did formerly is baseless.

E3. Are any models thought to be superior or inferior to others? If so, why?

Within the classes of asset pricing models, there is a long and ongoing debate in the academic community regarding whether to use the CAPM or a new factor model such as the Fama-French model. It is my opinion that this is a debate the Commission should avoid. As Harvey, Liu and Zhu (2016) report, there are currently dozens of different versions of the factor

⁵ I note that it is important to use the same long-term Treasury rate when applying the model as is used in estimating the equity risk premium.

⁶ The Commission has traditionally used a six-month study period rather than "spot" (single-date) model inputs. While I would not recommend that approach as a matter of economic theory, I recognize that it is an established practice by the Commission, and legal-prudential rather than strictly economic considerations may support its continuation. The difference between a six-month and spot study period is secondary compared to the problems I discuss with using the proposed "Expected Earnings," a DCF model with an inappropriately high constant growth rate, or a CAPM with a mis-specified equity risk premium.

models.⁷ Fama and French alone have proposed three different versions. Virtually none of these models are developed from first principles like the CAPM.

As evidenced by the AFP surveys discussed previously, the CAPM is still widely used in practice, in part because its inputs are readily available, and it is straightforward to apply. All that is required is a measure of the risk-free rate, the company's Beta, and an estimate of the equity market risk premium. There is widespread agreement that the best estimate to use for the risk-free rate is the yield on long-term Treasury bonds, which is the rate used by the Commission. I discuss the Beta and the equity risk premium below.

I note that there remains a debate regarding whether a size premium should be added to the output of the CAPM model. This debate has gone on for almost forty years since the publication of the original article by Rolf Banz in 1981 and remains unresolved today.⁸ I think the current state of affairs is best summarized by Damodaran (2015). Regarding including a size adjustment in the CAPM, he states,

I question the adjustment for three reasons:

1. On closer scrutiny, the historical data, which has been used as the basis for the argument, is yielding more ambiguous results and leading us to question the original judgment that there is a small cap premium.
2. The forward-looking risk premiums, where we look at the market pricing of stocks to get a measure of what investors are

⁷ Harvey, Campbell, Yan Lui and Heng Zhu, 2016, ...and the Cross-Section of Expected Returns, Review of Financial Studies 29 (1): 5-68 (available at https://faculty.fuqua.duke.edu/~charvey/Research/Published_Papers/P118_and_the_cross.PDF; ellipsis and capitalization in original title).

⁸ Banz, Rolf, 1981, The relationship between return and market value of common stocks, *Journal of Financial Economics*, 9 (1) 3-18.

demanding as expected returns are yielding no premiums for small cap stocks.

3. If the justification is intuitive, i.e. that smaller firms are riskier than larger firms, much of that additional risk is either diversifiable, better adjusted for in the expected cash flows (instead of the discount rate) or double counted.

The small cap premium is a testimonial to the power of inertia in corporate finance and valuation, where once a practice becomes established, it becomes difficult to challenge, even if the original reasons for it have long since disappeared.⁹

Domodaran goes on to observe:

After all, if the proponents of small cap premiums are right, bundling together small companies into a larger company should instantly generate a bonus, since you are replacing the much higher required returns of smaller companies with the lower expected return of a larger one. In fact, small companies should disappear from the market.¹⁰

Even if it is accepted that a small cap premium applies to typical industrial corporations, that does not mean it applies to utilities. The two standard “intuitive” rationalizations for a premium are that small firms are riskier and less liquid. However, in the case of utilities, risk is primarily a function of regulation which has nothing to do with firm size. In addition, utility investors tend to be long-run holders interested in dividends, not in-and-out traders. As a result, liquidity is not likely to be an important consideration.

At an empirical level, there is almost no research on whether a size premium exists for utility stocks. The one notable exception is Wong (1993) who reported that there was no small

⁹ Domodaran, Aswath, 2015, The small cap premium: Where is the beef?, available at <http://aswathdamodaran.blogspot.com/2015/04/the-small-cap-premium-fact-fiction-and.html>.

¹⁰ *Id.*

cap premium for utilities.¹¹ Zepp (2003) revisited the issue, but his work was limited to a small sample of water utilities, and did not adjust for risk, so no meaningful conclusion can be drawn from his analysis.¹² Over all, neither theory nor evidence supports adding a size premium in the case of utilities.

Turning to the DCF model, it is an entirely different procedure for estimating the required return. This does not make it superior or inferior to the CAPM. It is simply a different approach to the problem of estimating required returns. For regulated utilities, I recommend the Commission use both approaches because by combining the two results the Commission can arrive at a more stable and reliable measure of the required return on equity.

As discussed previously, the academic literature does not endorse the Expected Earnings model as a procedure for estimating the cost of equity capital because it does not give a meaningful estimate of the rate of return on equity required by investors.

E4. How are alternative models redundant or complementary with each other and/or the DCF model?

As I noted above, the different models offer different perspectives on the same problem. They are not redundant, but they are not completely complementary either. They are different ways of analyzing the same problem. That is why considering the results from both the CAPM and the DCF model is a wise approach.

¹¹ Wong, Annie, 1993, Utility stocks and the size effect: An empirical analysis, *Journal of the Midwest Finance Association*, 95-101.

¹² Zepp, Thomas, M, 2003, Utility stocks and the size effect – revisited, *Quarterly Review of Economics and Finance*, 34: 578-582.

E5 & E6. To what extent do alternative models avoid any deficiencies of the DCF model and/or operate better in diverse capital market conditions? To the extent that investors use multiple models, should the Commission combine them in its analysis or use the “best” one that would apply in all market conditions?

Because the CAPM and the DCF model are different ways of analyzing the same problem, using both, with reliable inputs, can provide useful information. From a financial analysis perspective, my recommendation is that the Commission apply both. Going further and attempting to include unproven factor models would be an unnecessary distraction. Including an E/B model would be worse than an unnecessary distraction—doing so would only distort the useful information provided by valid market-based models.

E7. If the Commission were to consider multiple models, how should it weigh them?

There is no scientific way to weight them. Accordingly, I suggest simple averaging of the accepted market-based models. In determining through this proceeding which models are accepted and how they should be specified, a significant deviation between the results of the two models should provide an impetus for further analysis, especially whether the deviation is a function of the models themselves or the nature of the inputs used in each model. Again, the “Expected Earnings” model is not market-based and should not be given any weight.

E8. To what extent is it reasonable for the Commission to use a simplified version of a model that does not reflect all the variables that investors consider?

All models are simplifications. Adding more variables does not necessarily increase accuracy. Importantly, the Commission should use models tested and endorsed by the academic literature as well as investors. The Commission should not rely on untested, simplified models

potentially used by certain investors. If properly implemented, the CAPM and the DCF models require relatively few inputs and for established, stable firms these inputs are generally ascertainable within a reasonable range. Adding more variables can actually increase measurement error and is almost certain to lead to unnecessary controversy. The more important consideration is that the right inputs be used. In the case of the CAPM, this means appropriate choices for Beta and the equity market risk premium. In the case of the DCF model, this means appropriate treatment and weighting of the expected short-term and long-term dividend growth rates.

E11. To what extent, if any, should the Commission exercise judgment in using financial models to set ROEs under various capital market conditions?

As stated earlier, both the CAPM and the DCF model reflect capital market conditions and offer different perspectives on the same problem. Therefore, it is reasonable for the Commission to determine the ROE by using both models. However, without a new and better model, exercising judgment to adjust the ROEs determined by academically tested and endorsed models likely introduces additional measurement error and speculation.

Whatever method is used for reconciling the models, it should be applied consistently. For instance, if the Commission decides to average the results produced by the CAPM and the DCF model, it should do so on a consistent basis. Changing the weights applied to the two models is likely to lead to “cherry picking” and unreliable results.

F1. Does the mismatch between market-based ROE determinations and a book value rate base support current market values? Is this mismatch a problem?

Market-based ROEs, i.e., ROEs based on the DCF, CAPM, or factor models, provide

estimates of the expected return on equity. In other words, market-based ROEs are economic rates of return. Economic rates of return are not the same as accounting-based rates of return, and Fisher and McGowan (1983) demonstrate that accounting based rates of return do not provide meaningful estimates of economic rates of return.¹³ Furthermore, as discussed by Alexander Robichek (1978), using accounting-based rates of return for regulated utilities to estimate ROEs introduces circularity whereas using accounting-based rates of return on unregulated firms to estimate utility ROEs results in lack of comparability and potential differences in accounting.¹⁴ A more recent book, Lev and Gu (2016), stresses the difference between accounting returns and the economic returns that investors require and warns against using accounting data to estimate economic returns.¹⁵ Because of these issues, in my opinion, accounting based rates of return should not be used to estimate the required return on equity capital.

Economic models, including the residual earnings valuation model discussed below, demonstrate that applying market-based ROE determinations to a book-value rate base should not introduce a significant mismatch problem if the book value rate base is a reasonable measure of the firm's invested capital. If the book value rate base is not a reasonable estimate of the firm's invested capital, the Commission should endeavor to adjust the rate base calculation to better reflect invested capital.

¹³ Fisher, Franklin M. and John H. McGowan, 1983, On the misuse of accounting rates of return to infer monopoly profits, *American Economic Review*, 73 (1): 82-97.

¹⁴ Robichek, Alexander A., 1978, Regulation and Modern Finance Theory, *Journal of Finance*, 693 (3): 693-705.

¹⁵ Lev, Baruch and Feng Gu, 2016, *The End of Accounting and the Path Forward for Investors and Managers*, Wiley, New York, NY.

Finally, the difference between current market values and book values of utilities' publicly traded parent stocks is likely not solely the result of a mismatch between market-based ROEs and a book value rate base. That difference may reflect differences between utility operating companies and their parents. It is also a result of regulators' past and anticipated future over-estimates of the cost of equity. As discussed below, if regulators use a DCF model (whether directly or as a component of a CAPM model) that incorporates an unrealistically high long-term growth rate, the resulting ROE estimate will overstate the firm's cost of equity capital.

F2. Why have most or all utility market-to-book ratios consistently exceeded one?

Lev and Gu (2016) explain that under standard accounting, there are quite substantial "intangible" aspects of modern enterprises (such as human resources, research & development, proprietary business processes, customer relationships, branding, and reputation) that contribute to earnings and market value but often do not appear in the balance sheet as assets and are therefore omitted from the balance sheet "equity book value."¹⁶ As equity book value provides the divisor of both the M/B ratio and the E/B ratio, these intangible assets go a long way toward explaining both why M/B ratios often exceed one and why E/B ratios often exceed the cost of equity.

Another key relation for understanding M/B ratios is the residual earnings valuation model. As described in leading textbooks, such as Penman (2016) and Holthausen and Zmijewski (2019), the residual earnings valuation model states that the market value of the firm equals the book value plus the present value of all expected future residual earnings. Residual

¹⁶ See *id.* at 81-91.

earnings are defined as (ROE – Cost of Equity) * Book Value. The model makes it clear that the market-to-book value exceeds 1.0 when investors expect ROE to consistently exceed the cost of equity for the firm.¹⁷

For regulated utilities, estimation error can cause the expected ROE to consistently exceed the cost of equity if the ROE estimation process is based on models with inappropriately defined inputs or inappropriate models. For example, as discussed above, the expected constant growth rate is a critical input in the Commission’s DCF model. If the expected constant growth rate used in the DCF model is unrealistically high, the resulting ROE overstates the cost of equity capital required by investors.

As noted earlier, Fisher and McGowan (1983) show that, using accounting-based measures of return, e.g. the Expected Earnings model, to estimate economic measures of return can lead to significant errors in estimating the cost of equity capital. Therefore, including ROEs based on the Expected Earnings model in the Commission’s ROE determination process will likely increase, not decrease, estimation errors.

Estimation error in the ROE set by the Commission can also arise from reliance on faulty proxy groups. For example, including companies with inappropriately high ROEs in a proxy group for a specific utility will likely result in estimation error. For many regulated utilities, the market-to-book ratio is not readily available because the regulated utility is a subsidiary of a

¹⁷ It is possible for the market-to-book ratio to consistently exceed one if economic depreciation, the decrease in the economic value of the firm’s capital stock is less than accounting depreciation. This can occur for several reasons, including inflation and the use of accelerated depreciation methods for accounting purposes. Under these circumstances, the market-to-book ratio can consistently exceed one even though the ROE is equal to the cost of equity capital.

publicly traded holding company, which frequently includes non-regulated operations.¹⁸ In this scenario, if the market-to-book ratio consistently exceeds one, it is difficult to isolate whether the market expects the ROE for the combined firm to exceed the cost of equity for the combined firm due to regulated or non-regulated operations. It is possible that the ROE for the regulated subsidiary is equal to the cost of equity for that subsidiary while the non-regulated operations provide opportunities for the ROE to exceed the cost of capital for those operations. It is also possible for the market to expect the allowed ROE for the regulated operations to consistently exceed the utilities' actual cost of equity capital. This will occur if the ROE for the regulated operations is not determined in an unbiased fashion. For example, it will occur if the market expects the constant growth rate in the Commission's DCF model to be set unrealistically high, or expects companies with inappropriately high ROEs to be included in utilized proxy groups. Therefore, the Commission should determine realistic expected constant growth rates, and proxy groups for regulated utilities should properly reflect the risk of the regulated entity.

F4. Should the Commission revise our use of these models to account for the mismatch between market-based ROE determinations and book-value rate base? If so, how? For example, should the Commission adjust the dividend yield used in the DCF model to represent a yield on book value rather than a yield on stock price?

As discussed above and evidenced by the residual earnings valuation model, adjustments to

¹⁸ Acquisition transactions involving regulated subsidiaries can provide some information regarding the market-to-book ratio of the regulated operations. However, relying on these transactions to form conclusions regarding the market-to-book ratio is problematic because typically publicly available information does not allocate the acquisition price between the stand-alone value of the acquired operations and potential synergies associated with the transaction.

unbiased market-based ROE estimates should not be required to equate market-based ROEs with a book value rate base if the book value rate base is a reasonable estimate of the firm's invested capital. The key is that the Commission make an effort to estimate the cost of equity as accurately as possible. As I stressed previously, relying on accounting-based measures to estimate economic rates of return is likely to result in measurement errors. Those errors can cause the market value and the book value of assets to diverge.

F5. Should the Commission consider adjusting ROEs to account for market-to-book ratios above or below one? Would doing so introduce circularity into Commission ROEs by setting the ROE at whatever level of earnings the market expected, rather than making an independent assessment of the appropriate ROE?

Finance theory suggests that, in order for utilities to attract capital, the Commission should set allowed ROEs at utilities' cost of equity, meaning the level necessary to enable investors to expect to earn their required rate of return on the capital they invest. Any adjustment away from that level to account for market-to-book ratios above or below one would be based on policy and law, not finance theory.

If the Commission adjusted ROEs in an attempt to cause market-to-book ratios to equal one, both the adjustments themselves and the expectation of the adjustments would introduce circularity. Under that scenario, the expectation that an adjustment would be made if the market-to-book ratio deviated from one would impact the observed market-to-book ratio. In my opinion, this practice should be avoided. Rather, the Commission should try to estimate the cost of equity as accurately as possible.

H2.a.1. Should the Commission continue to use a dividend DCF model or should the

Commission use a different DCF model, for example, one based on free cash flow?

The dividend DCF model used by the Commission to estimate the required return on equity is derived from the dividend discounted cash flow model. On a per share basis, the dividend discounted cash flow model is generally expressed as

$$P_0 = \frac{DIV_1}{(1+r_E)^1} + \frac{DIV_2}{(1+r_E)^2} + \frac{DIV_3}{(1+r_E)^3} + \cdots + \frac{DIV_\infty}{(1+r_E)^\infty} \quad (1)$$

In equation (1), P_0 equals the value of a share of the firm's common equity today, DIV_t equals the expected dividend paid per share to common equity (and share repurchases per share of common equity) at time t , and r_E equals the cost of common equity capital.

Assuming constant growth, equation (1) becomes

$$P_0 = \frac{DIV_1}{(r_E - g)} \quad (2)$$

In equation (2), P_0 continues to equal the value of a share of the firm's common equity today, DIV_1 equals the expected dividend payment per share to common equity (and share repurchases per share of common equity) for the next year, r_E continues to equal the cost of common equity capital, and g equals the expected constant growth rate for dividend payments to common equity (and share repurchases of common equity). Rearranging equation (2) results in the general formula for the constant growth DCF model

$$r_E = g + \frac{DIV_1}{P_0} \quad (3)$$

Notably, g , the expected rate of constant growth in equations (2) and (3) represents constant growth in perpetuity.

As explained by Holthausen and Zmijewski, “[t]he dividend discounted cash flow valuation method...is similar to the Equity DCF valuation method. In fact, if expected dividend

distributions equal expected equity free cash flows, the two methods are identical.”¹⁹ This result is apparent when the general formula for the dividend discounted cash flow model is compared to the general formula for equity discounted cash flow model, which is

$$V_E = \frac{EFCF_1}{(1+r_E)^1} + \frac{EFCF_2}{(1+r_E)^2} + \frac{EFCF_3}{(1+r_E)^3} + \cdots + \frac{EFCF_\infty}{(1+r_E)^\infty} \quad (4)$$

In equation (4), V_E equals the value of the firm’s common equity, $EFCF_t$ equals the expected free cash flow to common equity at time t , and r_E equals the cost of common equity capital.

Although equation (4) is stated in terms of the firm’s total common equity, it can be converted to a per share formula by converting EFCF to a per share value.

A comparison of equation (1) and the per-share version of equation (4) reveals their conditional equivalence: The two formulas are identical if the timing and amount of the expected dividend distributions (and share repurchases) represented by the DIV values in equation (1) are equal to the expected free cash flows per share to common equity represented by those equation (4) per-share EFCF values. Moreover, if the timing of dividend payments (and share repurchases) does not match the timing of free cash flows per share to common equity, but the inputs are estimated consistently, the valuations derived based on equation (1) or equation (4) converted to a per share equivalent will be the same.

Therefore, as between the dividend discounted cash flow model and the equity discounted cash flow model, the preferred model is dependent on the ability to estimate dividends versus free cash flows to equity. Between the two, for regulated utilities, free cash flows to equity are likely more difficult to estimate, because (a) estimates of future capital

¹⁹ Holthausen and Zmijewski (2019), page 225.

expenditures and non-recurring items increases the variability of expected free cash flows to equity more than the variability of expected dividends, and (b) electric utility parent companies generally make limited or no use of stock repurchases.

H2.a.2. Could terminal stock value be used in place of long-term growth projections? If so, how should terminal stock value be determined?

Many valuation textbooks discuss the calculation of a firm's terminal common stock value. That calculation typically relies on the basic constant-growth valuation equation

$$P_t = \frac{DIV_{t+1}}{(r_E - g)} \quad (5)$$

where P_t equals the terminal (or continuing) value of a share of the firm's common equity at time t , DIV_{t+1} equals the expected dividend payments per share to (and share repurchases per share of) common equity at time $t+1$, r_E equals the firm's cost of common equity capital, and g equals the expected constant growth rate of the firm's expected dividend payments to (and share repurchases of) common equity at time t .

Notably, a key input in equation (5) and the terminal value of a firm's common equity is the expected constant growth rate, which incorporates the expected long-term growth rate. Therefore, deriving a terminal value of a firm's common equity requires a determination of the expected long-term growth rate. Using the terminal value to estimate the expected long-term growth rate would introduce circularity into the model.

Furthermore, the terminal value of a firm's common equity reflects the expected long-term growth rate regardless of the model used to estimate the terminal value. For example, if a net income multiple is used to derive the terminal value of the firm's common equity, that multiple should reflect the expected long-term growth rate at the time the terminal value is

estimated, time t. The expected long-term growth rate at time t may differ from current growth expectations. In this scenario, the unadjusted net income multiple based on current expectations should not be used to estimate the terminal value. Rather, the multiple should be adjusted to properly reflect the long-term growth rate at time t. Again, the process of making this adjustment would introduce circularity because the adjustment would reflect, among other things, any difference between current expected growth rates and the expected long-term growth rate at time t.

H.2.a.3. Do investment analysts project earnings/dividends growth beyond five years, and if not, why not, and is GDP an appropriate proxy for long-term growth?

Typically, investment analysts do not project earnings/dividend growth beyond five years because longer term growth projections become increasingly speculative. However, economic reasoning puts an upper limit on long-term dividend growth. Over the long run, dividends have remained an approximately constant fraction of GDP. This means that the long-run growth rate of dividends must be the same as GDP. Clearly, dividend growth cannot exceed GDP growth or dividends would eventually become bigger than the entire economy. This means that GDP growth is an upper limit for long-term dividend growth.

While dividend growth cannot exceed GDP growth in the long run, it can fall short for individual companies. As Bernstein and Arnott (2003) and Cornell (2010) point out, part of aggregate dividend growth is accounted for by new enterprises.²⁰ As a result, the growth rate in

²⁰ Bernstein, William J. and Robert D. Arnott, 2003, Earnings growth: The Two Percent Dilution, *Financial Analysts Journal*, 59 (5): 47-55. Cornell, Bradford, 2010, Economic growth and equity investing, *Financial Analysts Journal*, 66 (1): 54-64.

dividends for existing enterprises may fall short of aggregate GDP growth. Consequently, the Commission should use a long-run dividend growth rate that does not exceed the expected long-run nominal growth of GDP. Forecasts for long-run GDP growth are prepared by various private forecasters and government agencies.

H.2.a.4. How should the Commission weight short-term and long-term earnings/dividend growth projections?

The formulas set forth in equations (2), (3), and (5) above work properly only if g , the expected constant growth rate, for each equation is truly constant. If it is not constant, the Commission should not “weight” short-term and long-term growth projections to arrive at an expected constant growth rate. Rather, the Commission should model short-term and long-term projections to account for differences and the durations of the expected growth rates.

One modeling method would be to create detailed annual forecasts of expected dividend payments (and share repurchases) or expected free cash flows to common equity and use a spreadsheet based on equations (1) or (4) respectively to solve for the cost of common equity capital. This method requires long-term forecasts because firms are typically assumed to have an indefinite life.

Alternatively, a multi-stage model based on equation (6) below can be used.

$$P_0 = \sum_{t=1}^C \frac{DIV_t}{(1+r_E)^t} + \frac{DIV_{C+1}}{(r_E-g)} * \frac{1}{(1+r_E)^C} \quad (6)$$

In equation (6), P_0 equals the value of a share of the firm’s common equity today, DIV_t equals the expected dividend paid per share to common equity (and share repurchases per share of common equity) at time t , r_E equals the cost of common equity capital, and g equals the expected constant growth rate at time C . If equation (6) is used, detailed forecasts are created until year C ,

the year the firm is expected to reach stable state and is expected to grow at a constant rate, g , thereafter. Using a spreadsheet, the detailed forecast, and P_0 one can solve for r_E .

If an equation similar to equation (3), which assumes a single constant growth rate, is used to estimate the cost of common equity capital, and the expected growth rate for the firm is not truly constant, an effective constant growth rate must be calculated. To arrive at a reasonable estimate, the short-term and long-term growth must be modeled explicitly, and a spreadsheet used to solve for the constant growth rate implied by the combination of the expected short-term and long-term growth rates. This exercise should include explicit growth projections for each year until it is reasonable to assume that the firm has reached a stable long-term growth rate which are used to calculate annual expected payouts to equity. From the projection of expected equity payouts and the beginning indexed value, one can solve for the internal rate of return (“IRR”), which is the effective discount rate. The implied constant growth rate is equal to the IRR minus the equity payout yield in year 1.

Table 1 below provides an example of this approach. In Table 1, I have created a 500-year projection. I assumed an expected growth rate for the next five years of 10%. Thereafter, I have assumed a constant long-term growth rate of 3.8%. The year 1 equity payout yield, equal to the expected dividend (and share repurchase) yield, is assumed to be 3%. From this yield and the expected future growth rates, equity payouts are calculated for each year based on a beginning index value of 100. From these payouts and the beginning index value, the IRR is determined to be 7.5163%, implying a constant long-term growth rate of 4.5163% (7.5163% - 3.0%).

TABLE 1

Expected Long-Term Growth Rate:	3.80%
Indexed Equity Value at Year 0:	[1] = P_0 100.0
Equity Payout Yield at Year 1:	[2] = D_1/P_0 3.00%
Internal Rate of Return (IRR) at Expected Growth Rates:	[3] 7.5163%
Implied Constant Long-Term Growth:	[4] = [3] - [2] 4.5163%

Data for Calculation of IRR			Check of Implied Constant Growth Rate		
Year	Expected Growth	Indexed Equity Payout at Expected Growth Rates	Year	Indexed Equity Payout at Implied Constant Growth Rate	Net Present Value @ 7.5163%
1	10.00%	3.0	1	3.0	2.8
2	10.00%	3.3	2	3.1	2.7
3	10.00%	3.6	3	3.3	2.6
4	10.00%	4.0	4	3.4	2.6
5	10.00%	4.4	5	3.6	2.5
6	3.80%	4.6	6	3.7	2.4
7	3.80%	4.7	7	3.9	2.4
8	3.80%	4.9	8	4.1	2.3
9	3.80%	5.1	9	4.3	2.2
10	3.80%	5.3	10	4.5	2.2
500	3.80%	457,490,398.7	500	11,220,885,265.3	0.0
Total NPV			100.0		

Table 1 also includes a check on this calculation. Using the implied constant growth rate, I have calculated implied equity payouts for the same time period as my original projection. The net present value of these payouts, discounted at the IRR, should be and is equal to the beginning index value.

The implied ROE based on a constant growth rate of 4.5163% is substantially less than an estimated ROE based on a weighting methodology using 2/3 times the short-term expected

growth rate and 1/3 times the long-term expected growth rate. If one had applied a 2/3 weight to the expected short-term growth rate of 10.0%, and a 1/3 weight to the expected long-term growth rate of 3.8%, the result would be 7.9333%. This estimate is more than 1.75 times greater than the implied constant growth rate calculated in Table 1. As stated previously, overstating the long-term growth rate results in the DCF model overstating the ROE. In this example, the appropriate ROE is 7.5163%, whereas the weighting approach would result in an estimated ROE of 10.9333%.

Modeling expected growth rates in this manner reveals the relationship between expected short-term growth rates, expected long-term growth rates, and the implied constant growth rate. Notably, the implied constant growth rate will be close to the expected long-term growth rate unless there is substantial growth for an extended period of time prior to reaching the start date for the expected long-term growth assumption. Again, the constant growth rate for a single stage DCF model is expected to continue in perpetuity.

If expected growth rates are not modeled properly and short-term growth rates, which are typically higher than long-term growth rates, are weighted too heavily, the likely outcome is an overstatement of both the expected constant growth rate and the required ROE. The amount of the overstatement will increase as the difference between the expected short-term growth rate(s) and expected long-term growth rate rises.

H.2.a.5. The Commission uses a constant growth DCF model. Should the Commission consider using a multi-stage DCF model? If so, how would the Commission determine the length of each stage of a proxy company's growth?

A multi-stage DCF model using detailed annual forecasts as described above would be preferable to a single-stage DCF model. As shown in Table 1, however, a single, implied constant growth rate can be determined once the annual expected growth rates are known.

A multi-stage model likely provides a more robust estimate of the ROE, because it explicitly addresses the timing of differences between short-term and long-term growth rates. It is true that if a multi-stage model is used, multiple growth rates are required, and the length of each growth rate must be specified. Typically, analyst projections provide details regarding the timing and length of their estimates. If analyst estimates are used to derive expected short-term growth rates, a multi-stage model should use the analyst projections for the duration of those projections. For utilities with expected short-term growth rates similar to the expected long-term growth rate, it may be reasonable to use a two-stage model where the first stage reflects analyst growth rates and the second stage reflects the expected long-term growth rate. However, for utilities with expected short-term growth rates which are substantially above the expected long-term growth rate, it would be preferable to allow for a transition between short-term growth and long-term growth. In valuation models, typically, these transition periods are 5 or 10 years. In my view, this is a reasonable procedure. I have used it to model growth rates on numerous occasions, including testimony for appraisal matters in Delaware.

It is also possible to create an implied constant growth rate using this convergence approach. Table 2 below applies the convergence approach using the assumptions underlying

Table 1. Table 2 shows that the implied constant growth rate is 4.9738%.

TABLE 2

Expected Long-Term Growth Rate:		3.80%
Indexed Equity Value at Year 0:	[1] = P_0	100.0
Equity Payout Yield at Year 1:	[2] = D_1/P_0	3.00%
Internal Rate of Return (IRR) at Expected Growth Rates:	[3]	7.9738%
Implied Constant Long-Term Growth:	[4] = [3] - [2]	4.9738%

Data for Calculation of IRR			Check of Implied Constant Growth Rate		
Year	Expected Growth	Indexed Equity Payout at Assumed Growth Rates	Year	Indexed Equity Payout at Implied Constant Growth Rate	Net Present Value @ 7.9738%
1	10.00%	3.0	1	3.0	2.8
2	10.00%	3.3	2	3.1	2.7
3	10.00%	3.6	3	3.3	2.6
4	10.00%	4.0	4	3.5	2.6
5	10.00%	4.4	5	3.6	2.5
6	8.97%	4.8	6	3.8	2.4
7	7.93%	5.2	7	4.0	2.3
8	6.90%	5.5	8	4.2	2.3
9	5.87%	5.8	9	4.4	2.2
10	4.83%	6.1	10	4.6	2.2
11	3.80%	6.4	11	4.9	2.1
12	3.80%	6.6	12	5.1	2.0
13	3.80%	6.9	13	5.4	2.0
14	3.80%	7.1	14	5.6	1.9
15	3.80%	7.4	15	5.9	1.9
500	3.80%	529,762,010.1	500	99,216,987,160.5	0.0
			Total NPV		100.0

In summary, it is critical that the expected constant growth rate in a DCF model reflect growth in perpetuity. To accomplish this goal, either models with detailed annual forecasts should be developed and the ROE determined from those forecasts or, if a single-stage DCF

model is used based on a combination of short-term and long-term growth rates, the constant growth rate should be estimated in a manner similar to those shown in Tables 1 and 2.

H.2.b.1. If the market risk premium is determined by applying the DCF methodology to a representative market index, should a long-term growth rate be used, as in the Commission's two-step DCF methodology?

The solution is to use a proper two-stage model and solve for the discount rate. Damodaran (2018) provides an excellent example.²¹ In his extensive paper on the implied equity risk premium, Damodaran states, “After year 5, we will assume that earnings on the index grow at 3.84%, the same rate as the entire economy.”²² His application in this context is consistent with what I recommended above when applying the DCF model to individual companies. Applying it to the market as a whole is just a special case.

H.2.b.2. Beta is a measure of a security's risk relative to the broader market, such as the S&P 500, not of its absolute risk. Do CAPM's assumptions break down if *both* utility stocks and the broader market become riskier over time on an absolute basis, but the relative increase in risk in utility stocks rises more slowly?

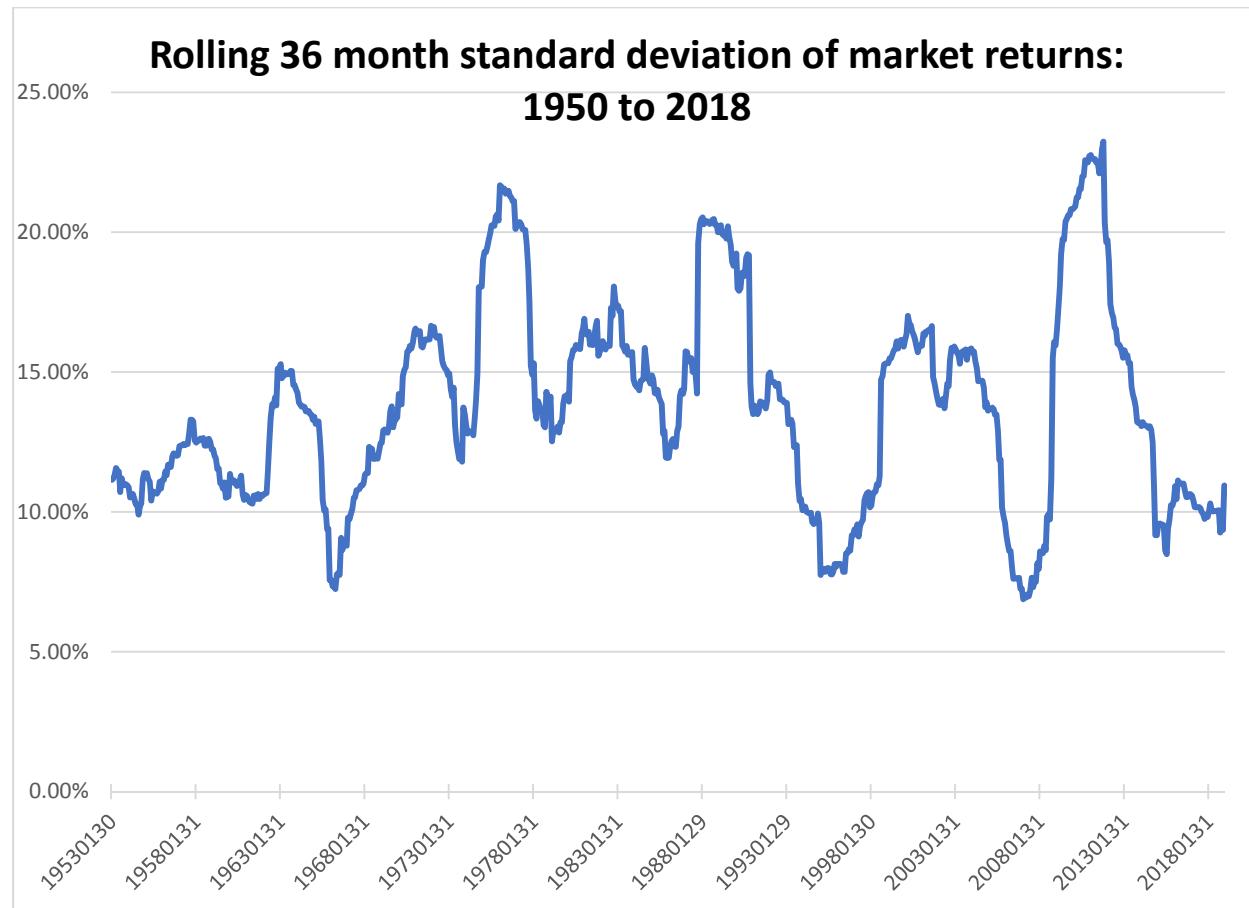
Both the CAPM and the DCF model work fine if the volatility of the market changes as long as the proper inputs are used. This is because the models incorporate such changes. For example, if an increase in the market volatility leads investors to require higher returns, then market prices will fall. This will cause both models to produce higher results for the required

²¹ Damodaran, Aswath, 2018, Equity risk premiums: Determinants, estimation and implications – The 2018 edition, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3140837.

²² *Id.* at 79.

return. In the case of the DCF model, for example, the lower market prices, holding dividend growth rates constant, will mean that the model produces a higher discount rate, i.e. a higher indicated cost of equity, to connect current lower market prices to the expected stream of growing dividends. For the same reason, the implied equity risk premium used in the CAPM will rise. There is no need to adjust either model as long as the appropriate inputs are used.

I do note, however, that evidence suggest that to the extent market risk has changed, it has declined. The figure below plots the rolling 36-month standard deviation of aggregate stock market returns. It shows ups and downs associated with recessions, booms and financial crises, but there is no trend. Currently, market volatility has been near record lows.



H.2.b.3. What are appropriate data sources for the beta value?

Several reputable sources publish estimates of beta, including, Bloomberg and Valueline. The AFP 2013 Survey mentioned previously also reported on the sources investors used for beta. The majority of respondents, 59% and 65% in 2010 and 2013 respectively used Bloomberg as the source for beta.²³ In comparison, 10% of respondents in 2010 and 9% in 2013 reported using Ibbotson as the source for beta and 5% in 2010 and 4% in 2013 reported using Valueline's beta.²⁴

Each supplier typically specifies the manner in which it calculates beta; however, certain suppliers, e.g. BARRA, have proprietary models which cannot be easily replicated. Because differences between calculation methodologies exist, for estimating utility ROEs, a source or sources of beta should be determined and used consistently. Furthermore, it is not advisable to adjust the beta calculated by a reputable supplier. Such adjustments are likely to increase, not decrease, measurement error.

H.2.b.4. Should the Commission employ more sophisticated versions of the CAPM model that consider more variables instead of only beta, such as the Fama-French Model?

As noted earlier, attempting to use more complex, but as yet unproven, models is not advisable. The CAPM and the DCF model are established approaches that have been in widespread use for more than half a century. In distinction there are dozens of factor models in

²³ AFP 2013 Survey, page 7.

²⁴ I note that Ibbotson was acquired by Morningstar and is no longer an independent source.

addition to the Fama-French. In fact, there are three versions of the Fama-French model using different numbers of factors.²⁵ Virtually none of these factor models have been developed from theoretical first principles, and all of them remain highly controversial. In addition, many of the factor models are cumbersome to implement and require complex and still unproven statistical techniques. I recommend that the Commission rely on the DCF model and on the basic version of the CAPM model unless and until the academic literature concludes that another model is clearly superior.

H.2.c.1. & H.2.c.2. Should the use of utilities in the proxy group for the Expected Earnings model be predicated on the Expected Earnings analysis being forward-looking? What, if any, concerns regarding circularity are there with using the Expected Earnings analysis to determine the base ROE, as opposed to using the analysis for corroborative purposes?

As noted earlier, the academic literature does not endorse the Expected Earnings model as a procedure for estimating the cost of equity capital because it is based on accounting measures and does not provide a reliable estimate of the rate of return on equity required by investors. None of the leading textbooks recommends using an accounting-based Expected Earnings model to estimate the equity return required by investors.

If an Expected Earnings model is used, selection of a proper proxy group raises additional concerns. For the sake of comparability, a proxy group for use in an Expected

²⁵ The three Fama-French models are presented in the following papers. Fama, Eugene F. and Kenneth R. French, The cross section of expected returns, *Journal of Finance*, (47): 427-465. Fama, Eugene F. and Kenneth R. French, 2012, Size, value and momentum in international stock return, *Journal of Financial Economics*, 105: 457-472. Fama, Eugene F. and Kenneth R. French, 2015, A five factor asset pricing model, *Journal of Financial Economics*, 117: 470-488.

Earnings model should focus on stocks in the regulated utility sector that have M/B and E/B ratios similar to those of operating utility companies. This comparability requirement applies whether the utilized E/B ratio is based on historical E/B, expected E/B, or both. Either way, it is likely that regulated utilities will be heavily represented in a proxy group of companies comparable to a regulated utility. On the other hand, if such a proxy group is selected and the ROE for companies in the group is determined based on the Expected Earnings model, this approach introduces circularity. Furthermore, circularity is introduced whether the model is based on historical results or forward-looking results, because both set of results are impacted by rates set based on the ROE. If historical data is used, the historical results were based on the ROE(s) previously determined by regulators. If forward-looking expected results are used, the expected results incorporate expectations regarding future ROE(s) determined by regulators.²⁶ Thus, an “Expected Earnings” model cannot be risk-comparable unless it is circular, and cannot avoid circularity without neglecting comparability.

²⁶ Expected regulatory actions also affect the inputs to the DCF approach, but in partly offsetting ways: expectations of earnings-increasing regulatory action increase both forecast earnings (increasing the growth input) and current market prices (decreasing the dividend yield). In contrast, the “Expected Earnings” method is based solely on accounting measures and fails to take account of the change in market prices in the denominator.

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Associations Exhibit No. A-1
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I declare under penalty of perjury that the contents of the foregoing Statement are true and correct to the best of my knowledge, information and belief.



BRADFORD CORNELL, PH.D.

Executed in La Canada, California on June 25, 2019.

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EDUCATION

Ph.D., Financial Economics, Stanford University

M.S., Statistics, Stanford University

A.B., (Interdepartmental) Physics, Philosophy, and Psychology, Stanford University

ACADEMIC AND PROFESSIONAL POSITIONS

February 2019 – Present	Independent Financial Economic Consultant
December 2009 – Present	<i>Emeritus Professor of Finance</i> , Anderson Graduate School of Management, UCLA
December 2015 – Present	<i>Senior Adviser</i> , Rayliant Global Advisors, Hong Kong and Beijing
December 2017 – Present	<i>Senior Adviser</i> , Cornell Capital Group and registered Investment Adviser Representative
Previous positions	<i>Senior Consultant</i> , Compass Lexecon <i>Senior Consultant</i> , CRA <i>Professor of Finance and Director of the Bank of America Research Center</i> , Anderson Graduate School of Management, UCLA <i>Visiting Professor of Finance</i> , California Institute of Technology <i>President</i> , FinEcon: Financial Economic Consulting <i>Vice-President and Director of the Securities Litigation Group</i> , Economic Analysis Corporation <i>Assistant and Associate Professor of Finance</i> , UCLA <i>Assistant Professor of Finance</i> , University of Southern California <i>Assistant Professor of Finance</i> , University of Arizona

TEACHING

Designed a new course on **Energy and Finance** to be offered at the Anderson School of Management in 2020

Applied Corporate Finance and Investing

The Law and Finance of Corporate Acquisitions

Corporate Finance

Investments

Options, Futures and Other Derivatives

PUBLICATIONS

Books and book chapters

- *Conceptual Foundations of Investing*, With Andrew Cornell and Shaun Cornell, John Wiley and Sons, New York, NY, 2018.
- “Stock Repurchases: Tradeoffs and Trends,” *Dividends and Dividend Policy*, H. Kent Baker, ed., Blackwell Publishing, New York, 2009.
- “Securities Fraud Damages,” With J. Hirshleifer and J. Haut. *Developments in Litigation Economics*, Vol. 87, P. Gaughan and R. Thornton, eds., Elsevier, Ltd., Oxford, UK, 2005.
- *The Equity Risk Premium and the Long-Run Future of the Stock Market*. John Wiley and Sons, New York, NY, 1999.
- “Corporate Valuation,” *Handbook of Modern Finance*, 3rd edition, Dennis Logue, ed., Warren Gorham Lamont, Boston, MA, 1994.
- *Corporate Valuation: Tools for Effective Appraisal and Decision Making*. McGraw-Hill, New York, NY, 1993.

Academic articles

- “How Efficient is Sufficient?” With John Haut, *The Business Lawyer*, 2019, Vol. 74, 2, pp. 417–434.
- “Can Private Equity Firms Pay Fair Value for Acquisitions?” With Richard Gerger, *Journal of Private Equity*, 2018, Vol. 21, 4, pp. 69–74.
- “What is the Alternative to the Efficient Market Hypothesis?” *Journal of Portfolio Management*, 2018, Vol. 44, 7, pp. 3–6.
- “Yes, It’s a Bubble. So What?” With Rob Arnott and Shane Sheppard, *Research Affiliates Publication on Fundamental Investing*, April 2018.
- “Do Valuation Multiples Reflect a Size Effect,” With Rajiv Gokhale, *Journal of Business Valuation and Economic Loss Analysis*, 2018, Vol. 13, 1, pp. 2–14.

- “Estimating the Terminal Value with Inflation: The Inputs Matter – It is not a Formulaic Exercise,” With Richard Gerger, *Business Valuation Review*, 2017, Vol. 36, 4, pp. 117–123.
- “A Note on Estimating Constant Growth Terminal Values with Inflation,” With Richard Gerger, *Business Valuation Review*, 2017, Vol. 36, 3, pp. 102–105.
- “Passive Investing and Market Efficiency,” *Journal of Investing*, 2017, Vol. 26, 3, pp. 7–9.
- “Does Past Performance Matter in Investment Manager Selection,” With Jason Hsu and David Nanigian, *Journal of Portfolio Management*, 2017, Vol. 43, 3, 33–43. Winner Bernstein/Fabozzi Award for 2017. Commentary in 20th Anniversary Volume of Bernstein/Fabozzi winners.
- “Information Flow and Expected Inflation: An Empirical Analysis,” *Journal of Investing*, 2017, Vol. 26, 4, pp. 8–15.
- “Accounting Information, Investor Sentiment and Market Pricing,” With Wayne R. Landsman and Steven R. Stubben, *Journal of Law, Finance and Accounting*, 2017, Vol. 2, 2, pp. 325–345.
- “Presidential Politics and Stock Returns,” With Rob Arnott and Vitali Kalesnik, *Research Affiliates Publication on Fundamental Investing*, June 2017.
- “An ‘Enhanced’ Corporate Valuation Model: Theory and Empirical Tests,” With Rajiv Gokhale, *Business Valuation Review*, 2016, Vol. 35, 2, pp. 52–61.
- “The Tesla Run-up: Follow-up with Investment Implications,” *Journal of Portfolio Management*, Fall 2016, Vol. 43, 1, pp. 1–4.
- “The Self-Fulfilling Prophecy of Popular Asset Pricing Models,” With Jason Hsu, *Journal of Investment Management*, 2016, Vol. 14, 1, pp. 65–74.
- “Information and the Oil Price Collapse,” *Journal of Portfolio Management Invited Article*, 2015, Vol. 42, 1, pp. 1–4.
- “Capital Budgeting: A General Equilibrium Analysis,” *Journal of Financial Perspectives*, 2015, Vol. 3, 1, pp. 1–8.
- “Using Dividend Discount Models to Estimate Expected Returns, *Journal of Investing*, 2015, Vol. 23, 1, pp. 18–22.
- “How Efficient is Sufficient: Securities Litigation Post-*Halliburton*,” *Bank and Corporate Governance Law Reporter*, 2014, Vol. 53, No. 4, pp. 26–33; December 2014 *Securities Fraud Litigation Reporter*, Vol. 38, No. 3, p. 327: 38 SRALR 327; January 2015 *RICO and Securities Fraud Law Reporter*, Vol. 61, No. 1, p. 13: 61 RSFLR 13.
- “Competition in Portfolio Management: Theory and Experiment,” With Elena Asparouhova, Peter Bossaerts, Jernej Copic, Jaksa Cvitanic and Deborah Meloso, *Management Science*, 2014, Vol. 61, 8, pp. 1868–1888.
- “Tesla: The Anatomy of a Run-up,” With Aswath Damodaran, *Journal of Portfolio Management*, 2014, Vol. 41, 1, pp. 139–151. Winner Bernstein/Fabozzi Award for 2015. Commentary in 20th Anniversary Volume of Bernstein/Fabozzi winners.
- “Guideline Public Company Valuation and Control Premiums: An Economic Analysis,” *Journal of Business Valuation and Economic Loss Analysis*, 2013, Vol. 8, 1, pp. 53–70.

- “Dividend Price Ratios and Stock Returns: International Evidence,” *Journal of Portfolio Management*, 2013, Vol. 40, 2, pp. 122–127.
- “What Moves Stock Prices: Another Look,” *The Journal of Portfolio Management*, 2013, Vol. 39, 3, pp. 32–38.
- “Discounted Cash Flow and Residual Earnings Valuation: A Comparison in the Context of Valuation Disputes, *Business Valuation Review*, 2013, Vol. 31, 4, pp. 10–20.
- “Dividend-Price Ratios and Stock Returns: Another Look at the History,” *Journal of Investing*, 2013, Vol. 22, 2, pp. 15–22.
- “Demographics, GDP and Future Stock Returns: The Implications of Some Basic Principles,” *The Journal of Portfolio Management*, 2012, Vol. 38, 2, pp. 96–99.
- “Market Efficiency and Securities Litigation: Implications of the Appellate Decision in Thane,” *Virginia Law and Business Review*, 2011, Vol. 6, 2, pp. 237–255.
- “Investment Strategies and Investment Track Records,” invited editorial, *The Journal of Portfolio Management*, 2011, Vol. 37, 4, pp. 3–5.
- “The Intriguing Case of KMP and KMR,” *The Journal of Portfolio Management*, 2011, Vol. 37, 3, pp. 121–127.
- “Warren Buffett, Black-Scholes, and the Valuation of Long-Dated Options,” *The Journal of Portfolio Management*, Summer 2010, Vol. 36, 4, pp. 107–111.
- “Economic Growth and Equity Investing,” *Financial Analysts Journal*, January/February, 2010, Vol. 66, 1, pp. 54–64. Winner Graham and Dodd G&D Scroll Award for 2010.
- “Beliefs Regarding Fundamental Value and Optimal Investing,” With J. Cvitanic and L. Goukasian, *Annals of Finance*, January 2010, Vol. 6, 1, pp. 83–105.
- “Collateral Damages and Securities Litigation,” With J. Rutten. *Utah Law Review*, Vol. 2009, 3, pp. 717–748.
- “The Fundamental Nature of Recessions: A Contracting and Restructuring Approach,” *The Economists Voice*, October 2009, pp. 1–4.
- “The Pricing of Volatility and Skewness,” *Journal of Investing*, Vol. 18, Fall 2009, pp. 27–31.
- “Implications of the Financial Crisis for Financial Education,” *Journal of Financial Education*, Vol. 35, Spring, pp. 1–6.
- “Investment Research: How Much Is Enough?,” *Management Online Review*, Oxford Management Publishing, 2009, <http://www.moreexpertise.com/download.php?id=135>.
- “Luck, Skill, and Investment Performance,” *The Journal of Portfolio Management*, Vol. 35, Winter 2009, pp. 85–89. Winner Bernstein/Fabozzi Award for 2009.
- “The Basic Speed Law for Capital Market Returns,” *CFA Magazine*, November/December 2008, pp. 10–11. Also published electronically by *Real Capital Markets*, October 24, 2008, http://www.realclearmarkets.com/articles/2008/10/the_basic_speed_law_for_capita_1.html.

- “The Impact of Analysts’ Forecast Errors and Forecast Revisions on Stock Prices,” With W. Beaver, W. Landsman, and S. Stubben. *Journal of Business Finance and Accounting*, Vol. 35, No. 5/6, 2008, pp. 709–740.
- “Market Efficiency, Crashes, and Securities Litigation,” With J. Rutten. *Tulane Law Review*, Vol. 81, No. 2, 2006.
- “Accounting and Valuation: How Helpful Are Recent Accounting Rule Changes?,” With W. Landsman, *Journal of Applied Corporate Finance*, Fall 2006, Vol. 18, No. 4.
- “Dividends, Stock Repurchases, and Valuation,” *Journal of Applied Finance*, Vol. 15, No. 2, 2005, pp. 13–24.
- “How Do Analysts’ Recommendations Respond to Major News?,” With J. Conrad, W. Landsman, and B. Roundtree. *Journal of Financial and Quantitative Analysis*, Vol. 41, No. 1, 2006, pp. 39–68.
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- “Compensation and Recruiting: Private Universities vs. Private Corporations,” *Journal of Corporate Finance*, Vol. 10, No. 1, 2004, pp. 37–52.
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- “The Information that Boards Really Need,” *Sloan Management Review*, Vol. 44, Spring 2003, pp. 71–76.
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- “The Parent Company Puzzle: When is the Whole Worth Less than the Sum of the Parts?,” With Q. Liu. *Journal of Corporate Finance*, Vol. 4, December 2001, pp. 341–366.
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- “Cash Settlement when the Underlying Securities are Thinly Traded: A Case Study,” *Journal of Futures Markets*, Vol. 17, No. 8, 1997, pp. 855–871.
- “Estimating the Cost of Equity Capital,” With J. Hirshleifer and E. James. *Contemporary Finance Digest*, Vol. 1, Fall 1997, pp. 5–26.

- “The Valuation of Complex Derivatives by Major Investment Firms: Empirical Evidence,” With A. Bernardo. *The Journal of Finance*, Vol. 52, June 1996, pp. 785–798.
- “Culture, Information, and Screening Discrimination,” With I. Welch. *Journal of Political Economy*, Vol. 104, June 1996, pp. 542–571.
- “Throwing Good Money after Bad? Cash Infusions and Distressed Real Estate,” With F. Longstaff and E. Schwartz. *Journal of the American Real Estate and Urban Economics Association*, Vol. 24, 1996, pp. 23–41.
- “An Hypothesis Regarding the Origins of Ethnic Discrimination,” *Rationality and Society*, Vol. 7, January 1995, pp. 4–29.
- “Change Reinforces Use of DCF Method,” *Natural Gas*, Vol. 11, October 1994, pp. 5–15.
- “Adverse Selection, Squeezes, and the Bid-Ask Spread on Treasury Securities,” *Journal of Fixed Income*, Vol. 3, June 1993, pp. 39–47.
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- “Liquidity and the Pricing of Low-grade Bonds,” *Financial Analysts Journal*, Vol. 48, January/February 1992, pp. 63–68.
- “Measuring the Investment Performance of Low-grade Bond Funds,” With K. Green. *The Journal of Finance*, Vol. 66, March 1991, pp. 29–48.
- “Using Finance Theory to Measure Damages in Fraud on the Market Cases,” With G. Morgan. *UCLA Law Review*, Vol. 37, No. 2, 1990, pp. 883–924.
- “The Incentive to Sue: An Option Pricing Approach,” *Journal of Legal Studies*, Vol. 17, No. 1, 1990, pp. 173–188.
- “Volume and R²,” *Journal of Financial Research*, Vol. 13, No. 13, 1990, pp. 1–7.
- “Measuring the Term Premium: An Empirical Note,” *Journal of Economics and Business*, Vol. 42, No. 1, 1990, pp. 89–93.
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- “The Mispricing of US Treasury Bonds: A Case Study,” With A. Shapiro. *The Review of Financial Studies*, Vol. 2, No. 3, 1989, pp. 297–310.
- “The Impact of Data Errors on Measurement of the Foreign Exchange Risk Premium,” *Journal of International Money and Finance*, Vol. 8, 1989, pp. 147–157.
- “Security Price Response to Quarterly Earnings Announcements and Analyst Forecast Revisions,” With W. Landsman. *The Accounting Review*, Vol. 64, October 1989, pp. 680–692.
- “Financing Corporate Growth,” With A. Shapiro. *Journal of Applied Corporate Finance*, Vol. 1, summer 1988, pp. 6–22.
- “Measuring the Cost of Corporate Litigation: Five Case Studies,” With K. Engelmann. *Journal of Legal Studies*, Vol. 17, June 1988, pp. 135–162.

- “Corporate Stakeholders and Corporate Finance,” With A. Shapiro. *Financial Management*, Vol. 16, Spring 1987, pp. 5–14.
- “The Impact on Bank Stock Prices of Regulatory Responses to the International Debt Crisis,” With A. Shapiro and W. Landsman. *Journal of Banking and Finance*, Vol. 3, 1987, pp. 161–178.
- “Pricing Interest Rate Swaps: Theory and Empirical Evidence,” *Proceeding of Conference on Swaps and Hedges*, Salomon Brothers Center, New York University, 1987.
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- “Commodity Own Rates, Real Interest Rates, and Money Supply Announcements,” With K. French. *Journal of Monetary Economics*, Vol. 18, July 1986, pp. 3–20.
- “The Reaction of Bank Stock Prices to the International Debt Crisis,” With A. Shapiro. *Journal of Banking and Finance*, Vol. 10, 1986, pp. 55–73.
- “Inflation Measurement, Inflation Risk, and the Pricing of Treasury Bills,” *Journal of Financial Research*, Vol. 9, Fall 1985, pp. 193–202.
- “Interest Rates and Exchange Rates: Some New Empirical Evidence,” With A. Shapiro. *Journal of International Money and Finance*, Vol. 4, 1985, pp. 431–442.
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- “The Income Approach to Valuation,” *Proceedings of the Wichita State University Conference on the Appraisal of Railroads and Public Utilities*, 1985.
- “The Value of Rate Base Options in the Eurocredit Market,” With O. Sand. *Journal of Bank Research*, Vol. 16, Spring 1985, pp. 22–28.
- “The Money Supply Announcements Puzzle: Review and Interpretation,” *American Economic Review*, Vol. 73, September 1983, pp. 644–658.
- “The Money Supply Announcements Puzzle: Reply,” *American Economic Review*, Vol. 75, June 1985, pp. 565–566.
- “Taxes and the Pricing of Stock Index Futures,” With K. French. *The Journal of Finance*, Vol. 38, June 1983, pp. 675–695; reprinted in *Proceedings of the Seminar for the Analysis of Securities Prices*, University of Chicago Press, 1983.
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- “Monetary Policy and the Daily Behavior of Interest Rates,” *Journal of Business and Economics*, Vol. 35, 1983, pp. 189–203.
- “Managing Exchange Risk,” With A. Shapiro. *Midland Corporate Financial Journal*, Vol. 1, Fall 1983, pp. 16–31; reprinted in *New Developments in International Finance*, J. Stern and D. Chew, eds., Basil Blackwell, New York, 1988.

- “The Pricing of Stock Index Futures,” With K. French. *Journal of Futures Markets*, Vol. 3, Fall 1983, pp. 1–14; reprinted in *Readings in Futures Markets*, Vol. 5 and in *Selected Writings on Futures Markets: Explorations in Financial Futures*; both published by the Chicago Board of Trade, 1984.
- “Money Supply Announcements, Interest Rates, and Foreign Exchange,” *Journal of International Money and Finance*, Vol. 1, 1982, pp. 201–208.
- “Forward versus Futures Prices: Evidence from the Foreign Exchange Markets,” With M. Reinganum. *The Journal of Finance*, Vol. 36, December 1981, pp. 1035–1046.
- “Taxation and the Pricing of Treasury Bill Futures,” *The Journal of Finance*, Vol. 36, December 1981, pp. 1169–1176.
- “The Relationship between Volume and Price Variability in Futures Markets,” *Journal of Futures Markets*, Vol. 1, Fall 1981, pp. 303–316.
- “Relative vs. Absolute Price Changes: An Empirical Study,” *Economic Inquiry*, Vol. 16, April 1981, pp. 302–309.
- “The Consumption Based Asset Pricing Model: A Note on Potential Tests and Applications,” *Journal of Financial Economics*, Vol. 9, March 1981, pp. 103–110.
- “Strategies for Pairwise Competitions in Markets and Organizations,” With R. Roll. *Bell Journal of Economics*, Vol. 12, Spring 1981, pp. 201–216.
- “What is the Future for Floating Rate Bonds?,” *Chase Financial Quarterly*, Vol. 1, Fall 1981, pp. 27–38.
- “The Denomination of Foreign Trade Contracts Once Again,” *Journal of Financial and Quantitative Analysis*, Vol. 5, November 1980, pp. 933–945.
- “Inflation, Relative Price Changes, and Exchange Risk,” *Financial Management*, Vol. 9, Spring 1980, pp. 30–35.
- “Asymmetric Information and Investment Performance Measurement,” *Journal of Financial Economics*, Vol. 7, December 1979, pp. 381–390.
- “Treasury Bill Pricing in the Spot and Futures Markets,” With D. Capozza. *Review of Economics and Statistics*, Vol. 61, November 1979, pp. 513–520; reprinted in *Interest Rate Futures: Concepts and Issues*, Robert Dame International, 1981.
- “A Variance Forecasting Test of the Option Pricing Model,” With D. Capozza. *Financial Review*, Vol. 7, 1979, pp. 381–390.
- “Relative Price Changes and Deviations from Purchasing Power Parity,” *Journal of Banking and Finance*, Vol. 3, 1979, pp. 263–279.
- “A Note on Capital Asset Pricing and the Theory of Indexed Bonds,” *Southern Journal of Economics*, Vol. 45, 1979, pp. 1239–1247.
- “Do Money Supply Announcements Affect Short-term Interest Rates?,” *Journal of Money, Credit, and Banking*, Vol. 11, February 1979, pp. 80–86.
- “Risk, Currency Substitution, and the Exchange Rate,” *Proceedings of the Fall 1978 Conference*, Federal Reserve Bank of San Francisco, 1978.

- “Determinants of the Bid-Ask Spread on Forward Foreign Exchange Contracts Under Floating Exchange Rates,” *Journal of International Business Studies*, Vol. 9, Fall 1978, pp. 33–41.
- “Using the Option Pricing Model to Measure the Uncertainty Producing Effect of Major Announcements,” *Financial Management*, Vol. 7, Spring 1978, pp. 54–59.
- “Price as a Signal of Quality: Some Additional Experimental Results,” *Economic Inquiry*, Vol. 16, April 1978, pp. 302–309.
- “Mean Absolute Deviation versus Least-Square Regression Estimation of Beta Coefficients,” With J. Dietrich. *Journal of Financial and Quantitative Analysis*, Vol. 13, March 1978, pp. 123–131.
- “Monetary Policy, Inflation Forecasting, and the Term Structure of Interest Rates,” *The Journal of Finance*, Vol. 33, March 1978, pp. 117–127.
- “The Efficiency of the Market for Foreign Exchange Under Floating Exchange Rates,” With J. Dietrich. *Review of Economics and Statistics*, Vol. 60, February 1978, pp. 111–120.
- “Option Pricing in Bear and Bull Markets,” *The Journal of Portfolio Management*, Vol. 4, Summer 1978, pp. 30–32.
- “Spot Rates, Forward Rates, and Exchange Market Efficiency,” *Journal of Financial Economics*, Vol. 5, August 1977, pp. 55–65; reprinted in *Frontiers in International Financial Management*, D. Lessard and J. Wiley, Eds., 1979, and in *International Finance: Concepts and Issues*, R. Kalb and G. Gay, Eds., Robert F. Dame, 1982.
- “Measuring the Informational Content of Consumer Price Announcements,” *Nebraska Journal of Economics and Business*, Vol. 16, Summer 1977, pp. 57–64.
- “Which Inflation Rate Affects Interest Rates?,” *Business Economics*, Vol. 12, May 1977, pp. 22–25. Reprinted in *Certified Financial Analysts Digest*, 1977.
- “Are Deep Discount Convertibles Underpriced?,” *The Journal of Portfolio Management*, Vol. 3, Spring 1977, pp. 55–57.
- “Using the Goldsmith-Nagan Survey to Estimate the Liquidity Premium,” *Journal of Economics and Business*, Vol. 2, February 1977, pp. 148–151.
- “Managing Money in a Competitive Securities Market,” *Arizona Review*, Vol. 25, September 1976, pp. 1–5.
- “Asset Pricing Under Uncertain Inflation: A Note on the Work of Long and Roll,” *Intermountain Economic Review*, Vol. 7, Spring 1976, pp. 85–91.
- “The Arizona Retirement System 1956–1975: An Investment Analysis,” *Arizona Review*, Vol. 25, March 1976, pp. 1–9.

Working Papers

- “Energy and Investing,” https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3343583 and <https://cornell-capital.com/blog/2019/02/energy-and-investing-a-cornell-capital-report-on-renewable-energy.html>.

Book reviews and discussion comments

- “Statistical Analysis of Price and Basis Behavior: October 12–6, 1987,” *The Stock Market: Bubbles, Volatility, and Chaos*, E. Dwyer and R. Hafer, eds., Kluwer Academic Publishers, 1990.
- Review of *Futures Markets*, *Journal of Monetary Economics*, M. Streit, ed., Vol. 16, July 1985, pp. 133–135.
- Review of “Exchange Rates and International Macroeconomics,” *Journal of International Money and Finance*, J. Frenkel, ed., Vol. 4, 1985, pp. 212–214.
- Review of “Exchange Rate Policy,” by Ray A. Batchelor and Geoffrey Wood, *Journal of Economic Literature*, Vol. 21, 1983, pp. 1027–1029.

AWARDS AND HONORS

- Bernstein Fabozzi/Jacobs Levy Award for outstanding research from *The Journal of Portfolio Management*, 2017
- Bernstein Fabozzi/Jacobs Levy Award for outstanding research from *The Journal of Portfolio Management*, 2015
- Graham and Dodd G&D Scroll Award for research on securities analysis and valuation, 2011
- Bernstein Fabozzi/Jacobs Levy Award for outstanding research from *The Journal of Portfolio Management*, 2010
- Graham and Dodd G&D Scroll Award for research on securities analysis and valuation (with Richard Roll), 2006
- I/B/E/S award for research in empirical finance (with W. Landsman and J. Conrad), 1999
- Cited as one of the 10 most prolific research authors in the field of finance in “Most Frequent Contributors to the Finance Literature” by Jean Louis Heck and Phillip L. Cooley, *Financial Management*, Autumn 1988
- Financial Management Association Prize for Applied Research
- Institute for Quantitative Research in Finance, Research Grant Center for the Study of Futures Markets, Research Grant
- Center for the Study of Futures Markets, Research Grant Chicago Mercantile Exchange, Research Grant
- Phi Beta Kappa, Stanford University

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Finance Association

Member of Board of Directors 1982–1985
Vice-President 1987

American Economic Association

American Statistical Association

Western Finance Association

SELECTED BOARD AND COMMITTEE MEMBERSHIPS

SPECIAL EDUCATION PROGRAMS

Developed a joint course with Michael Milken on the Impact of the High-Yield Debt Market on Corporate Finance and Corporate Transactions, Fall term 1992, Anderson Graduate School of Management

The U.S. Business School in Prague – Special Finance Program

The Nissan Program for Historically Black Colleges, Director

The Lead Program for Business Education of Minority High School Students

RECENT PRESENTATIONS

The Impact of Inflation on Constant Growth Measures of Value, ASA Business Valuation Conference Keynote, Chicago, IL

Conceptual Foundations of Investing, Rady Innovations in Finance Lecture Series, Rady School of Management, University of California, San Diego, April 10, 2019

Conceptual Foundations of Investing, Keynote Address at Claremont Colleges, Claremont, CA, February 15, 2019

APPENDIX B

BRADFORD CORNELL DEPOSITION, TRIAL & ARBITRATION TESTIMONY IN PAST FOUR YEARS

Case Name	Date(s)	Testimony Type
Oaktree Principal Fund V, LP., et al. v. Warburg Pincus LLC, et al.	January 2019	Deposition Testimony
In re: Dow Silicone Corporation (formerly known as Dow Corning Corporation)	September 2018	Deposition Testimony
In re: MPM Silicones, LLC	August 2018	Trial Testimony
In re: MPM Silicones, LLC	July 2018	Deposition Testimony
Ventas, Inc. v. Ernst & Young LLP	April 2018	Arbitration Testimony
In re: General Motors LLC Ignition Switch Litigation	April 2018	Deposition Testimony
BNSF Railway Company and Norfolk Southern Railway Company v. FirstEnergy Generation, LLC, f/k/a FirstEnergy Generation Corporation	February 2018	Deposition Testimony
Ventas, Inc. v. Ernst & Young, LLP	February 2018	Deposition Testimony
In re: Lehman Brothers Holdings Inc., et al.	January 2018	Trial Testimony
In re: ExamWorks Group, Inc. Stockholder Appraisal Litigation	January 2018	Deposition Testimony
In re: Lehman Brothers Holdings Inc., et al.	October 2017	Deposition Testimony
JCM Innovation Corp. and JCM American Corporation v. FL Acquisition Holdings, Inc. and American Capital, Ltd.	September 2017	Deposition Testimony
Building Materials Corporation of America v. Paramount Petroleum Corporation	August 2017	Deposition Testimony
In re: Appraisal of Solera Holdings, Inc.	June 2017	Trial Testimony
The People of the State of California, acting by and through Orange County District Attorney Tony Rackauckas v. General Motors LLC	June 2017	Deposition Testimony

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Case Name	Date(s)	Testimony Type
Behindthechair.com, Inc. v. Dean Christal, Olaplex LLC, a California limited liability company; LiQWD, Inc., a California corporation; and DOES 1-10, inclusive	June 2017	Deposition Testimony
In re: Appraisal of Solera Holdings, Inc.	May 2017	Deposition Testimony
The People of the State of California, acting by and through Orange County District Attorney Tony Rackauckas v. General Motors LLC	April 2017	Deposition Testimony
In re: Appraisal of AOL, Inc.	March 2017	Trial Testimony
Babak Hatamian, et al. v. Advanced Micro Devices, Inc., et al.	February 2017	Deposition Testimony
In re: Appraisal of AOL, Inc.	February 2017	Deposition Testimony
Tesoro Refining & Marketing Company LLC, a Delaware limited liability company, Claimant v. Demenno-Kerdoon, Inc., a California corporation, and DOES 1 through 10, inclusive, Respondents., Demenno-Kerdoon, Inc., a California corporation, and Ribost Terminal, LLC, a California limited liability company, Counterclaimants, v. Tesoro Refining & Marketing Company LLC, a Delaware limited liability company, Counter-Respondent.	January 2017	Deposition Testimony
Tesoro Refining & Marketing Company LLC, a Delaware limited liability company, Claimant v. Demenno-Kerdoon, Inc., a California corporation, and DOES 1 through 10, inclusive, Respondents., Demenno-Kerdoon, Inc., a California corporation, and Ribost Terminal, LLC, a California limited liability company, Counterclaimants, v. Tesoro Refining & Marketing Company LLC, a Delaware limited liability company, Counter-Respondent.	November 2016	Deposition Testimony
ITW Global Investments Inc. v. American Industrial Partners Capital Fund IV, L.P., American Industrial Partners Capital Fund IV (Parallel), L.P., and AIPCF IV, LLC	November 2016	Deposition Testimony

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Case Name	Date(s)	Testimony Type
ACP Master, Ltd., Aurelius Capital Master, Ltd., and Aurelius Opportunities Fund II, LLC v. Sprint Corporation, Sprint Communications, Inc., Erik Prusch, John W. Stanton, William R. Blessing, Bruce A. Chatterley, Mufit Cinali, Jose A. Collazo, Hossein Eslambolchi, Dennis S. Hersch, Brian P. McAndrews, Kathleen H. Rae, Theodore H. Schell, Jennifer L. Vogel, Slade Gorton, Starburst I, Inc. and Softbank Corp. (ACP Master, Ltd., et al. v. Clearwire Corporation)	October 2016	Trial Testimony
Tiffany and Co. v. Costco Wholesale Corp.	September 2016	Trial Testimony
Spin Master Ltd. v. Bureau Veritas Consumer Products Services, Inc. and Eurofins Product Safety Labs	September 2016	Deposition Testimony
Kraft Foods Group Brands LLC v. TC Heartland, LLC, et al.	June 2016	Deposition Testimony
Iheartcommunications, Inc., f/k/a Clear Channel Communications, Inc. v. Benefit Street Partners LLC, Providence TMT Debt Opportunity Fund II LP, Providence Debt Fund III Master (Non-US) L.P., Providence Debt Fund II, L.P., Benefit Street Partners Capital Opportunity Fund LP, PECM Strategic Funding LP, Benefit Street Credit Alpha Fund LTD, US High Yield Bond Fund, SEI Institutional Investments Trusts - High Yield Bond Fund, SEI Global Master Fund PLC - The SEI High Yield Fixed Income Fund, Schroder Gaia Canyon Capital Advisors, LLC, D.E. Shaw Galvanic Portfolios, LLC, M.H. Davidson & Co., Davidson Kempner Partners, Davidson Kempner International, Ltd., Davidson Kempner Institutional Partners, L.P., Islington Partners, L.P., Bluejay Securities LLC, Franklin Mutual Advisers, LLC, Franklin Advisers, Inc., et al.	May 2016	Trial Testimony
Iheartcommunications, Inc., f/k/a Clear Channel Communications, Inc. v. Benefit Street Partners LLC, Providence TMT Debt Opportunity Fund II LP, Providence Debt Fund III Master (Non-US) L.P., Providence Debt Fund II, L.P., Benefit Street Partners Capital Opportunity Fund LP, PECM Strategic Funding LP, Benefit Street Credit Alpha Fund LTD, US High Yield Bond Fund, SEI Institutional Investments Trusts - High Yield Bond Fund, SEI Global Master Fund PLC - The SEI High Yield Fixed	May 2016	Deposition Testimony

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Case Name	Date(s)	Testimony Type
Income Fund, Schroder Gaia Canyon Capital Advisors, LLC, D.E. Shaw Galvanic Portfolios, LLC, M.H. Davidson & Co., Davidson Kempner Partners, Davidson Kempner International, Ltd., Davidson Kempner Institutional Partners, L.P., Islington Partners, L.P., Bluejay Securities LLC, Franklin Mutual Advisers, LLC, Franklin Advisers, Inc., et al.		
Iheartcommunications, Inc., f/k/a Clear Channel Communications, Inc. v. Benefit Street Partners LLC, Providence TMT Debt Opportunity Fund II LP, Providence Debt Fund III Master (Non-US) L.P., Providence Debt Fund II, L.P., Benefit Street Partners Capital Opportunity Fund LP, PECM Strategic Funding LP, Benefit Street Credit Alpha Fund LTD, US High Yield Bond Fund, SEI Institutional Investments Trusts - High Yield Bond Fund, SEI Global Master Fund PLC - The SEI High Yield Fixed Income Fund, Schroder Gaia Canyon Capital Advisors, LLC, D.E. Shaw Galvanic Portfolios, LLC, M.H. Davidson & Co., Davidson Kempner Partners, Davidson Kempner International, Ltd., Davidson Kempner Institutional Partners, L.P., Islington Partners, L.P., Bluejay Securities LLC, Franklin Mutual Advisers, LLC, Franklin Advisers, Inc., et al.	April 2016	Trial Testimony
Iheartcommunications, Inc., f/k/a Clear Channel Communications, Inc. v. Benefit Street Partners LLC, Providence TMT Debt Opportunity Fund II LP, Providence Debt Fund III Master (Non-US) L.P., Providence Debt Fund II, L.P., Benefit Street Partners Capital Opportunity Fund LP, PECM Strategic Funding LP, Benefit Street Credit Alpha Fund LTD, US High Yield Bond Fund, SEI Institutional Investments Trusts - High Yield Bond Fund, SEI Global Master Fund PLC - The SEI High Yield Fixed Income Fund, Schroder Gaia Canyon Capital Advisors, LLC, D.E. Shaw Galvanic Portfolios, LLC, M.H. Davidson & Co., Davidson Kempner Partners, Davidson Kempner International, Ltd., Davidson Kempner Institutional Partners, L.P., Islington Partners, L.P., Bluejay Securities LLC, Franklin Mutual Advisers, LLC, Franklin Advisers, Inc., et al.	March 2016	Deposition Testimony
Sequoia Pacific Solar I, LLC v. United States	March 2016	Deposition Testimony

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Case Name	Date(s)	Testimony Type
Lawrence E. Jaffe Pension Plan, On Behalf of Itself and All Others Similarly Situated v. Household International, Inc., et al.	March 2016	Deposition Testimony
Tinicum Capital Partners II, L.P., and Tinicum Capital Partners II Parallel Fund, L.P. v. Liberman Broadcasting, Inc., Lenard Liberman, Jose Liberman, Winter Horton, Rockard J. Delgadillo, and Peter Connoy	February 2016	Deposition Testimony
Move, Inc., RealSelect, Inc., Top Producer Systems Company, National Association of Realtors, Realtors Information Network, Inc. v. Zillow, Inc., Errol Samuelson, Curt Beardsley, and DOES 1-20	February 2016	Deposition Testimony
ACP Master, Ltd., Aurelius Capital Master, Ltd., and Aurelius Opportunities Fund II, LLC v. Sprint Corporation, Sprint Communications, Inc., Erik Prusch, John W. Stanton, William R. Blessing, Bruce A. Chatterley, Mufit Cinali, Jose A. Collazo, Hossein Eslambolchi, Dennis S. Hersch, Brian P. McAndrews, Kathleen H. Rae, Theodore H. Schell, Jennifer L. Vogel, Slade Gorton, Starburst I, Inc. and Softbank Corp. (ACP Master, Ltd., et al. v. Clearwire Corporation)	November 2015	Deposition Testimony
In re: The Boeing Company and Boeing Commercial Space Company v. KB Yuzhnoye; PO Yuzhnoye; Mashinostroitelny Zavod; S.P. Korolev Rocket and Space Corporation; Energia D/B/A Rocket and Space Corporation Energia After S.P. Korolev; Energia Overseas LLC; and Energia Logistics Ltd.	November 2015	Trial Testimony
In re: Caesars Entertainment Operating Company, Inc., Debtor	October 2015	Trial Testimony
In re: Appraisal of Dell, Inc.	October 2015	Trial Testimony
In re: the Marriage of: Kenneth C. Griffin and Anne Dias Griffin	October 2015	Deposition Testimony
In re: Caesars Entertainment Operating Company, Inc., Debtor	September 2015	Deposition Testimony
Building Materials Corporation of America v. Paramount Petroleum Corporation	September 2015	Deposition Testimony

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Case Name	Date(s)	Testimony Type
The Nutro Company v. Paragon Pet Products USA, Inc., et al.	August 2015	Deposition Testimony
In re: Appraisal of Dell, Inc.	August 2015	Deposition Testimony
In re: Surface Transportation Board Docket No. EP 722 & EP 664 (Sub-No. 2)	July 2015	Hearing Testimony
Magnetar Global Event Driven Master Fund Ltd., et al. v. CEC Entertainment, Inc.	June 2015	Deposition Testimony
In re: The Boeing Company and Boeing Commercial Space Company v. KB Yuzhnoye; PO Yuzhnoye; Mashinostroitelny Zavod; S.P. Korolev Rocket and Space Corporation; Energia D/B/A Rocket and Space Corporation Energia After S.P. Korolev; Energia Overseas LLC; and Energia Logistics Ltd.	May 2015	Deposition Testimony
In re: the Marriage of: Kenneth C. Griffin and Anne Dias Griffin	April 2015	Deposition Testimony
Georgia-Pacific Consumer Products LP, et al. v. NCR Corporation, et al.	March 2015	Deposition Testimony

ASSOCIATIONS EXHIBIT No. A-2

Exhibit No. A-2

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Inquiry Regarding the Commission's Policy for) Docket No. PL19-4-000
Determining Return on Equity)

Affidavit of Michael P. Gorman

On behalf of the Associations:
Aluminum Association,
American Chemistry Council,
American Forest and Paper Association,
American Public Power Association,
Electricity Consumers Resource Council,
Industrial Energy Consumers of America,
National Rural Electric Cooperative Association, and
Transmission Access Policy Study Group

June 26, 2019

FERC Docket No. PL19-4-000
Affidavit of Michael P. Gorman
Exhibit No. A-2
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Affidavit of Michael P. Gorman

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Affidavit of Michael P. Gorman

1 Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140,
3 Chesterfield, MO 63017.

4 Q WHAT IS YOUR OCCUPATION?

5 A I am a consultant in the field of public utility regulation and a Managing Principal of
6 Brubaker & Associates, Inc., energy, economic and regulatory consultants.

**7 Q PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND
8 EXPERIENCE.**

9 A This information is included in Appendix A to this Affidavit.

10 Q ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?

11 A This testimony is presented on behalf of the Aluminum Association, American
12 Chemistry Council, American Forest and Paper Association, American Public Power
13 Association, Electricity Consumers Resource Council, Industrial Energy Consumers
14 of America, National Rural Electric Cooperative Association, and Transmission
15 Access Policy Study Group (collectively, “Associations”).

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1 **Q WHAT IS THE PURPOSE OF YOUR AFFIDAVIT?**

2 A I will respond to specific questions included in the Federal Energy Regulatory
3 Commission (“FERC” or “Commission”) Notice of Inquiry (“NOI”) regarding the
4 Commission’s policy for determining a return on equity (“ROE”).

5 **Performance of the DCF Model**

6 **Q DOES THE COMMISSION LIST THE INFORMATION IT SEEKS ON**
7 **PERFORMANCE OF THE DCF MODEL?**

8 A Yes. The Commission is seeking several comments concerning the results of a
9 Discounted Cash Flow (“DCF”) model over time under different investment
10 conditions, including the following:

- 11 1. C1. The DCF model assumes stock prices are equal to the present value of future
12 cash flows. Is there evidence of situations when these assumptions are inaccurate?
- 13 2. C2. Have current and projected proxy group earnings over the last 10 to 20 years
14 increased in a manner that would justify any increase in their stock price over the
15 same period, consistent with DCF model assumptions?
- 16 3. C3. Does the DCF methodology perform over a wide range of interest rate
17 conditions?
- 18 4. C3.a. What specific assumptions of the DCF model, if any, do not work well in
19 low or high interest rate environments?
- 20 5. C3.b. Is there evidence that the volatility of price-to-earnings (“P/E”) ratios over
21 the last 10 to 20 years, assumed to be consistent with DCF methodology, has been
22 driven by wide swings in interest rates over this period? If so, would the constant
23 P/E assumption impact the award of reasonable ROE?

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1 **C1.**

2 **Q THE DCF MODEL ASSUMES STOCK PRICES ARE EQUAL TO THE**
3 **PRESENT VALUE OF PROJECTED FUTURE CASH FLOWS. IS THERE**
4 **EVIDENCE OF SITUATIONS WHEN THESE ASSUMPTIONS ARE**
5 **INACCURATE?**

6 **A** No, the DCF model is reliable in all markets. Because stock market prices efficiently
7 incorporate relevant available information, they recognize that utilities' cash flows can
8 vary over time, and also recognize that growth outlooks can change based on market,
9 industry and company factors. Observable stock prices do reflect the expected present
10 value of future cash flows, in all markets. This is not surprising, as rights to expected
11 future cash flows are what investors acquire by paying present market prices for a
12 stock.

13 Again, the DCF model is reliable and accurately tracks securities valuation
14 across various market conditions. The DCF model is particularly appropriate for
15 utility companies because dividends are a primary driver of annual returns and
16 volatility of returns. A significant component of total expected annual investor return
17 for making investments in utility stocks is derived from annual dividends, with the
18 remainder of the expected return made up of expected growth – growth in earnings,
19 dividends and stock price. Equity analysts' assessment of utility stock investments
20 include considerable detail on a company's ability to pay dividends and ability to grow
21 earnings and dividends over time. Indeed, in large part, utility executives' periodic
22 earnings call meetings with security analysts focus significantly on rate base growth,

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1 ability to pay and grow dividends, and the stability and predictability of cash flows
2 needed to meet the utility's obligations, including dividend payments.¹

3 Market participants view utility stocks as a hybrid investment that offers
4 investors both periodic cash returns (dividends) and stock price appreciation. These
5 periodic cash returns tend to align with market interest rates, and growth outlooks
6 largely track factors that drive earnings growth. For the operating utility subsidiaries
7 of publicly-traded "utility" stocks, these earnings growth factors prominently include
8 rate base or capital investment growth. The valuations and P/E ratios of the parent
9 stocks are affected by growth in earnings, changes in market interest rates, and other
10 factors.² Anticipated dividend payments are a primary factor used by market
11 participants to assess risks and expected return for investments in utility stocks.

12 The DCF model values utility stock based on anticipated dividend payments,
13 market interest rates and growth outlooks, or, when solved in the other direction for
14 regulatory purposes, solves for the discount rate that aligns anticipated dividend
15 payments with current stock market prices. Thus, the DCF model provides a
16 straightforward way of evaluating an economically logical valuation or expected
17 return for utility stocks.

¹*S&P Global Ratings Industry Top Trends 2019: "North America Regulated Utilities,"* November 8, 2018, provided as Exhibit No. A-3, pages 1-6.

²*Id.*

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1 Q PLEASE EXPLAIN WHY A DCF MODEL IS PARTICULARLY
2 APPROPRIATE FOR UTILITY STOCKS.

3 A Again, the valuation and expected return outlooks for utility investments are derived
4 based on dividend payments. The significance of a dividend portion of a return for a
5 utility company versus that of the overall market illustrates this point very clearly.

This is illustrated in Table 1 below. Based on the Edison Electric Institute Utility Index (“EEI Index”),³ I show the annual return experienced by this electric utility index over the last five years in comparison to the S&P 500. The total annual return is based on the two factors: (1) change in stock price from end of year to beginning of year; and (2) dividend income. As shown below in Table 1, return on the EEI Index over this 11-year period has actually exceeded the total return on the S&P 500. But more important, the annual return on utility stocks is far more stable than that of general market investments, as proxied by the S&P 500.

³The EEI Index is composed of 32 electric utility companies that are publicly traded, and are largely holding companies for electric utilities. Developing the index above relied on all utility companies that had data available over the period 2008-2018 and consistently paid dividends during this time period.

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TABLE 1**Total Investment Return**

Edison Electric Index (EEI)			S&P 500		
Year	Total	Dividend	Year	Total	Dividend
2018	5.99%	3.33%	2018	-4.38%	1.98%
2017	18.00%	3.60%	2017	21.83%	2.02%
2016	21.30%	3.97%	2016	11.96%	2.21%
2015	-4.88%	3.44%	2015	1.38%	2.13%
2014	39.22%	4.40%	2014	13.69%	2.06%
2013	7.69%	4.39%	2013	32.39%	2.15%
2012	17.64%	4.90%	2012	16.00%	2.29%
2011	8.32%	4.79%	2011	2.11%	2.11%
2010	14.30%	5.02%	2010	15.06%	2.02%
2009	-27.31%	3.37%	2009	26.46%	2.44%
2008	9.31%	3.53%	2008	-37.00%	2.42%
Average	10.0%	4.1%	Average	9.05%	2.17%
Std. Dev.	16.6%	0.7%	Std. Dev.	18.80%	0.16%

Source: Exhibit No. A-4

1 Utility stock dividends stabilize the total annual returns on utility stocks. This
 2 variability reduction is evident by the lower standard deviation of annual returns.
 3 Hence, the investment risk of an electric utility is lower than the overall market, as
 4 proxied by the S&P 500, because the returns are more stable.

5 More specifically, for utility stocks, over 40% of the total annual return is
 6 produced through dividend payments. In contrast, for the S&P 500, dividend payments
 7 represent approximately 20% of annual returns. Further, because annual investment

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1 returns on utility stocks are largely tied to the dividends, the variability of the stock
2 price annual return is also reduced. This reduction results because compensation to
3 utility investors is largely produced through more stable and predictable dividend
4 payments compared to the market in general. In contrast, investors in the broader
5 stock market expect much lower compensation from dividend payments and are more
6 focused on growth in stock price, which is driven by future earnings and market
7 factors rather than more heavily weighted toward far more stable annual dividend
8 returns.

9 **Q WHY DOES THIS ILLUSTRATION OF ANNUAL RETURNS**
10 **DEMONSTRATE THAT THE DCF MODEL IS PARTICULARLY**
11 **APPROPRIATE FOR REGULATED UTILITY STOCK INVESTMENTS?**

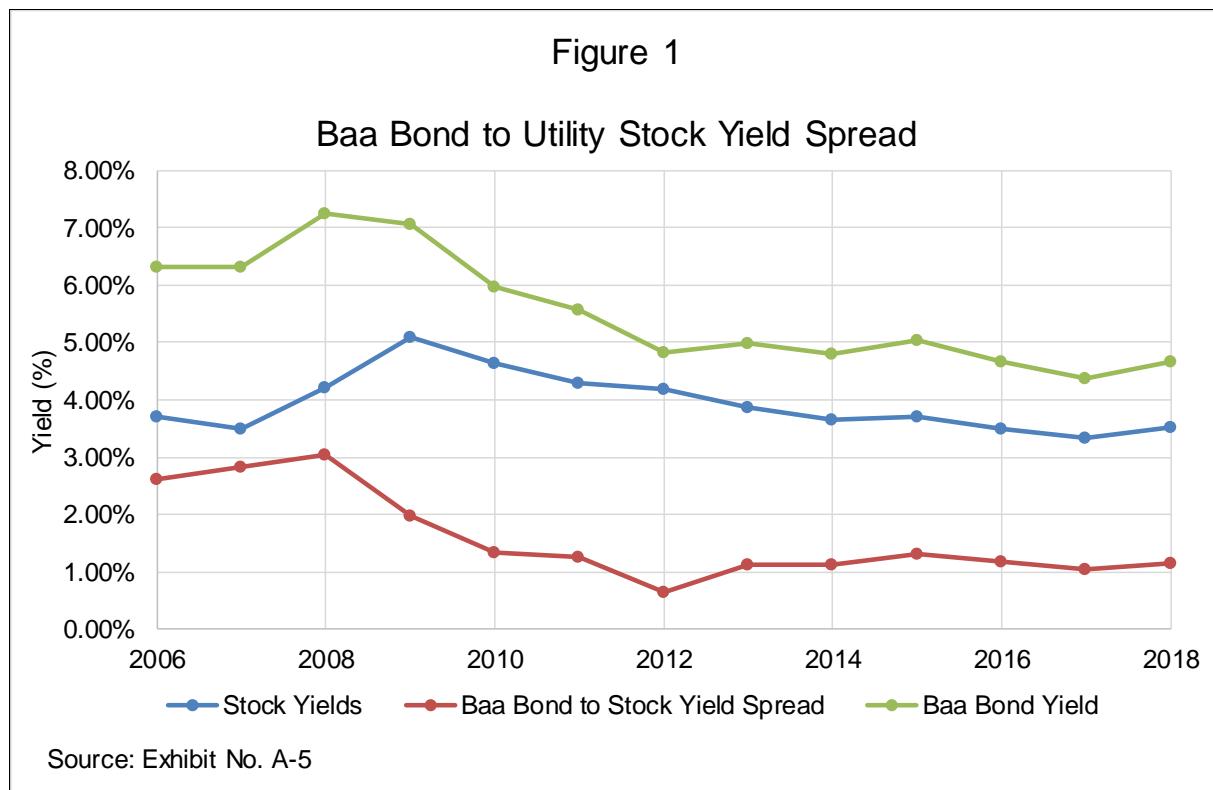
12 **A** A valuation model, like the DCF, that focuses predominantly on dividend cash flows
13 is the key valuation factor for assessing a utility stock investment. Moreover, in
14 applying the DCF model, the aspect that requires inferences about what investors
15 expect concerns future growth — not present dividend yields, which are visible.
16 When making comparisons across stocks, the greater the share of investors' total
17 expected near-term return that derives from dividends rather than capital appreciation,
18 the smaller the relative effect of any error in inferring future growth. Consequently,
19 the DCF model is especially reliable for stocks with relatively high dividend yields,
20 which utility stocks generally have.

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1 Q **PLEASE EXPLAIN WHY YOU BELIEVE UTILITY STOCK YIELDS MOVE
 2 IN RELATIONSHIP TO CHANGES IN MARKET INTEREST RATES AND
 3 THUS SUPPORT THE ACCURACY AND RELIABILITY OF THE DCF
 4 MODEL.**

5 A There is a consistent and reliable spread between utility stock yields and utility bond
 6 yields that support this conclusion. Utility stocks and bonds are two competing
 7 investments that provide annual income return to investors. Because bond yields track
 8 changes in market interest rates, and utility stock yields track changes in utility bond
 9 yields, this is clear evidence that utility stock valuations are impacted by interest rate
 10 changes.

11 This relationship is illustrated in Figure 1 below.



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1 As shown in Figure 1, since 2010, the yield spreads between utility stocks and
2 utility bonds have averaged 1.13% and have held rather steady near that level. The
3 graph shows some volatility during earlier periods of market distress, such as 2007-
4 2008. Excluding these periods of market distress, however, shows that the variation in
5 yield spread between utility bonds and utility stock dividend yields has been tight, in
6 the range of 0.63%–1.29%. The annual nominal and real spread of utility stocks and
7 utility bonds is shown on my Exhibit No. A-5, page 1.

8 This is evidence that utility stock values do respond to changes in market
9 interest rates. From a DCF perspective, a dividend yield on a utility stock does change
10 with changes in market interest rates. Hence, a DCF model is a reasonable model in
11 both high and low interest rate environments, because the utility stock value will
12 change in order to adjust the yield to correspond with prevailing interest rate market
13 levels. This conclusion is economically logical, because utility stocks are hybrid
14 investments that produce both annual returns, similar to a fixed investment vehicle
15 such as a bond, but they also provide growth similar to a stock investment.

16 **Q WHY DO YOU BELIEVE THAT THE DCF MODEL IS APPROPRIATE BUT
17 MAY NEED TO REFLECT CHANGES IN RELATIONSHIPS BETWEEN
18 DIVIDEND GROWTH, STOCK PRICE, AND EARNINGS?**

19 **A** The DCF model can accommodate both constant growth outlooks and non-constant
20 multi-growth outlooks. Under a constant growth model, the DCF model assumes that

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1 dividends grow at the same rate indefinitely.⁴ However, under non-constant growth
2 periods, the model can be constructed to reflect dividends growing over an
3 intermediate period at a rate that could not be sustained long-term, followed by a
4 return to steady-state or constant growth at some point in the future. When this
5 occurs, the DCF model can accommodate changing market and valuation factors, such
6 as changing P/E ratios, variation in interest rates, and changing growth outlooks.

7 Under a constant growth DCF model, the investor-required return is measured
8 based on the following:

$$K = (D_1 \div P) + G \quad \text{Equation 1}$$

Where:

K = Required Return

D₁ = Dividend After Investment

P = Price of Stock

G = Growth

15 Equation 1 above can produce different results over time based on changes to
16 the dividend and dividend growth. Under the constant growth model, D_1 is expected
17 to reflect a constant payout ratio of earnings such that D is equal to earnings times 1
18 minus earnings retention ratio. If, however, a utility is retaining more earnings in
19 order to fund abnormal rate base growth, or is paying out a larger percentage of
20 earnings, because the earnings are not needed in the utility, the utility's dividend
21 payout ratio can change over time. This changing dividend payout ratio can cause a
22 period of non-constant growth for the utility or, conversely, a period of above-average
23 growth.

⁴Exhibit No. A-3, pages 9-10.

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1 From a valuation perspective, the DCF model is stated as follows:

2 $P_0 = D_1 \div (K - G)$ Equation 2

3 Where:

4 P = Stock Price
5 D = Dividend After Investment
6 K = Required Return
7 G = Growth

8 As shown in the equation above, if the growth increases, then stock price, P,
9 will increase, because the denominator of the equation will increase, and vice versa,
10 all else equal. Therefore, changing growth outlooks can change the valuation of a
11 utility stock and impact valuation metrics, such as P/E ratios.

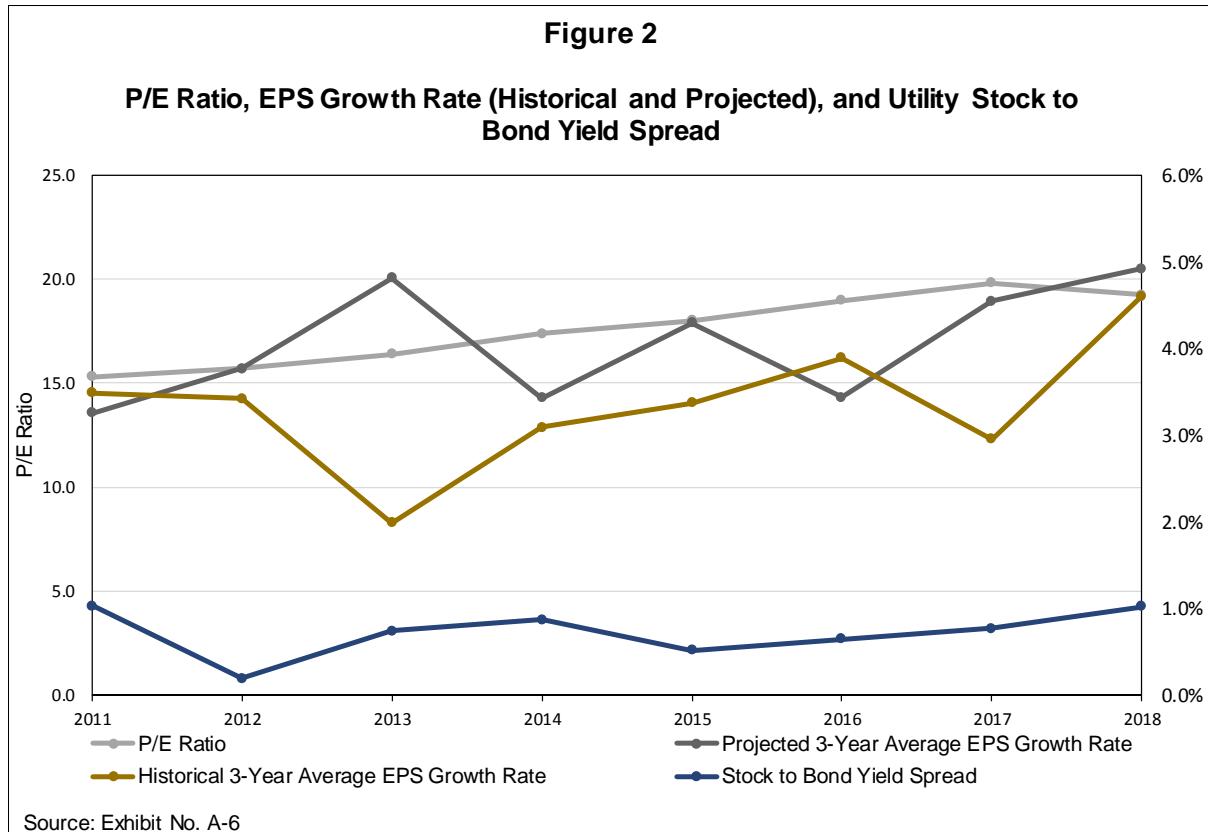
12 **C2.**

13 **Q HAVE CURRENT AND PROJECTED PROXY COMPANY EARNINGS OVER**
14 **THE LAST 10 TO 20 YEARS INCREASED IN A MANNER THAT WOULD**
15 **JUSTIFY ANY INCREASES IN THEIR STOCK PRICES OVER THE SAME**
16 **PERIOD, CONSISTENT WITH DCF MODEL ASSUMPTIONS?**

17 A Yes. Changes in stock price have followed changes in interest rates and changes in
18 utility stock growth outlooks. Therefore, utility proxy groups made up of the utility
19 industry proxy companies do track those companies' earnings. This is illustrated in
20 Figure 2 below. On this figure, I track P/E ratios for the Electric Utility Index in
21 comparison to a three-year average historical earnings growth rate and a three-year
22 projected earnings growth rate for the same companies. As shown on this graph
23 below, the historical and projected earnings increase as the P/E ratio increases. This is

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1 a clear indication that, as utility companies modify their dividend payout ratios and the
 2 earnings growth outlooks change, the stock price accommodates this changing growth
 3 outlook and the P/E ratio adjusts.



4 Figure 2 above also illustrates that earnings outlooks for utility companies
 5 based on historical and projected growth rates change regularly over time, with a
 6 corresponding change in the stock P/E ratio. As the graph shows, earnings outlooks
 7 are not constant over time, but change based on changes in market, industry, and
 8 company-specific factors. As a result, the changing outlook for earnings growth and
 9 historical earnings growth over time illustrates the importance of critically reviewing
 10 whether or not a constant growth or a multi-growth stage DCF model will produce a

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1 more accurate estimate of the current market ROE. The graph also shows the
2 influence changing interest rates have on P/E ratios, as the yield spread between utility
3 stock and bond yields generally aligns with changes in P/E ratios and somewhat
4 offsets the uncertainty about future earnings outlooks.

5 **C3.**

6 **Q HOW DOES THE DCF METHODOLOGY PERFORM OVER A WIDE**
7 **RANGE OF INTEREST RATE CONDITIONS?**

8 **A** Utility stock valuations are impacted by changes in market interest rates. Hence, the
9 DCF model accurately tracks changes in utility valuation and required return based on
10 changes to market interest rates, as well as changes in growth.

11 Utility stock yield spreads to utility bond yields typically track within a
12 relatively narrow range, except during periods of distressed markets, as shown above
13 in Figure 1. The utility stock/bond yield spread is predictable, and it has a strong
14 correlation to market interest rates. Because the DCF model is primarily driven by
15 dividends, and the utility stock yield tracks market interest rates, it is economically
16 logical to conclude that the DCF model produces reliable results over ranges in market
17 interest rates, *i.e.*, in both high and low interest rate environments, for utility
18 companies.

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1 **C3.a.**

2 **Q WHAT SPECIFIC ASSUMPTIONS OF THE DCF MODEL, IF ANY, DO NOT**
3 **WORK WELL IN LOW OR HIGH INTEREST RATE ENVIRONMENTS?**

4 **A** The DCF model produces economically logical results in both high and low interest
5 rate markets. However, a specific form of the DCF model that relies on constant
6 growth will not work well if the constant growth rate is taken directly from near-term
7 projections of per-share earnings growth that are not intended as long-term projections
8 or are not sustainable as long-term dividend growth rates.

9 **C3.b.**

10 **Q IS THERE EVIDENCE THAT THE VOLATILITY OF PRICE-TO-EARNINGS**
11 **RATIOS OVER THE LAST 10 TO 20 YEARS, ASSUMED TO BE CONSTANT**
12 **IN THE DCF METHODOLOGY, HAS BEEN DRIVEN BY THE WIDE**
13 **SWINGS IN INTEREST RATES OVER THIS PERIOD? IF SO, WOULD THE**
14 **CONSTANT P/E ASSUMPTION IMPACT THE AWARD OF REASONABLE**
15 **ROEs?**

16 **A** Yes, utility stock prices do react to changes in interest rates and changes in growth
17 outlooks. When the DCF model is applied, it is based on the current valuation of
18 stock based on current market conditions which reflect both current and
19 expected interest rate outlooks, as well as the utility's growth outlook. The DCF
20 model can accurately capture these market outlooks and will reliably estimate the
21 investor required return implied by the market's valuation of the investment.

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1 However, the assumption of constant or non-constant growth needs to be captured in
2 properly modeling the current market outlook in order to develop a DCF model which
3 accurately estimates valuation and/or return requirements. The changes in valuation in
4 past periods are irrelevant for establishing the current valuation and market required
5 return that are built into observable utility stock price. Therefore, the DCF model
6 must be based on current relevant market-, industry-, and company-specific factors.

7 Market conditions do change, as do utility stock valuations and investors'
8 required returns. These are not constant over time as implied by the question. Rather,
9 as capital market conditions change, the market's appetite for risky investments is
10 impacted by general market conditions, and the market's valuation of stocks based on
11 investment risk differentials will impact the valuation of all market securities,
12 including utility stocks.

13 **Proxy Groups**

14 **Q PLEASE DESCRIBE THIS SECTION OF YOUR AFFIDAVIT.**

15 A I will respond to the following questions included in the Commission's NOI:

- 16 1. D1. Should proxy groups for electric utilities, as well as natural gas and oil
17 pipelines, consist only of companies with corresponding regulated businesses?
- 18 2. D1.b. Are the corresponding proxy groups sufficiently large given the continued
19 consolidation in the industries?
- 20 3. D2.a. Should the Commission approach to proxy group selection change
21 depending on which financial models it considers when determining a just and
22 reasonable ROE, and if so, how?

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1 **D1**

2 **Q SHOULD PROXY GROUPS FOR ELECTRIC UTILITIES, AS WELL AS**
3 **NATURAL GAS AND OIL PIPELINES, CONSIST ONLY OF COMPANIES**
4 **WITH CORRESPONDING REGULATED BUSINESSES?**

5 **A** Yes. The proxy group should be an accurate proxy to the subject
6 company's/companies' comparable investment risk, and the market return derived
7 from the proxy group should represent fair compensation for the subject utility
8 company's market required return. The proxy companies should be limited to
9 companies that operate in (and are viewed by investors as operating in) the same
10 industry. This is critical, because observable risk parameters may not appropriately
11 describe differences in investment characteristics for securities that reflect different
12 industry groups.

13 This is evidenced by several factors, including the following:

- 14 1. Two securities can have the same bond rating, but observable risk and required
15 market returns by market participants can be very different.
- 16 2. Regulated utility companies generally have investment return outlooks for
17 investors that are more stable and predictable for non-regulated companies, even if
18 they have the same bond rating.

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1 **Q PLEASE EXPLAIN THE MARKET EVIDENCE THAT SHOWS THAT TWO**
2 **SECURITIES CAN HAVE THE SAME BOND RATING, BUT THEIR**
3 **INVESTMENT RISK AND MARKET-REQUIRED RETURNS CAN BE VERY**
4 **DIFFERENT.**

5 **A** This is shown in Exhibit No. A-5, page 2. There, a U.S. Treasury security with a bond
6 rating of AAA can be compared to a AAA-rated corporate bond. As shown on this
7 exhibit, while both securities have the same bond rating, the yield on a 30-year
8 Treasury bond has been 84 basis points lower than the yield on a AAA-rated corporate
9 bond. (Column 8, line 41).

10 Spreads between utility and corporate Baa bond yields also vary over time,
11 largely tracking the market's appetite for more risky or less risky investments.
12 Specifically, as shown under Column 10, the Baa yield spread over a four-year period
13 is relatively neutral; however, the spread has ranged between 10 to 20 basis points
14 since 2008, a period of the last recession followed by a period where the market
15 generally paid a premium for more stable, less risky investments. During this time
16 period, Baa-rated utility bond yields were sold in the market at a lower yield than Baa
17 corporate bond yields. Again, this is observable market evidence that, while risk
18 factors may suggest risk comparability, the market valuation of the security suggests
19 that utilities fall into a grouping of low-risk stable investments and are priced
20 differently than general corporate securities.

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1 Q PLEASE EXPLAIN WHY THE RETURN OUTLOOKS FOR REGULATED
2 COMPANIES CAN BE VERY DIFFERENT FROM A DEREGULATED
3 COMPANY, EVEN IF THEY HAVE THE SAME BOND RATING.

4 A This was illustrated above in my Table 1. As shown in that table, utility stock total
5 annual returns are materially impacted by the payment of annual dividends, which
6 reduce both annual return volatility and utility annual return relative to the total returns
7 on the general market. Indeed, dividend payments represent 40% to 50% of the
8 annual return on utility stocks which is much more significant than the dividend
9 component of the annual return for general stock investments – approximately average
10 20% of the annual return over time.

11 D1.b.

12 Q ARE THE CORRESPONDING PROXY GROUPS SUFFICIENTLY LARGE
13 GIVEN THE CONTINUED CONSOLIDATION IN THE INDUSTRIES?

14 A Yes. While the number of independent companies in the industry for regulated
15 electric and gas industry have been contracting, the number of *The Value Line*
16 *Investment Survey* (“Value Line”) universe regulated utility companies available to
17 select a comparable risk proxy group is still adequate to produce a reliable estimate of
18 the current market cost of equity for regulated utility companies.

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1 **D2.a.**

2 **Q SHOULD THE COMMISSION'S APPROACH TO PROXY GROUP**
3 **SELECTION CHANGE DEPENDING ON WHICH FINANCIAL MODELS IT**
4 **CONSIDERS WHEN DETERMINING THE JUST AND REASONABLE ROE**
5 **AND, IF SO, HOW?**

6 **A** Not if the financial models used are market-based. The selection of a proxy group
7 should be an effort to identify publically traded companies that have similar
8 investment risk to that of the subject company. The market-based model used to
9 estimate the required return from the proxy group should not be a factor in
10 establishing parameters which are used to develop the proxy group selection.
11 However, both market factors used to identify proxy group companies of comparable
12 risk and data input and models used to estimate an ROE from those proxy groups
13 should all be based on economically logical factors that will support the development
14 of an ROE that reasonably captures investors' return requirements.

15 I do not recommend use of the non-market-based "Expected Earnings" model
16 based on forecast Earnings/Book ("E/B") ratios. If that model were to be used,
17 however, it would need to be limited to proxies with market/book ratios resembling
18 those of operating utilities, i.e., ratios near unity. Otherwise, the utilized E/B ratios
19 will not be comparable to the expected E/B ratios of operating utilities.

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1 **D4.**

2 **Q IS IT NECESSARY EXCLUDE OUTLIER PROXY RESULTS?**

3 A Given a large proxy group, outlier tests are needed if decisional significance is placed
4 on the range (as distinguished from distribution) of proxy results. In that event, the
5 *Coakley* Briefing Order identified for consideration possible low and high outlier tests.
6 However, if the proxy group is large and the only effect of including a low (or high)
7 outlier is to shift the identified median to the next lowest (or highest) value in the
8 central portion of the distribution of proxy results, I would question whether any
9 outliers should be excluded, because in that case no significance is being placed on the
10 outlier's specific value; its use is as if the outlier value were adjusted to be set equal to
11 the nearest proxy result that is found to be logical and retained.

12 **Q ASSUMING OUTLIER TESTS ARE NEEDED, WHAT, IF ANY, ARE
13 APPROPRIATE LOW-END OUTLIER TESTS?**

14 A. For approximately a decade, in numerous cases, the Commission has employed a
15 low-end outlier test equal to the applicable utility bond yield plus 100 basis points. In
16 its Opinion No. 531 at P 122, the Commission explained that:

17 The purpose of the low-end outlier test is to exclude from the proxy
18 group those companies whose ROE estimates are below the average
19 bond yield or are above the average bond yield but are sufficiently low
20 that an investor would consider the stock to yield essentially the same
21 return as debt.

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1 Requiring a 100 basis point margin over prevailing bond yields is a reasonable way to
2 identify proxy group companies whose stock returns are distinguishable from utility
3 bond returns.

4 **Q PLEASE EXPLAIN.**

5 A No matter the market condition, a 100 basis point difference is significant to investors
6 and sufficiently large to distinguish the return on a proxy's equity from a bond yield.
7 In any event, yield spreads for utility stock dividends over utility bond yields are
8 relatively stable during most markets. The only notable exception would be during
9 distressed markets where the market demands abnormal risk premiums to invest in
10 securities of greater risk.

11 **Q DOES OBSERVABLE MARKET EVIDENCE DEMONSTRATE THAT RISK
12 PREMIUMS DO NOT VARY WIDELY ACROSS CHANGES IN INTEREST
13 RATE LEVELS OVER TIME?**

14 A Yes. Valuation changes for bonds and stock securities across various market
15 conditions and changes in interest rate levels can be observed by comparing the yield
16 spread of utility stock dividend yields versus utility bond yields. In most market
17 conditions, these Baa bond yield spreads versus utility stock yield are relatively stable.
18 This is an important and observable distinction in risk premiums. Specifically, bond
19 yield spreads change as bond prices are revalued based on investment risk and income
20 requirements. As such, the market's response to changing interest rates is reflected in

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1 bond yields. Investors' responses to market changes involving investment risk
2 characteristics, such as changes in interest rates, also impact stock valuation. As
3 utility stock value increases or decreases, the yield adjusts with the change in stock
4 price, because dividend payments are relatively stable. As such, risk premium
5 changes from Baa bond yields versus utility stock yields can be observed by simply
6 tracking the spread between Baa bond yields and utility stock dividend yields.

7 This spread is shown above in Figure 1. Importantly, only during times of
8 significant market distress does it widen substantially. In most market conditions, this
9 Baa bond vs. stock dividend spread generally hovers around 100 basis points, which
10 equals the Commission's minimum risk premium for utility stock versus utility bonds.
11 This is illustrated above in Figure 1.

12 As illustrated in Figure 1 above, a minimum DCF return spread over a Baa
13 bond yield of 100 basis points implies that the DCF return needs at least a 200-basis
14 point growth component, if the yield spread for Baa bonds to stock is 100 basis points.
15 This implied minimum growth component is approximately equal to the long-term
16 inflation projections made by the target for the Federal Reserve.⁵ For these reasons,
17 the Commission's threshold test of a 100-basis point risk premium for utility stock
18 return versus Baa utility bond yield is economically logical.

19 Generally, using a constant spread over an "A" bond yield would also produce
20 a meaningful low-end estimate to describe the difference between an economically
21 logical stock expected return versus a bond expected return. In either instance, the

⁵Federal Reserve Board Press Release: "Federal Reserve issues FOMC statement of longer-run goals and policy strategy," January 25, 2012, provided as Exhibit No. A-3, pages 17-18.

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1 yield spreads are relatively stable, at least in terms of measuring the low-end point,
2 where the return on the stock is no longer distinguishable from the return on the bond.

3 **D4.a.**

4 **Q THROUGH APPLICATION OF A LOW-END OUTLIER TEST THE**
5 **COMMISSION CURRENTLY EXCLUDES FROM THE PROXY GROUP**
6 **COMPANIES WHOSE ROE FAILS TO EXCEED THE AVERAGE 10-YEAR**
7 **BOND YIELD BY APPROXIMATELY 100 BASIS POINTS. SHOULD THE**
8 **LOW-END OUTLIER TEST CONTINUE TO BE BASED ON A FIXED**
9 **VALUE RELATIVE TO THE COSTS OF DEBT OR (A) SHOULD IT BE**
10 **BASED ON ITS VALUE RELATIVE TO THE MEDIAN (I.E., LESS THAN**
11 **50 PERCENT OF THE MEDIAN); OR (B) STILL REFLECT THE COST OF**
12 **DEBT BUT VARY BASED ON INTEREST RATES?**

13 **A For the reasons outlined above, a 100 basis point spread is reasonable and should not**
14 **be widened under current market conditions.**

15 **D4.b.**

16 **Q HOW, IF AT ALL, SHOULD THE COMMISSION'S APPROACH TO**
17 **OUTLIERS VARY AMONG DIFFERENT FINANCIAL MODELS?**

18 **A The approach used for testing outliers should not vary across financial models.**
19 **Assuming an outlier test is used (but see discussion above), outliers should be**

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1 removed, if they produce economically illogical estimates of an investor required
2 return and therefore should not be referenced in determining a relied-upon range.

3 **D6.**

4 **Q WHAT WOULD BE THE IMPACT OF THE COMMISSION MODIFYING**
5 **THE CREDIT RATING SCREEN TO INCLUDE ALL INVESTMENT GRADE**
6 **UTILITIES IN THE PROXY GROUP?**

7 A The effect would be to produce less risk-comparable proxy groups, and therefore to
8 produces less-accurate estimates of the subject utility's cost of equity. Under current
9 circumstances and for the great majority of FERC-regulated electric utilities,
10 continuing to apply the Commission's established "one notch" credit rating screen (in
11 conjunction with other standard screens⁶) will produce a robust proxy group from
12 which to accurately estimate a utility's current market cost of equity.

⁶ Companies that clearly are out of line with the industry range of norms, or are in the midst of specific company factors which may distort their market data should be excluded from these broad industry proxy group ranges. Hence, the Commission should continue to exclude companies that are involved in mergers and acquisitions, exclude companies that have suspended or reduced dividend payments over the last two years, or exclude companies that have entered into a period of abnormal activity such that their market factors will be impacted and market-based models will be distorted based on these events that are unrelated to the provision of providing utility service.

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1 **D7.**

2 **Q TO WHAT EXTENT DO CREDIT RATINGS CORRESPOND TO THE ROE**
3 **REQUIRED BY INVESTORS?**

4 **A** Credit ratings are a reasonable means of estimating proxy group investment risk and
5 can accurately be the primary factor that identifies proxy companies that are similar in
6 investment risk to a subject company.

7 A credit rating reflects the predictability and stability of the utility's cash flows
8 in order to support its debt service obligations – both principal and interest payments.
9 The same cash flows that are used to assess credit risk are also the cash flows
10 available to the utility needed to meet its stock investors' return requirements (*i.e.*,
11 dividend payments and earnings/dividends growth). Stock investors are paid after
12 bond holders, so equity investors have more risk than bond holders, due to this priority
13 claim to cash flows. Nonetheless, the stability and predictability of utilities' cash flows
14 impact both bond holders' and equity holders' investment risk in a similar manner.

15 **D9.**

16 **Q WHAT CIRCUMSTANCES OR FACTORS, IF ANY, WARRANT AN**
17 **ADJUSTMENT FROM THE MIDPOINT/MEDIAN TO OTHER POINTS**
18 **WITHIN THE ZONE OF REASONABLENESS (E.G., LOWER OR UPPER**
19 **MIDPOINT/MEDIAN)?**

20 **A** Because the present NOI concerns base ROEs (with incentives, including ROE adders,
21 being addressed separately in Docket No. PL19-3), I will answer in terms of the

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1 circumstances under which the base ROE should be placed elsewhere than at the
2 median of the proxy group distribution. Such placement should be rare. It should occur
3 only when it is not possible to identify a reasonably risk-representative proxy group of
4 adequate size, in which case the base ROE should be placed at a different percentile of
5 the proxy group distribution — a percentile lower than 50 when the subject utility or
6 service is markedly less risky than the proxy group, or conversely a percentile higher
7 than 50 when the subject utility or service is markedly more risky than the proxy
8 group.

9 **D10.**

10 **Q THE COMMISSION CURRENTLY USES MIDPOINTS TO DETERMINE**
11 **THE CENTRAL TENDENCY OF THE ZONE OF REASONABLENESS**
12 **WHEN DETERMINING RTO-WIDE ROEs. SHOULD THE COMMISSION**
13 **ADOPT A POLICY OF USING MEDIAN FOR THIS PURPOSE?**

14 **A** Yes. The median more accurately describes the central tendency of the proxy group
15 results, and the midpoint does not. Given the large, nationwide proxy groups that the
16 Commission now uses, midpoints are erratic and prone to distortion, as I will explain
17 below. For this reason, the midpoint should never be used.

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1 **Q HAS THE COMMISSION PROVIDED DIRECTION ON WHEN IT BELIEVES**
2 **THE USE OF A PROXY GROUP MIDPOINT IS APPROPRIATE?**

3 **A Yes.** In a 2004 opinion, the Commission used the midpoint of proxy group consisting
4 of a subset of the parents of the subject TOs themselves, and explained:

5 Given that the ROE will apply across-the-board to all members of the
6 Midwest ISO, rather than to a single company of average risk, we must
7 consider their full range of risks and business profiles. To that end, the
8 proxy group used to define the range of reasonableness in this case
9 consists of a subset of the Midwest ISO TOs to which the ROE will
10 actually apply. This is a departure from prior ROE cases, in which the
11 selected proxy group is deemed to be comparable to the risks faced by a
12 single gas pipeline or electric utility. Here, we are dealing with a group
13 of utilities with differing risks and business rankings. In our view, the
14 differing ROEs in this group fairly brackets the range of reasonableness
15 for all Midwest ISO TOs.⁷

16 In other words, the Commission viewed the lowest and highest DCF results as
17 equivalent to the costs of equity for, respectively, the single least risky and single most
18 risky Midcontinent Independent System Operator, Inc. (“MISO”) transmission owner
19 (“TO”), and the Commission was more concerned in that case with minimizing the
20 extent to which the uniform allowed base ROE was unsuitable for those unusual
21 MISO TOs than it was with identifying a base ROE that was reasonably apt for most
22 of the MISO TOs.

⁷ Docket No. ER02-485-003, *Midwest Independent Transmission System Operator, Inc.*, Order on Remand, 106 FERC ¶ 61,302, P 9 (2004).

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1 **Q DOES THAT REASONING CONTINUE TO SUPPORT USE OF THE PROXY**
2 **GROUP MIDPOINT?**

3 A No, for two reasons. First, the Commission relied, in part, on the fact that the ROE
4 being determined in that docket was to be applied to “a group of utilities with differing
5 risks and business rankings.” As noted in the cited paragraph above, the proxy group
6 in that docket was comprised of a subset of MISO TOS. More recently, the
7 Commission has relied on a national proxy group based on a credit rating screen of
8 plus/minus one notch of the *Value Line* universe of electric utilities. With that
9 expanded proxy group screening, and with the increased geographic dispersion of the
10 investments of today’s publicly-traded utility stocks, there is no basis to view the
11 lowest and highest proxy results as equivalent to the costs of equity for, respectively,
12 the single least risky and single most risky TOS in a given RTO.

13 Second, the midpoint is not a statistically reliable measure. Following the
14 application of reasonable criteria to identify publicly-traded companies that are risk
15 comparable and should be included in the proxy group, the utilized central tendency
16 measure should represent the weight of the proxy group results, in order to provide a
17 representative distillation of the proxy group results into a reasonable estimate of the
18 current market cost of equity for the proxy group.

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1 **Q PLEASE EXPLAIN.**

2 A The median of the distribution of retained proxy group results is the middlemost
3 number of that distribution when it is sorted in ascending order.⁸ The median is also
4 known as the 50th percentile of the distribution of results. The median estimate is
5 determined by rank ordering all the proxy group results in order to find this median
6 point estimate of proxy group results.

7 In contrast, the midpoint is simply the average of the highest and lowest single
8 point estimates within the proxy group results. In contrast to the median, the midpoint
9 is calculated using only two point estimates within the proxy group results – the high
10 and the low estimates. The midpoint estimate may bear no relationship to all the
11 remaining proxy group results because they simply are not used in calculating the
12 midpoint of the proxy group range. As such, the median is based on all the
13 companies' proxy group results, whereas the midpoint is based on only two point
14 estimates within the proxy group results. Therefore, the median more accurately
15 describes the results of the proxy group than does the midpoint.

16 **Q WHY IS THE MEDIAN MORE ACCURATE THAN THE MIDPOINT IN**
17 **DESCRIBING THE PROXY GROUP CENTRAL TENDENCY?**

18 A While the median is often used to measure of central tendency, the midpoint, however,
19 is not.⁹ The midpoint evenly weights the highest and lowest proxy group results,
20 while discarding the rest. These most-disparate results are the ones *least*

⁸ If there are an even number such results, the median is the average of the middle two.

⁹ Exhibit No. A-3, pages 19-20.

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1 representative of the weight of proxy group results, and the ones *most* likely to have
2 been distorted by measurement error or input noise. The midpoint methodology lends
3 itself to being influenced and biased by outlier results which are atypical of the results
4 for the overwhelming majority of the proxy group determined to be risk-comparable to
5 the RTO utilities to which ROE is going to apply. Accordingly, the midpoint is less
6 accurate than the median approach.

7 The Commission has previously rationalized the use of the midpoint
8 methodology for RTO-wide ROEs as a way of accounting for various and diverse risk
9 profiles of the utilities within the RTO.¹⁰ Considering that the Commission relies on a
10 proxy group that includes companies with credit ratings of +/- one notch of the utilities
11 within the RTO, the proxy group's DCF and Capital Asset Planning Model ("CAPM")
12 results will have already accounted for the various and diverse risk profiles of the
13 utilities within the RTO. Absent any concrete evidence that an adjustment needs to be
14 made within the range of proxy group results, the median, or 50th percentile, should be
15 utilized as it is the very definition of the measure of the central tendencies of the
16 results. And even if such an adjustment is supported, it should be tied to a percentile
17 of the entire proxy group distribution, not to highest and lowest results that form the
18 proxy group range.

¹⁰Docket No. ER02-485-003, *Midwest Independent Transmission System Operator, Inc.*, Order on Remand, 106 FERC ¶ 61,302, P 9 (2004).

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1 **Q PLEASE EXPLAIN WHY THE MEDIAN IS THE MORE ACCURATE**
2 **MEASUREMENT OF CENTRAL TENDENCY.**

3 **A** As mentioned previously, the median is the middlemost value of the entire distribution
4 of results. In other words, there are an equal number of results above and below the
5 median, making it a preferred measure of central tendency. As such, the median also
6 mitigates the impacts of single outliers, whether high or low. For example, consider
7 the following data set that includes nine observations that range from 0 to 20.

0	3	4	5	6	7	8	9	20
---	---	---	---	---	---	---	---	----

8 Based on the dataset above, the median is 6, as it is the middlemost value of all
9 the results when lined up in ascending order. As I mentioned earlier, the median
10 mitigates the bias or skew of outlier results. Had the highest value been 100 instead of
11 20, it would not change the median observation. Similarly, had the 0 been -100, the
12 median would still be 6. The mean, which gives equal weight to each observation, is
13 6.9. The mean of 6.9 is relatively close to the median, however it is easy to see that
14 the highest outlier value of 20 has biased the mean upward. By comparison, the
15 midpoint of the dataset above, which is the average of the bookend observations of 0
16 and 20, is 10. Also of note, the midpoint methodology completely ignores the seven
17 observations between the highest and lowest values. This impact is exacerbated when
18 looking at the results of a well-defined and very large proxy group of 30 or more
19 companies. Importantly, the midpoint value of 10 is higher than every observation
20 except the highest single outlier (*i.e.*, 20).

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1 A more pragmatic example would be to look at something like home values in
2 the United States. A house in Los Angeles named, “The One,” is listed for \$500
3 million. For sake of argument and for illustration purposes, I will use \$0 as the
4 cheapest house in the United States. The *midpoint* of these two home values is \$250
5 million. There are likely less than 10 homes in the United States that have a value of
6 \$250 million and in no way represent the central tendency of U.S. home values. As
7 reported by Zillow.com, the *median* home value is approximately \$227 thousand. In
8 other words, the midpoint is approximately 1100x greater than the median.

9 In a scenario where an analyst has correctly developed a proxy group that is
10 deemed risk-comparable to that of the utility, or group of utilities, to which the
11 awarded ROE would be applicable, a true measure of central tendency is desired.
12 Given the proxy group companies are located throughout the United States, and likely
13 have credit ratings both above and below the ratings of the RTO members, a wide
14 range of diverse and unique risks will be accounted for to the extent that the median is
15 used as the measure of central tendency when determining ROE.

16 **Q HAS THE COMMISSION OPINED ON WHAT THE PRINCIPAL**
17 **CONSIDERATION SHOULD BE IN DETERMINING THE ROE BEING SET**
18 **FOR THE UTILITY OR UTILITIES?**

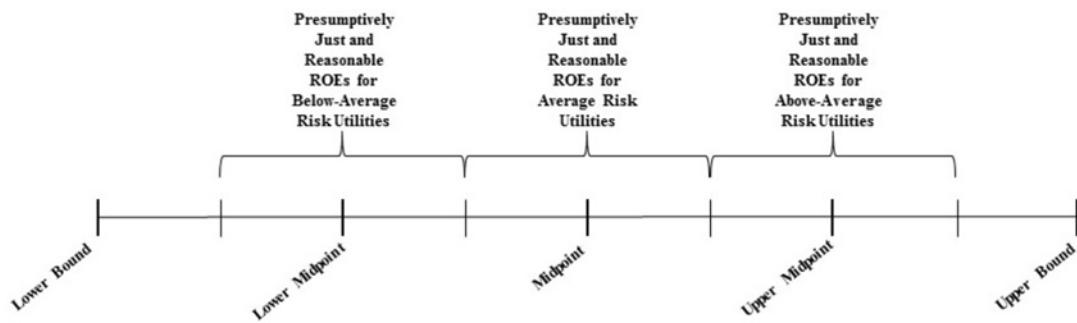
19 **A** Yes. In paragraph 26 of the *Coakley Briefing Order*, the Commission states:

20 [T]he principal consideration for determining whether an existing ROE
21 within the overall zone of reasonableness has become unjust and
22 unreasonable is the risk profile of the utility or utilities for which the
23 Commission is setting the ROE. This is consistent with the

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1 Commission's well-established policy on relative risk analysis, in
 2 which the presumptively just and reasonable ROE for an average-risk
 3 utility is the relevant measure of central tendency for the entire zone of
 4 reasonableness while the presumptively just and reasonable ROE for an
 5 above- or below-average risk utility is the relevant measure of central
 6 tendency for either the upper or lower half of the zone of
 7 reasonableness, respectively.

8 In establishing the zone of reasonableness for a diverse group of average risk
 9 utilities, the Commission has proposed in the Briefing Orders that the range of
 10 potentially lawful ROEs constitutes one quarter of the zone of reasonableness,
 11 centered on the midpoint.



12 Paragraph 28 of the *Coakley* Briefing Order places a lot of emphasis on the
 13 central tendency. As explained in detail above, the midpoint is heavily influenced by
 14 outlier results and the measurement errors they likely embody. It is not an accurate,
 15 reliable, or stable measure of central tendency. The median, in contrast, is an accurate,
 16 reliable, and stable measure of central tendency.

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1 **D10.a.**

2 **Q WOULD THE USE OF MULTIPLE ROE METHODOLOGIES, AS**
3 **PROPOSED IN THE COAKLEY BRIEFING ORDER, UNDERCUT THE**
4 **COMMISSION'S CURRENT RATIONALE FOR USING THE MIDPOINT IN**
5 **RTO-WIDE BASE ROE?**

6 **A** Regardless of the ROE methodology used to estimate the current market cost of equity
7 from a proxy group, the statistical tool that most accurately describes the proxy
8 group's central tendency results is the median. As compared to the midpoint, the
9 median produces a more representative distillation of the proxy group results and a
10 more reliably representative indication of the subject utility's cost of equity. That
11 should be the dispositive consideration. Moreover, the use of non-DCF
12 methodologies in the manner proposed in the *Coakley* Briefing Order does further
13 undercut the rationale stated in *MISO*, 106 FERC ¶ 61, 302 (2004). For example, the
14 range of "Expected Earnings" results will tend to be driven by the range of proxy
15 company M/B ratios. This can be seen, for example, in MISO Briefing Order P 55,
16 where the top of the Expected Earnings range would be set by Vectren Corp., and is
17 associated with an M/B ratio of approximately 2.24.¹¹ There is no basis to believe that
18 the M/B range of the respondent operating companies whose transmission ROEs are at
19 issue in that case extends that high.

¹¹ See the March 2015 Value Line for Vectren Corp., which is available to the Commission in the record of Docket No. EL14-12 as Exhibit No. S-3, at 95.

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1 **D10.b.**

2 **Q SHOULD THE SIZE OF THE PROXY GROUP BE CONSIDERED IN THIS**
3 **DECISION?**

4 A A larger proxy group only makes the problems associated with midpoints worse. A
5 larger proxy group may well have a wider range of proxy group results (it cannot be
6 narrower), and there is no reason to believe the midpoint of that same or wider range
7 will more accurately represent the full distribution of proxy group results. Consider
8 again the home price distribution I discussed earlier. On any one block, the median,
9 midpoint, and average home prices are all likely to be fairly close. But if we expand
10 the distribution to encompass the millions of U.S. homes, it will encompass the \$500
11 million parcel, and the midpoint of the associated range will be wildly
12 unrepresentative. That said, there is no statistically valid basis to reference the
13 midpoint of even a smaller proxy group.

14 **Financial Model Choice**

15 **E1.**

16 **Q WHAT MODELS DO INVESTORS USE TO EVALUATE UTILITY**
17 **EQUITIES?**

18 A There is little disagreement in regulatory proceedings that the methods generally relied
19 on by investment practitioners, the investment community, and academic circles
20 include DCF and CAPM models. I am not aware of any evidence that “risk premium”
21 methods based on the outcomes of regulatory proceedings are widely used by

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1 investors. However, different variants of the risk premium model are commonly used
2 in regulatory proceedings. In general, these three models – DCF, CAPM, and Risk
3 Premium – and only these three models, have gained wide acceptance in modern
4 regulatory proceedings.

5 **E2.**

6 **Q WHAT ROLE DO CURRENT CAPITAL MARKET CONDITIONS PLAY IN**
7 **THE CHOICE OF MODEL USED BY INVESTORS TO EVALUATE UTILITY**
8 **EQUITIES?**

9 **A** Investors' model choices do not vary depending on capital market conditions such that
10 the selection of the models that should be used to quantify investors' required rate of
11 return on equity should vary depending on capital market conditions. Rather, in all
12 foreseeable capital market conditions, investors' required rate of return on equity as of
13 any given period can be modeled with reasonable accuracy by applying well-designed
14 market-based models to that period's capital market data.

15 **E2.a.**

16 **Q IF CAPITAL MARKET CONDITIONS FACTOR INTO THE CHOICE OF**
17 **MODEL, HOW DO INVESTORS DETERMINE AND EVALUATE THOSE**
18 **CONDITIONS?**

19 **A** Not applicable.

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1 **E3.**

2 **Q ARE ANY MODELS THOUGHT TO BE SUPERIOR OR INFERIOR TO**
3 **OTHERS? IF SO, WHY?**

4 A The DCF model most accurately reflects the unique return outlooks for a utility stock
5 investment. A well-constructed CAPM will also provide meaningful results. A risk
6 premium model relies on the premise that past regulatory decisions accurately found
7 the cost of equity as of the time giving rise to the bond yield to which that allowed
8 ROE is compared. As such, when applied using valid inputs, the risk premium
9 method produces results that, while not entirely devoid of value, are less direct than
10 re-measuring the cost of equity using a current DCF and/or CAPM model. Like taking
11 a photograph of a photograph of a photograph, each successive recycling of past
12 results through the use of a risk premium method can take the outcome further and
13 further away from accurately identifying the current cost of equity. The “Expected
14 Earnings” method, based on forecast earnings-to-book ratios, is not related to the
15 market cost of equity that is required to attract capital for investment in utility assets.
16 As such, it is worse than “inferior”; it is entirely unsuitable for use in determining
17 utilities’ cost of equity. Dr. Cornell provides additional discussion of this method and
18 its deficiencies.

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1 **E4.**

2 **Q HOW ARE ALTERNATIVE MODELS REDUNDANT OR**
3 **COMPLEMENTARY WITH EACH OTHER AND/OR THE DCF MODEL?**

4 A Multiple reliable market-based models, when applied appropriately, can produce more
5 reliable and stable information from which to accurately estimate the current market
6 cost of equity. Accordingly, well-developed CAPM model and/or risk premium
7 models can complement the DCF model in applying market information to accurately
8 estimate the current market cost of equity.

9 **E5.**

10 **Q TO WHAT EXTENT DO ALTERNATIVE MODELS AVOID ANY**
11 **DEFICIENCIES OF THE DCF MODEL AND/OR OPERATE BETTER IN**
12 **DIVERSE CAPITAL MARKET CONDITIONS?**

13 A As I discussed earlier (see responses to Question C3 and its subparts), the DCF model
14 operates well in diverse capital market conditions. Nonetheless, it can usefully be
15 supplemented with select other methods *if* they are market-based and well designed.

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1 **E6.**

2 **Q TO THE EXTENT THAT INVESTORS USE MULTIPLE MODELS, SHOULD**
3 **THE COMMISSION COMBINE THEM IN ITS ANALYSIS OR USE THE**
4 **“BEST” ONE THAT WOULD APPLY IN ALL MARKET CONDITIONS?**

5 **A** There are too many investors and investor-utilized models for the Commission to
6 adopt a standard of using every model utilized by some investor. The Commission
7 should use no more than three models, all of them market-based, and all designed well
8 to operate robustly across a wide-range of market conditions, including present
9 conditions. Having selected that small set of one to three approved market-based
10 models, the Commission should trust the model results.

11 **E7.**

12 **Q IF THE COMMISSION WERE TO CONSIDER MULTIPLE MODELS, HOW**
13 **SHOULD IT WEIGH THEM?**

14 **A** In future proceedings,¹² it would be reasonable to weight equally each of the one to
15 three approved market-based models.

¹² In ongoing case-specific proceedings that were filed and litigated through trial-type evidentiary hearings under the understanding that the DCF method was the Commission’s primary or exclusive tool, it would be reasonable to give extra weight to the DCF model.

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1 **E8.**

2 **Q TO WHAT EXTENT IS IT REASONABLE FOR THE COMMISSION TO USE**
3 **A SIMPLIFIED VERSION OF A MODEL THAT DOES NOT REFLECT ALL**
4 **THE VARIABLES THAT INVESTORS CONSIDER?**

5 **A** A simplified version of the DCF model may not accurately reflect the multiple market
6 factors which are needed to accurately measure the current market cost of equity. The
7 Commission should continue to maintain reliable data inputs and to reflect dividend
8 growth outlooks in producing an accurate ROE estimate.

9 **E8.a.**

10 **Q IS THE USE OF A SIMPLIFIED MODEL JUSTIFIED FOR EASE OF**
11 **ADMINISTRATION AND PREDICTABILITY OF RESULT?**

12 **A** No. See E8.

13 **E9.**

14 **Q HOW, IF AT ALL, SHOULD THE COMMISSION CONSIDER STATE ROEs?**

15 **A** State-allowed ROEs should be considered relevant by FERC, because for typical
16 vertically-integrated utilities a much larger share of revenues comes through state-
17 regulated than FERC-regulated cost-based rates. State-allowed ROEs therefore give
18 some indication of ROEs that have been embraced by the market participants as
19 constructive, able to support strong investment grade bond ratings, to attract an
20 abundant amount of capital to support large capital programs, and to support strong

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1 stock prices. Accordingly, the Commission should consider state ROEs in order to get
2 some observable market evidence where ROEs have supported utilities' ability to
3 develop strong credit standing, access to capital and maintain large capital programs.
4 Moreover, risk premium analysis can usefully reference state commission rather than
5 FERC outcomes, because there are more of the former, and because a large share of
6 the relatively few FERC transmission ROE outcomes represent continued application
7 of past ROE approvals rather than fresh determinations of the cost of equity.
8 Alternatively or in addition, because state-allowed ROEs exhibit considerable
9 regulatory lag and "gradualism" (falling and rising later and slower than does the cost
10 of equity itself), referencing recent state ROE allowances would tend to stabilize
11 ROEs over time, while still taking eventual account of changing equity market
12 conditions.

13 **E9.a.**

14 **Q HOW AND WHY DO STATE ROEs VARY BY STATE?**

15 A State-allowed ROEs vary for numerous reasons, prominently including ROE incentive
16 deducts and adders and the fact that in their calculations of the weighted average cost
17 of capital ("WACC"), some state regulators include low-cost short-term debt or limit
18 the equity ratio for ratemaking to less than its actual level. When taken out of context,
19 certain state-allowed ROEs may appear to be out of line with industry norms, even
20 though the resulting pre-incentive WACC is in line with industry norms. Such
21 variations make the *range* of state-allowed ROEs uninformative in identifying either

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1 the cost of equity or a reasonable ROE stabilization method. However, that problem
2 can be avoided through an approach that combines a large number of recent state-
3 allowed ROEs, by utilizing them for risk premium analysis or by referencing their
4 median or mean.

5 **E9.b.**

6 **Q HOW ARE CERTAIN STATE ROEs MORE OR LESS COMPARABLE TO**
7 **COMMISSION ROEs?**

8 **A** See response to Question E9.a.

9 **E10.**

10 **Q IF THE COMMISSION CONSIDERS STATE ROEs, HOW SHOULD IT**
11 **COMPARE FERC-JURISDICTIONAL TRANSMISSION ROEs WITH STATE**
12 **ROEs THAT APPLY TO UTILITIES THAT ARE (A) DISTRIBUTION AND**
13 **TRANSMISSION COMPANIES; OR (B) DISTRIBUTION, GENERATION,**
14 **AND TRANSMISSION COMPANIES?**

15 **A** Both credit rating agencies and investors view (and are right in viewing) FERC-
16 regulated transmission service as financially less risky than generation service, and
17 similar in risk to distribution service, absent commodity cost recovery risk. For
18 example, variations in emissions regulations, in the cost of natural gas, or in tax
19 policies applicable to wind generation can drastically change the market
20 competitiveness of a given generator, while having no effect on transmission owners'

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1 ability to recover their allowed revenue requirement, which if they so choose and file
2 can be calculated through automatically adjusting, comprehensive formula rates.
3 Accordingly, in setting electric transmission ROEs, the Commission should look to
4 the ROEs allowed by state commissions to generation-divested utilities.

5 **E11.**

6 **Q TO WHAT EXTENT, IF ANY, SHOULD THE COMMISSION EXERCISE**
7 **JUDGMENT IN USING FINANCIAL MODELS TO SET ROEs UNDER**
8 **VARIOUS CAPITAL MARKET CONDITIONS?**

9 A The Commission should exercise careful judgment to identify market-based financial
10 models that will reliably indicate the cost of equity under a wide range of capital
11 market conditions. It should then rely on the results of those models, as applied by
12 credible expert witnesses through record evidence, and should not substitute its
13 intuition for that systematic estimate.

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1 **First Prong of ROE Determination**

2 **G4.**

3 Q IN SINGLE UTILITY RATE CASES, THE COMMISSION DETERMINES
4 THE CENTRAL TENDENCY OF THE ZONE OF REASONABLENESS
5 BASED ON THE MEDIAN OF THE PROXY GROUP ROEs. IS THE
6 APPROACH OUTLINED IN THE COAKLEY AND MISO BRIEFING
7 ORDERS APPROPRIATE IN SINGLE UTILITY RATE CASES GIVEN THAT
8 THE PROXY COMPANY ROEs TEND TO CLUSTER NEAR THE CENTER
9 OF THE ZONE OF REASONABLENESS, MAKING THE MIDDLE
10 QUARTILE RELATIVELY NARROW?

11 A The fact that most proxy results cluster near each other is not a problem; it is an
12 empirical indication that the true result indicated by that model resides within that
13 cluster. As a statistically superior measure of central tendency, the median recognizes
14 that statistical fact. Midpoints and other range-based measures (including range
15 “quartiles” as diagrammed in the referenced orders) do not. The midpoint produces a
16 statistically inferior estimate of the central tendency of proxy group results and does
17 not produce an economically logical assessment of the information provided by the
18 proxy group regarding the current market cost of equity for the subject utilities or
19 utility. In interpreting proxy group results, therefore, the Commission should look to
20 medians, not midpoints.

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1 **G4.a.**

2 **Q WOULD IT BE REASONABLE TO DETERMINE THE CENTRAL**
3 **TENDENCIES OF THE UPPER AND LOWER HALVES OF THE ZONE OF**
4 **REASONABLENESS FOR SINGLE UTILITIES BASED ON A MIDPOINT**
5 **ANALYSIS, SO AS TO PRODUCE APPROXIMATELY EQUAL RANGES OF**
6 **PRESUMPTIVELY JUST AND REASONABLE ROEs FOR BELOW**
7 **AVERAGE, AVERAGE, AND ABOVE AVERAGE RISK UTILITIES?**

8 **A** No. The midpoint of the analysis simply does not accurately measure the central
9 tendency of the proxy group results. It discards most of the information contained in
10 the proxy results distribution, and is too highly influenced by outlier estimates that are
11 the ones most likely to embody unrepresentative inputs or other distortions. For these
12 reasons, the central tendency of the proxy group results should be identified by
13 looking to the proxy group distribution's median. To the extent it is necessary to
14 identify a point value other than the median (whether because the proxy group cannot
15 be made risk-representative, or for the dubious purpose of quantifying a rebuttable
16 presumption that above-center ROEs remain just and reasonable), the Commission
17 should look to another percentile of the distribution rather than to a range, such as the
18 25th, 37.5th, 62.5th, or 75th percentile.

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1 **Model Mechanics and Implementation**

2 **General Issues/Issues that Affect Multiple Models**

3 **H.1.1.**

4 **Q ARE IBES DATA A GOOD PROXY FOR “INVESTOR CONSENSUS?”**

5 A IBES provides the consensus growth rate estimates of its participating analysts.
6 Compared to a single analyst’s growth rate, a consensus formed by averaging multiple
7 analysts’ estimates is more likely to accurately summarize the various growth rates
8 that informed study period stock price formation.

9 There have been many academic studies conducted on which growth rate
10 estimates more accurately reflect the consensus market outlook. These studies were
11 summarized in *New Regulatory Finance*, a book by Dr. Morin, in which he identifies
12 the following academic studies:

13 Important papers include Brown and Rozeff (1978), Cragg and Malkiel
14 (1968, 1982), Harris (1986), Vander Weide and Carleton (1988), Lys
15 and Sohn (1990), and Easterwood and Nutt (1999).¹³

16 According to Dr. Morin, these reports state that analysts’ projected growth
17 rates more accurately reflect market expectations than do growth rates derived from
18 historical data.

19 Dr. Morin goes on to cite consensus analysts’ growth rate estimates and
20 indicates a preference for more than one analyst growth rate estimate in capturing
21 market expectations:

¹³*New Regulatory Finance*, Roger A. Morin, PhD, Public Utilities Reports, Inc., at 299 and 302 (2006), provided as Exhibit No. A-3, pages 12 and 15.

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1 These firms include most large institutional investors, such as pension
2 funds, banks, and insurance companies. Representative of industry
3 practices, the Zacks Investment Research Web site is a central location
4 whereby investors are able to research the different analyst estimates
5 for any given stock without necessarily searching for each individual
6 analyst.

7 * * *

8 The forecast 5-year growth rates are normalized in order to remove
9 short-term distortions. Forecasts are updated when analysts formally
10 change their stated predictions.

11 * * *

12 Exclusive reliance on a single analyst's growth forecast runs the risk of
13 being unrepresentative of investors' consensus forecast.¹⁴

14 As outlined above, it is generally accepted that consensus analysts' growth rate
15 estimates, which are not skewed by single growth rate estimates, may more accurately
16 capture market expectations and reflect the growth rates built into observable stock
17 prices.

18 **Q HAS THE COMMISSION COMMENTED ON ITS PREFERENCE FOR**
19 **USING CONSENSUS ANALYSTS' GROWTH RATE ESTIMATES**
20 **RELATIVE TO A SINGLE ANALYST'S GROWTH RATE ESTIMATES**
21 **SUCH AS *THE VALUE LINE INVESTMENT SURVEY*?**

22 A Yes. The Commission has already considered and rejected the use of *Value Line*
23 short-term growth rates, in lieu of, or in supplementing, the IBES growth rates as a
24 short-term growth rate stage in the two-stage DCF model. Specifically, in Opinion
25 No. 551, the Commission stated as follows:

¹⁴*Id.*, pages 301 and 302, provided as Exhibit No. A-3, pages 14 and 15.

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1 We reject MISO TOs' request for clarification that the growth
2 projections published by Value Line constitute an acceptable and
3 comparable source of short-term earnings growth estimates that may be
4 considered for use in the two-step DCF analysis. In Opinion No. 531,
5 the Commission held that "in future public utility cases, the
6 Commission will adopt the same two-step DCF methodology it uses in
7 natural gas and oil pipeline cases." [footnote omitted] While the
8 Commission has refrained from mandating the exclusive use of IBES
9 data in its natural gas and oil pipeline rate of return cases, the
10 Commission has stated that "IBES data is the preferred data source for
11 computing the short-term growth rate." [footnote omitted] The
12 Commission has explained that the "IBES data is a compilation of
13 projected growth rates from various knowledgeable financial advisors
14 within the investment community." [footnote omitted] As such, the
15 IBES short-term growth estimates generally represent consensus
16 growth rate estimates by a number of analysts. By contrast, the
17 Commission has rejected the use of Value Line growth estimates in gas
18 pipeline ROE cases, because they are the estimates of a single analyst
19 and thus do not constitute such consensus estimates. [footnote
20 omitted]¹⁵

21 **Q DO YOU BELIEVE THAT THE IBES GROWTH RATE IS A MORE**
22 **RELIABLE ESTIMATE OF INVESTOR OUTLOOKS THAN IS VALUE**
23 **LINE?**

24 A Yes. As outlined by Dr. Morin's book concerning academic empirical studies and
25 findings by the Commission, a consensus analysts' growth rate projection which
26 reflects the views of many analysts' advice to investors is more likely to reflect
27 investor outlooks than a growth rate produced by a single analyst, or from historical
28 data. *Value Line* is a single analyst source and does not provide a consensus of what
29 security analysts' advice is to the investing public.

¹⁵ Assn. of Bus. Advocating Tariff Equity, et al., v. Midcontinent Indep. Sys. Operator, Inc., et al., Opinion No. 551, 156 FERC ¶ 61,234 at P 62 (2016) ("Opinion No. 551").

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1 Further, *Value Line*'s growth rate represents a growth from its historical base
2 to the three- to five-year forecast period. *Value Line* describes its growth rate as
3 follows:

4 Example: To calculate the compound annual sales growth from 2001-
5 2003 to 2007-2009, we take sales per share for each of the years 2001,
6 2002, and 2003 and average them. Then we take the sales per share for
7 the years 2007-2009, as shown in the far right column of the large
8 statistical section of our report.¹⁶

9 *Value Line* uses a normalized historical base over a three-year period to project
10 growth from the average of the three-year period out to a three- to five-year projection
11 beyond the end of the latest year. This growth rate cannot accurately be used to grow
12 earnings or dividends in the most recent quarter (annualized). It is simply not
13 designed to produce an earnings growth rate from this starting point. The starting
14 point for the Commission's two-step DCF analysis is the most recent quarterly
15 dividend (annualized). Moreover, where IBES-participating analysts remove non-
16 recurring losses or gains from GAAP-style baseline earnings in order to produce a
17 more representative growth rate, *Value Line* tends to rely instead on a coarser,
18 mechanical averaging of three past years. *Value Line*'s growth rate methodology
19 simply is not the best information to reflect the growth outlook for future dividends, as
20 required by the Commission DCF model. Importantly, if the growth of dividends is
21 misstated, then the DCF model will be misstated, and the DCF return estimate will not
22 be reliable or accurate. Therefore, *Value Line* growth rates should not be used with
23 IBES growth rates.

¹⁶*Value Line Selection & Opinion*, August 6, 2004, page 2186), provided as Exhibit No. A-3, page 24.

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1 **H.1.1.a.**

2 **Q IF NOT, ARE THERE BETTER ALTERNATIVES, SUCH AS BLOOMBERG,**
3 **ZACKS, S&P CAPITAL, MORNINGSTAR, AND VALUE LINE?**

4 **A** The five sources listed in Question H.1.1.a are of two distinct types. Bloomberg and
5 Zacks aggregate multiple analysts and report consensus growth rates. So does
6 reuters.com, which publishes IBES growth rates and (unlike Yahoo Finance) discloses
7 the number of contributing analysts. As such, all of these sources are comparable and
8 can reasonably be referenced, although the Commission should be alert to the risk that
9 parties or witnesses will opportunistically vary their growth rate sourcing in order to
10 shop for supportive data. To mitigate that risk and in order to best capture the growth
11 outlook reflected in market prices, to the extent multiple sources of analyst consensus
12 growth rates are used, they should be combined to produce one composite five-year
13 growth rate per proxy company, rather than generating a separate DCF distribution for
14 each growth rate source.

15 In contrast, the growth rates published by S&P Capital, Morningstar, and
16 *Value Line* are those of a single analyst. The Commission's previous finding that a
17 consensus analyst growth projection is preferred to a single analyst's growth rate
18 estimate is still based on sound academic empirical evidence. Accordingly, these
19 single-analyst estimates should not be used as the source of DCF model inputs.

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1 **H.1.1.b.**

2 **Q SHOULD THE COMMISSION COMBINE DATA FROM MULTIPLE**
3 **SOURCES?**

4 **A** The Commission should seek to use the data source(s) that most accurately reflects
5 market outlooks, such as using analysts' consensus to source estimates of five-year
6 earnings growth. To the extent the Commission chooses to use more than one source
7 of consensus analysts' growth rate data, they should be combined into a single
8 composite consensus, as discussed in response to Question H.1.1.a.

9 **H1.1.c.**

10 **Q WHAT WEIGHT, IF ANY, SHOULD BE GIVEN TO AN ESTIMATE IF THE**
11 **NUMBER AND IDENTITY OF ANALYSTS CONTRIBUTING TO THE**
12 **ESTIMATE IS NOT AVAILABLE?**

13 **A** As I stated in response to Question H.1.1.a, consensus estimates for a particular proxy
14 company's growth rate that are known to combine the estimates of numerous analysts
15 should receive more weight. For example, suppose that for a given proxy company
16 two growth rates are available in the record. The first is 5% from IBES via reuters.com
17 and known to be sourced from three analysts, and the second is 6% from Bloomberg
18 and known to be sourced from three analysts. In that case, the DCF model should use
19 a composite five-year¹⁷ growth rate of $[(5\% \times 2) + (6\% \times 3)]/5 = 5.6\%$.

¹⁷ This would be the short-term growth rate, prior to being combined with or transitioning to a long-term, GDP-based growth rate.

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1 **H.1.2.**

2 **Q TO WHAT EXTENT DOES MODEL RISK AFFECT ALL ROE**
3 **METHODOLOGIES?**

4 **A** While no model is perfect, not all models are equal. The DCF model has been used by
5 FERC and other regulators for many years, and the fact that it has produced allowed
6 ROEs adequate to attract capital is demonstrated by the fact that utility stock prices are
7 high and utilities have ample capital to invest in new assets. To the extent analysts are
8 proposing deviations from standard methodologies, the Commission should require
9 verifiable and complete evidence supporting the change in methodology or the ROE
10 adder. The “Expected Earnings” method does not even attempt to measure the cost of
11 equity, so model “risk” may not be the best term to describe its deficiency. Model
12 “irrelevance” may be a better term.

13 **H.1.3.**

14 **Q THE DCF MODEL INCORPORATES DATA AT THE PARENT/HOLDING**
15 **COMPANY LEVEL (E.G., STOCK PRICE). THE COMMISSION**
16 **ADJUDICATES CASES AT THE OPERATING COMPANY LEVEL, FOR**
17 **WHICH THERE IS NO PUBLIC DATA LIKE STOCK PRICES, GROWTH**
18 **RATES, AND BETAS. WHAT IMPACT DOES THIS DISPARITY HAVE ON**
19 **THE RESULTS OF THE DCF AND OTHER MODELS?**

20 **A** To measure the current market cost of equity, a proxy group of publicly traded
21 companies is necessary in order to gain information that could produce an accurate

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1 and reliable estimate of the current market cost of equity. Practically speaking,
2 publicly traded parent company holding company data will predominantly make up
3 these proxy group estimates. There has been no evidence that the parent company
4 data is not producing reliable and accurate estimates of rates of return that can be
5 applied to operating utility subsidiaries of the holding companies. Therefore, the
6 Commission should continue to rely on observable evidence and sound financial
7 models to estimate current market returns of proxy groups of regulated utility
8 companies, in order to measure a rate of return that is consistent with the *Hope* and
9 *Bluefield*¹⁸ standards.

10 As I noted in response to Question D10.a., the difference between
11 parent/holding companies and operating electric utilities does undermine the
12 representativeness of “Expected Earnings” results. Proxy company M/B ratios are
13 quite different from those of operating utilities, when the market prices of the latter are
14 revealed by acquisition-type transactions. Consequently, the projected E/B ratios of
15 publicly-traded proxy companies are not a reliable guide to the projected E/B ratios
16 that would apply to operating utilities.

¹⁸Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679 (1923) and Fed. Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944).

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1 **H.1.4.**

2 **Q SHOULD THE COMMISSION CONTINUE TO RELY ON THE EFFICIENT**
3 **MARKET HYPOTHESIS, WHICH UNDERLIES THE DCF AND CAPM**
4 **MODELS? WHY OR WHY NOT?**

5 **A** Yes. The *Hope* and *Bluefield* standards clearly suggest that the market models can be
6 used to produce an accurate estimate of the current investor required return. The
7 efficient market hypothesis states that investors will rely on all relevant information in
8 order to form/make investment decisions. All relevant information is available to
9 investors to form economically logical outlooks for growth in dividends, risk spreads
10 between utility stock yields and utility bond yields, and utility bond yields and
11 Treasury yields. All of this information can be used to opine on the reasonableness of
12 the rate of return estimates made from DCF, CAPM, and risk premium studies.

13 **H.1.4.a.**

14 **Q IF YES, SHOULD THE COMMISSION CONTINUE TO EMPLOY OUTLIER**
15 **SCREENS, M&A SCREENS, ETC., FOR THE DCF AND CAPM MODELS**
16 **SINCE THESE MODELS NEED TO INCORPORATE ALL RELEVANT**
17 **INFORMATION?**

18 **A** The established fact that stock market prices efficiently incorporate all relevant public
19 information does not imply that all stocks' prices provide a representative and reliable
20 basis for inferring the cost of equity for a given utility. I have discussed screening
21 criteria in response to Questions D4, D6, and D7.

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1 **H.1.5.**

2 **Q SHOULD GROWTH RATES BE BASED ON VALUE LINE, IBES, OR**
3 **ALTERNATIVE ESTIMATES?**

4 **A** As I discussed in response to Question H.1.1 and its subparts, consensus analysts'
5 growth rate estimates are the most reliable source of the near-term portion of the
6 dividend growth expectation embedded in market prices and therefore suitable for use
7 in the DCF model. Therefore, a consensus growth rate estimate published by IBES or
8 other consensus analysts' growth rate estimates produce a better and more reliable
9 estimate than does a growth rate estimate published by *Value Line*.

10 **H.1.6.**

11 **Q SHOULD THE SAME GROWTH RATE SOURCES BE USED ACROSS**
12 **MODELS, IF MORE THAN ONE MODEL IS USED TO DETERMINE THE**
13 **ROE?**

14 **A** Yes. Consistent use of growth rate estimates that accurately gauge the market's
15 outlook should be the primary focus in both measuring short-term growth and
16 long-term growth. In principle, these growth rate estimates should not vary across
17 different models. However, there is a practicality limit to that principle in the event
18 the equity risk premium used in CAPM model is based on a DCF analysis of the
19 approximately 400 dividend-paying member of the S&P 500, as referenced in the
20 *Coakley* and MISO briefing orders. Although there would be a significant subscription
21 cost and calculation burden involved in using multiple sources of analyst consensus

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1 growth rates for a proxy group of electric utility parent companies, that task is
2 manageable as there are now fewer than 40 such companies. Extending that approach
3 to a CAPM-component DCF study of approximately 400 companies makes the task an
4 order of magnitude more burdensome, and should not be required.

5 **DCF**

6 **H.2.a.2.**

7 **Q COULD TERMINAL STOCK VALUE BE USED IN PLACE OF LONG-TERM**
8 **GROWTH PROJECTIONS? IF SO, HOW SHOULD TERMINAL STOCK**
9 **VALUE BE DETERMINED?**

10 A A terminal value DCF methodology would not produce a more reliable estimate than
11 the Commission's current two-stage growth DCF study. Indeed, the two
12 methodologies are mathematically very similar, if done consistently. However, the
13 ability to arrive at a terminal stock price introduces far more uncertainty into the
14 methodology, which can minimize the Commission's ability to accurately estimate the
15 DCF return estimate.

16 Specifically, the Commission's current two-step DCF methodology uses a
17 composite growth rate within a constant growth rate methodology that gives way to a
18 short-term growth outlook and a long-term sustainable growth outlook. In contrast, a
19 terminal value stock DCF methodology could project cash flows based on a shorter
20 term cash flow window which encapsulates short-term dividend growth and a stock
21 price at the end of a holding period. However, the stock at the end of the holding

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1 period would need to be estimated from the flow of cash flows that would reflect a
2 short-term growth rate, and a contraction to long-term steady-state growth. As such,
3 the terminal stock price should reflect the value of the stock based on the long-term
4 sustainable growth rate estimate. The DCF study would then reflect a period of
5 short-term growth and at the end of the holding period the terminal stock price would
6 reflect the value based on long-term sustainable growth.

7 **H.2.a.3.**

8 **Q DO INVESTMENT ANALYSTS PROJECT EARNINGS/DIVIDENDS**
9 **GROWTH BEYOND FIVE YEARS, AND IF NOT, WHY NOT, AND IS GROSS**
10 **DOMESTIC PRODUCT (“GDP”) AN APPROPRIATE PROXY FOR LONG-**
11 **TERM GROWTH?**

12 A No, investment analysts only project earnings and dividends out over the next five
13 years. Longer-term growth projections for an individual stock are highly uncertain
14 and can be significantly impacted by changes in market conditions, company
15 conditions, and other factors. Indeed, long-term growth reflects a part of the risk of
16 investing in a utility equity security, because the ability to project that far out is so
17 uncertain. However, analysts’ three- to five-year growth rate outlooks are relevant in
18 establishing the current value, and efficient market hypothesis tells us that these longer
19 term outlooks are based on macroeconomic factors available to market participants in
20 order to make informed investment decisions.

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1 H.2.a.4

**2 Q HOW SHOULD THE COMMISSION WEIGHT SHORT-TERM AND LONG-
3 TERM EARNINGS/DIVIDEND GROWTH PROJECTIONS?**

The current FERC methodology of weighting the short-term and long-term growth rate estimates is reasonable. However, alternatively, the Commission could use a multi-growth stage DCF model in order to give varying weights to various stages of growth. Such a multi-stage growth model, in which three-to-five-year growth projections would be used as the growth rate for no longer than five years, is consistent with the intent of the authoring analysts. Thereafter, they would transition in stages to a long-term growth rate no higher than the long-term forecast rate of nominal GDP growth.

12 H.2.a.5.

13 Q THE COMMISSION USES A CONSTANT GROWTH DCF MODEL.
14 SHOULD THE COMMISSION CONSIDER USING A MULTI-STAGE DCF
15 MODEL? IF SO, HOW WOULD THE COMMISSION DETERMINE THE
16 LENGTH OF EACH STAGE OF A PROXY COMPANY'S GROWTH?

17 A Yes. See my response above to Question H.2.a.4.

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1 **H.2.a.6.**

2 **Q ARE SIX MONTHS OF AVERAGE HIGH/LOW HISTORICAL MONTHLY**
3 **STOCK PRICES AN APPROPRIATE MEASURE FOR THE CURRENT**
4 **STOCK PRICE “P”?**

5 **A** In measuring the current market cost of equity, the Commission should strive to
6 minimize the risk of skewing the estimate based on aberrant price and market data.
7 The period studied should be long enough to eliminate aberrant market data but should
8 not be so long that it does not currently reflect current market conditions. The
9 Commission’s practice of using six-month dividend yields and six-month bond yields
10 is a reasonable approach.

11 **CAPM**

12 **H.2.b.4.**

13 **Q. SHOULD THE COMMISSION EMPLOY MORE SOPHISTICATED**
14 **VERSIONS OF THE CAPM MODEL THAT CONSIDER MORE VARIABLES**
15 **INSTEAD OF ONLY BETA, SUCH AS THE FAMA-FRENCH MODEL?**

16 **A** Dr. Cornell is providing the Associations’ principal statement on this issue. I agree
17 with him that the right answer is “no.” But I will supplement his statement with two
18 additional points. As I recently showed in the Docket Nos. EL14-12 and EL15-45
19 paper hearings,¹⁹ the “size premium” adjustment to the standard CAPM model that has
20 been applied by transmission owner witnesses in several recent proceedings was based

¹⁹ See Exhibit No. JC-100 at 16-26, provided as Exhibit No. A-3, pages 30-40.

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1 on a mismatch, in which the size adjustment is quantified using Duff & Phelps data
2 and designed for application to Duff & Phelps betas, but is then applied to Value Line
3 betas. The two sources' betas are not comparable, as only the latter incorporates a
4 “Blume” adjustment—meaning it is moved towards 1.0, which in the case of utility
5 betas almost always means it is raised.²⁰ Curing this mismatch removes most of the
6 effect of the “size adjustment.”²¹ Furthermore, Duff & Phelps does not recommend or
7 utilize that adjustment in isolation; it also makes a sector-based (“industry”)
8 adjustment, which in the case of the utility sector points in the opposite direction, and
9 indeed more than offsets the “size adjustment.”²²

10 **Expected Earnings**

11 **H.2.c.2.**

12 **Q. WHAT, IF ANY, CONCERNS REGARDING CIRCULARITY ARE THERE**
13 **WITH USING THE EXPECTED EARNINGS ANALYSIS TO DETERMINE**
14 **THE BASE ROE, AS OPPOSED TO USING THE ANALYSIS FOR**
15 **CORROBORATIVE PURPOSES?**

16 A Dr. Cornell is providing the Associations' principal statement on this issue and other
17 Expected Earnings issues. I agree with him that the Expected Earnings method should
18 not be used. But I will supplement his statement with evidence that the E/B and M/B

²⁰ See *id.* at 17-24, provided as Exhibit No. A-3, pages 31-38.

²¹ See *id.*, Table 1, provided as Exhibit No. A-3, page 36.

²² See *id.* at 24-25, provided as Exhibit No. A-3, pages 38-39.

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1 ratios of parent-level holding companies are not representative of the E/B and M/B
2 ratios operating utilities.

3 In recent study periods, FirstEnergy Corp. has commonly provided
4 transmission owner witnesses' highest E/B result. It does so because Value Line's
5 fifth-year E/B projection for that company jumped from 12.5% as of February 16,
6 2018²³ to 15.5% as of May 18, 2018.²⁴ Between those two consecutive quarterly
7 Value Line reports, FE's projected share count and projected dividends did not
8 change, and its projected earnings and earnings/share actually declined. The change
9 that drove the increase in FE's projected E/B ratio was a 25% decrease in projected
10 book value per share, from \$24 to \$18, apparently due to accounting changes
11 associated with the bankruptcy filing of FE's nonregulated subsidiaries. While that
12 drastic decrease in the denominator of FE's E/B ratio had an outsized effect on the
13 highest E/B ratio to be found among electric utility stocks, there is no basis to infer a
14 corresponding change to such stocks' *representative* E/B ratio, much less the ratio
15 representative of operating utility companies.

16 Consider also NextEra's recent acquisition (from Southern Company) of Gulf
17 Power Company. NextEra paid approximately Gulf Power Company's net book
18 value: On January 1, 2019, it paid "approximately \$4.47 billion in cash consideration"
19 and assumed "approximately \$1.3 billion of Gulf Power debt,"²⁵ thus committing
20 approximately \$5.77 billion. In exchange, it acquired an operating utility with a year-

²³See Exhibit No. A-3, page 41.

²⁴See Exhibit No. A-3, page 42.

²⁵NextEra, Inc., SEC Form 10-K for 2018 at 98 (Feb. 15, 2019), provided as Exhibit No. A-3, pages 44-45.

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1 end 2018 regulatory book value of \$5.32 billion.²⁶ Thus, this transaction indicates a
 2 utility-level M/B ratio of approximately 1.08, much closer to unity than the
 3 contemporaneous M/B ratios of NextEra (approximately 2.54²⁷) or Southern
 4 (approximately 1.80²⁸).

5 An even lower M/B ratio for an operating utility is indicated by the April 2013
 6 acquisition of Atlantic Path 15 by Duke-American Transmission Company. The seller
 7 received “a total sale price of approximately \$56 million,”²⁹ in exchange for an entity
 8 whose book value equity (“Total Proprietary Capital”) exceeded \$60 million.³⁰ Thus,
 9 the M/B ratio indicated³¹ by that transaction is below unity.

10 Circa 2007, Alliant subsidiary Interstate Power and Light Company (“IPL”)
 11 sold its transmission system to the nascent ITC Midwest—not only selling the
 12 associated transmission assets, but doing so as a going concern with its transmission

²⁶ Gulf Power Co. FERC Form 1 for 2018 at 111, line 85 (“Total Assets” of \$5,320,620,672), provided as Exhibit No. A-3, page 47.

²⁷ Yahoo Finance identifies NEE’s year-end 2018 market price as \$173.82 (provided as Exhibit No. A-3, page 48). See <https://finance.yahoo.com/quote/NEE/history?p=NEE&.tsrc=fin-srch>. The February 15, 2019 Value Line (provided as Exhibit No. A-3, page 49) for NEE estimates a year-end 2018 book value per share of \$68.30. Applying those amounts’ ratio, NEE’s year-end 2018 M/B was approximately 2.54.

²⁸ Yahoo Finance identifies SO’s year-end 2018 market price as \$43.92, provided as Exhibit No. A-3, page 50. See <https://finance.yahoo.com/quote/SO/history?p=SO>. The February 15, 2019 Value Line for SO (provided as Exhibit No. A-3, page 51) estimates a year-end 2018 book value per share of \$24.35. Applying those amounts’ ratio, SO’s year-end 2018 M/B was approximately 1.80.

²⁹ Atlantic Power Corporation SEC Form 10-Q for the Quarter Ended March 31, 2013, at 12 (available at <https://www.sec.gov/Archives/edgar/data/1419242/000104746913005749/a2214227z10-q.htm> and provided as Exhibit No. A-3, page 53).

³⁰ Atlantic Path 15, LLC, FERC Form 3-Q for the Quarter Ended March 31, 2013, at 112 line 16 (FERC eLibrary No. 20130430-8004 and provided as Exhibit No. A-3, page 55). The transaction also included assumption of debt, which is excluded from both sides of the foregoing comparison.

³¹ The SEC Form 10-Q also states (at 12), provided as Exhibit No. A-3, page 53, that Atlantic Power “recorded a gain on sale of approximately \$7.0 million,” which would suggest an M/B ratio slightly more than unity rather than slightly less than unity.

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1 personnel transferred to ITC Midwest. *See generally ITC Holdings Corp.* 121 FERC
2 ¶ 61,229 (2007). IPL expected to receive approximately \$165.7 million in “Net
3 Proceeds Above Net Book Value of Assets,” which were estimated to be
4 \$423.2 million at the anticipated time of closing.³² Thus, this transaction indicates a
5 utility-level M/B ratio of approximately 1.39,³³ a significant portion of which
6 presumably reflected the market value of ITC Holdings’ substantial non-cost incentive
7 ROE adders and ability to profit through double-leveraging. At the exchange-traded
8 parent level, as of year-end 2007, ITC Holdings’ M/B ratio was approximately 4.3.³⁴

³² Exhibit CAH-1, Schedule K [~Spiegel R:08904.002 IA, MN, WI COALITION/As organized before 7.24.07/Alliant Filing Documents (SPU 07-11)/Compiled Searchable.pdf at 257 of 541], provided as Exhibit No. A-3, page 57.

³³ That is, in \$ millions, $(165.7 + 423.2)/423.2 = 1.39$.

³⁴ According to the September 16, 2016 Value Line for ITC Holdings (provided as Exhibit No. A-3, page 58), its split-adjusted, year-end 2007 book value per share was \$4.37, and its contemporaneous market price was between \$12.6 and \$19.5; <https://www.historicalstockprice.com> specifies \$18.81. The ratio \$18.81/\$4.37 exceeds 4.3.

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1 Similarly, when FE subsidiary Monongahela Power Company (“Mon Power”)
 2 sold its Ohio operations to Columbus Southern (a subsidiary of AEP) at year-end
 3 2005, it did so for a utility-level M/B ratio of approximately 1.17³⁵—much closer to
 4 unity than the M/B ratios of either FE (1.64³⁶) or AEP (1.58³⁷).

5 **Risk Premium**

6 **H.2.d.1.**

7 **Q SHOULD THE ANALYSIS BE HISTORICAL OR FORWARD-LOOKING?**

8 A The risk premium analysis should be “forward-looking,” but that is best achieved by
 9 referencing actual bond yields, which at any given historical time reflect bond
 10 investors’ forward-looking expectations of future interest rate offerings. It should not
 11 combine equity risk premiums found by comparing allowed ROEs to past actual bond
 12 yields with a projection of future bond yields. In particular, it would not be rational to
 13 derive a risk premium based on actual past utility bond yields, and then add that risk
 14 premium to current forecasts of future utility bond yields. Moreover, if regulator-

³⁵ See Letter from Allegheny Energy Senior Attorney Randall B. Palmer to FERC Secretary Magalie Roman Salas, Docket No. ER05-1312 (Apr. 11, 2006), eLib. 20060411-5026. Mon Power sold assets and associated accounts with a net book value of \$44,589,133 for cash or accounts payable valued at \$52,369,133, i.e., at a M/B ratio of 1.17. This calculation is conservatively high in that it does not include Mon Power’s sale of power at below market prices. Further context for this transaction is provided in Mon Power’s FERC Form 1 for 2005, eLib. 20060419-8007, at Page 109.1 (provided as Exhibit No. A-3, page 60), and a contemporaneous AEP press release, <https://www.aepohio.com/info/news/viewRelease.aspx?releaseID=217>.

³⁶ See February 20, 2015 Value Line for FE (provided as Exhibit No. A-3, page 61), showing 2005 market price per share range of \$37.7 to \$53.4 and 2005 year-end book value per share of \$27.86; averaging the first two amounts and dividing by the third produces an M/B ratio of 1.63).

³⁷ See March 20, 2015 Value Line for AEP (provided as Exhibit No. A-3, page 62), showing 2005 market price per share range of \$32.3 to \$40.8 and 2005 year-end book value per share of \$23.08; averaging the first two amounts and dividing by the third produces an M/B ratio of 1.58).

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1 allowed ROEs are utilized in identifying the equity risk premium, the data set of past
2 ROE allowances should be limited to decisions that reflect contemporary findings by
3 the Commission of the current market cost of equity, relative to the contemporaneous
4 actual bond yield. Significant timing lags can distort the observed past relationship
5 between the cost of equity and bond yields and thereby distort the output of a risk
6 premium model.

7 **H.2.d.2.**

8 **Q IS A RISK PREMIUM ANALYSIS COMPATIBLE WITH A FINDING OF**
9 **ANOMALOUS CAPITAL MARKET CONDITIONS? WHY OR WHY NOT?**

10 A The particular application of the risk premium method referenced in the *Coakley* and
11 MISO briefing orders (as further referenced in the NOI) assumes a linear relationship
12 between bond yields and the cost of equity, and assumes that equity risk premiums
13 vary *only* with changes in bond yields. This is an oversimplistic and invalid
14 assumption. The fact is that other factors also affect equity risk premiums. Indeed,
15 market literature makes it clear that risk premiums are driven by changes and
16 differences in investment risk. However, if that assumption is followed, and if (as was
17 asserted in Opinion No. 531) “anomalous” market conditions produce an unreliable
18 relationship between bond yields and the cost of equity, then such conditions make
19 such risk premium analysis unreliable.

20 However, this issue is not unique to the risk premium method. If “anomalous”
21 capital market conditions is used in the same way as Opinions Nos. 531 and 551—

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1 meaning conditions under which proven models can no longer be trusted to estimate
2 the cost of equity from visible financial market data—then *no* empirically-grounded
3 estimate of the cost of equity is compatible with anomalous capital market conditions.
4 If the Commission finds market conditions to be anomalous in that sense, it should
5 refrain from attempting to reach its own estimate of what equity costs, and instead
6 should simply rely on the recent average of state commission allowed ROEs for
7 similar services. However, the Commission has identified no basis to conclude that
8 market conditions are anomalous in that sense. For example, just because interest rates
9 move, that is not an indication that market prices of bonds and equities do not adjust to
10 reflect prevailing interest rates or outlooks for future changes in interest rates.

11 **H.2.d.3.**

12 **Q UNLIKE THE FINANCIAL MODELS DISCUSSED ABOVE, THE RISK**
13 **PREMIUM ANALYSIS PRODUCES A SINGLE ROE RATHER THAN A**
14 **ZONE OF REASONABLENESS. DOES THIS CHARACTERISTIC REQUIRE**
15 **THE COMMISSION TO USE THE RISK PREMIUM MODEL DIFFERENTLY**
16 **THAN THE OTHER MODELS?**

17 A To the extent the various models are applied independently (rather than being
18 combined at the individual-proxy level), each should be used to identify a single point
19 value estimate of the cost of equity, as I have discussed in response to Question D10
20 and its subparts. Accordingly, all of the adopted market-based models can and should
21 be used in the same way; for example, there is no good reason to reference risk the

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1 premium method for purposes of setting a replacement ROE while ignoring it for
2 purposes of evaluating whether an existing ROE remains reasonable.

3 In any case, a risk premium analysis can be used to develop a range or
4 distribution, just like the proxy-based DCF and CAPM methods. It is simply
5 inaccurate to state that the risk premium method can only create a point estimate. For
6 example, past regulatory determinations can be compared to and then added to the
7 yields on more than one class of bonds, thereby generating a range.

8 **H.2.d.3.i.**

9 **Q IS THERE A METHOD BY WHICH THE RISK PREMIUM ROE COULD BE**
10 **ADJUSTED UPWARD FOR AN ABOVE AVERAGE RISK UTILITY OR**
11 **DOWNTWARD FOR A BELOW AVERAGE RISK UTILITY? IF NOT, IS IT**
12 **REASONABLE TO CONSIDER THE RESULTS OF A RISK PREMIUM**
13 **ANALYSIS WHEN DETERMINING THE ROE OF AN ABOVE OR BELOW**
14 **AVERAGE RISK UTILITY?**

15 A Equity risk premiums are typically measured over a standard bond yield, and the risk
16 premium method is commonly applied using past regulatory decisions to stand in for
17 the past cost of equity, without differentiating among decisions involving utilities of
18 other than average risk. As these common practices are not inherent features of risk
19 premium analysis, it is possible to apply the risk premium method differently so as to
20 account for the atypical risk of a particular subject utility. For example, where
21 properly supported, the analysis could exclude past cases in which the past-case utility

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1 had a credit rating more than one “notch” different from that of the utility presently at
2 issue, and/or could apply the identified equity risk premium to the bond yield
3 applicable to the subject utility’s own credit rating.

4 **Q DOES THIS CONCLUDE YOUR AFFIDAVIT?**
5 **A Yes.**

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Qualifications of Michael P. Gorman

1 **Q PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

2 **A Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140,**
3 **Chesterfield, MO 63017.**

4 **Q PLEASE STATE YOUR OCCUPATION.**

5 **A I am a consultant in the field of public utility regulation and a Managing Principal with**
6 **the firm of Brubaker & Associates, Inc. (“BAI”), energy, economic and regulatory**
7 **consultants.**

8 **Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
9 **WORK EXPERIENCE.**

10 **A In 1983 I received a Bachelor of Science Degree in Electrical Engineering from**
11 **Southern Illinois University, and in 1986, I received a Master’s Degree in Business**
12 **Administration with a concentration in Finance from the University of Illinois at**
13 **Springfield. I have also completed several graduate level economics courses.**

14 In August of 1983, I accepted an analyst position with the Illinois Commerce
15 Commission (“ICC”). In this position, I performed a variety of analyses for both
16 formal and informal investigations before the ICC, including: marginal cost of
17 energy, central dispatch, avoided cost of energy, annual system production costs, and
18 working capital. In October of 1986, I was promoted to the position of Senior

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1 Analyst. In this position, I assumed the additional responsibilities of technical leader
2 on projects, and my areas of responsibility were expanded to include utility financial
3 modeling and financial analyses.

4 In 1987, I was promoted to Director of the Financial Analysis Department. In
5 this position, I was responsible for all financial analyses conducted by the Staff.
6 Among other things, I conducted analyses and sponsored testimony before the ICC on
7 rate of return, financial integrity, financial modeling and related issues. I also
8 supervised the development of all Staff analyses and testimony on these same issues.
9 In addition, I supervised the Staff's review and recommendations to the Commission
10 concerning utility plans to issue debt and equity securities.

11 In August of 1989, I accepted a position with Merrill-Lynch as a financial
12 consultant. After receiving all required securities licenses, I worked with individual
13 investors and small businesses in evaluating and selecting investments suitable to their
14 requirements.

15 In September of 1990, I accepted a position with Drazen-Brubaker &
16 Associates, Inc. ("DBA"). In April 1995, the firm of Brubaker & Associates, Inc. was
17 formed. It includes most of the former DBA principals and Staff. Since 1990, I have
18 performed various analyses and sponsored testimony on cost of capital, cost/benefits
19 of utility mergers and acquisitions, utility reorganizations, level of operating expenses
20 and rate base, cost of service studies, and analyses relating to industrial jobs and
21 economic development. I also participated in a study used to revise the financial
22 policy for the municipal utility in Kansas City, Kansas.

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1 At BAI, I also have extensive experience working with large energy users to
2 distribute and critically evaluate responses to requests for proposals (“RFPs”) for
3 electric, steam, and gas energy supply from competitive energy suppliers. These
4 analyses include the evaluation of gas supply and delivery charges, cogeneration
5 and/or combined cycle unit feasibility studies, and the evaluation of third-party
6 asset/supply management agreements. I have participated in rate cases on rate design
7 and class cost of service for electric, natural gas, water and wastewater utilities. I have
8 also analyzed commodity pricing indices and forward pricing methods for third party
9 supply agreements and have also conducted regional electric market price forecasts.

10 In addition to our main office in St. Louis, the firm also has branch offices in
11 Phoenix, Arizona and Corpus Christi, Texas.

12 **Q HAVE YOU EVER TESTIFIED BEFORE A REGULATORY BODY?**

13 A Yes. I have sponsored testimony on cost of capital, revenue requirements, cost of
14 service and other issues before the Federal Energy Regulatory Commission and
15 numerous state regulatory commissions including: Arkansas, Arizona, California,
16 Colorado, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas,
17 Louisiana, Michigan, Mississippi, Missouri, Montana, New Jersey, New Mexico, New
18 York, North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Texas,
19 Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and
20 before the provincial regulatory boards in Alberta and Nova Scotia, Canada. I have
21 also sponsored testimony before the Board of Public Utilities in Kansas City, Kansas;

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1 presented rate setting position reports to the regulatory board of the municipal utility
2 in Austin, Texas, and Salt River Project, Arizona, on behalf of industrial customers;
3 and negotiated rate disputes for industrial customers of the Municipal Electric
4 Authority of Georgia in the LaGrange, Georgia district.

5 **Q PLEASE DESCRIBE ANY PROFESSIONAL REGISTRATIONS OR**
6 **ORGANIZATIONS TO WHICH YOU BELONG.**

7 A I earned the designation of Chartered Financial Analyst (“CFA”) from the CFA
8 Institute. The CFA charter was awarded after successfully completing three
9 examinations which covered the subject areas of financial accounting, economics,
10 fixed income and equity valuation and professional and ethical conduct. I am a
11 member of the CFA Institute’s Financial Analyst Society.

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Acronyms and Abbreviations

Associations	Aluminum Association, American Chemistry Council, American Forest and Paper Association, American Public Power Association, Electricity Consumers Resource Council, Industrial Energy Consumers of America, National Rural Electric Cooperative Association, and Transmission Access Policy Study Group
BAI	Brubaker & Associates, Inc.
CAPM	Capital Asset Pricing Model
CFA	Chartered Financial Analyst
Commission	Federal Energy Regulatory Commission
DBA	Drazen-Brubaker & Associates, Inc.
DCF	Discounted Cash Flow
E/B	Earnings/Book
EEI	Edison Electric Institute
FERC	Federal Energy Regulatory Commission
GDP	Gross Domestic Product
<i>Hope and Bluefield</i>	<i>Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n of W. Va.</i> , 262 U.S. 679 (1923) and <i>Fed. Power Comm'n v. Hope Natural Gas Co.</i> , 320 U.S. 591 (1944)
IBES	Institutional Brokers' Estimate System
IPL	Interstate Power and Light Company
ICC	Illinois Commerce Commission
MISO TO	Midcontinent Independent System Operator, Inc.
NOI	Notice of Inquiry
P/E	Price-to-Earnings
RFP	Request for Proposals
ROE	Return on Equity
TO	Transmission Owner
<i>Value Line</i>	<i>The Value Line Investment Survey</i>
WACC	Weighted Average Cost of Capital

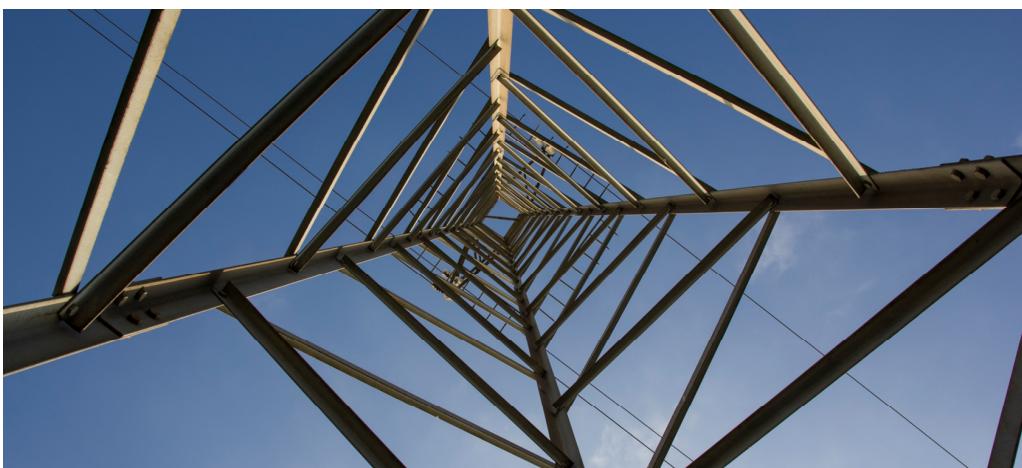
ASSOCIATIONS EXHIBIT No. A-3



Industry Top Trends 2019

North America Regulated Utilities

November 8, 2018



Key Takeaways

- **Ratings Outlook:** Rating trends across regulated electric, gas, and water utilities in North America remain mostly stable, reflecting generally supportive regulatory oversight. However, the industry's financial measures weakened in 2018 as a result of U.S. tax reform, robust capital spending, and flat to slightly negative load growth. In general, those utilities most affected by these developments were those who strategically operate with a minimal financial cushion at their current rating.
- **Forecasts:** We expect only modest financial improvement in 2019, reflecting somewhat improving margins partially offset by rising debt. Margin improvement will reflect productivity improvements from technological investments, favorable fuel cost trends, and higher revenues from robust capital investments and acquisitions.
- **Assumptions:** We expect overall capital spending to remain elevated through 2020, primarily due to rising infrastructure spending needs. Sales growth will generally remain flat to slightly negative, reflecting customer growth offset by conservation.
- **Risks and Opportunities:** To grow, utilities are merging and acquiring higher-risk businesses outside of the industry. The transformation of fossil generation to renewables provides utilities with an opportunity to grow while reducing their environmental risks. Also, increasing electric vehicles sales will lead to higher load growth, partially offsetting the negative effects of conservation.
- **Industry Trends:** The North America utility industry is mostly stable with some downside ratings exposure. Weaker credit measures from tax reform will likely persist in 2019, reflecting tax-related rate reductions carryovers. However, we expect that some utilities will offset this reduced revenue with further equity infusions or asset sales. Other developing trends include rising interest rates, inflation, technology, climate change, and regulatory lag, which could further stress the industry's credit quality.

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Industry Top Trends 2019: North America Regulated Utilities

Ratings trends and outlook

North America Regulated Utilities

Chart 1

Ratings distribution

■ North America - Regulated Utilities

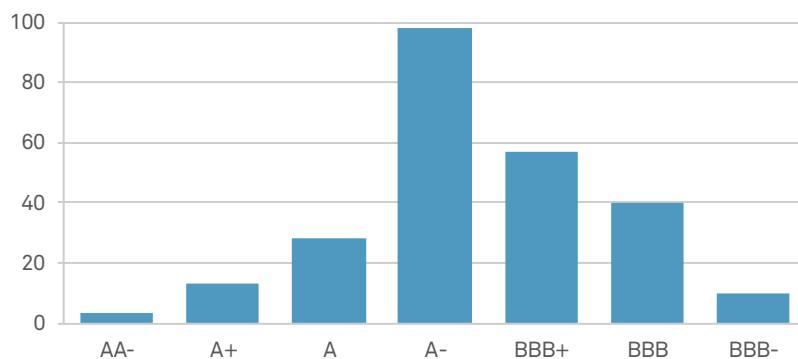
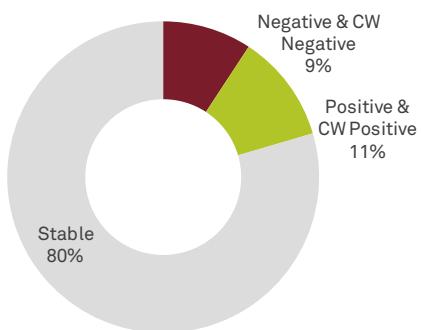


Chart 2

Ratings outlooks

As of Oct. 2017



As of Oct. 2018

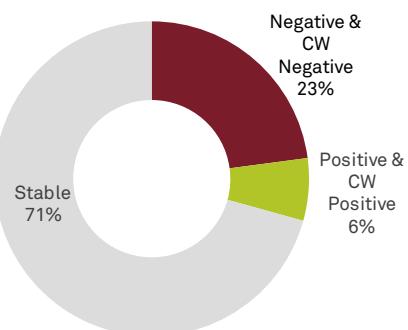
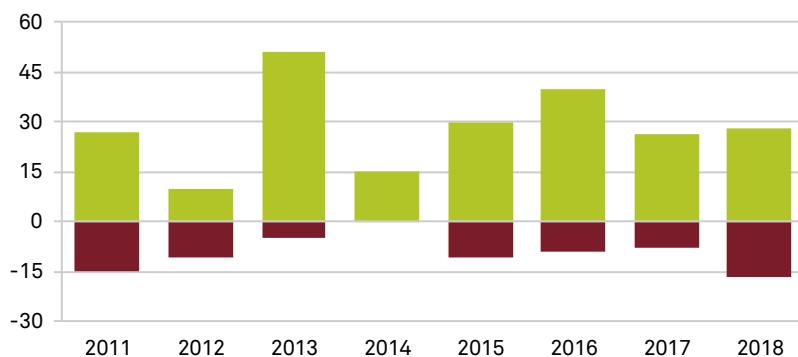


Chart 3

Ratings upgrades and downgrades

■ Upgrades ■ Downgrades



Source: S&P Global Ratings. Ratings data as of October 15, 2018

Industry Top Trends 2019: North America Regulated Utilities

Industry credit metrics

North America Regulated Utilities

Chart 4

Debt / EBITDA (median, adjusted)

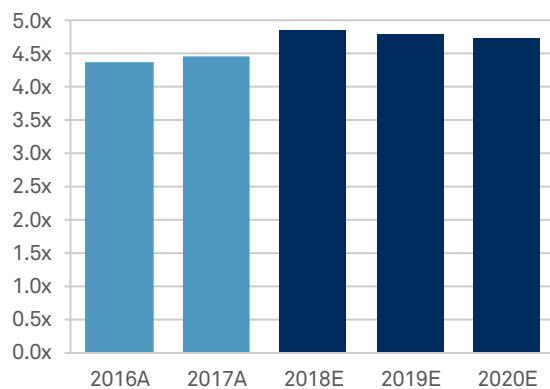


Chart 5

FFO / Debt (median, adjusted)

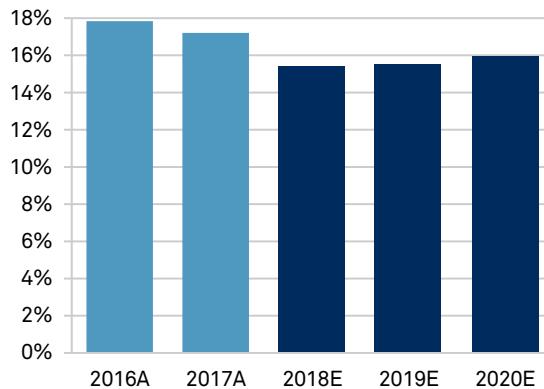


Chart 6

Cash flow and primary uses

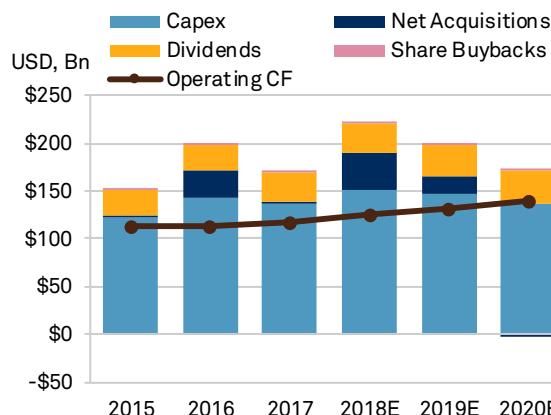


Chart 7

Equity Issuance

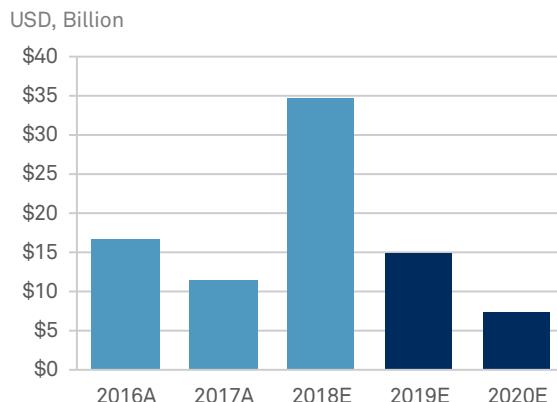
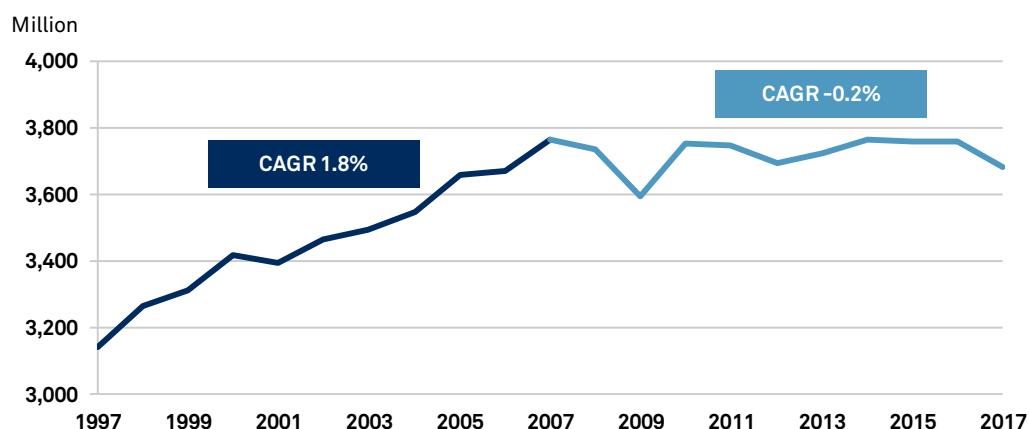


Chart 8

Total U.S. megawatt hours sold

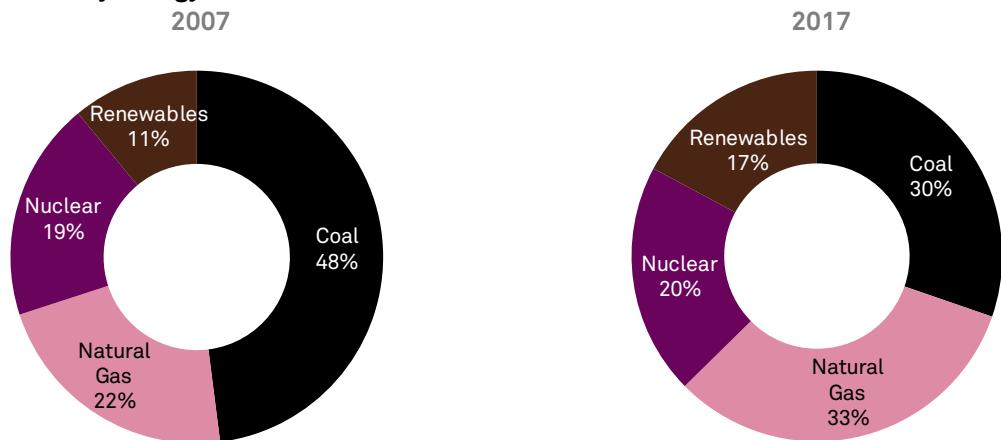


Source: S&P Global Ratings, S&P Global Market Intelligence, EIA U.S. sales growth 1990-2016. FFO--Funds from operations.

Industry Top Trends 2019: North America Regulated Utilities

Chart 9

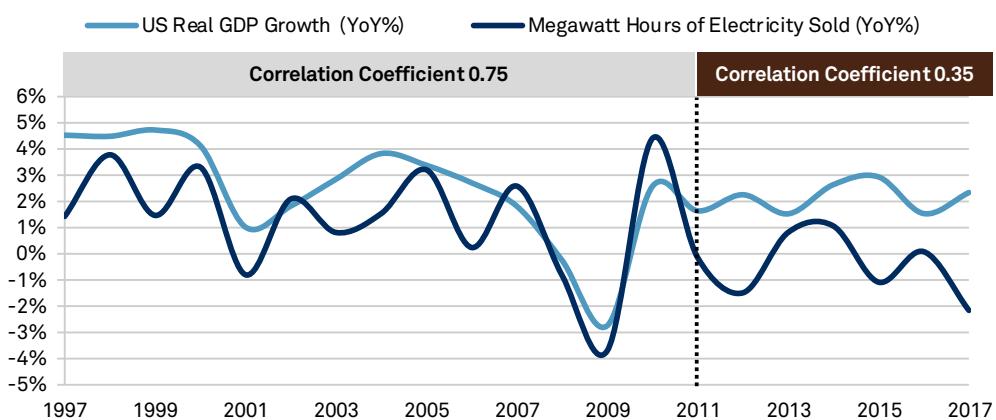
Generation Mix By Energy Source



Source: S&P Global Ratings, S&P Global Market Intelligence

Chart 10

Correlation Of U.S. GDP and Electricity Sales



Source: S&P Global Ratings

Industry outlook

Key assumptions

1. Conservation has reduced demand tied to economic growth

Historically, a strong correlation existed between economic growth and the demand for electricity. Since 2011, conservation has significantly curtailed sales growth, leading to a very weak correlation between utility sales and economic growth. Our base case incorporates flat to slightly negative sales growth over the next three years, reflecting new customer growth offset by conservation. To achieve growth, we expect that utilities will pursue mergers with other utilities as well as acquisitions of slightly higher-risk businesses outside of the direct utility industry.

2. Regulation and public policy support earnings and cash flow

We expect that regulators will continue to provide utilities with constructive frameworks that support credit quality. For most regulators, the requirement that utilities provide safe, reliable, and affordable utility services remains a priority. This regulatory perspective is balanced against an increasing awareness that the utility infrastructure in North America is aging, and that utilities may have to invest necessary capital to maintain and improve the infrastructure apparatus for electric, gas, and water systems. Such regulated infrastructure capital spending most often translates to low-risk rate base growth. In addition, regulatory support ensuring timely recovery of costs generally remains favorable for utilities' credit quality. Numerous cost recovery riders, trackers, and forward mechanisms provide more timely recovery of utility costs and reduce the regulatory lag. As such, we expect low-risk rate base growth to drive utilities' earnings and cash flows despite flat to slightly negative sales growth. From a public policy perspective, we also expect utilities will be given sufficient time to adapt to various public policy initiatives, including those relating to renewable energy, grid resilience, reduced emissions, improved technology, and higher safety standards.

3. Elevated capital spending to meet infrastructure needs

We assume that capital spending for North America's regulated electric, gas and water utilities will remain robust for 2019 and 2020 at about \$140 billion annually. In general, we expect that the industry will invest in smaller scale infrastructure projects that improve safety and reliability and boost productivity. Capital spending can provide margin growth when sales are diminished by recovering investments made on a growing rate base and by reducing cost through technology investments. Furthermore, capital spending is often welcomed by policymakers that appreciate the economic stimulus and the benefits of a safer and more reliable service. The speed with which the regulatory process turns the new spending into higher rates to begin to pay for the capital investment is an important factor in our assumptions and forecast. Any extended lag between spending and recovery can exacerbate the negative effect on credit metrics and therefore ratings. Investments in new generation with reduced emissions will drive higher capital spending. These types of investments would focus on renewable and natural gas-fired generation. Other areas of investment would include smart grids, electric vehicle charging stations, batteries, mergers within the industry, and acquisitions outside of the utility industry.

4. Generally flat operating and maintenance expense

We expect utilities to continue to lower operating and maintenance expenses through productivity initiatives and technological improvements. Because utilities earn on their capital investments, each dollar saved in operating expense provides headroom in the

Industry Top Trends 2019: North America Regulated Utilities

customer bill for increased capital investments, boosting a utility's financial performance without excessively increasing the customer bill. The deployment of technology such as digital meters can increase efficiency of operations while also securing the integrity of a utility's operations. Furthermore, investing in solar generation not only reduces operating and environmental risks, compared to fossil fuel generation, but also lowers a utility's operating and maintenance expenses. A solar generation installation requires very few people to operate, which reduces maintenance expenses, and it does not require any fossil fuel to generate electricity. As a comparison, coal generation burns fossil fuel to generate electricity and a nuclear generating facility could require thousands of employees to safely operate and maintain the facility.

5. Equity, hybrids, and asset sales to support credit quality

In 2018, North America regulated utilities took steps to preserve credit quality, by issuing common equity and hybrid securities, and by selling assets to support their financial measures. In particular, the industry utilities issued about \$35 billion of common equity in 2018, compared to about \$10 billion in 2017 and about \$15 billion in 2016. Driving this trend were weaker financial measures because of U.S. tax reform, robust capital spending, and M&A. For 2019, we expect equity issuance to temper to about \$15 billion. Credit quality remains important to the utility industry and the large 2018 equity issuances demonstrates that utilities will take the necessary steps to protect credit quality when facing financial challenges.

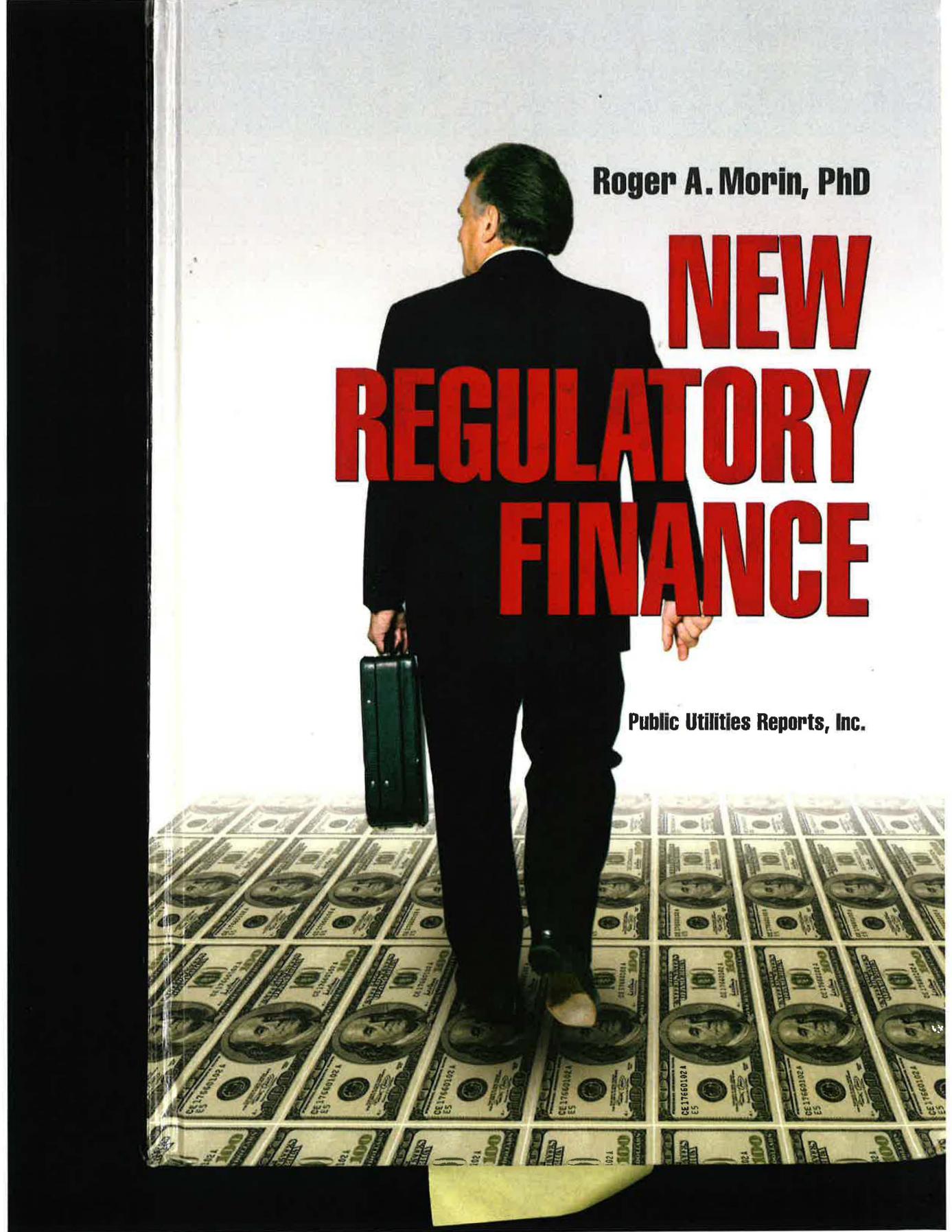
Key risks and opportunities

1. Mergers and acquisitions

In order to respond to sector challenges and disruption, we expect continued M&A activity despite rising interest rates. Due to conservation and sluggish load growth, two primary M&A strategies have developed within the industry. The first is to grow the absolute size of the utility business across multiple states and regulatory jurisdictions. This strategy attempts to reduce costs by identifying synergies and implements best practices across utilities. Canadian and U.S. utilities have also been focusing on growing by diversifying their utility portfolio (gas utilities buying electric utilities and vice versa, and even an electric/gas utility holding company acquiring water utilities) or cross-border combinations (mostly Canadian holding companies acquiring U.S. utilities). The second strategy is to grow through the acquisition of slightly higher-risk businesses (contracted assets) outside of the utility industry. Low interest rates by historical standards, strong stock prices, and plentiful leverage have justified paying large multiples of late. We've also seen holding companies once again thinking about rationalizing their portfolios with selective sales and purchases of smaller, less strategic utilities to gain scale within a jurisdiction or exit if scale is not feasible. Cost of capital has been slowly rising but is still well below the historical average. As a result, 2019 could bring more transactions before higher interest rates start to dissuade purchasers.

2. Generation transformation and disruption

Regulated electric utilities have been modifying their generation fleets to reduce emissions from power plants, electing to close aging coal plants and build low or zero emissions generation. Utilities have been shifting away from building bigger baseload generating stations, particularly coal and nuclear, to more modular construction that can be scaled up at an existing site on an as-needed basis. Improved economics associated with renewable generation support this trend, and utilities are able to benefit from efficiencies of scale.



Roger A. Morin, PhD

NEW REGULATORY FINANCE

Public Utilities Reports, Inc.

Chapter 8: Discounted Cash Flow Concepts

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EXAMPLE 8-1

We have the following market data for Utility X:

current dividend per share = \$1.62
 current stock price = \$25.00
 expected dividend growth = 4%

From Equation 8-8, the standard DCF model produces a cost of equity of:

$$\begin{aligned} K &= D_1 / P_0 + g \\ &= D_0(1+g) / P_0 + g \\ &= \$1.62 (1.04) / \$25 + .04 \\ &= 6.7\% + 4.0\% = 10.7\% \end{aligned}$$

Note that next year's expected dividend is the current spot dividend increased by the expected growth rate in dividends. In general, implementation of the approach requires finding D_0 and P_0 from readily available sources of market data; the growth rate, g , can be estimated using several techniques. One way is to rely on analysts' long-term growth forecasts. Chapter 9 will discuss the application of the DCF formulation in detail.

Standard DCF Model Assumptions

The assumptions underlying the standard DCF model have been the source of controversy, confusion, and misunderstanding in rate hearings. This section clarifies these assumptions.

Theories are simplifications of reality and the models articulated from theories are necessarily abstractions from and simplifications of the existing world so as to facilitate understanding and explanation of the real world. The DCF model is no exception to the rule. The assumptions of the standard DCF model are as follows:

Assumption #1. The four assumptions discussed earlier in conjunction with the general classical theory of security valuation still remain in force.

Assumption #2. The discount rate, K , must exceed the growth rate, g . In other words, the standard DCF model does not apply to growth stocks. In Equation 8-7, it is clear that as g approaches K , the denominator gets progressively smaller, and the price of the stock infinitely large. If g exceeds K , the price becomes negative, an implausible situation. In the derivation of the standard

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DCF equation (8-7) from the general stock valuation equation (8-5), it was necessary to assume g is less than K in order for the series of terms to converge toward a finite number. With this assumption, the present value of steadily growing dividends becomes smaller as the discounting effect of K in the denominator more than offsets the effect of such growth in the numerator.

This assumption is realistic for most public utilities. Investors require a return commensurate with the amount of risk assumed, and this return likely exceeds the expected growth rate in dividends for most public utilities. Although it is possible that a firm could sustain very high growth rates for a few years, no firm could double or triple its earnings and dividends indefinitely.

Assumption #3. The dividend growth rate is constant in every year to infinity. This assumption is not as problematic as it appears. It is not necessary that g be constant year after year to make the model valid. The growth rate may vary randomly around some average expected value. Random variations around trend are perfectly acceptable, as long as the mean expected growth is constant. The growth rate must be "expectationally constant," to use formal statistical jargon. This assumption greatly simplifies the model without detracting from its usefulness.

If investors expect growth patterns to prevail in the future other than constant infinite growth, more complex DCF models are available. For example, investors may expect dividends to grow at a relatively modest pace for the first 5 years and to resume a higher normal steady-state course thereafter, or conversely. The general valuation framework of Equation 8-5 can handle such situations. The "non-constant growth" model presented later in the chapter is a popular version of the DCF model.

It should be pointed out that the standard DCF model does not require infinite holding periods to remain valid. It simply assumes that the stock will be yielding the same rate of return at the time of sale as it is currently yielding. Example 8-2 illustrates this point.

Another way of stating this assumption is that the DCF model assumes that market price grows at the same rate as dividends. Although g has been specified in the model to be the expected rate of growth in dividends, it is also implicitly the expected rate of increase in stock price (expected capital gain) as well as the expected growth rate in earnings per share. This can be seen from Equation 8-7, which in period 1 would give:

$$P_1 = D_2 / (K - g)$$

But $D_2 = D_1(1 + g)$ and $P_0 = D_1 / (K - g)$

so that $P_1 = D_1(1 + g) / (K - g) = P_0(1 + g)$

Chapter 8: Discounted Cash Flow Concepts

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EXAMPLE 8-2

We have the following market data for Utility X:

current dividend per share = \$1.62
current stock price = \$13.00
expected dividend growth = 4%

Consider a 3-year holding period. If both price and dividend grow at the 4% expected rate, dividends for each of the next 3 years are \$1.68, \$1.75, and \$1.82, respectively, and the price at the end of the third year is $\$13(1 + .04)^3 = \14.62 . If the investor sells the stock at the end of the third year, the return expected by the investor is still 17%, because the present value of the dividend stream and the stock price at resale is exactly equal to the current purchase price:

$$P_0 = \frac{1.68}{1.17} + \frac{1.75}{1.17^2} + \frac{1.82}{1.17^3} + \frac{14.62}{1.17^3}$$

$$= \$13.00$$

The same result obtains for any value of "n," that is, for any length of holding period. The main result of the DCF model does not depend on the value of n. In other words, the DCF model is independent of the investor holding period.

Hence, g is the expected growth in stock price. Similarly, if a fixed fraction of earnings are distributed in dividends, then:

$$D_1 = aE_1 \quad \text{and} \quad D_2 = aE_2$$

where a is the constant payout ratio and E the earnings per share. Since $D_2 = D_1(1 + g)$, we also have $E_2 = E_1(1 + g)$ and, hence, g is the expected growth in earnings per share.

Yet another way to express the idea that the validity of the standard DCF model does not depend on the value of the investor's holding period is to say that investors expect the ratio of market price to dividends (or earnings) in year n, P_n/D_n , to be the same as the current price/dividend ratio, P_0/D_0 . This must be true if the infinite growth assumption is made. Investors will only expect $(P/E)_n$ to differ from $(P/E)_0$ if they believe that the growth following year n will differ from the growth expected before year n, since the price in year n is the present value of all subsequent dividends from {n + 1} to infinity.

The constancy of the price/earnings (P/E) assumption is not prohibitive to DCF usage. If there is reason to believe that stock price will grow at a different

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rate than dividends (for example, if the stock price is expected to converge to book value), a slightly more complex model is warranted. Such a model is presented in section 8.6.

Assumption #4. Investors require the same return K every year. The assumption of a flat yield curve was alluded to earlier, but requires elaboration. A firm's cost of capital, K , varies directly with the risk of the firm. By assuming the constancy of K , the model abstracts from the effects of a change in risk on the value of the firm. If K is to remain constant, the firm's capital structure policy and dividend payout policy must be assumed to remain stable so as to neutralize any effect of capital structure changes or dividend policy changes on K .

The assumption of a constant dividend payout policy not only simplifies the mathematics but also insulates the model from any effects of dividend policy on risk, if any, and hence on K . Besides, this assumption was indirectly stated earlier; a constant dividend policy implies that dividends and earnings grow at the same rate. The assumption of a constant dividend payout is realistic. Most firms, including utilities, tend to maintain a fixed payout rate when it is averaged over several years.

The simplification of a constant capital structure may be acceptable if the utility exhibits a near constant debt-equity ratio over time and is expected to do so in the future.

Assumption #5. The standard DCF model assumes no external financing. All financing is assumed to be conducted by the retention of earnings. No new equity issues are used or, if they are, they are neutral in effect with respect to existing shareholders. Without this assumption, the per share dividends could be watered down by a new stock issue, violating the constant growth assumption. A more comprehensive model allowing for external stock financing is presented in a later section.

8.4 The Determinants of Dividend Growth

It is instructive to describe the factors that cause growth in dividends to occur and to disaggregate the growth term in the standard DCF model into its contributory elements.

The "retention ratio" is defined as the percentage of earnings retained by the firm for reinvestment. The fraction of earnings not ploughed back into the firm's asset base is paid out as dividends, and is referred to as the "dividend payout ratio." Under the DCF assumption of no external financing, if a firm is expected to retain a fraction b of its earnings and expected to earn a book return of r on common equity investments, then its earnings, dividends, book

Year	Eq Ba
1	\$10
2	\$10
3	\$11
4	\$11
5	\$12
—	-
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etc.	et
g =	5

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Table 8-1 show capital base of earnings in divi on an initial c dividends, and \$100. An equit the cycle in th is paid out in d base to \$110.25 in each subseq arbitrarily assu with the DCF : book return or dividends per s and stock price

In summary:

But:

so that:

Chapter 9: Discounted Cash Flow Application

includes many *ad hoc* forecasts from statistical models, ranging from the naive methods of simple averages, moving averages, etc. to the sophisticated time-series techniques such as the Box-Jenkins modeling techniques. The literature suggests that analysts' earnings forecasts incorporate all the public information available to the analysts and the public at the time the forecasts are released. This finding implies that analysts have already factored historical growth trends into their forecast growth rates, making reliance on historical growth rates somewhat redundant and, at worst, potentially double counting growth rates which are irrelevant to future expectations. Furthermore, these forecasts are statistically more accurate than forecasts based solely on historical earnings, dividends, book value equity, and the like.

Summary of Empirical Research

Important papers include Brown and Rozeff (1978), Cragg and Malkiel (1968, 1982), Harris (1986), Vander Weide and Carleton (1988), Lys and Sohn (1990), and Easterwood and Nutt (1999).

The study by Brown and Rozeff (1978) shows that analysts, as proxied by Value Line analysts, make better forecasts than could be obtained using only historical data, because analysts have available not only past data but also a knowledge of such crucial factors as rate case decisions, construction programs, new products, cost data, and so on. Brown and Rozeff test the accuracy of analysts' forecasts versus forecasts based on past data only, and conclude that their evidence of superior analyses means that analysts' forecasts should be used in studies of cost of capital. Their evidence supports the hypothesis that Value Line analysts consistently make better predictions than historical time-series models.

Using the IBES consensus earnings forecasts as proxies for investor expectation, Harris (1986) estimates the cost of equity using expected rather than historical earnings growth rates. In his review of the literature on financial analysts' forecasts, Harris concludes that a growing body of knowledge shows that analysts' earnings forecasts are indeed reflected in stock prices. Elton, Gruber, and Gultekin (1981) show that stock prices react more to changes in analysts' forecasts of earnings than they do to changes in earnings themselves, suggesting the usefulness of analysts' forecasts as surrogates for market expectations. In an extensive National Bureau of Economic Research study using analysts' earnings forecasts, Cragg and Malkiel (1982) present detailed empirical evidence that the average analyst's expectation is more similar to expectations being reflected in the marketplace than historical growth rates, and that it is the best possible source of DCF growth rates. The authors show that historical growth rates do not contain any information that is not already impounded in analysts' growth forecasts. They conclude that the expectations formed by Wall Street professionals get quickly and thoroughly impounded

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into the prices of securities and that the company valuations made by analysts are reflected in security prices.

Vander Weide and Carleton (1988) update the Cragg and Malkiel study and find overwhelming evidence that the consensus analysts' forecasts of future growth is superior to historically oriented growth measures in predicting the firm's stock price. Their results also are consistent with the hypothesis that investors use analysts' forecasts, rather than historically oriented growth calculations, in making stock buy-and-sell decisions. A study by Timme and Eisenman (1989) produced similar results.

Using virtually all publicly available analyst earnings forecasts for a large sample of companies (over 23,000 individual forecasts by 100 analyst firms), Lys and Sohn (1990) show that stock returns respond to individual analyst earnings forecasts, even when they are closely preceded by earnings forecasts made by other analysts or by corporate accounting disclosures. Using actual and IBES data from 1982–1995, Easterwood and Nutt (1999) regress the analysts' forecast errors against either historical earnings changes or analysts' forecasting errors in the prior years. Results show that analysts tend to underreact to negative earnings information, but overreact to positive earnings information.

The more recent studies provide evidence that analysts make biased forecasts and misinterpret the impact of new information.¹¹ For example, several studies in the early 1990s suggest that analysts either systematically underreact or overreact to new information. Easterwood and Nutt (1999) discriminate between these different reactions and reported that analysts underreact to negative information, but overreact to positive information. The recent studies do not necessarily contradict the earlier literature. The earlier research focused on whether analysts' earnings forecasts are better at forecasting future earnings than historical averages, whereas the recent literature investigates whether the analysts' earnings forecasts are unbiased estimates of future earnings. It is possible that even if the analysts' forecasts are biased, they are still closer to future earnings than the historical averages, although this hypothesis has not been tested in the recent studies. One way to assess the concern that analysts' forecasts may be biased upward is to incorporate into the analysis the growth forecasts of independent research firms, such as Value Line, in addition to the analyst consensus forecast. Unlike investment banking firms and stock brokerage firms, independent research firms such as Value Line have no incentive to distort earnings growth estimates in order to bolster interest in common stocks.

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Empirical st primarily of houses and Thus, both c primarily of rates alone.

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¹¹ Other relevant papers corroborating the superiority of analysts' forecasts as predictors of future returns versus historical growth rates include: Fried and Givoly (1982), Moyer, Chatfield and Kelley (1985), and Gordon, Gordon and Gould (1989).

¹² Examples Touche R

Chapter 9: Discounted Cash Flow Application

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Some argue that analysts tend to forecast earnings growth rates that exceed those actually achieved and that this optimism biases the DCF results upward. The magnitude of the optimism bias for large rate-regulated companies in stable segments of an industry is likely to be very small. Empirically, the severity of the optimism problem is unclear for regulated utilities, if a problem exists at all. It is interesting to note that Value Line forecasts for utility companies made by independent analysts with no incentive for over- or understating growth forecasts are not materially different from those published by analysts in security firms with incentives not based on forecast accuracy, and may in fact be more robust. If the optimism problem exists at all, it can be circumvented by relying on multiple-stage DCF models that substitute long-term economic growth for analysts' growth forecasts in the second and/or third stages of the model.

Empirical studies have also been conducted showing that investors who rely primarily on data obtained from several large reputable investment research houses and security dealers obtain better results than those who do not.¹² Thus, both empirical research and common sense indicate that investors rely primarily on analysts' growth rate forecasts rather than on historical growth rates alone.

Ideally, one could decide which analysts make the most reliable forecasts and then confine the analysis to those forecasts. This would be impractical since reliable data on past forecasts are generally not available. Moreover, analysts with poor track records are replaced by more competent analysts, so that a poor forecasting record by a particular firm is not necessarily indicative of poor future forecasts. In any event, analysts working for large brokerage firms typically have a following, and investors who heed a particular analyst's recommendations do exert an influence on the market. So, an average of all the available forecasts from large reputable investment houses is likely to produce the best DCF growth rate.

Growth rate forecasts are available online from several sources. For example, Value Line Investment Analyzer, IBES (Institutional Brokers' Estimate System), Zacks Investment Research, Reuters, First Call, Yahoo Finance, and Multex Web sites provide analysts' earnings forecasts on a regular basis by reporting on the results of periodic (usually monthly) surveys of the earnings growth forecasts of a large number of investment advisors, brokerage houses, and other firms that engage in fundamental research on U.S. corporations. These firms include most large institutional investors, such as pension funds, banks, and insurance companies. Representative of industry practices, the Zacks Investment Research Web site is a central location whereby investors

¹² Examples of these studies include Stanley, Lewellen and Schlarbaum (1981) and Touche Ross Co. (1982).

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are able to research the different analyst estimates for any given stock without necessarily searching for each individual analyst. Zacks gathers and compiles the different estimates made by stock analysts on the future earnings for the majority of U.S. publicly traded companies. Estimates of earnings per share for the upcoming 2 fiscal years, and a projected 5-year growth rate in such earnings per share are available at monthly intervals. The forecast 5-year growth rates are normalized in order to remove short-term distortions. Forecasts are updated when analysts formally change their stated predictions.

Exclusive reliance on a single analyst's growth forecast runs the risk of being unrepresentative of investors' consensus forecast. One would expect that averages of analysts' growth forecasts, such as those contained in IBES or Zacks, are more reliable estimates of investors' consensus expectations likely to be impounded in stock prices.¹³ Averages of analysts' growth forecasts rather than a single analyst's growth forecasts are more reliable estimates of investors' consensus expectations.

One problem with the use of published analysts' forecasts is that some forecasts cover only the next one or two years. If these are abnormal years, they may not be indicative of longer-run average growth expectations. Another problem is that forecasts may not be available in sufficient quantities or may not be available at all for certain utilities, for example water utilities, in which case alternate methods of growth estimation must be employed.

Some financial economists are uncomfortable with the assumption that the DCF growth rates are perpetual growth rates, and argue that above average growth can be expected to prevail for a fixed number of years and then the growth rate will settle down to a steady-state, long-run level, consistent with that of the economy. The converse also can be true whereby below-average growth can be expected to prevail for a fixed number of years and then the growth rate will resume a higher steady-state, long-run level. Extended DCF models are available to accommodate such assumptions, and were discussed in Chapter 8.

Earnings versus Dividend Forecasts

Casual inspection of the Zacks Investment Research, First Call Thompson, and Multex Web sites reveals that earnings per share forecasts dominate the information provided. There are few, if any, dividend growth forecasts. Only Value Line provides comprehensive long-term dividend growth forecasts. The wide availability of earnings forecasts is not surprising. There is an abundance of evidence attesting to the importance of earnings in assessing investors'

¹³ The earnings growth rates published by Zacks, First Call, Reuters, Value Line, and IBES contain significant overlap since all rely on virtually the same population of institutional analysts who provide such forecasts.

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Chapter 9: Discounted Cash Flow Applica

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expectations. The sheer volume of earnings forecasts available from the investment community relative to the scarcity of dividend forecasts attests to their importance. The fact that these investment information providers focus on growth in earnings rather than growth in dividends indicates that the investment community regards earnings growth as a superior indicator of future long-term growth. Surveys of analytical techniques actually used by analysts reveal the dominance of earnings and conclude that earnings are considered far more important than dividends. Finally, Value Line's principal investment rating assigned to individual stocks, Timeliness Rank, is based primarily on earnings, accounting for 65% of the ranking.

Historical Growth Rates Versus Analysts' Forecasts

Obviously, historical growth rates as well as analysts' forecasts provide relevant information to the investor with regard to growth expectations. Each proxy for expected growth brings information to the judgment process from a different light. Neither proxy is without blemish; each has advantages and shortcomings. Historical growth rates are available and easily verifiable, but may no longer be applicable if structural shifts have occurred. Analysts' growth forecasts may be more relevant since they encompass both history and current changes, but are nevertheless imperfect proxies.

9.5 Growth Estimates: Sustainable Growth Method

The third method of estimating the growth component in the DCF model, alternately referred to as the "sustainable growth" or "retention ratio" method, can be used by investment analysts to predict future growth in earnings and dividends. In this method, the fraction of earnings expected to be retained by the company, b , is multiplied by the expected return on book equity, r , to produce the growth forecast. That is,

$$g = b \times r$$

The conceptual premise of the method, enunciated in Chapter 8, Section 8.4, is that future growth in dividends for existing equity can only occur if a portion of the overall return to investors is reinvested into the firm instead of being distributed as dividends.

For example, if a company earns 12% on equity, and pays all the earnings out in dividends, the retention factor, b , is zero and earnings per share will not grow for the simple reason that there are no increments to the asset base (rate base). Conversely, if the company retains all its earnings and pays no dividends, it would grow at an annual rate of 12%. Or again, if the company earns 12% on equity and pays out 60% of the earnings in dividends, the

3/22/2019

Federal Reserve Board - Federal Reserve issues FOMC statement of longer-run goals and policy strategy

Press Release

January 25, 2012

Federal Reserve issues FOMC statement of longer-run goals and policy strategy

For release at 2:00 p.m. EST

Share 

Following careful deliberations at its recent meetings, the Federal Open Market Committee (FOMC) has reached broad agreement on the following principles regarding its longer-run goals and monetary policy strategy. The Committee intends to reaffirm these principles and to make adjustments as appropriate at its annual organizational meeting each January.

The FOMC is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. The Committee judges that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate. Communicating this inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby fostering price stability and moderate long-term interest rates and enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances.

The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may change over time and may not be directly measurable. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments. Information about Committee participants' estimates of the longer-run normal rates of output growth and unemployment is published four times per year in the FOMC's Summary of Economic Projections. For example, in the most recent projections, FOMC participants' estimates of the longer-run normal rate of unemployment had a central tendency of 5.2 percent to 6.0 percent, roughly unchanged from last January but substantially higher than the corresponding interval several years earlier.

In setting monetary policy, the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

**FERC Docket No. PL19-4-000
Affidavit of Michael P. Gorman
Exhibit No. A-3
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Federal Reserve Board - Federal Reserve issues FOMC statement of longer-run goals and policy strategy

Last Update: January 25, 2012

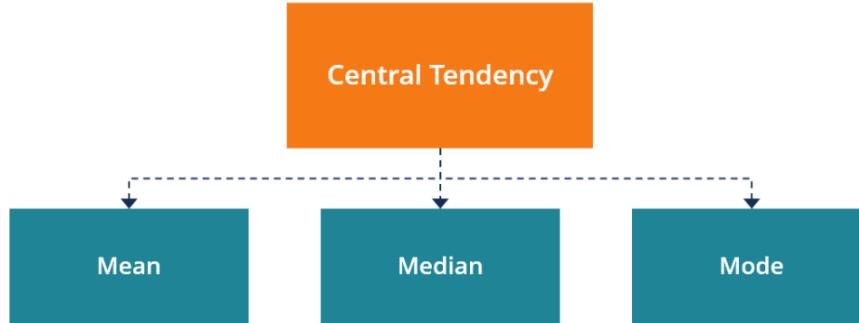
6/24/2019

Central Tendency - Definition, Measures of Central Tendency



Central tendency is a descriptive summary of a dataset through a single value that reflects the center of the data distribution. Along with the variability (dispersion) of a dataset, central tendency is a branch of descriptive statistics.

The central tendency is one of the most quintessential concepts in statistics. Although it does not provide information regarding the individual values in the dataset, it delivers a comprehensive summary of the whole dataset.



Measures of Central Tendency

Generally, the central tendency of a dataset can be described using the following measures:

- **Mean (Average):** Represents the sum of all values in a dataset divided by the total number of the values.
- **Median:** The middle value in a dataset that is arranged in ascending order (from the smallest value to the largest value). If a dataset contains an even number of values, the median of the dataset is the mean of the two middle values.
- **Mode:** Defines the most frequently occurring value in a dataset. In some cases, a dataset may contain multiple modes while some datasets may not have any mode at all.



6/24/2019

Central Tendency - Definition, Measures of Central Tendency

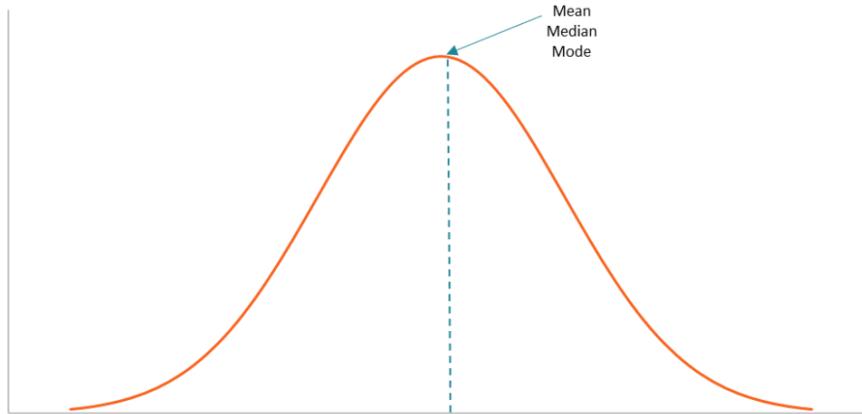


including, but not limited to, geometric mean, harmonic mean, midrange, and geometric median.

The selection of central tendency as a measure depends on the properties of a dataset. For instance, mode is the only central tendency measure of categorical data while a median works best with ordinal data.

Although mean is regarded as the best measure of central tendency for quantitative data, it is not always the case. For example, mean may not work well with quantitative datasets that contain extremely large or extremely small values. The extreme values may distort the mean. Thus, you may consider other options of central tendency.

The measures of central tendency can be found using a formula or definition. Also, they can be identified using a frequency distribution graph. Note that for the datasets that follow a normal distribution, the mean, median, and mode are located on the same spot on the graph.



Related Readings

CFI is the official provider of the global Financial Modeling & Valuation Analyst (FMVA)[™] certification program, designed to help anyone become a world-class financial analyst. To keep advancing your career, the additional resources below will be useful:





THE VALUE LINE Investment Survey®

PART 2

Selection & Opinion

PAGES 2183-2190

File in page order in the
Selection & Opinion binder.

AUGUST 6, 2004

The Value Line View

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The *Selection & Opinion* Index appears on page 2286 (June 4, 2004).

In Three Parts: Part 1 is the Summary & Index. This is Part 2, Selection & Opinion. Part 3 is Ratings & Reports. Volume LIX, Number 49.

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ECONOMIC AND STOCK MARKET COMMENTARY

The economic picture is mixed as we near the midpoint of the third quarter. Recent reports, for example, show a modest easing in retail sales, housing starts, industrial production, and factory use. Other data, though, indicate that existing home sales are increasing; that there are fewer mass layoff announcements than earlier in 2004; and that consumer confidence remains strong. These crosscurrents held the nation's gross domestic product to a rather modest 3.0% rate of increase in the second quarter. Slower growth in consumer spending and increasing strength in capital goods demand were the main factors in the recent GDP performance.

There are reasons for the U.S. economy's slowing rate of growth. One reason is the continuing rise in energy prices. Higher oil prices, and the resultant rise in heating bills, air conditioning costs, and the tab for filling up a gasoline tank act as tax increases by taking funds out of the hands of consumers. The earlier rise in certain interest rates (notably home mortgages) and the recent decline in stock prices are also putting some pressure on the business expansion.

There are also bright spots. For openers, the housing market remains strong, both in terms of demand and prices. In fact, the further rise in real estate values is helping to

partially offset the negative wealth effect of falling equity prices. The recent drop in mortgage rates, meantime, is likely to give housing a boost in the second half. Finally, second-quarter earnings were generally positive and favorable comparisons should continue in the second half.

We expect the economic ship to continue sailing forward. True, the recent move by the Federal Reserve to nudge up short-term interest rates and some possible further rate hikes going forward may limit GDP growth to a certain extent. Nevertheless, the economic uptrend is likely to remain securely in place. In fact, we think there is sufficient momentum around for GDP growth to average 3%, or better, in the second half of 2004.

Investors are uneasy. We think some concern is realistic given the recent slowing in growth, the risks of higher inflation, and the tenuous global outlook. That said, we think the recent drop in stock prices has taken some of these risks into account. As such, equity valuations now appear to be quite reasonable.

Conclusion: We continue to think the market's risks and potential rewards are fairly well balanced. Please refer to the inside back cover of *Selection & Opinion* for our Asset Allocation Model's current reading.

CLOSING STOCK MARKET AVERAGES AS OF PRESS TIME

	7/22/2004	7/29/2004	%Change 1 week	%Change 12 months
Dow Jones Industrial Average	10050.33	10129.24	+0.8%	+10.0%
Standard & Poor's 500	1096.84	1100.43	+0.3%	+11.2%
N.Y. Stock Exchange Composite	6390.63	6394.07	+0.1%	+14.8%
NASDAQ Composite	1889.06	1881.06	-0.4%	+8.6%
NASDAQ 100	1408.51	1398.55	-0.7%	+9.7%
American Stock Exchange Index	1244.31	1229.60	-1.2%	+29.6%
Value Line (Geometric)	352.25	352.83	+0.2%	+13.7%
Value Line (Arithmetic)	1529.94	1534.77	+0.3%	+20.2%
London (FT-SE 100)	4306.3	4418.7	+2.6%	+6.8%
Tokyo (Nikkei)	11285.04	11116.84	-1.5%	+13.0%
Russell 2000	546.52	549.83	+0.6%	+16.1%

Model Portfolios: Recent Developments

PORTFOLIO I

We are purchasing *Getty Images* stock for Portfolio I this week. The company sells and licenses still and moving images and associated products and services to advertisers and design agencies. The images are marketed and distributed via its Internet site. Since going public in early 1998, *Getty's* top line has expanded nicely, reflecting internal growth supplemented by a handful of acquisitions. The company moved into profitability in 2002, and it looks like 2004 will be a strong year in this regard. Indeed, its second-quarter financial report made for excellent reading, with revenues and earnings rising sharply. And, based on *Getty's* view of its business environment, the company raised its forecast for its likely financial performance for the second half of the year. As such, the stock, though not trading at a bargain-basement price, should be a good addition to our group. To make room for *GYI* shares, we are selling Omnicare stock, whose Timeliness rank fell to 3 (Average) in the wake of an earnings shortfall.

PORTFOLIO II

The latest earnings season ended on an upbeat note for Portfolio II. In particular, our insurance-related holdings all picked up additional support from investors after posting strong results that exceeded our expectations. *Chubb* led the way, with strong premium growth, favorable loss experience, and successful expense-control initiatives driving a nearly 30% gain in operating earnings during the June quarter. Insurance-broker *A.J. Gallagher* fell just short of this level, as share net rose 26%. *Marsh & McLennan's* performance was more subdued, though the company still managed to deliver 11% profit growth, despite continued weakness in its investment-management subsidiary. Meanwhile, chemical-makers *DuPont* and *Eastman Chemical* also saw their share prices advance after releasing generally favorable second-quarter results. Investors, however, were less impressed with tool-manufacturer *Stanley Works*, which gave up some ground in the market despite exceeding its previous earnings guidance.

PORTFOLIO III

More than 25% of the stocks in Portfolio III are well-known consumer products companies. Our holdings include *Coca-Cola*, *Hormel Foods*, *W.M. Wrigley, Jr.*, *Pepsico*, and *Anheuser Busch*. Traditionally, these companies have held up fairly well during market downturns, thereby providing some downside protection for investors. Unfortunately, that has not been the case thus far in the September quarter, as these stocks have all experienced substantial declines in price since the beginning of July. Some of the weakness is attributable to near-term profit concerns (e.g., *Coca-Cola* and *Pepsi*), but the majority of the selloff seems to stem from a rotation by investors out of the consumer-products sector. Our long-term view for all of these companies remains unchanged; hence we plan on maintaining our positions for the time being, with the possibility of increasing our holdings in these stocks if prices continue to decline. As such, we are once again not making any changes to Portfolio III this week.

PORTFOLIO I: STOCKS WITH ABOVE-AVERAGE YEAR-AHEAD PRICE POTENTIAL

(primarily suitable for more aggressive investors)

Ratings & Reports		Company	Recent Price	Time-liness	Safety	P/E	Yield%	Beta	Financial Strength	Industry Name
Page	Ticker									
785	ACDO	Accredo Health	33.92	2	3	19.7	Nil	1.00	B+	Pharmacy Services
1585	BFAM	Bright Horizons Family	52.25	2	3	27.9	Nil	0.80	B+	Educational Services
786	CVS	CVS Corp.	41.88	1	3	18.6	0.6	0.80	A+	Pharmacy Services
1253	CELG	Celgene Corp.	51.37	1	3	NMF	Nil	1.30	B+	Drug
658	CERN	Cerner Corp.	44.62	2	3	26.9	Nil	1.00	B+	Healthcare Information
1724	CHS	Chico's FAS	41.22	2	3	26.6	Nil	1.35	B+	Retail (Special Lines)
945	CHD	Church & Dwight	44.66	2	2	19.8	0.7	0.50	A	Household Products
2185	CTSH	Cognizant Technology	27.11	2	3	41.7	Nil	1.00	B+	Computer Software/Svcs
1256	CVD	Covance Inc.	35.26	1	3	24.3	Nil	0.95	B+	Drug
1387	FO	Fortune Brands	71.37	2	2	16.0	1.8	0.85	A	Diversified Co.
388	GYI	Getty Images	54.25	1	3	33.9	Nil	1.70	B+	Information Services
822	HELE	Helen of Troy Ltd.	31.18	2	3	12.6	Nil	0.90	B+	Toiletries/Cosmetics
450	POG	Patina Oil & Gas	29.36	1	3	14.3	0.7	0.90	B+	Natural Gas (Div.)
224	PDCO	Patterson Cos.	73.64	2	2	28.4	Nil	0.55	A	Medical Supplies
1753	PETM	PETsMART Inc.	29.88	1	3	24.9	0.4	1.05	B+	Retail (Special Lines)
1278	PFE	Pfizer, Inc.	31.62	1	1	14.9	2.3	0.85	A++	Drug
226	RMD	ResMed Inc.	47.38	1	3	24.9	Nil	1.00	B+	Medical Supplies
1595	STRA	Strayer Education	99.15	2	3	37.4	0.3	0.65	B++	Educational Services
232	SYK	Stryker Corp.	46.88	1	2	33.5	0.2	0.70	A	Medical Supplies
2222	SYMC	Symantec Corp.	44.96	1	3	31.4	Nil	1.05	B++	Computer Software/Svcs

To qualify for purchase in the above portfolio, a stock must have a Timeliness rank of 1 and a Financial Strength Rating of at least B+. If a stock's Timeliness rank falls below 2, it will be automatically removed. Stocks in the above portfolio are selected and monitored by Charles Clark, Assistant Research Director.

FERC Docket No. PL19-4-000
Affidavit of Michael P. Gorman
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AUGUST 6, 2004

VALUE LINE SELECTION & OPINION

PAGE 2185

PORTFOLIO II: STOCKS FOR INCOME AND POTENTIAL PRICE APPRECIATION

		(primarily suitable for more conservative investors)								
Ratings & Reports Page	Ticker	Company	Recent Price	Time-line	Safety	P/E	Yield%	Beta	Financial Strength	Industry Name
592	CB	Chubb Corp.	68.39	3	2	11.0	2.3	1.10	A	Insurance (Prop/Cas.)
947	CL	Colgate-Palmolive	53.45	3	1	19.8	1.8	0.70	A++	Household Products
1238	DD	Du Pont	42.25	2	1	18.0	3.3	1.00	A++	Chemical (Basic)
1969	EMN	Eastman Chemical	44.12	1	3	19.2	4.0	0.95	B+	Chemical (Diversified)
1387	FO	Fortune Brands	71.37	2	2	16.0	1.8	0.85	A	Diversified Co.
2152	AJG	Gallagher (Arthur J.)	30.99	2	1	15.5	3.2	0.90	A+	Financial Svcs. (Div.)
1014	GE	Gen'l Electric	33.29	3	1	21.5	2.4	1.30	A++	Electrical Equipment
1492	GIS	Gen'l Mills	45.25	3	2	15.8	2.7	0.55	B++	Food Processing
1494	HNZ	Heinz (H.J.)	36.93	3	1	16.1	3.1	0.55	A+	Food Processing
1393	ITT	ITT Industries	78.40	3	1	18.0	0.9	0.90	A	Diversified Co.
215	JNJ	Johnson & Johnson	55.68	2	1	18.7	2.0	0.70	A++	Medical Supplies
904	LEG	Leggett & Platt	26.27	3	2	19.5	2.1	1.05	A	Furn/Home Furnishings
1887	MBG	Mandalay Resort Group	67.48	NR	3	22.5	1.6	0.95	B+	Hotel/Gaming
2162	MMC	Marsh & McLennan	45.07	2	2	14.5	3.0	1.20	A+	Financial Svcs. (Div.)
919	PCL	Plum Creek Timber	31.19	3	2	23.1	4.5	0.70	B+	Paper/Forest Products
503	SHW	Sherwin-Williams	39.87	3	2	15.3	1.8	1.00	A	Chemical (Specialty)
2123	SOTR	SouthTrust Corp.	38.82	NR	2	17.3	2.6	0.95	B++	Bank
1368	SWK	Stanley Works	41.81	2	3	14.9	2.7	1.00	B++	Machinery
2126	SNV	Synovus Financial	25.41	3	2	17.5	2.7	1.10	B++	Bank
626	USB	U.S. Bancorp	28.29	3	3	13.2	3.6	1.25	B++	Bank (Midwest)

To qualify for purchase in the above portfolio, a stock must have a yield that is in the top half of the Value Line universe, a Timeliness Rank of at least 3 (unranked stocks may be selected occasionally), and a Safety Rank of 3 or better. If a stock's Timeliness Rank falls below 3, that stock will be automatically removed. Stocks are selected and monitored by Robert M. Greene, CFA, Senior Industry Analyst.

PORTFOLIO III: STOCKS WITH LONG-TERM PRICE GROWTH POTENTIAL

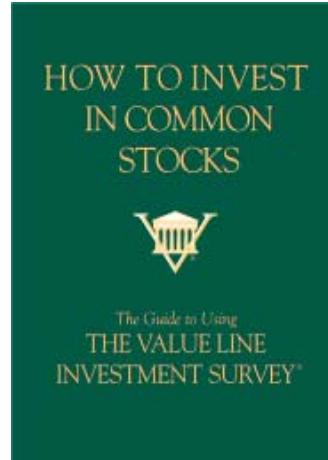
		(primarily suitable for investors with a 3- to 5-year horizon)								
Ratings & Reports Page	Ticker	Company	Recent Price	Time-line	Safety	P/E	Yield%	Beta	3- to 5-yr Appreciation Potential	Industry Name
1205	AFL	AFLAC Inc.	38.93	2	2	16.9	1.0	0.95	40 - 95%	Insurance (Life)
1537	BUD	Anheuser-Busch	52.33	3	1	18.9	1.9	0.60	55 - 90	Beverage (Alcoholic)
1252	BMY	Bristol-Myers Squibb	23.57	4	3	15.7	4.8	1.05	25 - 110	Drug
1546	KO	Coca-Cola	43.68	2	1	20.6	2.4	0.65	50 - 85	Beverage (Soft Drink)
411	COP	ConocoPhillips	76.66	2	2	9.6	2.3	0.85	10 - 50	Petroleum (Integrated)
1864	DIS	Disney (Walt)	22.84	2	3	22.2	0.9	1.30	75 - 165	Entertainment
616	FITB	Fifth Third Bancorp	49.86	3	1	15.6	2.7	1.00	70 - 100	Bank (Midwest)
1562	FUJIY	Fuji Photo ADR	30.38	3	1	21.0	0.8	0.70	80 - 115	Foreign Electronics
596	HCC	HCC Insurance Hldgs.	30.00	3	3	10.9	1.0	0.95	65 - 150	Insurance (Prop/Cas.)
1496	HRL	Hormel Foods	29.13	3	1	17.8	1.6	0.60	55 - 90	Food Processing
215	JNJ	Johnson & Johnson	55.68	2	1	18.7	2.0	0.70	45 - 80	Medical Supplies
823	EL	Lauder (Estee)	43.91	2	2	24.4	0.7	0.90	60 - 105	Toiletries/Cosmetics
602	PRE	PartnerRe Ltd.	51.12	3	3	6.7	2.7	1.05	45 - 115	Insurance (Prop/Cas.)
1552	PEP	PepsiCo, Inc.	51.19	3	1	22.3	1.8	0.65	35 - 75	Beverage (Soft Drink)
1278	PFE	Pfizer, Inc.	31.62	1	1	14.9	2.3	0.85	90 - 135	Drug
922	RYN	Rayonier Inc. (REIT)	43.89	3	3	20.0	5.1	0.95	15 - 70	Paper/Forest Products
1524	SWY	Safeway Inc.	20.94	3	3	15.5	Nil	0.90	65 - 140	Grocery
1760	TJX	TJX Companies	23.16	3	3	16.5	0.8	1.10	30 - 95	Retail (Special Lines)
782	TMX	Telefonos de Mexico ADR	30.99	3	3	8.2	4.2	0.80	60 - 140	Foreign Telecom.
1515	WWY	Wrigley (Wm.) Jr.	60.25	3	1	26.8	1.6	0.60	25 - 60	Food Processing

To qualify for purchase in the above portfolio, a stock must have worthwhile and longer-term appreciation potential. Among the factors considered for selection are a stock's Timeliness and Safety Rank and its 3- to 5-year appreciation potential. (Occasionally a stock will be unranked (NR), usually because of a short trading history or a major corporate reorganization.) Stocks in the above portfolio are selected and monitored by William R. Pekowitz, Jr., Senior Analyst.

Understanding The Value Line Page: Annual Rates

There is a wealth of information included with each company report found in the Ratings & Reports section of *The Investment Survey*. In addition to a stock's Timeliness and Safety rank, the Value Line page is packed with quarterly and annual financial performance figures, important balance sheet statistics, and, of course, our analysts' commentary, estimates, and projections. Indeed, there is much more to the page than we have just mentioned, so it is understandable that those new to *The Survey* may be a bit intimidated, at first. That's why we have a guide on how to use it, namely, *How To Invest In Common Stocks—The Guide to Using The Value Line Investment Survey*.

A picture of the front cover of *The Guide* is found nearby. We hasten to note that it, along with a wide range of useful investment information, can be found on our Web site. To find it, go to www.valueline.com, then click on Ed-



ucation near the top-center of our home page. You should then see a page displayed with a column of buttons along the left side—click on the one labeled How To Invest Guides. Selecting the top link on this new page will get you where you want to be. That is, a copy of *The Guide* should become available for viewing.

With this brief introduction out of the way, we thought we would take this opportunity to answer a question that often comes up about the Annual Rates box, found just to the left of the analysts' comment on the Value Line page. In particular, subscribers often want to know how the annual rates of change for various per-share figures are calculated. To help us here, we decided to take a page out of the above-mentioned investment guide. Using Stryker Corporation as an example, we have largely followed the discussion of the calculation of annual rates of change found on page 14 of *How To Invest In Common Stocks*. Our calculation method is detailed below, along with a reproduction of the annual rates box from our latest report on Stryker Corporation (dated June 4, 2004). We note that this is just a small example of the kind of helpful information that is available on our Web site, and we invite subscribers to check in with us often.

Calculating Annual Rates of Change (Growth Rates)

ANNUAL RATES	Past of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '01-'03
Sales	20.5%	24.5%	15.5%	
"Cash Flow"	24.5%	28.0%	19.0%	
Earnings	22.0%	22.5%	22.0%	
Dividends	26.0%	12.5%	22.5%	
Book Value	20.5%	20.5%	16.0%	

In an attempt to eliminate short-term fluctuations that may distort results, Value Line uses a three-year base period and a three-year ending period when calculating growth rates.

Example: To calculate the compound annual sales growth from 2001-2003 to 2007-2009, we take sales per share for each of the years 2001, 2002, and 2003 and average them. Then we take the sales per share for the years 2007-2009, as shown in the far right column of the large statistical section of our report.

In the case of Stryker Corporation, the three-year base period average is \$7.76. The three-year ending period average is \$18.40. The compound annual growth rate over the six years from 2002 (the middle year) to 2008 (again, the middle year) is 15.5%, rounded.

Investors often try to calculate a growth rate from one starting year to one ending year, and then can't understand why the number they get is not the same as the one published by Value Line. If they used a three-year base period and three-year ending period, they would get the same results we do.

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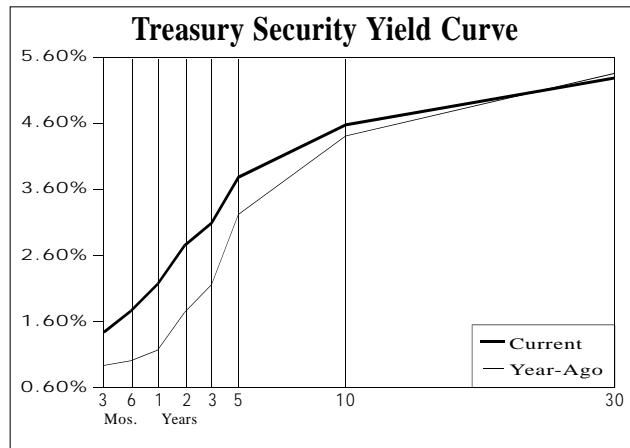
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Selected Yields

	Recent (7/29/04)	3 Months Ago (4/29/04)	Year Ago (7/31/03)		Recent (7/29/04)	3 Months Ago (4/29/04)	Year Ago (7/31/03)
TAXABLE							
Market Rates							
Discount Rate	2.25	2.00	2.00	Mortgage-Backed Securities			
Federal Funds	1.25	1.00	1.00	GNMA 6.5%	4.94	4.69	5.14
Prime Rate	4.25	4.00	4.00	FHLMC 6.5% (Gold)	4.90	4.80	5.34
30-day CP (A1/P1)	1.38	1.00	1.03	FNMA 6.5%	4.89	4.76	5.28
3-month LIBOR	1.69	1.18	1.11	FNMA ARM	2.67	2.80	2.95
Bank CDs				Corporate Bonds			
6-month	0.93	0.73	0.72	Financial (10-year) A	5.52	5.48	5.60
1-year	1.38	0.98	0.80	Industrial (25/30-year) A	6.08	6.14	6.48
5-year	3.66	3.12	2.59	Utility (25/30-year) A	6.05	6.06	6.29
U.S. Treasury Securities				Utility (25/30-year) Baa/BBB	6.51	6.44	6.77
3-month	1.44	0.97	0.94	Foreign Bonds (10-Year)			
6-month	1.76	1.13	1.01	Canada	4.82	4.72	4.84
1-year	2.17	1.54	1.17	Germany	4.27	4.20	4.19
5-year	3.79	3.65	3.22	Japan	1.83	1.53	0.95
10-year	4.58	4.54	4.41	United Kingdom	5.18	5.01	4.52
30-year	5.29	5.31	5.36	Preferred Stocks			
30-year Zero	5.41	5.45	5.57	Utility A	6.80	6.91	6.74
				Financial A	6.23	6.20	6.00
				Financial Adjustable A	5.46	5.50	5.19

**TAX-EXEMPT**

Bond Buyer Indexes			
20-Bond Index (GOs)	4.88	4.95	5.07
25-Bond Index (Revs)	5.31	5.28	5.42
General Obligation Bonds (GOs)			
1-year Aaa	1.47	1.25	0.95
1-year A	1.62	1.40	1.21
5-year Aaa	3.03	2.85	2.77
5-year A	3.29	3.16	3.27
10-year Aaa	3.85	3.90	4.04
10-year A	4.20	4.26	4.62
25/30-year Aaa	4.96	4.89	5.07
25/30-year A	5.19	5.12	5.41
Revenue Bonds (Revs) (25/30-Year)			
Education AA	5.17	5.10	5.10
Electric AA	5.07	5.01	5.24
Housing AA	5.25	5.20	5.25
Hospital AA	5.45	5.45	5.40
Toll Road Aaa	5.22	5.13	5.38

Federal Reserve Data

BANK RESERVES

(Two-Week Period; in Millions, Not Seasonally Adjusted)

	Recent Levels		Average Levels Over the Last...		
	7/21/04	7/7/04	12 Wks.	26 Wks.	52 Wks.
Excess Reserves	1375	1945	-570	1664	1531
Borrowed Reserves	242	223	19	156	113
Net Free/Borrowed Reserves	1133	1722	-589	1508	1418

MONEY SUPPLY

(One-Week Period; in Billions, Seasonally Adjusted)

	Recent Levels		Growth Rates Over the Last...		
	7/19/04	7/12/04	3 Mos.	6 Mos.	12 Mos.
M1 (Currency+demand deposits)	1316.4	1310.0	6.4	2.7%	4.3%
M2 (M1+savings+small time deposits)	6286.3	6288.0	-1.7	5.5%	7.1%
M3 (M2+large time deposits)	9288.1	9267.1	21.0	7.5%	9.2%

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Affidavit of Michael P. Gorman

Exhibit No. A-3

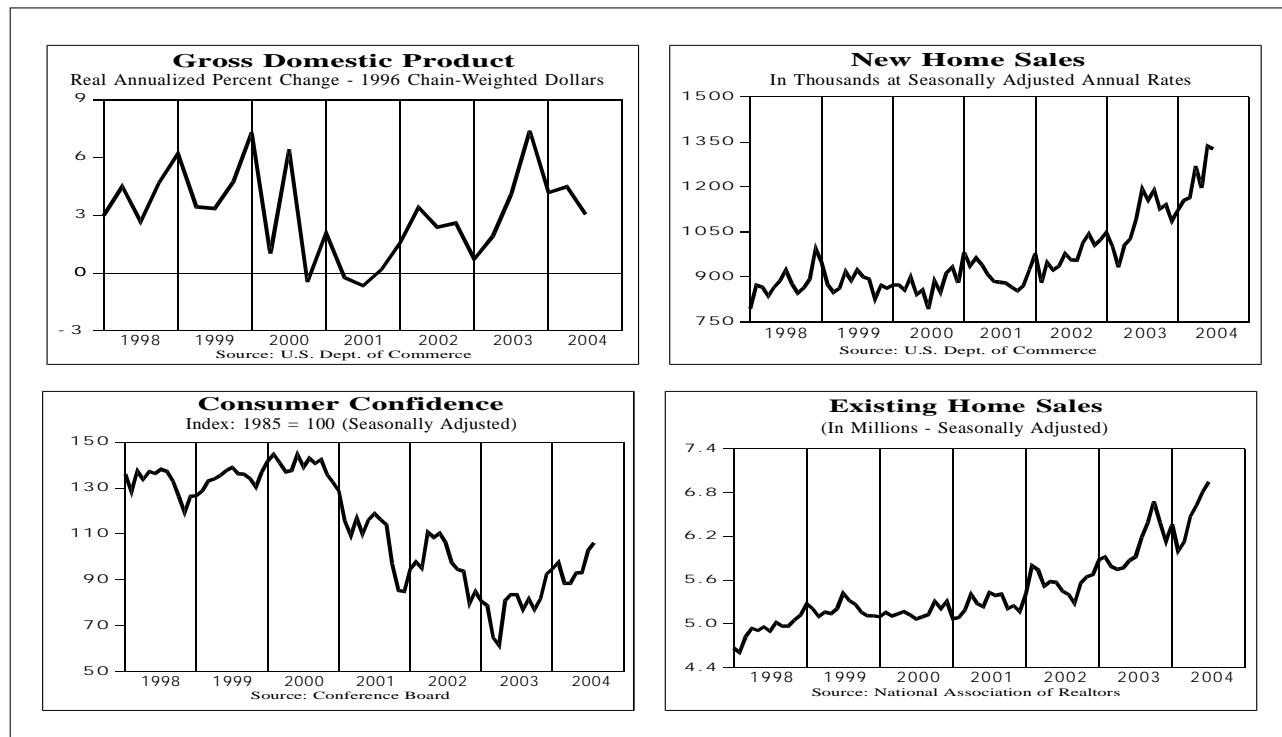
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Tracking the Economy

Major Insider Transactions[†]

PURCHASES							
Latest Full-Page Report	Timeliness Rank	Company	Insider, Title	Date	Shares Traded	Shares Held(a)	Recent Price
746	3	ADTRAN, Inc.	W.L. Marks, Dir.	7/19/04	2,600	3,328	\$24.92
2110	2	Commerce Bancorp NJ	W. Schwartz Jr., Dir.	7/16/04	4,000	38,753	\$52.06
1678	3	Dollar General Corp.	J.L. Clayton, Dir.	7/15/04	52,700	634,252	\$18.95-\$19.00
594	3	Everest Re Group Ltd.	J. Weber, Dir.	7/22/04	1,000	4,838	\$72.06
1014	3	Gen'l Electric	C. Gonzalez, Dir.	7/20/04	10,000	101,152	\$33.10-\$33.11
2125	4	SunTrust Banks	R.M. Beall II, Dir.	7/21/04	1,000	3,000	\$66.19
2128	3	Wachovia Corp.	L.L. Smith, Dir.	7/16/04	10,000	33,000	\$44.56

SALES							
Latest Full-Page Report	Timeliness Rank	Company	Insider, Title	Date	Shares Traded	Shares Held(a)	Recent Price
2171	2	Adobe Systems	J.E. Warnock, Co-Chair.	7/15/04	115,261	1,072,688	\$43.38
944	4	Blyth Inc.	R.B. Goergen, Chair.	7/15/04	300,000	10,509,854	\$35.00
1428	3	Goldman Sachs	K.W. Kennedy, Exec. VP	7/21/04	50,000	1,075,728	\$89.14
270	1	Hunt (J.B.)	J.W. Walton, Exec. VP	7/20/04	60,000	143,274	\$37.05
2205	3	Microsoft Corp.	J.S. Raikes, Officer	7/21/04	500,000	8,440,334	\$29.46
2210	3	Oracle Corp.	L. Ellison, CEO	7/21/04	1,000,000	NA	\$10.33-\$10.76
1956	4	Rowan Cos.	C. Palmer, Dir.	7/21/04	173,700	359,559	\$25.55

^{*} Beneficial owner of more than 10% of common stock.^(a) Beneficial ownership at end of month in which transaction occurred.[†] Includes only large transactions in U.S.-traded stocks; excludes shares held in the form of limited partnerships, excludes options & family trusts.

Major Insider Transactions are obtained from Vickers Stock Research Corporation.

AUGUST 6, 2004

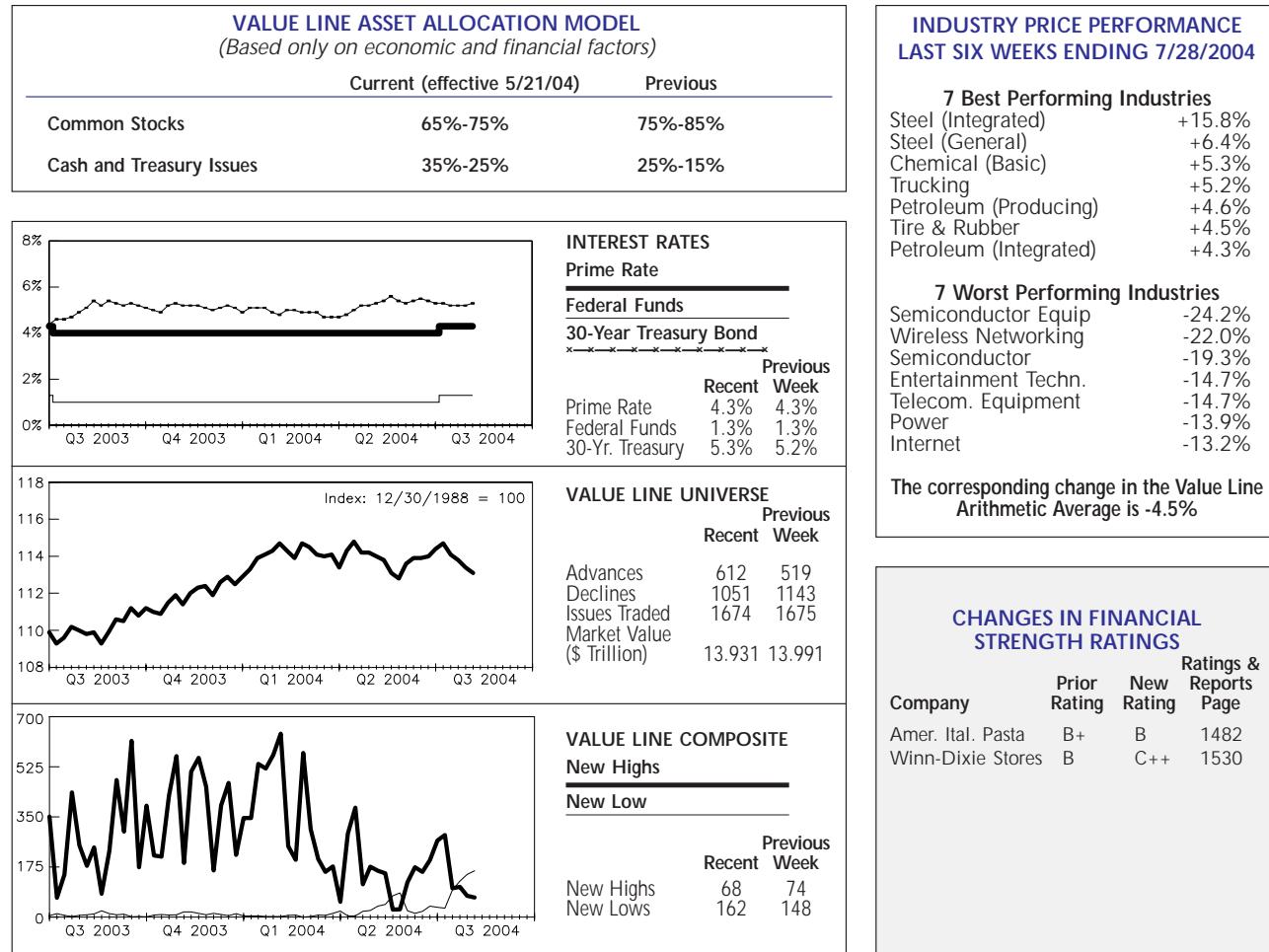
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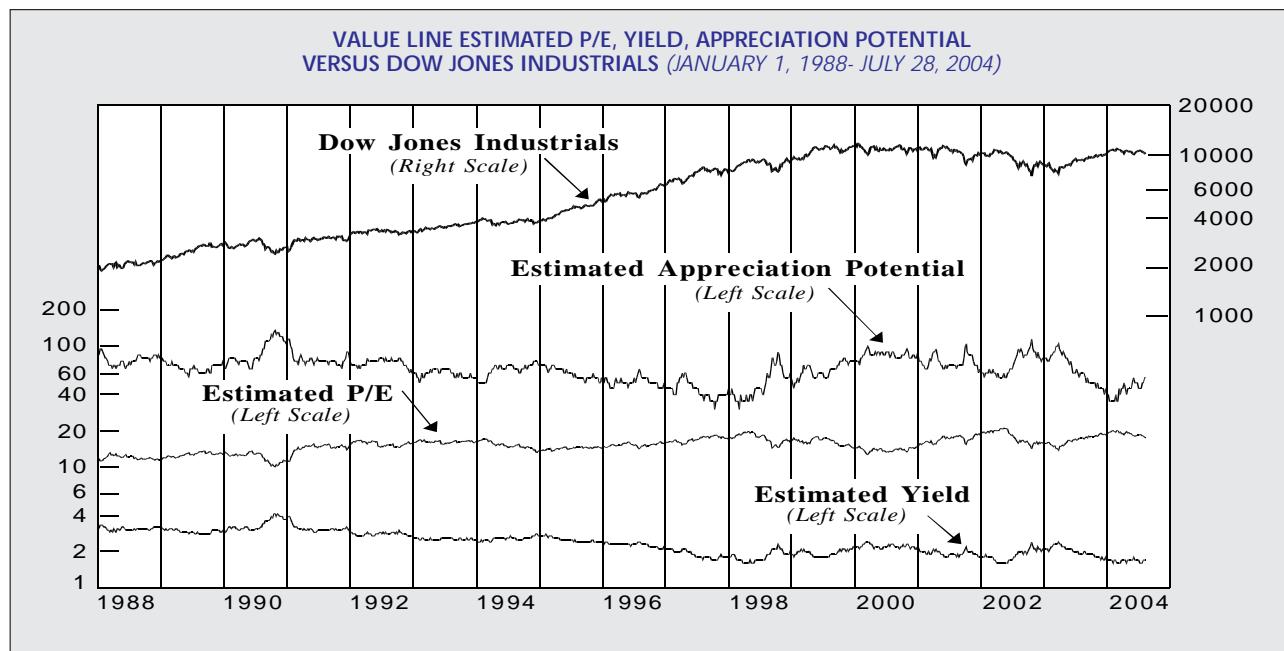
Market Monitor

Valuations and Yields	7/29	7/22	13-week range	50-week range	Last market top (4-5-2004)	Last market bottom (10-9-2002)
Median price-earnings ratio of VL stocks	17.5	17.7	17.5 - 18.9	17.5 - 20.1	19.7	14.1
P/E (using 12-mo. est'd EPS) of DJ Industrials	15.8	15.7	15.7 - 17.7	15.7 - 19.5	18.7	15.2
Median dividend yield of VL stocks	1.7%	1.7%	1.6 - 1.8%	1.6 - 1.9%	1.6%	2.4%
Div'd yld. (12-mo. est.) of DJ Industrials	2.2%	2.2%	2.1 - 2.2%	2.0 - 2.3%	2.1%	2.6%
Prime Rate	4.3%	4.3%	4.0 - 4.3%	4.0 - 4.3%	4.0%	4.8%
Federal Funds	1.3%	1.3%	1.0 - 1.3%	1.0 - 1.3%	1.0%	1.8%
91-day T-bill rate	1.4%	1.4%	1.0 - 1.4%	0.9 - 1.4%	0.9%	1.6%
Moody's Aaa Corporate bond yield	5.9%	5.8%	5.8 - 6.2%	5.3 - 6.2%	5.6%	6.1%
30-year Treasury bond yield	5.3%	5.2%	5.2 - 5.6%	4.7 - 5.6%	5.0%	4.7%
Bond yield minus average earnings yield	0.2%	0.2%	0.2 - 0.7%	-0.1 - 0.7%	0.5%	-1.0%

Market Sentiment	Wk. Ending 7/29	Wk. Ending 7/22	10-week average	13-week range	Last market top (4-5-2004)	Last market bottom (10-9-2002)
% of total NYSE short sales by:						
Public	49	52	48	40 - 52	51	53
NYSE specialists	23	21	24	21 - 28	29	37
Other NYSE members	28	27	28	22 - 36	20	10
Total NYSE short sales/total NYSE volume	14.6%	14.4%	14.4%	12.9 - 14.9%	12.9%	12.9%
Short interest/avg. daily volume (5 weeks)	5.4	5.5	5.5	4.8 - 5.8	5.1	5.3
Odd-lot sales/purchases	1.3	1.2	1.0	0.7 - 1.3	1.2	1.1
CBOE put volume/call volume	.73	.74	.86	.73 - 1.12	.72	.96



Stock Market Averages



THE VALUE LINE GEOMETRIC AVERAGES					THE DOW JONES AVERAGES				
	Composite*	Industrials	Rails	Utilities		Composite	Industrials	Transportation	Utilities
	1646 stocks	1530 stocks	7 stocks	109 stocks		65 stocks	30 stocks	20 stocks	15 stocks
7/23/2004	347.82	296.91	1139.96	223.95		1511.14	9962.22	3043.44	276.92
7/26/2004	344.71	294.20	1134.67	222.68		1498.02	9961.92	3048.60	276.01
7/27/2004	349.61	298.57	1137.33	223.75		1519.76	2974.79	10085.14	276.23
7/28/2004	348.26	297.22	1162.47	224.66		1514.41	2989.62	10117.07	278.11
7/29/2004	352.83	301.23	1177.12	226.31		1534.77	3006.82	10129.24	3129.42
%Change last 4 weeks	-5.0%	-5.4%	+0.9%	-0.1%		-4.6%	-1.2%	-2.0%	+1.6%

* Excludes approximately 30 closed-end funds covered in Ratings & Reports in the following industries: Investment Companies (Foreign Funds), Issue 2; Investment Companies, Issue 6.

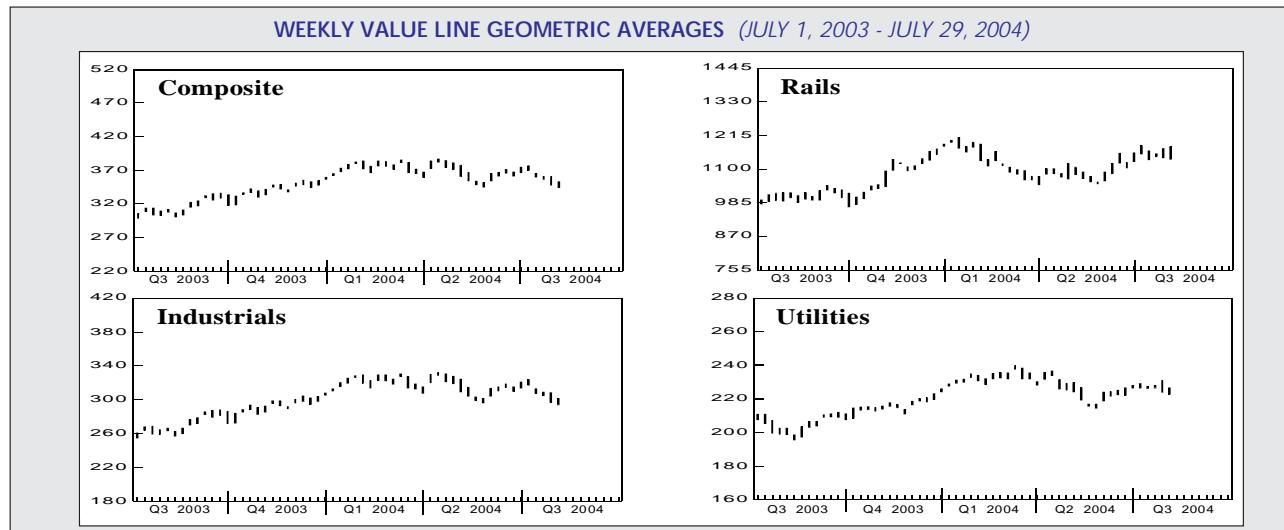


Exhibit No. JC-100

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

Association of Businesses Advocating Tariff Equity)	
Coalition of MISO Transmission Customers)	
Illinois Industrial Energy Consumers)	
Indiana Industrial Energy Consumers, Inc.)	
Minnesota Large Industrial Group)	Docket No. EL14-12-003
Wisconsin Industrial Energy Group)	
)	
v.)	
)	
Midcontinent Independent System Operator, Inc., <i>et al.</i>)	

Affidavit of Michael P. Gorman

On behalf of

Joint Complainants

February 13, 2019

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1

VI. SIZE PREMIUM ADJUSTMENT

2 Q PLEASE SUMMARIZE AGAIN THE POSITIONS MISO TO WITNESS DR.
3 AVERA LISTED FOR SUPPORTING HIS PROPOSAL TO ADD A SIZE
4 PREMIUM ADJUSTMENT TO THE CAPM RETURN ESTIMATE.

5 A The Commission cited Dr. Avera's testimony in describing the appropriateness of
6 accepting his recommendation for adding a size premium adjustment to his Base
7 CAPM return estimate. The Commission stated as follows:

8 According to the CAPM, the expected return on a security should
9 consist of the riskless rate, plus a premium to compensate for the
10 systematic risk of the particular security, which is represented by the
11 beta coefficient. The size adjustment reflects the fact that differences
12 in investors' required rates of return that are related to firm size are not
13 fully captured by beta. Accordingly, [Morningstar, Inc.] developed size
14 premiums that are appropriately added to the theoretical CAPM cost of
15 equity estimates to account for the level of a firm's market
16 capitalization in determining the cost of equity. (Opinion No. 551 at P
17 263) (emphasis added) (footnote omitted).

18 Importantly, neither Dr. Avera in his testimony, nor the Commission in its
19 final order, demonstrated that the Morningstar analysis could be applied to the CAPM
20 based on the manner in which Dr. Avera constructed it, or provided support for the
21 basic assertion that required rates of return for regulated utilities are not fully captured
22 by the utility's published *Value Line* beta. These are two critical elements in order to
23 produce a reasonable basis for adjusting the results of a traditional CAPM study.

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1 **Q WAS DR. AVERA'S SIZE PREMIUM ADJUSTMENT DEVELOPED IN A**
2 **MANNER THAT CAN PRODUCE AN ACCURATE CAPM RESULT?**

3 **A No. Dr. Avera's CAPM methodology produces a result that is unreliable and flawed.**
4 **Specifically, his Base CAPM analysis reflects beta factors to measure risk and return**
5 **which are not compatible with the beta factor used to measure the size premium**
6 **adjustment. The combination of the two disconnected measures of investment risk**
7 **and return does not produce an accurate estimate of the risk or required return of a**
8 **proxy group company. Importantly, which I will show here, correcting this beta**
9 **deficiency shows that Dr. Avera's Base CAPM methodology without a size premium**
10 **adjustment is the most reliable CAPM method.**

11 **Q PLEASE DESCRIBE WHY DR. AVERA'S BASE CAPM AND SMALL SIZE**
12 **PREMIUM ADJUSTMENT CANNOT BE COMBINED TO PRODUCE AN**
13 **ACCURATE CAPM RETURN ESTIMATE.**

14 **A Dr. Avera mismatches beta estimates used to produce his Base CAPM return estimate,**
15 **and the beta estimate used to produce a size premium adjustment to the Base CAPM.**
16 **The combination of these two very different beta estimates does not produce an**
17 **accurate or reasonable basis for estimating risk or the required return for a security.**
18 **Indeed, the source Dr. Avera relies on cautions against using betas measured**
19 **differently within the same cost of capital analysis.⁶ Dr. Avera made this error.**

⁶Duff & Phelps, 2015 *Valuation Handbook, Guide to Cost of Capital*, at page 5-7, attached as Exhibit No. JC-101, page 5.

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1 Q PLEASE DESCRIBE WHY YOU BELIEVE THE BETAS USED BY DR.
2 AVERA FOR HIS BASE CAPM RETURN ESTIMATE AND HIS SIZE
3 PREMIUM ADJUSTMENT ARE DIFFERENT, AND NOT COMPATIBLE.

4 A For his Base CAPM study, he used a *Value Line* published beta. However, Dr. Avera
5 relied on a beta that is developed by Morningstar (now Duff & Phelps) to produce his
6 size premium adjustment. These two betas are not measured the same and Dr. Avera's
7 proposal to add the size premium adjustment to his Base CAPM does not produce an
8 accurate measure of risk or required return.

9 For his Base CAPM return study, Dr. Avera relies on a *Value Line* published
10 beta. *Value Line* measures a "raw" beta based on a regression of the monthly returns
11 of the individual companies, relative to the New York Stock Exchange Index, over a
12 five-year period. *Value Line* then adjusts this "raw" beta for the long-term tendency of
13 betas to converge on the market beta of 1. *Value Line* makes this adjustment by giving
14 the raw beta estimate a weight by two-thirds, and weights the market beta of 1 by one-
15 third, to produce an adjusted beta. *Value Line* publishes its adjusted beta, not its raw
16 beta. *Value Line* asserts that this beta adjustment process takes backward-looking
17 betas and adjusts them to produce forward-looking risk/return characteristics.⁷

18 In contrast, in measuring the size premium adjustment relied on by Dr. Avera,
19 Duff & Phelps estimates a "raw" beta by regressing the monthly returns on the stock
20 Market Index that are in excess of a 30-day U.S. Treasury yield over the period
21 January 1926 through the most recent period. Unlike the *Value Line* published betas,

⁷Exhibit No. JC-101, pages 6 and 12.

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1 the Duff & Phelps raw beta is not adjusted for the long-term tendency of betas to
 2 converge on the market beta of 1 over time. Therefore, the Duff & Phelps and *Value*
 3 *Line* betas are not measured consistently and are not compatible when combined
 4 within a CAPM study and, thus, will not accurately measure the security risk or
 5 required return.⁸

6 **Q YOU MENTIONED THAT DUFF & PHELPS WARNS AGAINST USING**
 7 **BETAS MEASURED DIFFERENTLY TO MEASURE A REQUIRED**
 8 **RETURN. PLEASE EXPLAIN.**

9 **A**Specifically, Duff & Phelps states that:

10 Note that significant differences can exist among beta estimates for the
 11 same stock published by different financial reporting services. One of
 12 the implications of this is that a valuation analyst should try to use
 13 betas for guideline companies used in a valuation from the same
 14 source.⁹

15 It continues to say that using betas from the same source can help to avoid an
 16 apples-and-oranges mixture of betas calculated using different methodologies.¹⁰

⁸*Id.*

⁹Duff & Phelps, 2015 *Valuation Handbook, Guide to Cost of Capital*, page 5-7, attached as Exhibit No. JC-101, page 5; and Morningstar, *Ibbotson SBBI 2014 Classic Yearbook*, pages 99 and 109, attached as Exhibit No. JC-101, pages 11 and 12.

¹⁰*Id.*

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1 Q **CAN DR. AVERA'S METHODOLOGY BE CORRECTED TO USE THE
2 SAME BETA MEASUREMENT IN BOTH HIS BASE CAPM AND FOR HIS
3 SMALL CAPITALIZATION ADDER?**

4 A Generally it can, but not to the extent necessary to use two betas that are not measured
5 consistently so as to produce a composite beta, Base CAPM return, and the size
6 premium adjustment. I will note, specifically, that when Dr. Avera's CAPM is
7 corrected to consistently use a "raw" beta in both the Base CAPM analysis, and the
8 measure of the size premium adjustment, the resulting CAPM return would align with
9 the Base CAPM estimate using the *Value Line* adjusted beta, but without a size
10 premium adjustment. In other words, this correction of Dr. Avera's CAPM analysis, a
11 Base plus a size premium adjustment, using a "raw" beta in both steps of the CAPM
12 study produces a result that is similar to Dr. Avera's Base CAPM using a *Value Line*
13 adjusted beta.

14 Q **PLEASE CONTINUE.**

15 A As developed on my Exhibit No. JC-102, and summarized in Table 1 below, I
16 modified Dr. Avera's Base CAPM and size premium adjustment to consistently use
17 only a "raw" beta in both steps of the CAPM study.¹¹ When this is done, the resulting
18 CAPM return using Dr. Avera's Base CAPM and size premium adjustment, produces

¹¹*Value Line*'s published betas can be converted to a raw beta estimate by reversing its beta adjustment methodology. *Value Line* produces its adjusted beta by applying one-third weight to a market beta of 1, and two-thirds weight to the raw regression beta. The raw regression beta can be estimated by subtracting one-third from the published beta, and multiplying that product by 1.5.

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1 a very similar result to Dr. Avera's Base CAPM return based on only *Value Line*
2 adjusted beta, but without a size premium adjustment.

3 In Table 1 below, under Column 1, I present the results of Dr. Avera's Base
4 CAPM, and the size premium adjustment. Under Column 1, on line 1, Dr. Avera's
5 Base CAPM return range is 7.86% to 10.87%, with a midpoint of 9.37%. On line 2, I
6 show his CAPM after his size premium adjustment is included, and the CAPM range
7 increased to 7.50% to 12.61%, with a midpoint of 10.06%.

8 Under Column 2, I revised Dr. Avera's Base CAPM analysis to use a "raw"
9 beta in both the Base CAPM and size premium adjustment of the study. Hence, in this
10 scenario, both the Base CAPM and the size premium adjustment are consistently
11 based on the same "raw" beta methodologies. With this adjustment, the Base CAPM
12 return estimate for Dr. Avera's analysis decreases to 6.14% to 10.66%, with a base
13 midpoint of 8.4%, from 7.86% to 10.87%, and a midpoint of 9.37%. Then with the
14 same size premium adjustment proposed by Dr. Avera, the adjusted Base and size
15 premium adjustment CAPM results increases to 5.78% to 12.40%, with a midpoint
16 estimate of 9.09%.

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TABLE 1			
CAPM Study			
Line	Description	Avera Methodology (1)	Regression Beta Methodology (2)
1	Base CAPM	7.86% to 10.87%	6.14% to 10.66%
	Midpoint	9.37%	8.40%
2	Adjusted CAPM	7.50% to 12.61%	5.78% to 12.40%
	Midpoint	10.06%	9.09%

Source:
Exhibit No. JC-102, pages 1 and 2.

1 As shown in Table 1 above, when a consistent beta methodology is used to
2 measure both the Base CAPM and the size premium adjustment, the resulting CAPM
3 return midpoint of 9.09% (Column 2, line 2) is reasonably comparable to Dr. Avera's
4 Base CAPM return using a *Value Line* adjusted beta, midpoint of 9.37%, but without a
5 size premium adjustment (Column 1, line 1). This demonstration shows that Dr.
6 Avera's use of betas that are not calculated using the same methodology has the effect
7 of inflating the CAPM return estimate, which distorts the measurement of risk and fair
8 return based on market data.

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1 Q **DOES A CAPM ANALYSIS EXCLUDING A SIZE PREMIUM ADJUSTMENT
2 PRODUCE A FAIR RISK-ADJUSTED RETURN THAT WILL ALSO PASS
3 TESTS OF ECONOMIC LOGIC?**

4 A Yes. *Value Line*'s adjustment to the raw regression beta is done in order to increase a
5 CAPM return estimate for companies with betas smaller than 1 and decrease a CAPM
6 return estimate for companies with betas greater than 1. In effect, it results in a
7 flattening of the security market line, an increase to the intercept point, and produces a
8 forward-looking CAPM return estimate because of the belief that all companies' risk
9 and required return will converge on the market risk and required return over time.¹²

10 As noted by Dr. Avera, adding the size premium adjustment to his Base
11 CAPM is done because it is expected that the Base CAPM understates forward-
12 looking expected risk and return for companies without due consideration of market
13 capitalization risk.

14 The effect of a CAPM return for utility companies using either of the two
15 methodologies is similar. Specifically, using an adjusted *Value Line* beta produces a
16 higher CAPM estimate for a utility company because these companies have betas
17 lower than 1, reflecting their below market investment risk. Similarly, a majority of
18 the utilities receive a size premium adjustment larger than 1, which increases their
19 CAPM return toward the market expected return by adding a size premium adjustment
20 to the CAPM return. Hence, both the use of an adjusted *Value Line* beta, and adding a

¹²Additionally, using the long-term yield as the risk-free rate instead of the short-term yield has the effect of raising the intercept and flattening the security market line.

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1 size premium adjustment, increases the CAPM return estimate for electric utility
2 companies.

3 **Q DO THE DUFF & PHELPS BOOKS WHICH DR. AVERA RELIES ON FOR**
4 **THE SIZE PREMIUM ADJUSTMENT ALSO MAKE NOTE OF OTHER**
5 **IMPORTANT RISK CHARACTERISTICS IN ACCURATELY MEASURING**
6 **A UTILITY'S INVESTMENT RISK AND REQUIRED RETURN?**

7 A Yes. The Duff & Phelps books, in addition to a market size premium adjustment, also
8 note that the industry risk is also an important factor in measuring a required return.
9 This is important because regulated utility companies' industry risk is lower than
10 companies in other industries.

11 For example, utility companies typically have investment grade bond ratings,
12 franchised or monopolistic service territories and limited competition, have access to
13 significant amounts of capital under terms and prices, and are typically managed by
14 competent executives that are good at managing capital and utility infrastructure
15 assets. In contrast, non-regulated small companies may not have an investment grade
16 bond rating, may have limited access to capital for maintenance of existing or asset
17 growth, and may not have effective management. It is simply not legitimate to
18 arbitrarily assume that a utility company has similar risk to a non-regulated small
19 company based on market capitalization alone.

20 In addition to its size premium adjustment, Duff & Phelps also recommends
21 consideration of industry-specific risk. This broader assessment of investment risk

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1 and more accurate gauging of risk and return are based on the premise that because
2 historical raw betas do not accurately measure investment risk and required returns
3 that a buildup method may produce a more accurate return estimate. In Duff &
4 Phelps' buildup method, a required return on a security is based on the following
5 formula:

6
$$R = RF + MRP + SPA + IRA^{13}$$

7 The formula includes components for the required return (R), the risk-free rate
8 (RF), a market risk premium (MRP), a size premium adjustment (SPA), and an
9 industry premium adjustment (IRA). The size premium adjustment is the same as that
10 used by Dr. Avera in his analyses.

11 For regulated utility companies, Duff & Phelps estimates the industry risk
12 adjustment to be a negative risk premium of 4.24%. This industry risk premium and
13 the size premium adjustment were both measured using the Duff & Phelps' beta
14 methodology. Hence, they can be applied producing consistent results. These two
15 risk adjustments with a Duff & Phelps derived market risk premium of 7%, and Dr.
16 Avera's risk-free rates, as shown on my Exhibit No. JC-102, page 3, produce a CAPM
17 return in the range of 5.10% to 7.20% with a midpoint of 6.15%. Again, using a
18 consistent beta methodology employed by Duff & Phelps, produces a CAPM return
19 estimate that is lower than the CAPM return estimate using a traditional CAPM return,
20 and a *Value Line* adjusted beta.

¹³Exhibit No. JC-101 at page 7.

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1 For these reasons, a size premium adjustment for a regulated utility company
2 should only be considered along with recognizing the low-risk nature of the regulated
3 utility industry. This recognition of size premium adjustment as well as industry risk
4 more fully measures the investment risk of a regulated utility company and produces a
5 CAPM return estimate that more accurately measures risk and return compared to the
6 inconsistent model used by Dr. Avera.

7 **VII. PROPOSED CAPM METHODOLOGY**

8 **Q BASED ON YOUR COMMENTS ABOVE, PLEASE DESCRIBE THE CAPM**
9 **METHODOLOGY YOU RECOMMEND THE COMMISSION USE TO**
10 **DEVELOP THE COMPOSITE ZOR.**

11 **A** For the reasons outlined below, I recommend the Commission use the methodology
12 outlined here to help form its composite ZOR. This methodology includes the
13 following:

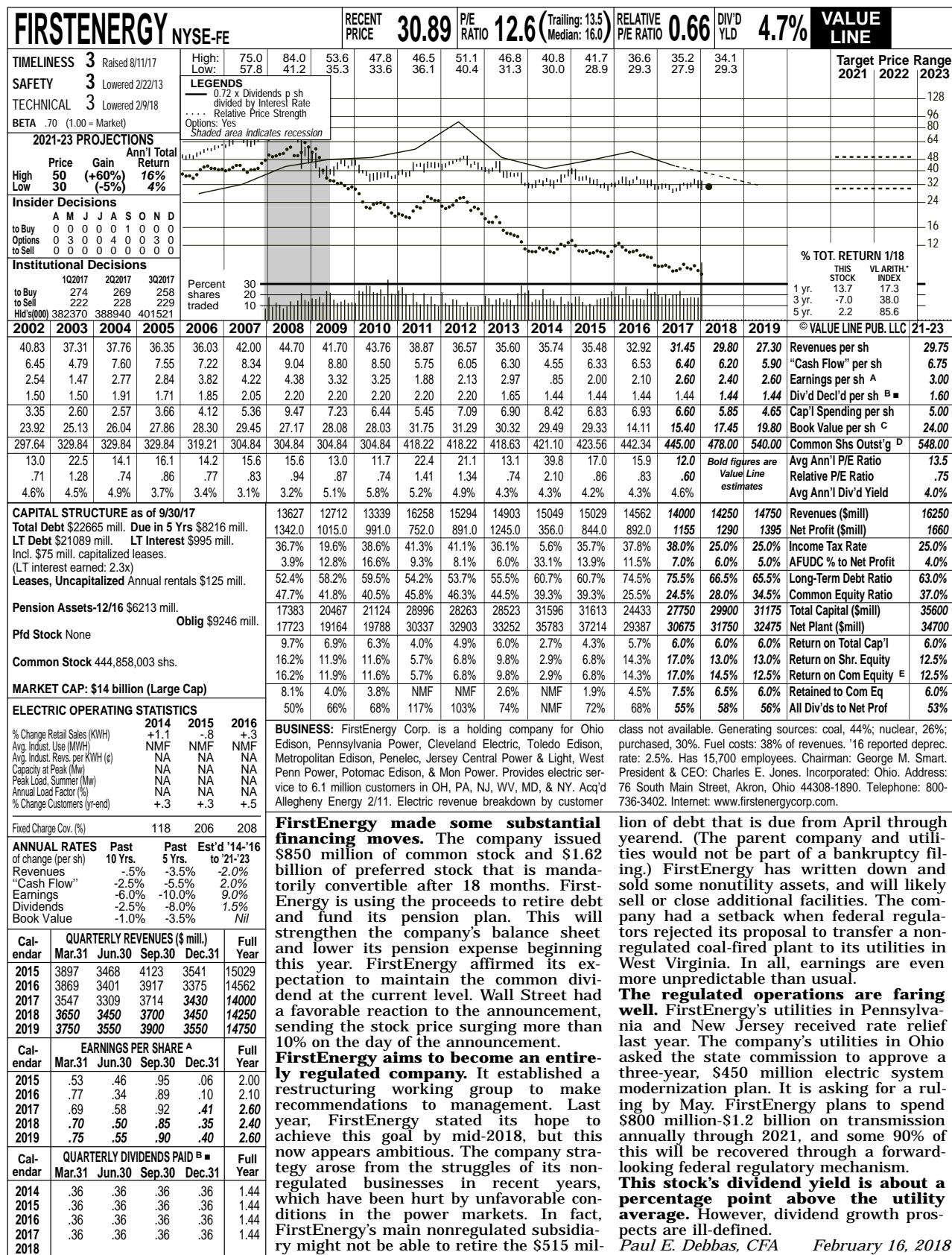
- 14 1. A market risk premium estimate should be based on a forward-looking
15 expected return on the market. Using the DCF return on the market should
16 reflect a two-step DCF methodology, using the dividend-paying
17 companies' growth rates as a short-term stage, and the long-term Gross
18 Domestic Product ("GDP") growth rate as the long-term stage. Two-thirds
19 weight should be given to the short-term stage growth, and one-third
20 weight to the long-term stage.
- 21 2. *Value Line* adjusted betas should be used as the forward-looking measure
22 of investment risk for the companies in the proxy group.
- 23 3. Six-month average U.S. Treasury bond yields should be used as the risk-
24 free rate proxy. The six-month period should be the same time period as
25 used to produce the DCF study in the proceeding.

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Paul E. Debbas, CFA February 16, 2018

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FIRSTENERGY NYSE-FE				RECENT PRICE	33.24	P/E RATIO	33.2 (Trailing: 16.1 Median: 15.0)	RELATIVE P/E RATIO	1.87	DIV'D YLD	4.3%	VALUE LINE						
TIMELINESS	4	Lowered 5/4/18	High: 75.0 Low: 57.8	84.0 41.2	53.6 35.3	47.8 33.6	46.5 36.1	51.1 40.4	46.8 31.3	40.8 30.0	41.7 28.9	36.6 29.3						
SAFETY	3	Lowered 2/22/13	LEGENDS 0.72 x Dividends p sh divided by Interest Rate ... Relative Price Strength Options: Yes Shaded area indicates recession															
TECHNICAL	2	Raised 5/18/18																
BETA	.65	(1.00 = Market)																
2021-23 PROJECTIONS				Price	Gain	Ann'l Total												
			High	50	(-50%)	14%												
			Low	30	(-10%)	3%												
Insider Decisions				J	A	S	O	N	D	J	F	M						
to Buy	0	0	1	0	0	0	0	0	0	0	0	0						
Options	0	4	0	0	3	0	0	0	3	12								
to Sell	0	0	0	0	0	0	0	0	0	0	0	0						
Institutional Decisions				Percent shares traded	30	20	10											
2Q2017	3Q2017	4Q2017																
to Buy	269	258	245															
to Sell	228	229	200															
Hd's(\$000)	388940	401521	375942															
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	© VALUE LINE PUB. LLC 21-23
40.83	37.31	37.76	36.35	36.03	42.00	44.70	41.70	43.76	38.87	36.57	35.60	35.74	35.48	32.92	31.49	24.25	Revenues per sh	
6.45	4.79	7.60	7.55	7.22	8.34	9.04	8.80	8.50	5.75	6.05	6.30	4.55	6.33	6.53	6.54	3.45	"Cash Flow" per sh	
2.54	1.47	2.77	2.84	3.82	4.22	4.38	3.32	3.25	1.88	2.13	2.97	.85	2.00	2.10	2.73	1.00	Earnings per sh ^A	
1.50	1.50	1.91	1.71	1.85	2.05	2.20	2.20	2.20	2.20	1.65	1.44	1.44	1.44	1.44	1.44	1.44	1.60	Div'd Decl'd per sh ^B
3.35	2.60	2.57	3.66	4.12	5.36	9.47	7.23	6.44	5.45	7.09	6.90	8.42	6.83	6.93	6.38	5.85	4.65	Cap'l Spending per sh
23.92	25.13	26.04	27.86	28.30	29.45	27.17	28.08	28.03	31.75	31.29	30.32	29.49	29.33	14.11	8.81	12.30	14.80	Book Value per sh ^C
297.64	329.84	329.84	329.84	319.21	304.84	304.84	304.84	418.22	418.22	418.63	421.10	423.56	442.34	445.33	478.00	540.00	Common Shs Outstg ^D	
13.0	22.5	14.1	16.1	14.2	15.6	15.6	13.0	11.7	22.4	21.1	13.1	NMF	17.0	15.9	11.4	Bold figures are Value Line estimates	Avg Ann'l P/E Ratio	
.71	1.28	.74	.86	.77	.83	.94	.87	.74	1.41	1.34	.74	NMF	.86	.83	.57	Relative P/E Ratio		
4.6%	4.5%	4.9%	3.7%	3.4%	3.1%	3.2%	5.1%	5.8%	5.2%	4.9%	4.3%	4.3%	4.2%	4.3%	4.6%	4.0%	Avg Ann'l Div'l Yield	
CAPITAL STRUCTURE as of 3/31/18																		
Total Debt \$19097 mill.	Due in 5 Yrs	\$359 mill.											Revenues (\$mill)					
LT Debt \$16740 mill.	LT Interest \$787 mill.												Net Profit (\$mill)					
Incl. \$91 mill. capitalized leases.													Income Tax Rate					
(LT interest earned: 2.4x)													AFUDC % to Net Profit					
Leases, Uncapitalized Annual rentals \$146 mill.													Long-Term Debt Ratio					
Pension Assets-12/17 \$6704 mill.	Oblig \$10167 mill.												Common Equity Ratio					
Pfd Stock None													Total Capital (\$mill)					
Common Stock 476,909,318 shs.													Net Plant (\$mill)					
MARKET CAP: \$16 billion (Large Cap)																		
ELECTRIC OPERATING STATISTICS																		
2015	2016	2017																
% Change Retail Sales (kWh)	-.8	+.3	-.21															
Avg. Indust. Use (MWH)	NMF	NMF	NMF															
Avg. Indust. Revs. per kWh (¢)	NA	NA	NA															
Capacity at Peak (Mw)	NA	NA	NA															
Peak Load, Summer (Mw)	NA	NA	NA															
Annual Load Factor (%)	NA	NA	NA															
% Change Customers (yr-end)	+.3	+.5	+.5															
Fixed Charge Cov. (%)	206	208	249															
BUSINESS: FirstEnergy Corp. is a holding company for Ohio Edison, Pennsylvania Power, Cleveland Electric, Toledo Edison, Metropolitan Edison, Penelec, Jersey Central Power & Light, West Penn Power, Potomac Edison, & Mon Power. Provides electric service to 6.1 million customers in OH, PA, NJ, WV, MD, & NY. Acq'd Allegheny Energy 2/11. Electric revenue breakdown by customer class not available. Generating sources: coal, 44%; nuclear, 26%; purchased, 30%. Fuel costs: 33% of revenues. '17 reported deprec. rate: 2.4%. Has 15,700 employees. Chairman: George M. Smart. President & CEO: Charles E. Jones. Incorporated: Ohio. Address: 76 South Main Street, Akron, Ohio 44308-1890. Telephone: 800-736-3402. Internet: www.firstenergycorp.com.																		
FirstEnergy has deconsolidated almost all of its nonregulated operations. These filed for Chapter 11 bankruptcy protection, and are now separate from FirstEnergy. Thus, its financial statements now reflect an almost entirely regulated company. The move resulted in a gain of \$2.50 a share from discontinued operations in the first quarter of 2018.																		
The stock has been the top performer among electric utility issues so far in 2018. The price is up 9% in what has been a poor year for most equities in this industry. The market reacted favorably to the financing moves the company made in January, when it issued \$850 million of common stock and \$1.62 billion of preferred that is mandatorily convertible in 2019. The proceeds were used to reduce debt and contribute to the pension plan.																		
Our 2018 earnings estimate requires an explanation. The preferred stock that FirstEnergy issued in early 2018 was sold at a discount, and the difference is being amortized until the shares become convertible. This is why earnings were negligible in the first quarter, and might well fall into the red in the June period. Management's guidance for "operating" earnings this year is \$2.25-\$2.55 a share. Although earnings from continuing operations will almost certainly fall short of the dividend this year, the payout is not at risk of a cut.																		
The regulated businesses have some opportunities, but also a possible risk. The utilities in Ohio should soon receive a ruling from the state commission regarding a proposed three-year, \$450 million electric system modernization plan. The company plans to spend \$800 million-\$1.2 billion on transmission annually through 2021. However, the company incurred \$355 million of storm-related costs in the March quarter, \$230 million of which were expenses. Of that, \$220 million was deferred for future recovery. However, Jersey Central Power & Light was criticized in New Jersey for its performance following the storms, so the possibility of a write-off of some storm costs cannot be ruled out.																		
The yield of this untimely stock is above the utility average. However, the board hasn't raised the payout since that was cut in 2014, and dividend growth prospects are not well defined.																		
<i>Paul E. Debbas, CFA</i> May 18, 2018																		
(A) Diluted EPS. Excl. nonrec. gain (losses): '11, 33¢; '12, (29¢); '13, (\$2.07); '14, (17¢); '15, (63¢); '16, (\$16.59); '17, (\$6.61); gains from disc. ops.: '14, 20¢; '18, \$2.50. '17 EPS don't sum due to rounding. Next egs. report due late July. (B) Div'd paid early Mar., June, Sep. & Dec. 5 div'ds decl. in '04, 3 in '13. ■ Div'd reinvt. plan avail. (C) Incl. intang. In '17: \$12.71/sh.	(D) In mill. (E) Rate base: Depr. orig. cost. Rates all'd on com. eq.: 9.75%-11.9%, earned on avg. com. eq.: '17: 18.5%. Regul. Clm.: OH Above Avg.; PA, NJ Avg.; MD, WV Below Avg.																	
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Section 1: 10-K (10-K)

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UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)
 OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended **December 31, 2018**

Commission File Number	Exact name of registrants as specified in their charters, address of principal executive offices and registrants' telephone number	IRS Employer Identification Number
1-8841	NEXTERA ENERGY, INC.	59-2449419
2-27612	FLORIDA POWER & LIGHT COMPANY 700 Universe Boulevard Juno Beach, Florida 33408 (561) 694-4000	59-0247775

State or other jurisdiction of incorporation or organization: Florida

Name of exchange on which registered

Securities registered pursuant to Section 12(b) of the Act:

NextEra Energy, Inc.:	Common Stock, \$0.01 Par Value	New York Stock Exchange
	6.123% Corporate Units	New York Stock Exchange

Florida Power & Light Company: None

Indicate by check mark if the registrants are well-known seasoned issuers, as defined in Rule 405 of the Securities Act of 1933.

NextEra Energy, Inc. Yes No Florida Power & Light Company Yes No

Indicate by check mark if the registrants are not required to file reports pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934.

NextEra Energy, Inc. Yes No Florida Power & Light Company Yes No

Indicate by check mark whether the registrants (1) have filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months, and (2) have been subject to such filing requirements for the past 90 days.

NextEra Energy, Inc. Yes No Florida Power & Light Company Yes No

Indicate by check mark whether the registrants have submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months.

NextEra Energy, Inc. Yes No Florida Power & Light Company Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrants' knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

Indicate by check mark whether the registrants are a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company.

NextEra Energy, Inc.	Large Accelerated Filer <input checked="" type="checkbox"/>	Accelerated Filer <input type="checkbox"/>	Non-Accelerated Filer <input type="checkbox"/>	Smaller Reporting Company <input type="checkbox"/>	Emerging Growth Company <input type="checkbox"/>
Florida Power & Light Company	Large Accelerated Filer <input type="checkbox"/>	Accelerated Filer <input type="checkbox"/>	Non-Accelerated Filer <input checked="" type="checkbox"/>	Smaller Reporting Company <input type="checkbox"/>	Emerging Growth Company <input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrants have elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Securities Exchange Act of 1934.

Indicate by check mark whether the registrants are shell companies (as defined in Rule 12b-2 of the Securities Exchange Act of 1934). Yes No

Aggregate market value of the voting and non-voting common equity of NextEra Energy, Inc. held by non-affiliates at June 29, 2018 (based on the closing market price on the Composite Tape on June 29, 2018) was \$78,550,110,752.

There was no voting or non-voting common equity of Florida Power & Light Company held by non-affiliates at June 29, 2018.

Number of shares of NextEra Energy, Inc. common stock, \$0.01 par value, outstanding at January 31, 2019: 478,167,505

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(a) Prior period amounts have been retrospectively adjusted as discussed in Note 14.

The components of NEE's deferred tax assets relating to net operating loss carryforwards and tax credit carryforwards at December 31, 2018 are as follows:

	Amount (millions)	Expiration Dates
Net operating loss carryforwards:		
State	269	2019-2038
Foreign	81 ^(a)	2019-2038
Net operating loss carryforwards	<u>\$ 350</u>	
Tax credit carryforwards:		
Federal	\$ 2,915	2028-2038
State	344 ^(b)	2019-2044
Tax credit carryforwards	<u>\$ 3,259</u>	

(a) Includes \$60 million of net operating loss carryforwards with an indefinite expiration period.

(b) Includes \$188 million of ITC carryforwards with an indefinite expiration period.

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NEXTERA ENERGY, INC. AND FLORIDA POWER & LIGHT COMPANY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

7. Jointly-Owned Electric Plants

Certain NEE subsidiaries own undivided interests in the jointly-owned facilities described below, and are entitled to a proportionate share of the output from those facilities. The subsidiaries are responsible for their share of the operating costs, as well as providing their own financing. Accordingly, each subsidiary's proportionate share of the facilities and related revenues and expenses is included in the appropriate balance sheet and statement of income captions. NEE's and FPL's respective shares of direct expenses for these facilities are included in fuel, purchased power and interchange expense, O&M expenses, depreciation and amortization expense and taxes other than income taxes and other - net in NEE's and FPL's consolidated statements of income.

NEE's and FPL's proportionate ownership interest in jointly-owned facilities is as follows:

	December 31, 2018					
	Ownership Interest	Gross Investment ^(a)	Accumulated Depreciation ^(a)	Construction Work in Progress		
	(millions)					
FPL:						
St. Lucie Unit No. 2	85%	\$ 2,227	\$ 912	\$ 51		
Scherer Unit No. 4	76%	\$ 1,222	\$ 445	\$ 21		
NEER:						
Duane Arnold	70%	\$ 70	\$ 9	\$ 13		
Seabrook	88.23%	\$ 1,205	\$ 337	\$ 85		
Wyman Station Unit No. 4	87.49%	\$ 28	\$ 6	\$ —		
Stanton	65%	\$ 135	\$ —	\$ —		
Corporate and Other:						
Transmission substation assets located in Seabrook, New Hampshire	88.23%	\$ 81	\$ 13	\$ 11		

(a) Excludes nuclear fuel.

8. Acquisitions

Gulf Power Company - On January 1, 2019, NEE acquired the outstanding common shares of Gulf Power Company (Gulf Power), a rate-regulated electric utility under the jurisdiction of the FPSC. Gulf Power serves more than 460,000 customers in eight counties throughout northwest Florida and has approximately 9,400 miles of transmission and distribution lines and 2,300 MW of electric generating capacity. The aggregate purchase price included approximately \$4.47 billion in cash consideration, excluding post-closing working capital adjustments, and

the assumption of approximately \$1.3 billion of Gulf Power debt. The cash purchase price was funded through \$4.5 billion of borrowings by NEECH in December 2018 under certain short-term bi-lateral term loan agreements which mature in June 2019; the proceeds of which borrowings were restricted and included in noncurrent other assets on NEE's consolidated balance sheet at December 31, 2018. NEE incurred approximately \$26 million in acquisition-related costs during the year ended December 31, 2018, which are reflected in merger-related expenses in NEE's consolidated statements of income. NEE is in the process of evaluating the purchase accounting considerations, including the initial purchase price allocation.

Other - In July 2018, NEE acquired the outstanding common shares of the entity that owns Florida City Gas (FCG), which serves approximately 110,000 residential and commercial natural gas customers in Florida's Miami-Dade, Brevard, St. Lucie and Indian River counties with 3,700 miles of natural gas pipeline, for approximately \$530 million in cash subject to certain adjustments. Upon closing, NEE transferred FCG to FPL.

In December 2018, NEE acquired a 100% interest in an entity that indirectly owns Oleander Power Project, an approximately 791 MW natural gas-fired, simple-cycle combustion turbine electric generation facility located near Cocoa, Florida, and a 100% interest in an entity that owns a 65% interest in Stanton Energy Center Unit A, an approximately 660 MW combined-cycle electric generation facility located near Orlando, Florida for approximately \$200 million in cash, subject to certain adjustments.

Trans Bay Cable, LLC - In November 2018, a wholly owned subsidiary of NextEra Energy Transmission, LLC (NEET) entered into an agreement to acquire the outstanding membership interests of Trans Bay Cable, LLC (Trans Bay) for approximately \$1.05 billion, including the assumption of debt, pending, among other things, approval of the California Public Utilities Commission and the FERC. Trans Bay owns and operates a 53-mile, high-voltage direct current underwater transmission cable system in California extending from Pittsburg to San Francisco, with utility rates set by the FERC and revenues paid by the California Independent System Operator. The acquisition is expected to close in late 2019. NEECH guarantees the payment obligation under the agreement.

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NEXTERA ENERGY, INC. AND FLORIDA POWER & LIGHT COMPANY NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

9. Variable Interest Entities (VIEs)

At December 31, 2018, NEE had 31 VIEs which it consolidated and had interests in certain other VIEs which it did not consolidate.

FPL - FPL is considered the primary beneficiary of, and therefore consolidates, a VIE that is a wholly owned bankruptcy remote special purpose subsidiary that it formed in 2007 for the sole purpose of issuing storm-recovery bonds pursuant to the securitization provisions of the Florida Statutes and a financing order of the FPSC. FPL is considered the primary beneficiary because FPL has the power to direct the significant activities of the VIE, and its equity investment, which is subordinate to the bondholder's interest in the VIE, is at risk. Storm restoration costs incurred by FPL during 2005 and 2004 exceeded the amount in FPL's funded storm and property insurance reserve, resulting in a storm reserve deficiency. In 2007, the VIE issued \$652 million aggregate principal amount of senior secured bonds (storm-recovery bonds), primarily for the after-tax equivalent of the total of FPL's unrecovered balance of the 2004 storm restoration costs, the 2005 storm restoration costs and to reestablish FPL's storm and property insurance reserve. In connection with this financing, net proceeds, after debt issuance costs, to the VIE (approximately \$644 million) were used to acquire the storm-recovery property, which includes the right to impose, collect and receive a storm-recovery charge from all customers receiving electric transmission or distribution service from FPL under rate schedules approved by the FPSC or under special contracts, certain other rights and interests that arise under the financing order issued by the FPSC and certain other collateral pledged by the VIE that issued the bonds. The storm-recovery bonds are payable only from and are secured by the storm-recovery property. The bondholders have no recourse to the general credit of FPL. The assets of the VIE were approximately \$77 million and \$148 million at December 31, 2018 and 2017, respectively, and consisted primarily of storm-recovery property, which are included in both current and noncurrent regulatory assets on NEE's and FPL's consolidated balance sheets. The liabilities of the VIE were approximately \$76 million and \$147 million at December 31, 2018 and 2017, respectively, and consisted primarily of storm-recovery bonds, which are included in current portion of long-term debt and long-term debt on NEE's and FPL's consolidated balance sheets.

NEER - NEE consolidates 30 NEER VIEs. NEER is considered the primary beneficiary of these VIEs since NEER controls the most significant activities of these VIEs, including operations and maintenance, and has the obligation to absorb expected losses of these VIEs.

Prior to January 1, 2018, a subsidiary of NEER was the primary beneficiary of, and therefore consolidated, NEP, which consolidated NEP OpCo because of NEP's controlling interest as the general partner of NEP OpCo. At December 31, 2017, NEE owned a controlling non-economic general partner interest in NEP and a limited partner interest in NEP OpCo, and presented limited partner interests in NEP and NEP OpCo as a noncontrolling interest in NEE's consolidated financial statements. At December 31, 2017, NEE owned common units of NEP OpCo representing a noncontrolling interest in NEP's operating projects of approximately 65.1%. The assets and liabilities of NEP were approximately \$8.4 billion and \$6.2 billion, respectively, at December 31, 2017, and primarily consisted of property, plant and equipment and long-term debt. During the third quarter of 2017, changes to NEP's governance structure were made that, among other things, enhanced NEP unitholder governance rights. The new governance structure established a NEP board of directors, which elected board members commenced service in January 2018. As a result of these governance changes, NEP is no longer a VIE and NEP was deconsolidated from NEE in January 2018 (see Note 1 - NextEra Energy Partners, LP) resulting in NEE no longer indirectly consolidating NEP OpCo. NEP OpCo continues to be a VIE and NEE records its noncontrolling interest in NEP OpCo as an equity method investment (See Other below).

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20190418-8005 FERC PDF (Unofficial) 04/17/2019 THIS FILING IS

Item 1: <input checked="" type="checkbox"/> An Initial (Original) Submission	OR <input type="checkbox"/> Resubmission No. _____
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Form 1 Approved
 OMB No.1902-0021
 (Expires 12/31/2019)
 Form 1-F Approved
 OMB No.1902-0029
 (Expires 12/31/2019)
 Form 3-Q Approved
 OMB No.1902-0205
 (Expires 12/31/2019)



FERC FINANCIAL REPORT
FERC FORM No. 1: Annual Report of
Major Electric Utilities, Licensees
and Others and Supplemental
Form 3-Q: Quarterly Financial Report

These reports are mandatory under the Federal Power Act, Sections 3, 4(a), 304 and 309, and 18 CFR 141.1 and 141.400. Failure to report may result in criminal fines, civil penalties and other sanctions as provided by law. The Federal Energy Regulatory Commission does not consider these reports to be of confidential nature

Exact Legal Name of Respondent (Company) Gulf Power Company	Year/Period of Report End of <u>2018/Q4</u>
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Name of Respondent Gulf Power Company	This Report Is (1) <input checked="" type="checkbox"/> An Original (2) <input type="checkbox"/> A Resubmission	Date of Report (Mo, Da, Yr) 04/17/2019	Year/Period of Report End of <u>2018/Q4</u>
--	--	--	--

COMPARATIVE BALANCE SHEET (ASSETS AND OTHER DEBITS)(Continued)

Line No.	Title of Account (a)	Ref. Page No. (b)	Current Year End of Quarter/Year Balance (c)	Prior Year End Balance 12/31 (d)
53	(Less) Noncurrent Portion of Allowances		0	0
54	Stores Expense Undistributed (163)	227	0	0
55	Gas Stored Underground - Current (164.1)		0	0
56	Liquefied Natural Gas Stored and Held for Processing (164.2-164.3)		0	0
57	Prepayments (165)		18,671,764	19,544,973
58	Advances for Gas (166-167)		0	0
59	Interest and Dividends Receivable (171)		0	374,003
60	Rents Receivable (172)		670,100	674,775
61	Accrued Utility Revenues (173)		56,649,754	66,526,476
62	Miscellaneous Current and Accrued Assets (174)		0	0
63	Derivative Instrument Assets (175)		79,177	22,315
64	(Less) Long-Term Portion of Derivative Instrument Assets (175)		0	0
65	Derivative Instrument Assets - Hedges (176)		23,045	8,155
66	(Less) Long-Term Portion of Derivative Instrument Assets - Hedges (176)		0	0
67	Total Current and Accrued Assets (Lines 34 through 66)		292,570,672	305,687,901
68	DEFERRED DEBITS			
69	Unamortized Debt Expenses (181)		9,095,551	9,289,183
70	Extraordinary Property Losses (182.1)	230a	0	0
71	Unrecovered Plant and Regulatory Study Costs (182.2)	230b	57,137,861	62,026,032
72	Other Regulatory Assets (182.3)	232	747,042,131	551,240,344
73	Prelim. Survey and Investigation Charges (Electric) (183)		6,549,910	4,625,820
74	Preliminary Natural Gas Survey and Investigation Charges 183.1)		0	0
75	Other Preliminary Survey and Investigation Charges (183.2)		0	0
76	Clearing Accounts (184)		-328,581	230,724
77	Temporary Facilities (185)		0	0
78	Miscellaneous Deferred Debits (186)	233	2,292,167	4,297,116
79	Def. Losses from Disposition of Utility Plt. (187)		0	0
80	Research, Devel. and Demonstration Expend. (188)	352-353	431,320	0
81	Unamortized Loss on Required Debt (189)		15,146,148	16,327,494
82	Accumulated Deferred Income Taxes (190)	234	183,704,668	197,098,781
83	Unrecovered Purchased Gas Costs (191)		0	0
84	Total Deferred Debits (lines 69 through 83)		1,021,071,175	845,135,494
85	TOTAL ASSETS (lines 14-16, 32, 67, and 84)		5,320,620,672	4,941,569,904

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6/25/2019 NEE 207.97 -0.23 -0.11% : NextEra Energy, Inc. - Yahoo Finance

Finance Home Watchlists My Portfolio Screeners Premium Markets Industries Videos News Premium Try it free

NextEra Energy, Inc. (NEE)
NYSE - Nasdaq Real Time Price, Currency in USD

207.97 -0.23 (-0.11%)

As of 11:01AM EDT, Market open.

Summary Company Outlook NEW Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Time Period: Dec 15, 2018 - Jan 15, 2019 Show: Historical Prices

Frequency: Daily [Apply](#)

Currency in USD [Download Data](#)

Date	Open	High	Low	Close*	Adj Close**	Volume
Jan 15, 2019	171.39	175.81	170.75	174.72	172.47	2,315,300
Jan 14, 2019	174.62	174.62	169.35	171.23	169.02	3,838,900
Jan 11, 2019	175.14	176.14	173.65	175.71	173.45	2,215,000
Jan 10, 2019	173.30	175.62	172.55	175.39	173.13	2,846,200
Jan 09, 2019	173.56	174.00	172.05	172.79	170.56	1,761,900
Jan 08, 2019	172.15	173.79	171.57	173.54	171.30	2,649,900
Jan 07, 2019	171.65	172.94	170.50	172.28	170.06	2,369,500
Jan 04, 2019	169.15	172.59	168.66	172.53	170.31	2,712,200
Jan 03, 2019	169.91	171.16	168.67	169.41	167.23	2,315,200
Jan 02, 2019	172.68	173.30	169.01	169.83	167.64	2,637,400
Dec 31, 2018	173.01	174.03	171.28	173.82	171.58	1,604,400
Dec 28, 2018	172.60	174.37	171.62	172.72	170.49	1,731,000
Dec 27, 2018	170.54	172.16	167.95	172.16	169.94	2,490,400
Dec 26, 2018	168.07	170.37	164.78	170.34	168.15	2,098,400
Dec 24, 2018	174.45	175.38	166.92	168.08	165.91	1,657,500
Dec 21, 2018	174.40	178.56	173.24	174.11	171.87	6,037,100
Dec 20, 2018	174.50	176.55	172.39	174.91	172.66	3,278,100
Dec 19, 2018	176.50	177.18	173.64	174.52	172.27	3,359,400
Dec 18, 2018	176.25	177.82	175.42	176.00	173.73	2,941,000
Dec 17, 2018	182.36	182.36	174.87	175.65	173.39	3,286,900

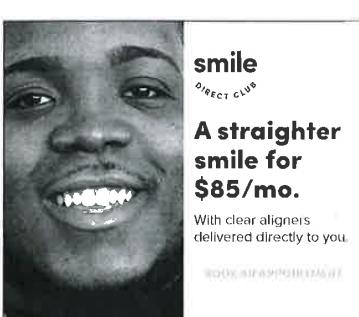
*Close price adjusted for splits. **Adjusted close price adjusted for both dividends and splits.



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People Also Watch

Symbol	Last Price	Change	% Change
D	79.13	-0.10	-0.12%
SO	56.28	+0.01	+0.01%
AEP	90.87	-0.03	-0.03%
PPL	31.60	+0.02	+0.06%
WEC	85.06	-0.20	-0.23%



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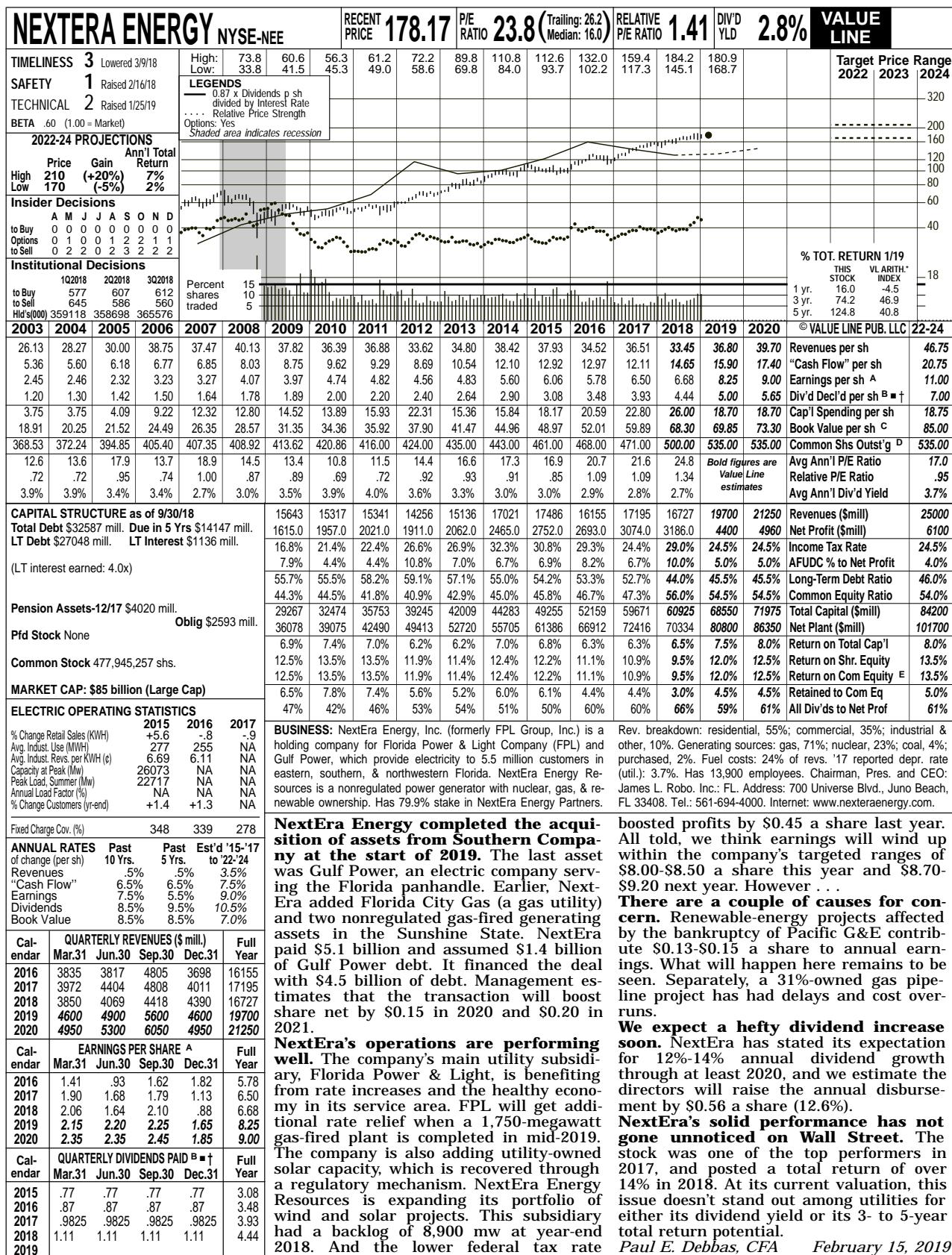
Yahoo Small Business

FERC Docket No. PL19-4-000

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(A) Diluted EPS. Excl. nonrecr. gains (losses): '03, 5¢; '11, (24¢); '13, (80¢); '16, 47¢; '17, 91¢; '18, \$7.19; gain on disc. osc.; '13, 44¢; '15 EPS don't sum due to rounding. Next earnings

report due late April. (B) Div'ds historically paid in mid-Mar., mid-June, mid-Sept., & mid-Dec. ■ Div'd reinvestment plan avail. ♦ Shareholder inv. vestment plan avail. (C) Incl. def'd charges. In

'17: \$8.27/sh. (D) In mill., adj. for stock split. (E) Rate allowed on com. eq. in '17: 9.6%; 11.6%; earned on avg. com. eq., '17: 11.7%. Regulatory Climate: Average.

Company's Financial Strength A+
Stock's Price Stability 100
Price Growth Persistence 80
Earnings Predictability 70

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6/25/2019

SO 56.28 -0.00 -0.01% : Southern Company (The) - Yahoo Finance

The Southern Company (SO)
NYSE - Nasdaq Real Time Price, Currency in USD

Visitors trend 2W ↑ 10W ↑ 9M ↑

56.28 -0.00 (-0.01%)

As of 11:02AM EDT. Market open.

Summary Company Outlook **New** Chart Conversations Statistics Historical Data Profile Financials Analysis Options Holders Sustainability

Time Period: Dec 15, 2018 - Jan 15, 2019 Show: Historical Prices Frequency: Daily

Currency in USD

Date	Open	High	Low	Close*	Adj Close**	Volume
Jan 15, 2019	46.08	47.09	46.07	46.79	45.69	5,433,100
Jan 14, 2019	46.19	46.46	45.55	46.16	45.07	6,328,900
Jan 11, 2019	46.22	46.79	45.82	46.61	45.51	6,137,000
Jan 10, 2019	45.60	46.42	45.38	46.34	45.25	4,634,900
Jan 09, 2019	45.80	46.04	45.32	45.49	44.42	6,687,600
Jan 08, 2019	44.61	45.97	44.50	45.88	44.80	7,246,200
Jan 07, 2019	44.51	44.76	44.18	44.61	43.56	5,397,800
Jan 04, 2019	44.12	44.73	44.04	44.71	43.66	5,680,700
Jan 03, 2019	43.76	44.69	43.76	44.34	43.30	9,405,500
Jan 02, 2019	43.89	43.95	43.26	43.72	42.69	5,756,100
Dec 31, 2018	43.96	44.15	43.43	43.92	42.89	4,394,000
Dec 28, 2018	44.01	44.38	43.76	43.95	42.92	4,722,700
Dec 27, 2018	43.60	43.95	42.93	43.95	42.92	7,048,100
Dec 26, 2018	43.14	43.66	42.50	43.64	42.61	5,686,400
Dec 24, 2018	44.94	45.26	42.93	43.02	42.01	5,339,800
Dec 21, 2018	44.94	46.24	44.82	45.09	44.03	12,739,700
Dec 20, 2018	45.28	45.69	44.48	45.09	44.03	8,836,400
Dec 19, 2018	45.74	46.04	45.08	45.28	44.21	8,112,000
Dec 18, 2018	46.20	46.58	45.41	45.53	44.46	6,184,700
Dec 17, 2018	47.40	47.68	45.88	46.00	44.92	6,726,300

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People Also Watch

Symbol	Last Price	Change	% Change
DUK	90.52	+0.61	+0.68%
D	79.14	-0.08	-0.10%
AEP	90.90	0.00	0.00%
ED	89.73	+0.08	+0.09%
EXC	49.54	-0.62	-1.24%

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SOUTHERN COMPANY NYSE-SO		RECENT PRICE 48.73				P/E RATIO 17.0 (Trailing: 14.5 Median: 16.0)				RELATIVE P/E RATIO 1.01				DIV'D YLD	5.1%	VALUE LINE				
TIMELINESS 3	Raised 3/2/18	High: 40.6 Low: 29.8	37.6 26.5	38.6 30.8	46.7 35.7	48.6 41.8	48.7 40.0	51.3 40.3	53.2 41.4	54.6 46.0	53.5 46.7	49.4 42.4	48.8 43.3			Target Price 2022 2023 2024				
SAFETY 2	Lowered 2/21/14	LEGENDS — 0.62 x Dividends p sh ... divided by Interest Rate Relative Price Strength Options: Yes Shaded area indicates recession														128 96 80 64 48 40 32 24 16 12				
TECHNICAL 4	Lowered 2/15/19																			
BETA .50 (1.00 = Market)																				
2022-24 PROJECTIONS		Price	Gain	Ann'l Total Return																
		High: 65 Low: 50	(+3%) (+5%)	11% 6%																
Insider Decisions		A M J J A S O N D																		
to Buy	0 0 0 0 0 0 0 0 0 0																			
Options	0 0 0 1 0 0 0 0 0 1																			
To Sell	0 0 0 0 1 0 0 0 0 3																			
Institutional Decisions		1Q2018 202018 3Q2018																		
to Buy	523 595	509 530	501 556																	
to Sell				Hds'000 577028	582212	583272														
2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	© VALUE LINE PUB. LLC 22-24		
15.31	16.05	18.28	19.24	20.12	22.04	19.21	20.70	20.41	19.06	19.26	20.34	19.18	20.09	22.86	23.10	24.00	25.00	Revenues per sh	28.00	
3.53	3.65	4.03	4.01	4.22	4.43	4.43	4.51	4.91	5.18	5.27	5.28	5.47	5.69	6.64	6.40	6.70	7.00	"Cash Flow" per sh	7.75	
1.97	2.06	2.13	2.10	2.28	2.25	2.32	2.36	2.55	2.67	2.70	2.77	2.84	2.83	3.21	2.90	3.05	3.25	Earnings per sh ^A	3.75	
1.39	1.42	1.48	1.54	1.60	1.66	1.73	1.80	1.87	1.94	2.01	2.08	2.15	2.22	2.30	2.38	2.46	2.54	2.78	Div'd Decl'd per sh ^B	
2.72	2.85	3.20	4.01	4.65	5.10	5.70	4.85	5.23	5.54	6.16	6.58	6.22	7.38	7.37	8.35	7.15	6.40	Cap'I Spending per sh	5.25	
13.13	13.86	14.42	15.24	16.23	17.08	18.15	19.21	20.32	21.09	21.43	21.98	22.59	25.00	23.98	24.35	25.20	26.15	Book Value per sh ^C	29.50	
734.83	741.50	741.45	746.27	763.10	777.19	819.65	843.34	865.13	867.77	887.09	907.78	911.72	990.39	1007.6	1040.0	1050.0	1060.0	Common Shs Outstg ^D	1090.0	
14.8	14.7	15.9	16.2	16.0	16.1	13.5	14.9	15.8	17.0	16.2	16.0	15.8	17.8	15.5	15.6	15.6	15.6	Bold figures are Value Line estimates	Avg Ann'l P/E Ratio	15.0
.84	.78	.85	.87	.85	.85	.90	.95	.99	1.08	.91	.84	.80	.93	.78	.85	.85	.85	Relative P/E Ratio	.85	
4.7%	4.7%	4.4%	4.5%	4.4%	4.6%	5.5%	5.1%	4.6%	4.3%	4.6%	4.7%	4.8%	4.4%	4.6%	5.3%	5.3%	5.3%	Avg Ann'l Div'd Yield	4.9%	
CAPITAL STRUCTURE as of 9/30/18		15743	17456	17657	16537	17087	18467	17489	19896	23031	24000	25200	26500					Revenues (\$mill)	30650	
Total Debt \$47002 mill. Due in 5 Yrs \$18156 mill.		1910.0	2040.0	2268.0	2415.0	2439.0	2567.0	2647.0	2757.0	3269.0	3075	3305	3530					Net Profit (\$mill)	4180	
LT Debt \$41425 mill. LT Interest \$1450 mill.		31.9%	33.5%	35.0%	35.6%	34.8%	33.8%	33.4%	28.5%	25.2%	20.0%	20.0%	20.0%					Income Tax Rate	20.0%	
(LT interest earned: 3.2x)		14.9%	13.7%	10.2%	9.4%	11.6%	13.9%	13.2%	11.9%	7.6%	7.0%	6.0%	6.0%					AFUDC % to Net Profit	4.0%	
Leases, Uncapitalized Annual rentals \$149 mill.		53.2%	51.2%	50.0%	49.9%	51.5%	49.5%	52.8%	61.5%	64.5%	63.0%	62.0%	61.5%					Long-Term Debt Ratio	59.5%	
Pension Assets-12/17 \$12992 mill.		43.6%	45.7%	47.1%	47.3%	45.8%	47.3%	44.0%	35.7%	35.0%	36.5%	37.5%	38.0%					Common Equity Ratio	40.0%	
Oblig \$13808 mill. Pfd Stock \$324 mill. Pfd Div'd \$17 mill.		34091	35438	37307	38653	41483	42142	46788	69359	68953	69100	70150	72850					Total Capital (\$mill)	79700	
Incl. 10 mill. shs. 5% cum. pfd. (\$25 stated value);		39230	40202	45010	48390	51208	54868	61114	78446	79872	80400	84100	86925					Net Plant (\$mill)	91900	
334,210 shs. 4.4%-5.25% cum. pfd. (\$100 par).		6.9%	7.0%	7.2%	7.3%	6.8%	7.1%	6.6%	4.9%	5.9%	5.5%	5.5%	6.0%					Return on Total Cap'I	6.5%	
Common Stock 1,028,888,684 shs.		12.0%	11.8%	12.2%	12.5%	12.1%	12.1%	12.0%	10.3%	13.3%	12.0%	12.0%	12.5%					Return on Shr. Equity	13.0%	
MATERIAL CAP: \$50 billion (Large Cap)		12.4%	12.2%	12.5%	12.8%	12.5%	12.5%	12.6%	11.0%	13.4%	12.0%	12.0%	12.5%					Return on Com Equity ^E	13.0%	
ELECTRIC OPERATING STATISTICS		3.2%	3.0%	3.4%	3.6%	3.2%	3.2%	3.1%	2.5%	3.9%	2.0%	2.5%	2.5%					Retained Com Eq	3.5%	
		75%	77%	73%	73%	75%	75%	76%	78%	72%	80%	78%	76%					All Div'ds to Net Prof	73%	
BUSINESS: The Southern Company, through its subs., supplies		GA, 49%; AL, 35%; FL, 9%; MS, 7%. Generating sources: gas & oil, 42%; coal, 27%; nuclear, 15%; other, 7%; purchased, 9%. Fuel costs: 32% of revs. '17 reported depr. rate (utility): 2.9%. Has 31,300 employees. Chairman, President and CEO: Thomas A. Fanning, Inc.: DE. Address: 30 Ivan Allen Jr. Blvd., N.W., Atlanta, GA 30308. Tel.: 404-506-0747. Internet: www.southerncompany.com.																		
Southern Company completed a series of asset sales at the start of 2019.		The company sold electric and gas utilities in Florida, plus two gas-fired generating assets there, for more than \$5 billion. It plans to use the proceeds to reduce debt and offset part of its equity needs.																		
Construction of two units at the Vogtle nuclear station continues.		This project has had significant delays and cost overruns, and is now expected to be completed in 2020 and 2021. Last year, the company took a \$0.78-a-share writedown of construction costs that will not be recovered from Georgia Power's customers. If future cost overruns exceed \$800 million, the utility will be responsible for a disproportionate amount of these overruns. Thus, Georgia Power still faces construction risk.																		
Earnings should improve this year and next.		In 2019, the year-to-year comparisons in the second and fourth quarters should be easy. The utilities should benefit from rate relief and customer growth. Beginning in 2020, the aforementioned asset sales will increase profits by an estimated \$0.04-\$0.05 a share annually. Southern																		
Company was scheduled to report fourth-quarter earnings in late February.																				
The share count has increased significantly in recent years.		Besides the cost overruns for Georgia Power's nuclear project, Mississippi Power had similar problems with a coal-gasification project. This led to significant writedowns from 2013 through 2017. Thus, Southern Company wound up issuing stock to help finance the cost overruns and support the common-equity ratio.																		
Nicor Gas filed a general rate case.		Nicor Gas is seeking a \$230 million increase, based on a 10.6% return on equity. An order is expected by October.																		
This stock has one of the highest dividend yields of any electric utility issue.		This is due to the problems with the two major projects and the remaining construction risk with Vogtle. Despite these difficulties, Southern Company has provided steady dividend growth, which we project will continue through 2022-2024. The stock has appeal for income-seeking investors willing to assume the risks regarding Vogtle construction.																		
<i>Paul E. Debbas, CFA February 15, 2019</i>																				
(A) Diluted EPS. Excl. nonrec. gain (losses): '03, .6¢; '09, (.25¢); '13, (.83¢); '14, (.59¢); '15, (.25¢); '16, (.28¢); '17, (.23¢); '18, (.78¢); '19, (.23¢). EPS don't sum due to rounding. Next earnings report due late Feb. Mar., June, Sept., and Dec. ■ Div'ds paid in early Mar., June, Sept., and Dec. □ Div'd reinvest. plan avail. (C) Incl. div'd chgs. In '17: \$16.36/sh. (D) In mill. (E) Rate base: AL, MS, Avg.; MS, FL Avg. (F) Winter peak in '15.																				
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Section 1: 10-Q (10-Q)

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 10-Q

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the quarterly period ended March 31, 2013

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

COMMISSION FILE NUMBER 001-34691

ATLANTIC POWER CORPORATION

(Exact name of registrant as specified in its charter)

British Columbia, Canada
 (State or other jurisdiction of incorporation or organization)

55-0886410
 (I.R.S. Employer Identification No.)

One Federal Street, 30th Floor
Boston, MA
 (Address of principal executive offices)

02110
 (Zip code)

(617) 977-2400
 (Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data

FERC Docket No. PL19-4-000**Affidavit of Michael P. Gorman****Exhibit No. A-3****Page 53 of 62**

facility for the project, which included a \$290 million construction loan and a \$20 million 5-year letter of credit facility. In July 2012 we funded approximately \$190 million of our equity contribution (net of financing costs). In December 2012, the project received tax equity investments in aggregate of \$225 million from a consortium of four institutional tax equity investors along with an approximately \$44 million tax equity investment of our own. On May 2, 2013, we sold our tax equity ownership in Canadian Hills to an institutional investor and received net cash proceeds of \$42.1 million. The cash proceeds will be held for general corporate purposes and to invest in future accretive growth opportunities. The project's outstanding construction loan was repaid by the proceeds from these tax equity investors, decreasing the project's short-term debt by \$265 million as of December 31, 2012. Canadian Hills has no debt at March 31, 2013.

The acquisition of Canadian Hills was accounted for as an asset purchase and is consolidated in our consolidated balance sheets at March 31, 2013 and December 31, 2012. We own 99% of the project and consolidate it in our consolidated financial statements. Income attributable to the tax equity investors is classified as noncontrolling interests and is allocated utilizing the hypothetical liquidation book value method ("HLBV").

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ATLANTIC POWER CORPORATION

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(Unaudited)

2. Acquisitions and divestments (Continued)

2013 Divestments

(a) Gregory

On April 2, 2013 we and the other owners of Gregory, entered into a purchase and sale agreement with an affiliate of NRG Energy, Inc. to sell the project for approximately \$272.8 million including working capital adjustments. We expect to receive net cash proceeds for our ownership interest of approximately \$33.7 million in the aggregate, after repayment of project-level debt and transaction expenses. We intend to use the net proceeds from the sale for general corporate purposes and to invest in future accretive growth opportunities. We expect the sale of Gregory to close in the third quarter of 2013.

(b) Auburndale, Lake and Pasco

On January 30, 2013, we entered into a purchase and sale agreement for the sale of our Florida Projects for approximately \$140 million, with working capital adjustments. The sale closed on April 12, 2013 and we received net cash proceeds of approximately \$117 million in the aggregate, after repayment of project-level debt at Auburndale and settlement of all outstanding natural gas swap agreements at Lake and Auburndale. This includes approximately \$92 million received at closing and cash distributions from the Florida Projects of approximately \$25 million received since January 1, 2013. We used a portion of the net proceeds from the sale to fully repay our senior credit facility, which had an outstanding balance of approximately \$64.1 million on the closing date. The Florida Projects are accounted for as assets held for sale in the consolidated balance sheets at March 31, 2013 and December 31, 2012 and as a component of discontinued operations in the consolidated statements of operations for the three months ended March 31, 2013 and 2012. See Note 10, *Assets held for sale*, for further information.

(c) Path 15

On March 11, 2013 we entered into a purchase and sale agreement with Duke-American Transmission Company, a joint venture between Duke Energy Corporation and American Transmission Co., to sell our interests in Path 15. The sale closed on April 30, 2013 and we received net cash proceeds from the sale, including working capital adjustments, of approximately \$52 million, plus a management agreement termination fee of \$4.0 million, for a total sale price of approximately \$56 million. The cash proceeds will be held for general corporate purposes and to invest in future accretive growth opportunities. In April 2013, we recorded a gain on sale of approximately \$7.0 million. All project level debt issued by Path 15, totaling \$137.2 million as of March 31, 2013, transferred with the sale. Path 15 is accounted for as an asset held for sale in the consolidated balance sheets at March 31, 2013 and December 31, 2012 and as a component of discontinued operations in the consolidated statements of operations for the three months ended March 31, 2013 and 2012. See Note 10, *Assets held for sale*, for further information.

2012 Divestments

(d) Primary Energy Recycling Corporation

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Item 1: <input checked="" type="checkbox"/> An Initial (Original) Submission	OR <input type="checkbox"/> Resubmission No. _____

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(Expires 12/31/2014)

Form 1-F Approved
OMB No.1902-0029
(Expires 12/31/2014)

Form 3-Q Approved
OMB No.1902-0205
(Expires 05/31/2014)



FERC FINANCIAL REPORT
FERC FORM No. 1: Annual Report of
Major Electric Utilities, Licensees
and Others and Supplemental
Form 3-Q: Quarterly Financial Report

These reports are mandatory under the Federal Power Act, Sections 3, 4(a), 304 and 309, and 18 CFR 141.1 and 141.400. Failure to report may result in criminal fines, civil penalties and other sanctions as provided by law. The Federal Energy Regulatory Commission does not consider these reports to be of confidential nature

Exact Legal Name of Respondent (Company) Atlantic Path 15, LLC	Year/Period of Report End of <u>2013/Q1</u>
--	--

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Name of Respondent Atlantic Path 15, LLC	This Report is: (1) <input checked="" type="checkbox"/> An Original (2) <input type="checkbox"/> A Resubmission	Date of Report (mo, da, yr) 03/31/2013	Year/Period of Report end of <u>2013/Q1</u>
---	---	--	--

COMPARATIVE BALANCE SHEET (LIABILITIES AND OTHER CREDITS)

Line No.	Title of Account (a)	Ref. Page No. (b)	Current Year End of Quarter/Year Balance (c)	Prior Year End Balance 12/31 (d)
1	PROPRIETARY CAPITAL			
2	Common Stock Issued (201)	250-251	0	0
3	Preferred Stock Issued (204)	250-251	0	0
4	Capital Stock Subscribed (202, 205)		0	0
5	Stock Liability for Conversion (203, 206)		0	0
6	Premium on Capital Stock (207)		0	0
7	Other Paid-In Capital (208-211)	253	94,452,404	94,452,404
8	Installments Received on Capital Stock (212)	252	0	0
9	(Less) Discount on Capital Stock (213)	254	0	0
10	(Less) Capital Stock Expense (214)	254b	0	0
11	Retained Earnings (215, 215.1, 216)	118-119	-33,949,244	-36,941,614
12	Unappropriated Undistributed Subsidiary Earnings (216.1)	118-119	0	0
13	(Less) Required Capital Stock (217)	250-251	0	0
14	Noncorporate Proprietorship (Non-major only) (218)		0	0
15	Accumulated Other Comprehensive Income (219)	122(a)(b)	0	0
16	Total Proprietary Capital (lines 2 through 15)		60,503,160	57,510,790
17	LONG-TERM DEBT			
18	Bonds (221)	256-257	62,541,471	62,541,471
19	(Less) Required Bonds (222)	256-257	0	0
20	Advances from Associated Companies (223)	256-257	0	0
21	Other Long-Term Debt (224)	256-257	0	0
22	Unamortized Premium on Long-Term Debt (225)		0	0
23	(Less) Unamortized Discount on Long-Term Debt-Debit (226)		0	0
24	Total Long-Term Debt (lines 18 through 23)		62,541,471	62,541,471
25	OTHER NONCURRENT LIABILITIES			
26	Obligations Under Capital Leases - Noncurrent (227)		0	0
27	Accumulated Provision for Property Insurance (228.1)		0	0
28	Accumulated Provision for Injuries and Damages (228.2)		0	0
29	Accumulated Provision for Pensions and Benefits (228.3)		0	0
30	Accumulated Miscellaneous Operating Provisions (228.4)		0	0
31	Accumulated Provision for Rate Refunds (229)		0	0
32	Long-Term Portion of Derivative Instrument Liabilities		0	0
33	Long-Term Portion of Derivative Instrument Liabilities - Hedges		0	0
34	Asset Retirement Obligations (230)		0	0
35	Total Other Noncurrent Liabilities (lines 26 through 34)		0	0
36	CURRENT AND ACCRUED LIABILITIES			
37	Notes Payable (231)		0	0
38	Accounts Payable (232)		65,006	754,963
39	Notes Payable to Associated Companies (233)		0	0
40	Accounts Payable to Associated Companies (234)		25,891	408,760
41	Customer Deposits (235)		0	0
42	Taxes Accrued (236)	262-263	0	0
43	Interest Accrued (237)		1,476,394	238,926
44	Dividends Declared (238)		0	0
45	Matured Long-Term Debt (239)		0	0

VOL 2 Larson Direct

STATE OF IOWA
BEFORE THE IOWA UTILITIES BOARD

RECORDS CENTER
ORIGINAL
DO NOT REMOVE

IN RE:	DOCKET NO. SPU 07-07-11*
INTERSTATE POWER AND LIGHT COMPANY AND ITC MIDWEST LLC	FILED WITH Executive Secretary

DIRECT TESTIMONY OF JOHN O. LARSEN

MAR 30 2007

IOWA UTILITIES BOARD

- 1 Q. Please state your name and business address.
- 2 A. My name is John Larsen. My business address is 4902 North Biltmore Lane,
3 Madison, Wisconsin 53718.
- 4 Q. By whom are you presently employed and in what capacity?
- 5 A. I am employed as the Vice President of Alliant Energy Corporation's ("Alliant
6 Energy") Technical and Integrated Services Business Unit. In this capacity, I
7 am responsible for electric and gas delivery system engineering and planning,
8 transmission services, generation asset engineering and resource planning,
9 R&D, energy trading, market operations, and fuel portfolio strategy. I am
10 testifying on behalf of Interstate Power and Light Company ("IPL," or
11 "Company"), a wholly owned subsidiary of Alliant Energy, in this proceeding.
- 12 Q. What is your educational background?
- 13 A. I hold a Bachelor of Science degree in Electrical Engineering from the
14 University of North Dakota and have trained at the Kellogg School of
15 Management at Northwestern University in utility finance.

Exhibit (CAH-1)
Schedule K
Page 1 of 2

INTERSTATE POWER AND LIGHT COMPANY
TRANSMISSION TRANSACTION
ESTIMATION OF NET PROCEEDS ABOVE
NET BOOK VALUE OF ASSETS SOLD*
AS OF DECEMBER 31, 2007
IN MILLIONS

Line No.	Description	\$	
1	Sales Price	\$ 750.0	
2	Net Book Value of the Transmission Assets	(423.2)	
3	Amount of CWIP covered by sales price	(19.1)	
4	Transmission Materials and Supplies	(0.8)	
	Transaction Costs:		
5	Outside Accounting Fees	(2.0)	
6	Employee Grants	(2.6)	
7	Investment Banker	(1.3)	
8	Outside Legal Fees	(0.9)	
9	Real Estate Contractors	(0.6)	
10	Other Costs	(0.8)	
11	Closing Transaction Adjustments, if any	-	
12	Book Income Tax Expense on Gain (page 2)	(133.0)	
13	Net Proceeds Above Net Book Value of Assets	<u>\$ 165.7</u>	
	Amount of Net Proceeds to be Accounted for as		
14	Regulatory Liability	<u>\$ 60.0</u>	

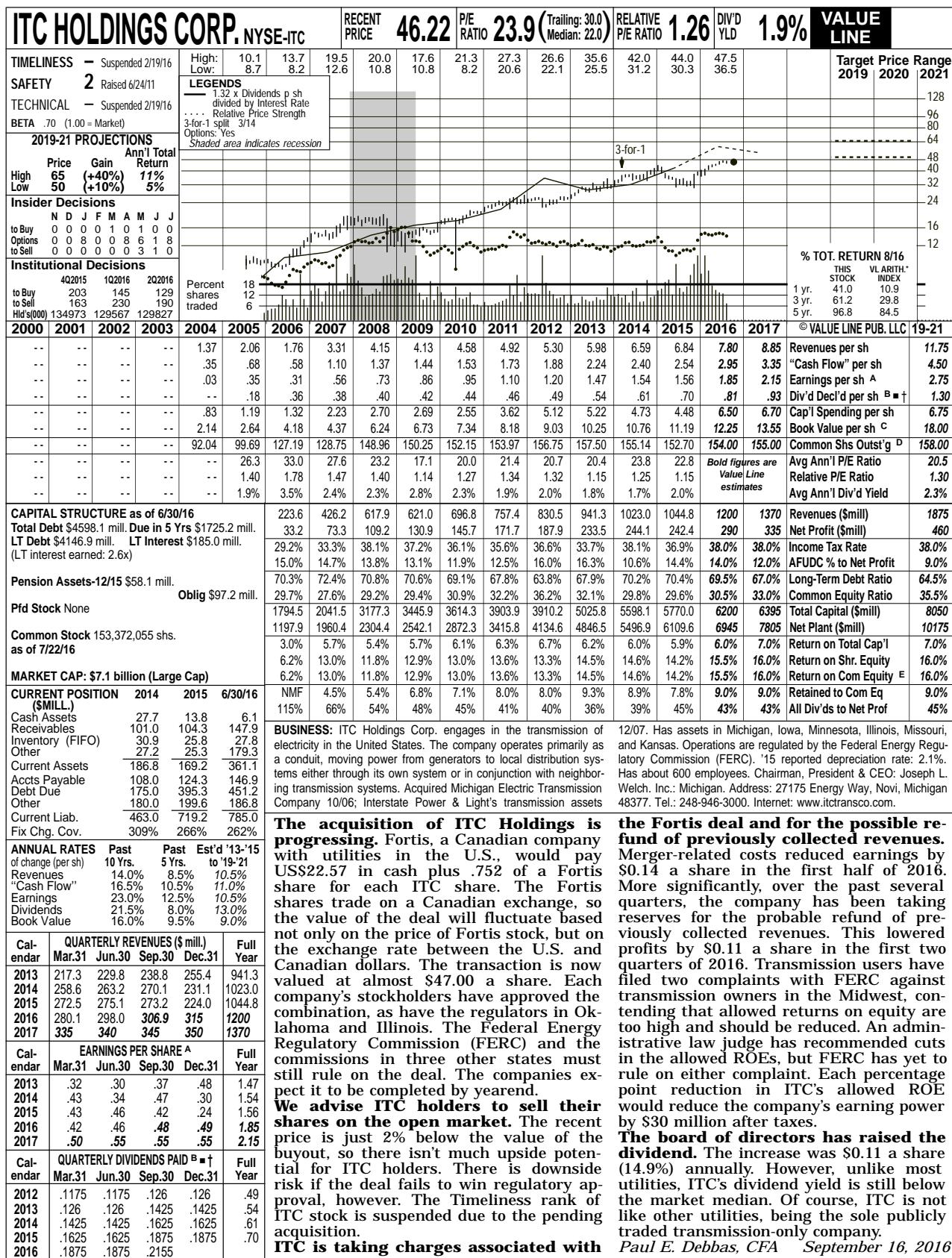
*All amounts shown above are estimated except for the sales price.

FERC Docket No. PL19-4-000

Affidavit of Michael P. Gorman

Exhibit No. A-3

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(A) Diluted earnings. '15 earnings don't add to full-year total due to rounding. Next earnings report due late Oct. (B) Dividends historically paid in early March, June, Sept., and Dec. ■ millions, adjusted for stock split. (E) Rates al-

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Item 1: <input checked="" type="checkbox"/> An Initial (Original) Submission	OR <input type="checkbox"/> Resubmission No. _____

Form 1 Approved
OMB No. 1902-0021
(Expires 7/31/2008)
Form 1-F Approved
OMB No. 1902-0029
(Expires 6/30/2007)
Form 3-Q Approved
OMB No. 1902-0205
(Expires 6/30/2007)



FERC FINANCIAL REPORT
FERC FORM No. 1: Annual Report of
Major Electric Utilities, Licensees
and Others and Supplemental
Form 3-Q: Quarterly Financial Report

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Exact Legal Name of Respondent (Company) MONONGAHELA POWER COMPANY	Year/Period of Report End of <u>2005/Q4</u>
--	--

FERC Docket No. PL19-4-000
Affidavit of Michael P. Gorman
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Name of Respondent	This Report is: (1) <input checked="" type="checkbox"/> An Original (2) <input type="checkbox"/> A Resubmission	Date of Report (Mo, Da, Yr)	Year/Period of Report
MONONGAHELA POWER COMPANY		04/17/2006	2005/Q4
IMPORTANT CHANGES DURING THE QUARTER/YEAR (Continued)			

1. See item 3 below.

2. None

3. On December 31, 2005, Monongahela completed the sale of its Ohio electric T&D assets to Columbus Southern for net cash proceeds of \$51.8 million. The purchase price for the assets was the net book value at the time of closing, plus \$10.0 million, less certain property taxes. The sale included a power sales agreement under which Monongahela will provide power to Columbus Southern for the Ohio retail customer base from the time of closing through May 31, 2007 at \$45 per megawatt-hour, which is projected to be less than the projected market price for power. During 2005, Monongahela recorded a loss on the sale of \$29.3 million based on the estimated value, at December 31, 2005, of Monongahela's power sales agreement with Columbus Southern to provide power at below-market prices from December 31, 2005 through May 31, 2007, partially offset by approximately \$8.0 million, representing the purchase price less net book value of the assets at December 31, 2005 and approximately \$2.0 million in expenses associated with the sale.

On September 30, 2005, Monongahela completed the sale of its natural gas operations in West Virginia to Mountaineer Gas Holdings Limited Partnership, a partnership composed of IGS Utilities LLC, IGS Holdings LLC and affiliates of ArcLight Capital Partners, LLC, for approximately \$161.0 million in cash and the assumption of approximately \$87.0 million of long-term debt. The assets sold included all of the issued and outstanding capital stock of Mountaineer Gas and certain other assets related to the West Virginia natural gas operations, subject to certain post closing adjustments

4. None

5. See note 3 above.

Here are the Commission orders pertaining to the sale of the Gas Operations.

Securities and Exchange Commission
Case No. 70-10270
Order Authorizing Sale of Gas Utility Company
September 21, 2005

Public Service Commission of West Virginia
Case No. 04-1596-G-PC
Order approving Sale of Gas Operations
August 24, 2005

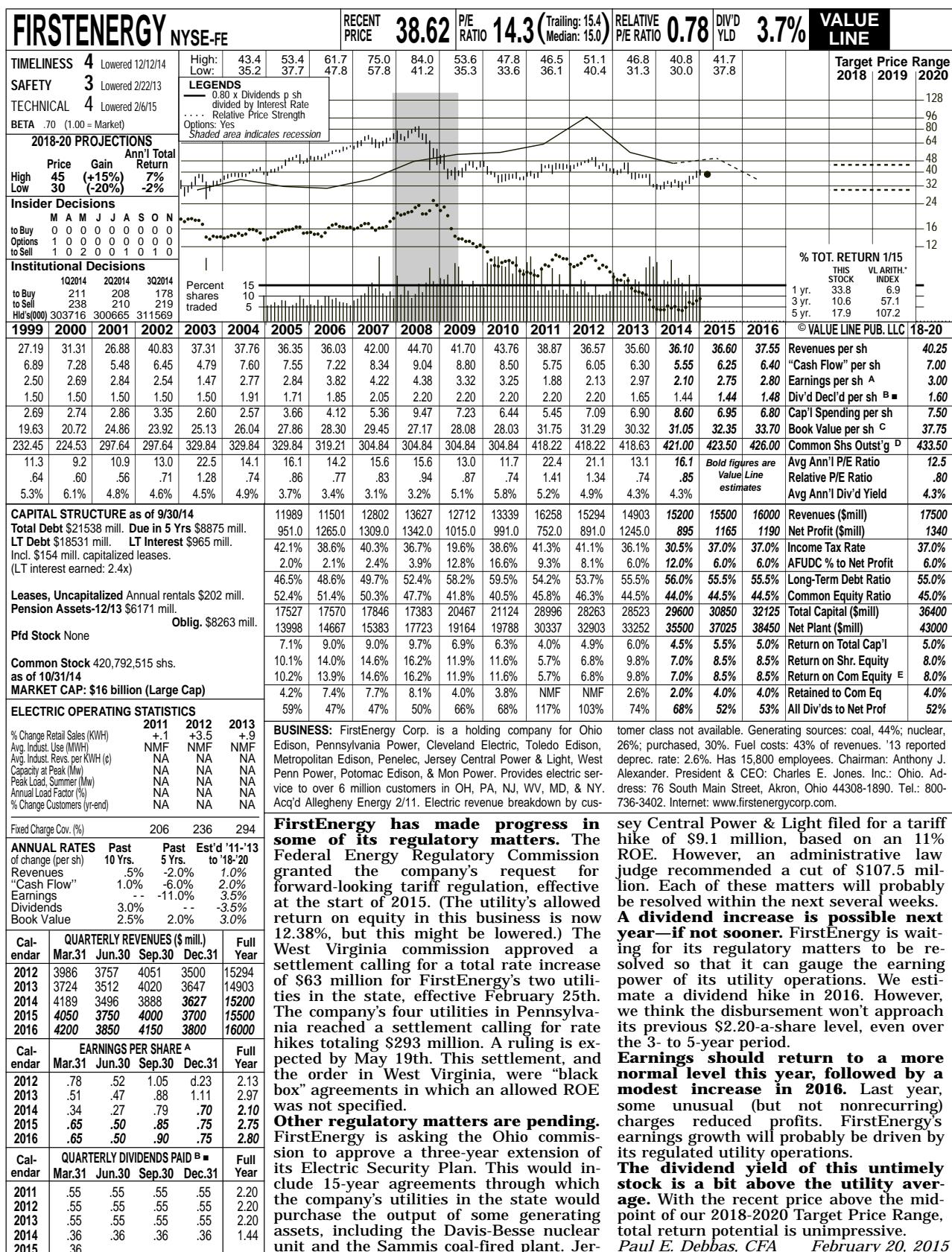
Federal Energy Regulatory Commission
Transaction Identification No. 20050048
Early Termination of waiting period for the sale of Gas Operations Granted
October 27, 2004

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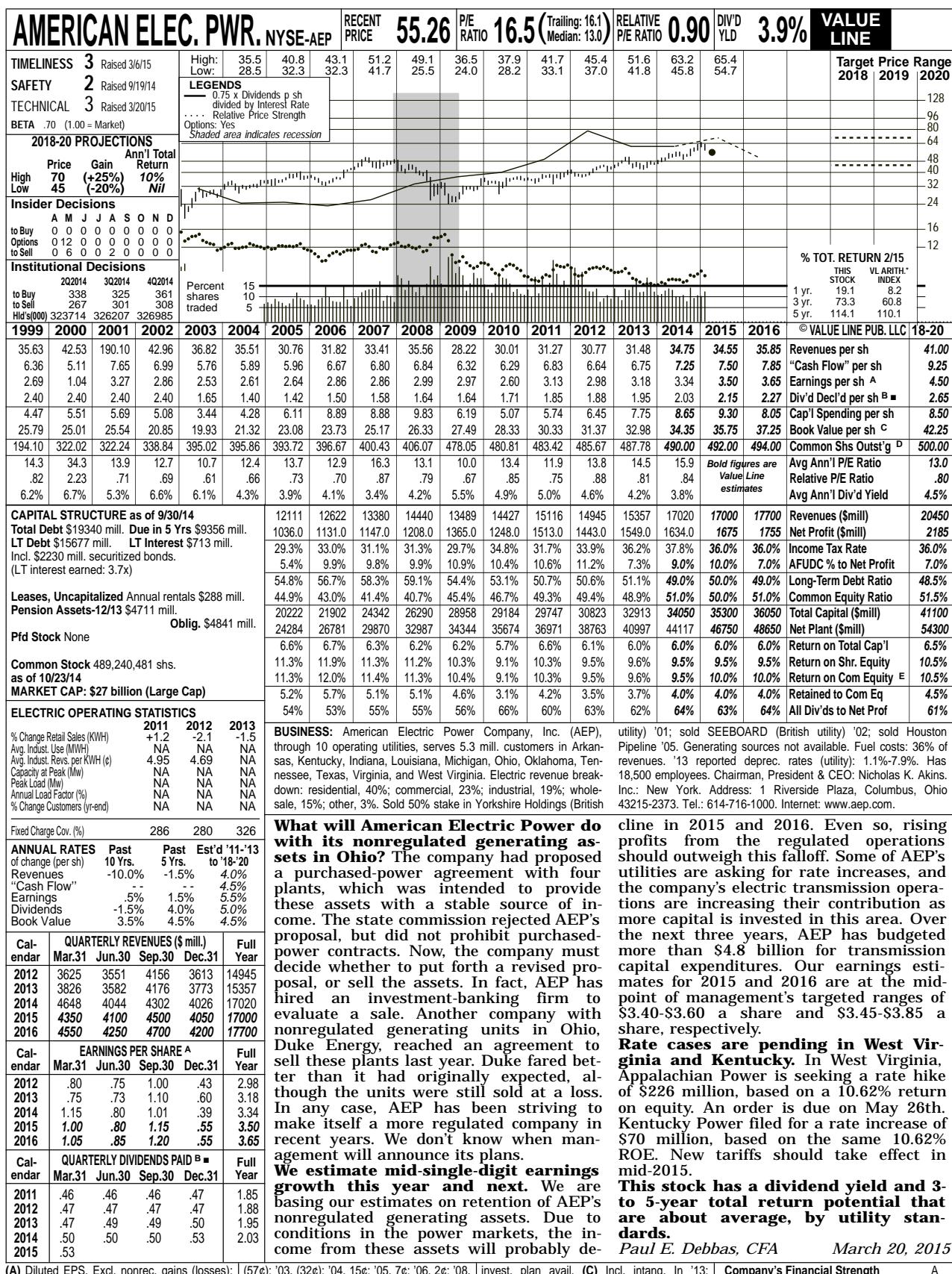
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ASSOCIATIONS EXHIBIT No. A-4

FERC Docket No. PL19-4-000
 Affidavit of Michael P. Gorman
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Federal Energy Regulatory Commission

Total Investment Return

Edison Electric Index (EEI)			S&P 500		
Year	Total Return	Dividend Yield	Year	Total Return	Dividend Yield
2018	6.0%	3.33%	2018	-4.38%	1.98%
2017	18.0%	3.60%	2017	21.83%	2.02%
2016	21.3%	3.97%	2016	11.96%	2.21%
2015	-4.9%	3.44%	2015	1.38%	2.13%
2014	39.2%	4.40%	2014	13.69%	2.06%
2013	7.7%	4.39%	2013	32.39%	2.15%
2012	17.6%	4.90%	2012	16.00%	2.29%
2011	8.3%	4.79%	2011	2.11%	2.11%
2010	14.3%	5.02%	2010	15.06%	2.02%
2009	-27.3%	3.37%	2009	26.46%	2.44%
2008	9.3%	3.53%	2008	-37.00%	2.42%
Average	10.0%	4.1%	Average	9.05%	2.17%
Std. Dev.	16.6%	0.7%	Std. Dev.	18.80%	0.16%

Notes

Some EEI utilities were excluded from the data set due to data limitations or concerns including:

Mergers & Acquisitions: Scana Corp and Vectren Corp.

Avangrid and Evergy Inc lacked sufficient historical data.

PG&E is in bankruptcy and has suspended dividends.

Insufficient historical dividend information for MDU Resource Group Inc, Unitil Corp, and NiSource Inc.

Insufficient historical stock price data for El Paso Electric Co.

FERC Docket No. PL19-4-000
 Affidavit of Michael P. Gorman
 Exhibit No. A-4
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Federal Energy Regulatory Commission

<u>Year</u>	<u>Edison Electric Index</u>					
	<u>Price</u>	<u>Dividend</u>	<u>Price Change</u>	<u>Total Return</u>	<u>Annual Growth</u>	<u>Dividend Yield</u>
2018	\$66.50	\$2.15	\$1.73	5.99%	2.67%	3.33%
2017	\$64.77	\$2.04	\$8.15	18.00%	14.40%	3.60%
2016	\$56.62	\$1.92	\$8.36	21.30%	17.33%	3.97%
2015	\$48.25	\$1.81	-\$4.38	-4.88%	-8.32%	3.44%
2014	\$52.64	\$1.72	\$13.59	39.22%	34.81%	4.40%
2013	\$39.04	\$1.66	\$1.25	7.69%	3.30%	4.39%
2012	\$37.79	\$1.64	\$4.27	17.64%	12.74%	4.90%
2011	\$33.52	\$1.55	\$1.14	8.32%	3.53%	4.79%
2010	\$32.38	\$1.49	\$2.75	14.30%	9.28%	5.02%
2009	\$29.63	\$1.44	-\$13.12	-27.31%	-30.68%	3.37%
2008	\$42.75	\$1.42	\$2.34	9.31%	5.78%	3.53%
2007	\$40.41	\$1.36	N/A	N/A	N/A	N/A

FERC Docket No. PL19-4-000
 Affidavit of Michael P. Gorman
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Federal Energy Regulatory Commission

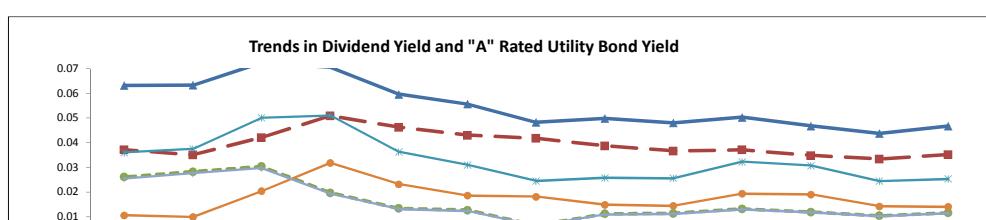
<u>Year</u>	<u>Large-Capitalization Stocks</u>				
	Total <u>Return</u>	Capital <u>Appreciation</u>	Tot. Return <u>Growth</u>	Cap. App. <u>Growth</u>	Dividend <u>Yield</u>
2018	\$7,030	\$196	-4.38%	-6.24%	1.98%
2017	\$7,353	\$210	21.83%	19.42%	2.02%
2016	\$6,035	\$175	11.96%	9.53%	2.21%
2015	\$5,390	\$160	1.38%	-0.73%	2.13%
2014	\$5,317	\$161	13.69%	11.39%	2.06%
2013	\$4,677	\$145	32.39%	29.60%	2.15%
2012	\$3,533	\$112	16.00%	13.41%	2.29%
2011	\$3,045	\$99	2.11%	0.00%	2.11%
2010	\$2,982	\$99	15.06%	12.78%	2.02%
2009	\$2,592	\$87	26.46%	23.45%	2.44%
2008	\$2,049	\$71	-37.00%	-38.49%	2.42%
2007	\$3,253	\$115	N/A	N/A	N/A

ASSOCIATIONS EXHIBIT No. A-5

Federal Energy Regulatory Commission

Electric Utilities
(Valuation Metrics)

Line	Company	Dividend Yield ¹												
		13-Year Average ^{2a}	2018 ^{2b}	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
1	ALLETE	4.03%	3.00%	2.97%	3.56%	3.97%	3.92%	3.89%	4.49%	4.58%	5.03%	5.79%	4.37%	3.60%
2	Alliant Energy	3.82%	3.21%	3.07%	3.21%	3.60%	3.53%	3.74%	4.07%	4.28%	4.61%	5.73%	4.10%	3.13%
3	Ameren Corp.	4.63%	3.01%	3.12%	3.50%	3.96%	4.02%	4.61%	4.97%	5.28%	5.76%	5.98%	6.21%	4.88%
4	American Electric Power	4.15%	3.52%	3.42%	3.54%	3.80%	3.83%	4.23%	4.58%	4.96%	4.90%	5.50%	4.20%	3.40%
5	Avangrid, Inc.	3.85%	3.49%	3.79%	4.26%	N/A								
6	Avista Corp.	3.77%	3.14%	3.14%	3.39%	3.97%	3.99%	4.51%	4.55%	4.54%	4.76%	4.49%	3.39%	2.68%
7	Black Hills	3.83%	3.25%	2.75%	2.87%	3.55%	2.84%	3.19%	4.39%	4.64%	4.79%	6.17%	4.21%	3.40%
8	CenterPoint Energy	4.57%	4.12%	4.79%	4.70%	5.06%	3.94%	3.57%	4.04%	4.27%	5.29%	6.37%	4.98%	3.87%
9	CMS Energy Corp.	3.32%	3.03%	2.88%	2.99%	3.36%	3.59%	3.76%	4.16%	4.25%	3.98%	3.97%	2.69%	1.16%
10	Consol. Edison	4.51%	3.67%	3.40%	3.62%	4.12%	4.38%	4.25%	4.07%	4.46%	5.16%	5.99%	5.67%	4.84%
11	Dominion Resources	3.98%	4.66%	3.88%	3.82%	3.66%	3.43%	3.78%	4.06%	4.13%	4.41%	5.20%	3.77%	3.32%
12	DTE Energy	4.24%	3.33%	3.15%	3.34%	3.53%	3.54%	3.84%	4.19%	4.66%	4.75%	6.29%	5.24%	4.36%
13	Duke Energy	4.78%	4.46%	4.15%	4.26%	4.34%	4.26%	4.45%	4.68%	5.21%	5.71%	6.25%	5.16%	4.44%
14	Edison Int'l	3.05%	4.17%	2.87%	2.81%	2.83%	2.62%	2.85%	2.97%	3.37%	3.66%	3.95%	2.69%	2.21%
15	El Paso Electric	2.74%	2.52%	2.49%	2.75%	3.13%	2.97%	2.99%	2.97%	2.11%	N/A	N/A	N/A	N/A
16	Energy Corp.	4.13%	4.40%	4.49%	4.55%	4.59%	4.47%	5.07%	4.91%	4.85%	4.20%	3.97%	2.92%	2.39%
17	Eversource Energy	3.35%	3.28%	3.14%	3.22%	3.34%	3.40%	3.48%	3.52%	3.23%	3.64%	4.16%	3.25%	2.60%
18	Exergy, Inc.	3.11%	3.11%	N/A										
19	Exelon Corp.	3.91%	3.33%	3.51%	3.75%	3.88%	3.69%	4.69%	5.73%	4.96%	4.95%	4.26%	2.78%	2.48%
20	FirstEnergy Corp.	4.35%	4.16%	4.62%	4.31%	4.23%	4.26%	4.26%	4.90%	5.23%	5.76%	5.09%	3.21%	3.40%
21	Fortis Inc.	3.68%	4.03%	3.69%	3.80%	3.76%	3.88%	3.84%	3.64%	3.58%	3.80%	4.21%	3.76%	3.01%
22	Great Plains Energy	4.52%	N/A	3.58%	3.64%	3.76%	3.62%	3.84%	4.08%	4.15%	4.49%	5.03%	6.96%	5.49%
23	Hawaiian Elec.	4.74%	3.49%	3.65%	3.99%	4.05%	4.76%	4.72%	4.70%	5.04%	5.51%	6.89%	5.00%	5.18%
24	IDACORP, Inc.	3.27%	2.64%	2.58%	2.77%	3.06%	3.12%	3.21%	3.28%	3.10%	3.44%	4.46%	3.95%	3.55%
25	MGE Energy	3.28%	2.20%	1.95%	2.23%	2.78%	2.78%	2.91%	3.25%	3.63%	3.98%	4.36%	4.24%	4.25%
26	NextEra Energy, Inc.	3.22%	2.70%	2.79%	2.91%	3.01%	3.00%	3.30%	3.65%	3.96%	3.90%	3.55%	3.02%	2.65%
27	NorthWestern Corp	4.14%	3.80%	3.52%	3.43%	3.61%	3.30%	3.68%	4.17%	4.51%	4.93%	5.75%	5.38%	4.09%
28	OGE Energy	3.61%	3.92%	3.61%	3.87%	3.51%	2.63%	2.48%	2.94%	3.06%	3.68%	4.96%	4.52%	3.99%
29	Otter Tail Corp.	4.26%	2.95%	3.12%	3.87%	4.33%	4.14%	4.11%	5.21%	5.57%	5.68%	5.38%	3.63%	3.46%
30	PG&E Corp.	3.70%	N/A	2.42%	3.22%	3.45%	3.96%	4.20%	4.25%	4.24%	4.08%	4.26%	4.01%	3.07%
31	Pinnacle West Capital	4.61%	3.46%	3.16%	3.46%	3.88%	4.09%	3.98%	5.32%	4.81%	5.43%	6.76%	6.17%	4.75%
32	PNM Resources	3.31%	2.76%	2.53%	2.69%	2.90%	2.79%	2.99%	3.16%	3.40%	4.09%	4.76%	4.85%	3.36%
33	Portland General	3.74%	3.20%	2.92%	3.06%	3.27%	3.34%	3.67%	4.11%	4.37%	5.20%	5.36%	4.28%	3.34%
34	PPL Corp.	4.38%	5.67%	4.24%	4.25%	4.55%	4.45%	4.81%	5.10%	5.12%	4.51%	3.10%	2.69%	3.41%
35	Public Serv. Enterprise	3.84%	3.50%	3.74%	3.78%	3.81%	3.92%	4.35%	4.55%	4.24%	4.30%	4.30%	3.26%	2.73%
36	SCANA Corp.	4.37%	N/A	4.03%	3.29%	3.90%	4.05%	4.15%	4.25%	4.78%	4.93%	5.67%	4.92%	4.21%
37	Sempra Energy	2.94%	3.14%	2.92%	2.92%	2.71%	2.61%	3.03%	3.71%	3.65%	3.08%	3.23%	2.62%	2.08%
38	Southern Co.	4.72%	5.19%	4.63%	4.42%	4.78%	4.69%	4.61%	4.29%	4.63%	5.13%	5.52%	4.58%	4.52%
39	Vectren Corp.	4.38%	N/A	2.79%	3.31%	3.60%	3.62%	4.15%	4.82%	5.06%	5.53%	5.85%	4.79%	4.53%
40	WEC Energy Group	3.06%	3.30%	3.31%	3.35%	3.49%	3.40%	3.49%	3.24%	3.35%	2.97%	3.16%	2.41%	2.18%
41	Westar Energy	4.37%	N/A	3.00%	2.90%	3.73%	3.88%	4.27%	4.57%	4.84%	5.32%	6.27%	5.22%	4.16%
42	Xcel Energy Inc.	3.99%	3.18%	3.10%	3.33%	3.69%	3.83%	3.86%	3.90%	4.20%	4.54%	5.14%	4.70%	4.05%
43	Average	3.94%	3.51%	3.34%	3.49%	3.71%	3.66%	3.87%	4.18%	4.30%	4.63%	5.09%	4.21%	3.71%
44	Median	3.92%	3.33%	3.15%	3.43%	3.71%	3.76%	3.85%	4.18%	4.42%	4.76%	5.14%	4.21%	3.40%
45	20-Yr Treasury Yields ³	3.48%	3.02%	2.65%	2.23%	2.55%	3.07%	3.12%	2.54%	3.62%	4.03%	4.11%	4.36%	4.91%
46	20-Yr TIPS ³	1.30%	0.92%	0.75%	0.66%	0.78%	0.87%	0.75%	0.21%	1.19%	1.73%	2.21%	2.19%	2.31%
47	Implied Inflation ³	2.15%	2.08%	1.89%	1.56%	1.75%	2.19%	2.35%	2.33%	2.40%	2.26%	1.85%	2.13%	2.49%
48	Real Dividend Yield ^d	1.75%	1.40%	1.42%	1.90%	1.93%	1.44%	1.49%	1.81%	1.86%	2.32%	3.18%	2.04%	0.99%
Utility		5.53%	4.67%	4.38%	4.67%	5.03%	4.80%	4.98%	4.83%	5.57%	5.96%	7.06%	7.25%	6.33%
Real "Baa" Rated Yield		3.31%	2.53%	2.44%	3.07%	3.22%	2.55%	2.57%	2.44%	3.09%	3.62%	5.11%	5.01%	3.74%
Spreads (Utility Bond - Stock)														
Nominal^e		-0.46%	-0.49%	-0.69%	-1.26%	-1.17%	-0.59%	-0.75%	-1.64%	-0.68%	-0.60%	-0.98%	0.15%	1.40%
Real^e		-0.45%	-0.48%	-0.68%	-1.24%	-1.15%	-0.58%	-0.73%	-1.60%	-0.67%	-0.58%	-0.97%	0.15%	1.37%
Spreads (Treasury Bond - Stock)														
Nominal^f														
Real^f														



Sources:

¹ First Value Line Investment Survey Investment Analyzer Software, downloaded on June 21, 2018.² The Value Line Investment Survey, January 25, February 15, and March 15, 2019.³ St. Louis Federal Reserve Economic Research, <http://research.stlouisfed.org>.⁴ www.moodys.com, Bond Yields and Key Indicators, through December 31, 2018.

Notes:

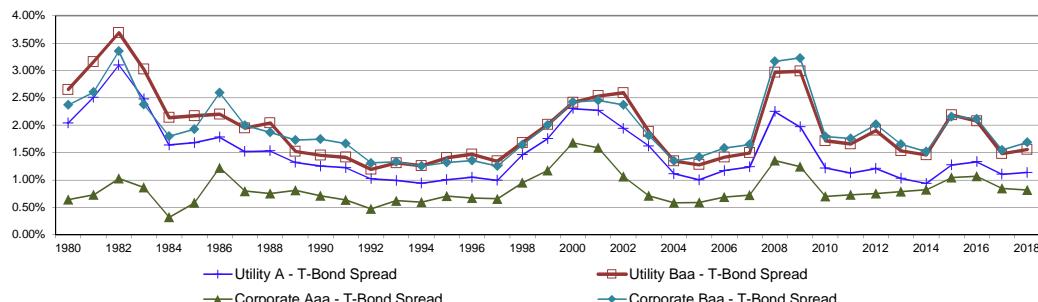
^a Based on the average of the high and low price for 2017 and the projected 2017 Dividends Declared per share, published in the Value Line Investment Survey, January 25, February 15, and March 15, 2019.^b Line 47 = (1 + Line 45) / (1 + Line 46) - 1.^c Line 48 = (1 + Line 43) / (1 + Line 47) - 1.^d The spread being measured here is the nominal A-rated utility bond yield over the average nominal utility dividend yield; (Line 49 - Line 43).^e The spread being measured here is the real A-rated utility bond yield over the average real utility dividend yield; (Line 50 - Line 48).^f The spread being measured here is the nominal 20-Year Treasury Yield over the average nominal utility dividend yield; (Line 45 - Line 43).^g The spread being measured here is the real 20-Year TIPS yield over the average real utility dividend yield; (Line 48 - Line 46).

Federal Energy Regulatory Commission

Bond Yield Spreads

Line	Year	T-Bond	Public Utility Bond				Corporate Bond				Utility to Corporate	
		Yield ¹ (1)	A ² (2)	Baa ² (3)	A-T-Bond Spread (4)	Baa-T-Bond Spread (5)	Aaa ³ (6)	Baa ³ (7)	Aaa-T-Bond Spread (8)	Baa-T-Bond Spread (9)	Baa Spread (10)	A-Aaa Spread (11)
1	1980	11.30%	13.34%	13.95%	2.04%	2.65%	11.94%	13.67%	0.64%	2.37%	0.28%	1.40%
2	1981	13.44%	15.95%	16.60%	2.51%	3.16%	14.17%	16.04%	0.73%	2.60%	0.56%	1.78%
3	1982	12.76%	15.86%	16.45%	3.10%	3.69%	13.79%	16.11%	1.03%	3.35%	0.34%	2.07%
4	1983	11.18%	13.66%	14.20%	2.48%	3.02%	12.04%	13.55%	0.86%	2.38%	0.65%	1.62%
5	1984	12.39%	14.03%	14.53%	1.64%	2.14%	12.71%	14.19%	0.32%	1.80%	0.34%	1.32%
6	1985	10.79%	12.47%	12.96%	1.68%	2.17%	11.37%	12.72%	0.58%	1.93%	0.24%	1.10%
7	1986	7.80%	9.58%	10.00%	1.78%	2.20%	9.02%	10.39%	1.22%	2.59%	-0.39%	0.56%
8	1987	8.58%	10.10%	10.53%	1.52%	1.95%	9.38%	10.58%	0.80%	2.00%	-0.05%	0.72%
9	1988	8.96%	10.49%	11.00%	1.53%	2.04%	9.71%	10.83%	0.75%	1.87%	0.17%	0.78%
10	1989	8.45%	9.77%	9.97%	1.32%	1.52%	9.26%	10.18%	0.81%	1.73%	-0.21%	0.51%
11	1990	8.61%	9.86%	10.06%	1.25%	1.45%	9.32%	10.36%	0.71%	1.75%	-0.30%	0.54%
12	1991	8.14%	9.36%	9.55%	1.22%	1.41%	8.77%	9.80%	0.63%	1.67%	-0.25%	0.59%
13	1992	7.67%	8.69%	8.86%	1.02%	1.19%	8.14%	8.98%	0.47%	1.31%	-0.12%	0.55%
14	1993	6.60%	7.59%	7.91%	0.99%	1.31%	7.22%	7.93%	0.62%	1.33%	-0.02%	0.37%
15	1994	7.37%	8.31%	8.63%	0.94%	1.26%	7.96%	8.62%	0.59%	1.25%	0.01%	0.35%
16	1995	6.88%	7.89%	8.29%	1.01%	1.41%	7.59%	8.20%	0.71%	1.32%	0.09%	0.30%
17	1996	6.70%	7.75%	8.17%	1.05%	1.47%	7.37%	8.05%	0.67%	1.35%	0.12%	0.38%
18	1997	6.61%	7.60%	7.95%	0.99%	1.34%	7.26%	7.86%	0.66%	1.26%	0.09%	0.34%
19	1998	5.58%	7.04%	7.26%	1.46%	1.68%	6.53%	7.22%	0.95%	1.64%	0.04%	0.51%
20	1999	5.87%	7.62%	7.88%	1.75%	2.01%	7.04%	7.87%	1.18%	2.01%	0.01%	0.58%
21	2000	5.94%	8.24%	8.36%	2.30%	2.42%	7.62%	8.36%	1.68%	2.42%	-0.01%	0.62%
22	2001	5.49%	7.76%	8.03%	2.27%	2.54%	7.08%	7.95%	1.59%	2.45%	0.08%	0.68%
23	2002	5.43%	7.37%	8.02%	1.94%	2.59%	6.49%	7.80%	1.06%	2.37%	0.22%	0.88%
24	2003	4.96%	6.58%	6.84%	1.62%	1.89%	5.67%	6.77%	0.71%	1.81%	0.08%	0.91%
25	2004	5.05%	6.16%	6.40%	1.11%	1.35%	5.63%	6.39%	0.58%	1.35%	0.00%	0.53%
26	2005	4.65%	5.65%	5.93%	1.00%	1.28%	5.24%	6.06%	0.59%	1.42%	-0.14%	0.41%
27	2006	4.90%	6.07%	6.32%	1.17%	1.42%	5.59%	6.48%	0.69%	1.58%	-0.16%	0.48%
28	2007	4.83%	6.07%	6.33%	1.24%	1.50%	5.56%	6.48%	0.72%	1.65%	-0.15%	0.52%
29	2008	4.28%	6.53%	7.25%	2.25%	2.97%	5.63%	7.45%	1.35%	3.17%	-0.20%	0.90%
30	2009	4.07%	6.04%	7.06%	1.97%	2.99%	5.31%	7.30%	1.24%	3.23%	-0.24%	0.73%
31	2010	4.25%	5.47%	5.96%	1.22%	1.71%	4.95%	6.04%	0.70%	1.79%	-0.08%	0.52%
32	2011	3.91%	5.04%	5.57%	1.13%	1.66%	4.64%	5.67%	0.73%	1.76%	-0.10%	0.40%
33	2012	2.92%	4.13%	4.83%	1.21%	1.90%	3.67%	4.94%	0.75%	2.02%	-0.11%	0.46%
34	2013	3.45%	4.48%	4.98%	1.03%	1.53%	4.24%	5.10%	0.79%	1.65%	-0.12%	0.24%
35	2014	3.34%	4.28%	4.80%	0.94%	1.46%	4.16%	4.86%	0.82%	1.52%	-0.06%	0.12%
36	2015	2.84%	4.12%	5.03%	1.27%	2.19%	3.89%	5.00%	1.05%	2.16%	0.03%	0.23%
37	2016	2.60%	3.93%	4.67%	1.33%	2.08%	3.66%	4.71%	1.07%	2.12%	-0.04%	0.27%
38	2017	2.90%	4.00%	4.38%	1.10%	1.48%	3.74%	4.44%	0.85%	1.55%	-0.06%	0.26%
39	2018	3.11%	4.25%	4.67%	1.14%	1.56%	3.93%	4.80%	0.82%	1.69%	-0.13%	0.32%
40	2019 ⁴	3.01%	4.25%	4.77%	1.24%	1.76%	3.83%	4.97%	0.82%	1.95%	-0.19%	0.42%
41	Average	6.44%	7.93%	8.37%	1.49%	1.93%	7.28%	8.37%	0.84%	1.93%	0.01%	0.66%

Yield Spreads
 Treasury Vs. Corporate & Treasury Vs. Utility



Sources:

- ¹ St. Louis Federal Reserve: Economic Research, <http://research.stlouisfed.org/>.
- ² The utility yields for the period 1980-2000 were obtained from Mergent Public Utility Manual, Mergent Weekly News Reports, 2003. The utility yields for the period 2001-2009 were obtained from the Mergent Bond Record.
- ³ The utility yields for the period 2010-2019 were obtained from <http://credittrtrends.moodys.com/>.
- ³ The corporate yields for the period 1980-2009 were obtained from the St. Louis Federal Reserve: Economic Research, <http://research.stlouisfed.org/>. The corporate yields from 2010-2019 were obtained from <http://credittrtrends.moodys.com/>.
- ⁴ Data includes January - March, 2019.

ASSOCIATIONS EXHIBIT No. A-6

FERC Docket No. PL19-4-000
 Affidavit of Michael P. Gorman
 Exhibit No. A-6

Federal Energy Regulatory Commission

Electric Utility Industry Average P/E Ratio, EPS Growth Rate (Historical and Projected), and Utility Stock to Bond Yield Spread

<u>Line</u>	<u>Description</u>	<u>2018</u>	<u>2017</u>	<u>2016</u>	<u>2015</u>	<u>2014</u>	<u>2013</u>	<u>2012</u>	<u>2011</u>
1	Historical 3-Year Average EPS Growth Rate ¹	4.6%	3.0%	3.9%	3.4%	3.1%	2.0%	3.4%	3.5%
2	P/E Ratio ¹	19.2	19.8	19.0	18.0	17.4	16.4	15.7	15.3
3	Projected 3-Year Average EPS Growth Rate ²	4.9%	4.5%	3.4%	4.3%	3.4%	4.8%	3.8%	3.3%
4	Utility Stock to A Rated Bond Yield Spread ^{2,3}	1.0%	0.8%	0.6%	0.5%	0.9%	0.7%	0.2%	1.0%

Sources:

¹The Value Line Investment Analyzer

²S&P Capital IQ

³<https://credittrends.moodys.com/>

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Inquiry Regarding the Commission's Policy for
Determining Return on Equity) Docket No. PL19-4-000

Affidavit of Michael P. Gorman

SAINT LOUIS, MISSOURI ss:

BEFORE ME, the undersigned authority, personally appeared Michael P. Gorman, who after being by me first duly sworn, deposes and says that the facts stated herein are true based on personal knowledge.

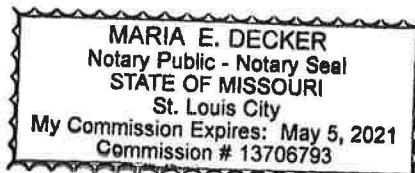
I hereby affirm that the foregoing is true and correct to the best of my knowledge and belief. If called to testify in this matter, I would testify as set forth herein.

Further affiant says not.

Michael P. Gorman
Affiant

Subscribed and sworn to before me by Mr. Michael P. Gorman, who is known to me this 25th day of June, 2019.

Maria E. Decker
Notary Public



My Commission Expires: May 5, 2021

Document Content(s)

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