OCC EXHIBIT_____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Ohio Power Company for Authority to Establish a Standard Service Offer Pursuant to Section 4928.143, Revised Code, in the Form of an Electric Security Plan	))))))	Case No. 23-23-EL-SSO
In the Matter of the Application of Energy Ohio Power Company for Approval of Certain Accounting Authority	))))	Case No. 23-24-EL-AAM

TESTIMONY RECOMMENDING MODIFICATION OF THE STIPULATION

OF

JOSEPH P. BUCKLEY

On Behalf of
Office of the Ohio Consumers' Counsel
65 East State Street, Suite 700
Columbus, Ohio 43215

September 20, 2023

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I. INTRODUCTION

Q1. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A1. My name is Joseph P. Buckley. My business address is 65 East State Street, Suite 700, Columbus, Ohio 43215. I am an Analyst in the Analytical Services Department for the Office of the Ohio Consumers' Counsel ("OCC").

Q2. WHAT ARE YOUR RESPONSIBILITIES AS AN ANALYST?

A2. In this proceeding I am responsible for investigating Ohio Power Company's ("Ohio Power" or "the Company") proposed Electric Security Plan ("ESP") regarding rate of return that is used under various distribution riders the utility seeks to continue or propose. In addition, I will evaluate if the electric security plan, as modified by the Settlement, demonstrates that the ESP is more favorable to consumers in the aggregate than a Market Rate Offer ("MRO").

Q3. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A3. I earned a Bachelor of Science degree in Business Administration from The Ohio State University and a Master of Business Administration degree from the University of Dayton.

Q4. PLEASE SUMMARIZE YOUR PROFESSIONAL EXPERIENCE AS IT RELATES TO UTILITY REGULATION.

A4. From July 1987 to July 2022, I was employed by the Public Utilities Commission of Ohio ("PUCO"). During that time, I held several positions (*e.g.*, Rate Analyst,

Utility Specialist I, and Utility Specialist 3) in various divisions and departments that focused on utility financial and accounting issues, including rate of return. In addition, I served on multiple federal/state joint audits and was Chairman and Vice Chairman of the Mid-Continent Independent System Operator (MISO), finance committee.

In 2000, I earned the Certified in Financial Management (CFM) designation, awarded by the Institute of Management Accountants. In 2011, I was awarded the professional designation Certified Rate of Return Analyst (CRRA) by the Society of Utility and Regulatory Financial Analysts. This designation is granted based upon experience and successful completion of a written examination.

Q5. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY BEFORE THE PUCO?

A5. Yes. When I worked at the PUCO, I testified on numerous occasions to advocate to the PUCO the positions of the PUCO Staff, including rate of return ranges in rate proceedings. I also was responsible for other topics, such as management and operations review, affiliate transactions, and significantly excessive earnings test (SEET), among others.

II. PURPOSE OF TESTIMONY

Q6. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A6. I reviewed the Settlement under the PUCO's three-prong test for evaluating settlements: (1) is the settlement a product of serious bargaining among capable, knowledgeable parties; (2) whether the settlement, as a package, benefits consumers, and the public interest; and (3) whether the settlement violates any important regulatory principles or practices.

I recommend that the PUCO reject the Settlement entirely and instead require an MRO. But if the PUCO opts to move forward with an ESP, I believe the Settlement is not appropriate for rate making. The PUCO should modify the Settlement and use the OCC's recommended Return on Equity (ROE) and resulting rate of return.

Q7. IN YOUR OPINION, DOES THE SETTLEMENT VIOLATE THE PUCO'S TEST FOR EVALUATING SETTLEMENTS*?*

A7. Yes. The Settlement includes a return on equity (ROE) of 9.71 percent. I believe that this does not benefit consumers and the public interest (prong two). The Settlement also violates regulatory principles (prong three) because it results in rates to consumers that are not just and reasonable. As explained later in my testimony, the ROE in the Settlement and resulting rate of return is too high and

result in rates that do not benefit consumers or the public interest. *See, e.g.*, R.C. 4905.22.

In addition, the Electric Security Plan (ESP) is not more favorable in the aggregate than an MRO. This violates R.C. 4928.143(C), violating regulatory practices and principles. This is explained later in my testimony starting on page 15.

Q8. PLEASE SUMMARIZE YOUR RECOMMENDATIONS.

A8. I recommend the PUCO reject the Settlement entirely and instead require the utility to establish a standard service offer under an MRO. But if the PUCO does opt to allow an ESP, the Settlement should still be rejected because it violates both prongs two and three, as it relates to the ROE and the resulting rate of return.

III. RETURN ON EQUITY

Q9. WHAT IS THE APPROPRIATE METHOD TO CALCULATE A RATE OF RETURN FOR A REGULATED UTILITY?

A9. The judicial guidance for calculating an appropriate rate of return comes primarily from the decisions in the *Bluefield Water Works v. Public Service Comm'n*, 262 U.S. 679 (1923) ("Bluefield") and *FPC v. Hope Nat. Gas Co*., 320 U.S. 591 (1944) ("Hope"). The *Bluefield* decision can be summarized as follows: "The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate, under efficient and economical

management to maintain and support its credit to enable the utility to raise necessary capital."[1]

The *Hope* decision can be summarized as follows:

> The return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks. That return, moreover, should be sufficient to assure confidence in the financial integrity of the enterprise, so as to maintain its credit and attract capital. ***In addition, it is the end result that is important and not the methods used to arrive at the rates.***[2] (Emphasis supplied.)

Q10. WHAT IS A UTILITY'S COST OF COMMON EQUITY OR ROE INTENDED TO REFLECT?

A10. An ROE is the allowed rate of profit for a regulated company. In a competitive market, a company's profit level is determined by a variety of factors. These factors include the state of the economy, the degree of competition a company faces, the ease of entry into its markets, the existence of substitute or complementary products/services, the company's cost structure, the impact of technological changes, and the supply and demand for its products and/or services.

For a regulated monopoly, such as a public utility, the regulator determines the level of profit available to the public utility. The United States Supreme Court

[1] Price Regulation & Accounting III: Cost of Capital Overview, NARUC Energy Regulatory Partnership Program.

[2] *Id.* (emphasis added).

established the guiding principles for determining an appropriate level of profitability for regulated public utilities in the two cases discussed above – *Hope* and *Bluefield*. In those cases, the Court recognized that the fair rate of return on equity should be:

(1) comparable to returns investors expect to earn on other investments of similar risk;

(2) sufficient to assure confidence in the company's financial integrity; and

(3) adequate to maintain and support the company's credit and to attract capital.

Thus, the appropriate ROE for a regulated utility requires determining the market-based cost of equity. The market-based cost of equity for a regulated firm represents the return investors could expect from other investments, while assuming no more and no less risk. The purpose of all the economic models and formulas for calculating cost of capital or cost of equity for a regulated firm is to estimate, using market data for firms with similar risk, the rate of return on equity investors require for that risk class of firms.[3]

Q11. YOU MENTION ABOVE WHEN DISCUSSING CALCULATING AN APPROPRIATE RATE OF RETURN FOR REGULATED UTILITIES THE CONCEPT OF RISK. HOW SHOULD RISK BE MEASURED?

A11. There are many ways to measure the risk of an entity. But one of the most easily understood and used is bond ratings. Ratings agencies research the financial

[3] *See, e.g.,* Case No. 21-887-EL-AIR, et al., Direct Testimony of J. Randall Woolridge on Behalf of Office of the Ohio Consumers' Counsel (September 2, 2022).

health of each bond issuer (including issuers of municipal bonds) and assign ratings to the bonds being offered. Each agency has a similar hierarchy to help investors assess that bond's credit quality compared to other bonds.[4] The projected future financial health of an entity is key in the assessment of the entity's ability to pay interest on its bonds. Therefore, bond ratings are a good measure of the risk of an entity.

Q12. WHAT IS OHIO POWER'S BOND RATING?

A12. As rated by S&P, Ohio Power has a bond rating of A-.

Q13. WHAT IS THE AVERAGE BOND RATING FOR ELECTRIC UTILITIES IN THE U.S.?

A13. The average bond rating of both regulated electric utilities[5] and the industry's parent companies[6] is BBB+, one notch below Ohio Power's S&P bond rating. This means that Ohio Power bonds are viewed as being a less risky investment than the average utility bonds.

Q14. WHAT METHOD DID YOU USE TO CALCULATE THE RATE OF RETURN FOR OHIO POWER?

A14. I used the standard PUCO Staff method of averaging the outcomes of the Discounted Cashflow method (DCF) and the Capital Asset Pricing Model

[4] Fidelity.com, Bond Ratings/Fidelity Learning Center-Bond Ratings.

[5] S&P Global Ratings/Industry Top Trends (January 23, 2023).

[6] Edison Electric Institute 2022 Industry Financial Highlights.

(CAPM). This method has been relied on by the PUCO Staff predominately for at least the last 25 years.

Q15. HOW WERE THE COMPARABLE COMPANIES FOR THE DCF ANALYSIS SELECTED?

A15. I followed the S&P's Peer Comps ("Peer Comps") tool. It scores and ranks companies based on their similarity to the base company (which in this case was American Electric Power, which issues the common equity for Ohio Power). Peer Comps detects the most relevant filters and scoring criteria. Those attributes are then used to calculate and display the top comparable results.[7] Using this independent tool removes any selection bias from the rate of return process.

Q16. WHAT COMPANIES DID THE PEER COMP TOOL SELECT?

A16. The tool selected:

1. Exelon Corporation (NASDAQGS:EXC)	3.75
2. Dominion Energy, Inc. (NYSE:D)	3.88
3. Sempra Energy (NYSE:SRE)	4.12
4. Xcel Energy Inc. (NASDAQGS:XEL)	5.02
5. DTE Energy Company (NYSE:DTE)	5.78
6. Public Service Enterprise Group Incorporated (NYSE:PEG)	5.79
7. Duke Energy Corporation (NYSE:DUK)	5.83

There was a substantial gap between the seventh and eighth comparable companies, so the selection was truncated after the seventh comparable company. Exelon also had to be eliminated due to Value Line not providing growth

[7] S&P Peer Comps on CIQ Pro.

projection and a beta because of recent divestiture activity. Therefore, the remaining group is:

1. Dominion Energy, Inc. (NYSE:D)	3.88
2. Sempra Energy (NYSE:SRE)	4.12
3. Xcel Energy Inc. (NASDAQGS:XEL)	5.02
4. DTE Energy Company (NYSE:DTE)	5.78
5. Public Service Enterprise Group Incorporated (NYSE:PEG)	5.79
6. Duke Energy Corporation (NYSE:DUK)	5.83

Q17. WHAT WERE THE RESULTS OF THE DCF AND THE CAPM?

A17. The results were:

DCF AVERAGE	9.707%
CAPM RATE	9.32%
DCF & CAPM AVERAGE	9.514%

Q18. WHAT FACTORS DID YOU USE IN MAKING THE DCF AND CAPM CALCULATIONS?

A18. I used the following formula to calculate the CAPM cost of common equity estimate: CAPM = Risk-Free Rate + Beta * (Equity Risk Premium). In making this calculation, I used:

(1) The average of the yearly 10-year and 30-year bond rates over the last 30 years (5/1/1993-3/1/2023) for the risk-free rate, which was 4.12%.

(2) The average betas of the comparable companies provided by Value Line was 0.88.

(3) The New York University Stern College of Business's Equity Risk Premium, which was 5.94.

This resulted in 9.35=4.12+(.88*5.94).

In calculating its DCF cost of common equity estimate for each company in the Peer Group, I used:

(1) The average stock price (determined by averaging the adjusted daily closing price for the period from April 13, 2022 to April 12, 2023);

(2) The sum of the last four quarterly dividends; and

(3) The estimates of the expected growth rate of earnings.

The DCF model assumes that earnings growth and dividends growth are the same. I averaged earnings per share growth estimates from Yahoo Finance, Zacks, and Value Line to determine DCF growth estimates for each company in the Peer Group. The Value Line average incorporates both the explicit long-range earnings estimate shown in the boxed area of investor sheets and the implicit continuous growth rate calculated from the estimates of earnings per share. For my determination of DCF cost of equity, I assumed dividends grew at a rate derived from financial analysts' growth estimates for the first five years (i.e., long-term growth rate). My DCF growth estimates were used for the first five years, as they are averages of estimates from various investor news services. From the twenty-fifth year on, the growth rate was assumed to equal the long-term growth rate in Gross National Product (GNP). For the sixth through twenty-fourth years, assumed dividend growth rates changed incrementally from the average growth used in the first five years towards the GNP rate in a linear fashion. The long-term growth rate in GNP was the average annual change in GNP from the U.S. Department of Commerce for 1929 through 2022. Based on long-term GNP

growth, the respective Company DCF growth estimate and dividend, a stream of annual dividends was calculated.

The dividend stream and the stock price were used for a non-constant growth DCF cost of equity estimate. The Peer Group's non-constant DCF cost of equity estimates average 9.51 percent.[8]

Q19. WHAT IS THE RESULTING RATE OF RETURN?

A19.

Rate of Return Summary
The Ohio Power Company
Capital Structure as 2022 end of Fiscal Year (Per S&P)

	Amount $	% of Total	% Cost	Weighted Cost %
Long Term Debt	$3,226,300	51.09%	4.01%	2.05%
Preferred Stock	$0	0.00%	0.00%	0.00%
Common Equity	$3,088,100	48.91%	9.51%	4.65%
Total Capital	$6,314,400	100.00%		6.70%

The PUCO should set a rate of return of 6.7 percent and an ROE of 9.51 percent.

[8] The explanation of the calculation is from Case No. 20-565-EL-AIR, et al. Staff Report of Investigation (November 18, 2020) at 25.

Q20. HOW WAS THE CURRENT CAPITAL STRUCTURE AND COST OF DEBT DETERMINED?

A20. I used the most recent information available from S&P to update the capital structure and long-term debt cost. If the cost of equity is updated, then the entire rate of return should be updated as well.

Q21. HOW DOES OCC'S PROPOSED ROE OF 9.51 PERCENT COMPARE TO NATIONAL AVERAGES?

A21. The national average return on equity granted to electric companies from March 31, 2022 to March 31, 2023 was 9.61 percent overall and 9.19 when distribution only utilities are averaged.

Q22. DOES OHIO POWER'S RISK PROFILE WARRANT A HIGHER RATE OF RETURN COMPARED TO NATIONAL AVERAGES TO ATTRACT CAPITAL?

A22. No. In fact, a slight discount is more appropriate. AEP stated at the J.P Morgan Midwest Utilities Forum[9] that in the immediate term they are going to focus on de-risking and simplifying the business. In addition, AEP has over the last 10 years come in at the high end of its earnings per share guidance (or even exceeded the guidance range).[10] AEP is delivering consistent, strong financial performance. Ohio Power is producing returns that are significantly higher than the average returns earned by the other regulated companies under the AEP umbrella.[11] Also,

[9] J.P. Morgan Midwest Utilities Forum Chicago, Illinois (April 5, 2023).

[10] *Id.* at 5.

[11] *Id.* at 17.

as discussed above, Ohio Power has an above average bond rating when compared to that of other regulated utilities and plans to recover a significant amount of capital investments using riders.

Q23. DO YOU BELIEVE OHIO POWER WILL STILL BE ABLE TO MEET THE BLUEFIELD DIRECTIVE OF BEING ABLE TO RAISE CAPITAL?

A23. Yes. Based on the facts stated in my testimony Ohio Power will not have any trouble accessing capital markets.

IV. ESP VS MRO MORE FAVORABLE IN THE AGGREGATE

Q24. PLEASE DESCRIBE WHAT YOU HAVE CONSIDERED REGARDING THE ESP VS MRO TEST FOR THIS APPLICATION.

A24. I have considered both quantitative and qualitative benefits/costs of the ESP compared to a potential MRO.

Q25. DID OHIO POWER PROVIDE ANY QUANTITATIVE BENEFITS IN ITS APPLICATION?

A25. The Company is proposing an Energy Efficiency portfolio (with an EE Rider) that includes a plan to help consumers save energy while also managing system demand at peak. As discussed in Company witness Billing's testimony,[12] Ohio Power predicts an annual benefit to consumers of $144.7 million.

[12] Direct Testimony of Brian F. Billings at 3.

Q26. ARE THERE ANY COSTS ASSOCIATED WITH THE ESP?

A26. The company said it would invest roughly $2.2 billion in reliability-related projects over the term of the plan.[13]In addition Ohio Power's consumers will also be charged a return on these investments. So, the purported quantitative benefits of the ESP are dwarfed by the costs.

Q27. ARE THERE ANY GENERATION-RELATED BENEFITS OF EITHER AN MRO OR ESP?

A27. No. Because of the current auction procedures for generation, the Standard Service Offer (SSO) generation rates have become 100% market-based rates. As a result, there should be no difference between market-based generation rates under an MRO or an ESP.

Q28. DID OHIO POWER PROVIDE ANY QUALITATIVE BENEFITS IN ITS APPLICATION?

A28. Yes. Company Witness Mayhan testified to the qualitative benefits under the Company's application. He stated:[14]

> The ESP also has several non-quantifiable benefits as compared to an MRO: economic development, increasing employment opportunities and ensuring equitable access to critical services such as online education and access to telehealth with the addition of the Rural Access Rider; supporting electric transportation opportunities; and improving speed to market for tariff offerings, settlement tools for customers participating in Choice, enhanced communication capability to proactively alert specific customers of energy consumption tips during severe weather conditions and upcoming outages and increased

[13] RRA, "Reliability Investments at Core of AEP's Ohio Electric Security Plan Filing" (January 10, 2023).

[14] Direct Testimony of Jaime L. Mayhan, at 28-29.

> protection of customer data through the replacement of the CIS. This combination of quantifiable benefits and the non-quantifiable benefits clearly demonstrate that the provisions of the Company's proposed ESP are more favorable in the aggregate than what would be expected under an MRO.

But the Settlement differs from the Company's application. The Settlement removes some of these benefits. For example, the Rural Access Rider has been eliminated. The few remaining qualitative benefits mentioned by Mr. Mayhan may be admirable. But they should not be subsidized by utility consumers, especially without a review to determine if the costs are prudent and the goals of the program are being met (or could not be better met by the competitive market). The PUCO should not accept Ohio Power's promises of so-called "qualitative benefits" at face value. Previously, Ohio Power has made predictions of proposed benefits that did not materialize to the degree promised.

Q29. DID OHIO POWER IN ITS PREVIOUS SSO PROVIDE A LIST OF PROPOSED QUALITATIVE BENEFITS?

A29. Yes, Staff witness Tamara S. Turkenton[15] and Ohio Power witness William Allen[16] both stated that the Stipulation in 16-1852-EL-SSO would provide many qualitative benefits. These purported qualitative benefits included provisions for economic development, enhancements to the retail competitive market, and renewable energy options, as well as the promotion of measures related to the Smart City and Power Forward initiatives.

[15] Case No. 16-1852-EL-SSO, Pre-Filed Testimony of Tamara S. Turkenton (September 13, 2017).

[16] *Id.*, Direct Testimony of William Allen (September 13, 2017).

Q30. DO YOU BELIEVE RESIDENTIAL CONSUMERS EXPERIENCED MAJOR IMPROVEMENTS FROM THOSE PROPOSALS THAT THEY COULD NOT HAVE UNDER THE MRO?

A30. I do not. Residential consumers have not seen large improvements since the last ESP in 2016. Too many PIPP consumers are struggling to pay their electric bill. Further, consumers have not seen noticeable improvements in reliability performance statistics as shown below.

AEP Ohio Reliability Performance Compared with Its Standards (2013-2022)

Year	2013[17]	2014[18]	2015[19]	2016[20]	2017[21]	2018[22]	2019[23]	2020[24]	2021[25]	2022[26]
CAIDI Standard (Minutes)	150.00	150.00	150.00	150.00	150.00	149.00	148.00	148.00	148.00	148.00
CAIDI Performance After Exclusion	140.97	146.61	139.03	143.45	146.02	**150.32 ***	140.98	129.93	132.13	144.81
CAIDI Performance Before Exclusion	246.03	159.09	171.97	146.96	173.60	162.35	188.86	178.15	169.30	342.91
SAIFI Standard	1.2	1.20	1.20	1.20	1.20	1.19	1.18	1.18	1.18	1.18
SAIFI Performance After Exclusion	1.03	1.13	1.13	1.08	1.15	**1.30***	**1.20***	1.11	1.17	1.10
SAIFI Performance Before Exclusion	1.40	1.34	1.39	1.29	1.47	1.57	1.63	1.43	1.36	1.74

[17] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 14-517-EL-ESS (March 31, 2014).

[18] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 15-627-EL-ESS (March 30, 2015).

[19] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 16-550-EL-ESS (March 31, 2016).

[20] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 17-890-EL-ESS (March 31, 2017).

[21] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 18-992-EL-ESS (March 29, 2018).

[22] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 19-992-EL-ESS (March 29, 2019).

[23] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 20-992-EL-ESS (March 31, 2020).

[24] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 21-992-EL-ESS (March 31, 2021).

[25] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 22-992-EL-ESS (March 30, 2022).

[26] *In the Matter of the Annual Report of Pursuant to Rule 10 of the Electric Service and Safety Standards, Ohio Administrative Code 4901:1-10-10*, Case No. 23-992-EL-ESS (March 30, 2023).

Q31. ARE THERE ANY RISKS BEING SHIFTED FROM OHIO POWER TO CONSUMERS THROUGH OHIO POWER'S PROPOSED ESP?

A31. There is substantial risk being shifted away from the Company and on to residential consumers through riders. Under the traditional regulatory compact, base rate cases are filed to collect capital investments. Such cases involve more consumer protections than an ESP, as they involve a detailed, thorough, "open the books" analysis of a utility's investments. Further, tests such as the "used and useful" standard must be met.[27]

Q32. DOES THE PUCO ALWAYS PERMIT RIDERS TO COLLECT INCREMENTAL COSTS WHEN REQUESTED?

A32. No. An example of the PUCO not allowing costs to be collected through a rider (instead requiring a base rate case) is case 18-1875-EL-GRD. In that case, the PUCO ordered DP&L to recover its prudently incurred capital investment in the new customer information system ("CIS") and its incremental operation and maintenance expenses associated with the new CIS through base distribution rates and not through a rider.[28]

Q33. WHEN IT COMES TO RIDERS, ARE COSTS TO CONSUMERS OFFSET BY SAVINGSRECEIVED BY CONSUMERS?

A33. No. The rate case model allows for increases in costs in one area to be offset by a decrease in a different area. For example, a new CIS system should produce efficiencies, and those efficiencies should be shared with consumers who have

[27] R.C. 4909.15.

[28] Case No. 18-1875-EL-GRD, Opinion and Order (June 2, 2021) at 34.

paid for the CIS system after the base rate case is completed. When using riders, on the other hand, costs will be collected from consumers when they are incurred and related savings will only be shared with consumers when the Company decides to file a base rate case.

Q34. IF THE PUCO APPROVES THE ESP, WHAT STEPS CAN IT TAKE TO REDUCE THE SHIFTING OF RISKS FROM UTILITY TO CONSUMER?

A34. For consumer protection, Ohio Power should be ordered to lower its returns on riders to reflect the decreased risk and an expedited collection period.

Q35. ABSENT ANY PUCO ACTIONS TO REDUCE THE RISK BEING SHIFTED ONTO UTILITY CONSUMERS DO YOU BELIEVE OHIO POWER'S PROPOSED ESP IS MORE FAVORABLE IN THE AGGREGATE THAN AN MRO?

A35. No. There is certainty to the costs but uncertainty to the benefits. Ohio Power had opportunities in its previous ESP (16-1952-EL-SSO), to create meaningful measures to quantify the benefits of an SSO and have not. Due to this lack of hard data, I remain skeptical that benefits are occurring.

V. CONCLUSION

Q36. PLEASE SUMMARIZE YOUR RECOMMENDATION.

A36. I recommend that the PUCO reject the Settlement filed on September 6, 2023, in this case because it fails the three-prong settlement test. In addition, I recommend that the PUCO reject the ESP in favor of an MRO. However, if the ESP is

allowed, the PUCO should set a rate of return of 6.7 percent and an ROE of 9.51 percent.

Q37. DOES THIS CONCLUDE YOUR TESTIMONY?

A37. Yes. However, I reserve the right to supplement my testimony if additional testimony is filed, or if new information or data in connection with this proceeding becomes available.

CERTIFICATE OF SERVICE

I hereby certify that a copy of this Testimony Recommending Modification of the Stipulation of Joseph P. Buckley on Behalf of the Office of the Ohio Consumers' Counsel was served on the persons stated below via electronic transmission, this 20th day of September 2023.

/s/ William J. Michael
William J. Michael
Assistant Consumers' Counsel

The PUCO's e-filing system will electronically serve notice of the filing of this document on the following parties:

SERVICE LIST

werner.margard@ohioago.gov
ambrosia.wilson@ohioago.gov
ashley.wnek@ohioago.gov
mkurtz@BKLlawfirm.com
kboehm@BKLlawfirm.com
jkylercohn@BKLlawfirm.com
knordstrom@theOEC.org
ctavenor@theOEC.org
little@litohio.com
hogan@litohio.com
ktreadway@oneenergyllc.com
jdunn@oneenergyllc.com
cgrundmann@spilmanlaw.com
dwilliamson@spilmanlaw.com
slee@spilmanlaw.com
brian.gibbs@nationwideenergypartners.com
rdove@keglerbrown.com
nbobb@keglerbrown.com
jlaskey@norris-law.com
mpritchard@mcneeslaw.com
awalke@mcneeslaw.com
mjsettineri@vorys.com
glpetrucci@vorys.com
aasanyal@vorys.com
cpirik@dickinsonwright.com
todonnell@dickinsonwright.com
kshimp@dickinsonwright.com
bryce.mckenney@nrg.com
stnourse@aep.com
mjschuler@aep.com
egallon@porterwright.com
christopher.miller@icemiller.com
matthew@msmckenzieltd.com
dromig@armadapower.com
bojko@carpenterlipps.com
easley@carpenterlipps.com
tdougherty@theoec.org
paul@carpenterlipps.com
wilcox@carpenterlipps.com
emcconnell@elpc.org
rkelter@elpc.org
stacie.cathcart@igs.com
evan.betterton@igs.com
Joe.Oliker@igs.com
michael.nugent@igs.com
jlang@calfee.com
dparram@brickergraydon.com
dborchers@brickergraydon.com
rmains@brickergraydon.com
kherrnstein@bricker.com
dproano@bakerlaw.com
ahaque@bakerlaw.com
eprouty@bakerlaw.com
pwillison@bakerlaw.com
Fdarr2019@gmail.com
dstinson@bricker.com

Attorney Examiners:
greta.see@puco.ohio.gov
david.hicks@puco.ohio.gov

gkrassen@nopec.org

PRICE REGULATION & ACCOUNTING III:

Cost of Capital Overview

NARUC Energy Regulatory Partnership Program
The Public Services Regulatory Commission of Armenia
and The Iowa Utilities Board

by Chancy Bittner
Utilities Specialist
Iowa Utilities Board
November 8, 2010

REVENUE REQUIREMENT = COST OF SERVICE

RR = O + D + T + ***ROR*** * (RB)

- RR = revenue requirement
- O = operating expenses
- D = depreciation expense
- T = taxes
- ***ROR = a fair rate of return***
- RB = rate base

RATE OF RETURN

What goes into determining a fair rate of return?

- Simply speaking, it must include normal profits as well as interest on debt capital and dividends on preferred stock.
- Mechanically, we use a weighted average cost of capital (**WACC**) to calculate "**ROR**."

WACC EXAMPLE

	Amount	Percent	Cost Rate	Weight
Debt	$ 500	50%	6%	3.0%
Preferred Equity	$100	10%	8%	0.8%
Common Equity	$400	40%	12%	4.8%
Total	$1,000			8.6%

WACC: 6.0%*50% + 8%*10% + 12%*40% = 8.6%

COMPONENTS OF "ROR"

A number of component issues:

- Capital structure issues (Leslie)
- Senior securities rates (Leslie)
- Cost of Equity (Chancy)

COST OF EQUITY OVERVIEW

JUDICIAL GUIDANCE

- Bluefield (1923)
- Hope (1944)
- Permian Basin (1968)

BLUEFIELD (1923)

- "The return should be reasonably sufficient to *assure confidence in the financial soundness* of the utility and should be adequate, under efficient and economical management to maintain and support its credit and to enable the utility to *raise (necessary capital)*."

- A fair return can change along with economic conditions and capital markets

HOPE (1944)

- "The return to the *equity* owner should be *commensurate with returns on investments in other enterprises having corresponding risks*. That return, moreover, should be sufficient to assure confidence in the *financial integrity* of the enterprise, so as to maintain its credit and *attract capital*."
- It is the *end result* that is important and not the methods used to arrive at the rates.

PERMIAN BASIN(1968)

"[T]he 'end-result' of the Commission's orders must be measured as much by the success with which they protect those (broad public) interests as by the effectiveness with which they maintain credit ... and ... attract capital."

WHAT MAIN STANDARDS COME FROM THIS JUDICIAL HISTORY?

- Comparable Earnings
- Financial Integrity
- Capital Attraction
- End-result Doctrine

WHAT FORM HAVE THESE STANDARDS TAKEN IN PRACTICE?

- These collectively reflect the economic concept of "opportunity cost" principle.

- A utility and its investors should be afforded an opportunity (not a guarantee) to earn a return commensurate with returns they could expect to achieve on investments of similar risk.

ARE THERE OTHER GUIDELINES TO ALSO CONSIDER?

- Balancing of investor and consumer interests.
- Efficient and economical management is a necessary prerequisite.
- No single rate can be considered fair at all times.
- Concept represents a "zone of reasonableness."

COST OF COMMON EQUITY

- What do investors **expect** (up front) as a return for investment of a given risk?

- We don't know!
  - Analysts use models and theories, using data from capital markets, to make <u>educated guesses</u>!

TYPICAL COST OF EQUITY MODELS

- Discounted Cash Flow Models (DCF)
- Risk Premium Models (RPM)
- Capital Asset Pricing Models (CAPM)
- Comparative Earnings Models (CEM)

VARIABILITY IN APPLICATION

- Some put main reliance on just one model - others argue for many.
- Form of models varies.
- Data inputs vary.
- Adjustments vary.
- Risk assessment varies.
- Proxies vary.
- Judgment needed at every step.

PROXIES

- Models require data.
- If utility is not publicly traded, then analysts use publicly traded companies whose risk is comparable to the utility's operations.
- Generally comparable companies (proxies) are analyzed in addition to utility or its parent.

DISCOUNTED CASH FLOW (DCF) MODEL

K = D/P + g, where:

- K= cost of equity estimate
- P = stock price per share
- D = dividend per share
- D/P = dividend yield
- g = sustainable growth rate

SIMPLE DCF EXAMPLE

Assume:

- P = $10;
- D = $1; and
- g = 2%

Calculation of cost of equity estimate:

- K = D/P + g
- K = $1/10 + 2% = 12%

RECENT CASE– DCF DIFFERENCES

	Utility	OCA	Intervener
Dividend	$D_0(1+0.5g)$	D_0	$D_0(1+g)$
Price	Spot & average of daily hi/lows for 2 months	Test year daily Average	Average of weekly hi/lows over 13 weeks
Growth	Analysts' 5-yr. forecasts of Earnings per Share	Emphasized history ○ Internal Growth ○ Book Value per Share	Analysts' 5-yr. forecasts of Earnings per Share
Proxies	○ Electric ○ Combination Electric/Gas ○ Parent	○ Combination Electric/Gas ○ Parent	○ Group of Electric & Combination Electric/Gas

D_0 = Most recent indicated annualized dividend; OCA = Office of Consumer Advocate

RESULTING DCF ESTIMATES

Party	Methods Used	Results
Utility	Indicated DCF Return (using 18 utility proxies)	9.49 - 10.13%
Utility	Recommended DCF Return (rejecting 9 out of 18 utility proxies)	10.44 - 11.51%
OCA	DCF Return (using parent and 5 utility proxies)	8.6 - 10.1%
Intervener	2-stage growth DCF Return (using 17 utility proxies)	9.96%

RISK PREMIUM METHOD (RP)

- K = cost of debt + risk premium:
  - Based on assumption that riskier security deserves a higher return than less risky ones.
- Is it as easy as it looks?
  - Easy to add two numbers.
  - Difficult to ascertain the risk premium, an "unknown" that must be estimated.
  - Easy to mismatch the two numbers.

HOW ARE RISK PREMIUMS ESTIMATED?

- Historic (ex post) — comparing past returns on debt and equity.
- Expected (ex ante) — compares an estimated market cost of equity for a period with the yield on debt for that period.
- Survey.
- Implied RP — compares authorized returns with debt yields.

POINTS OF CONTENTION

- What bond yield to use for R_F ?
- Which periods to study?
  - RP estimates are very sensitive to time period studied
- Does the RP vary inversely with interest rates?
- Even how to calculate averages.
  - arithmetic versus geometric

BOARD RP METHOD

K = A-rated utility bond average + risk premium (RP), where RP ranges from 250 - 450 basis points.

Recent Case example:

K = 6.49% + (250 to 450) b.p. = 8.99% -10.99%

RP RESULTS IN RECENT CASE

Party	Methods Used	Results
Utility	RP using Utility Proxies	11.3 - 11.54%
Utility	RP using Deregulated Generation Proxies	14.25%
OCA	Did not use method	
Intervener	RP using Utility Proxies	9.96 - 10.06%
Board Method	Using latest 12-month average A-rated bond yield	8.99 - 10.99%

CAPITAL ASSET PRICING MODEL

$K = R_F + \beta (R_M - R_F)$, where:

- K = required equity return
- R_F = risk free rate
- β = beta (a measure of risk)
- R_M = return on the market
- $R_M – R_F$ = market risk premium

CAPM EXAMPLE

Assume:

- R_F = 6.0%
- β = 0.5, not atypical for a utility
- R_M = 14%

K = 6.0% + .05*(14%-6.0%) = 10%

POINTS OF CONTENTION

- What bond yield to use for R_F ?
- How to calculate R_M and on what market proxy?
- What betas to use?
- Arithmetic versus geometric averaging.
- Validity of CAPM sometimes an issue.

CAPM RESULTS IN RECENT CASE

Party	Methods Used	Results
Utility	CAPM using Utility Proxies	11.38 - 11.85%
Utility	CAPM using Deregulated Generation Proxies	15.12%
OCA	CAPM of Parent and Utility Proxies	9.3 - 10.1%
Intervener	CAPM	10.45%

COMPARABLE EARNINGS METHOD

- Examines realized earnings on book common equity for enterprises with comparable risks.

- The Board has rejected due to its emphasis on accounting returns rather than market returns.

BASIC APPROACH

- Select set of proxy companies by screening on a number of risk criteria:
  - Beta
  - Quality ratings, etc.
- Calculate average return on net worth of proxy companies.
- Adjust result as needed to reflect differences between proxies and utility.

ARGUMENTS FOR

- Easy to calculate.
- Uses readily available accounting data.
- Uses minimum amount of subjective judgment.
- Consistent with "corresponding risk" standard of Bluefield and Hope cases.

ARGUMENTS AGAINST

- Not a market-based cost of common equity.
- Does not measure the current cost of capital necessary to attract capital or investors' return requirements.
- Accounting practices among companies differ.
- Reflects survivor bias.

COMPARABLE EARNINGS RESULTS IN RECENT CASE

Party	Methods Used	Results
Utility	Comparable Earning Model using Utility Proxies	14.32 - 15.5%
Utility	Comparable Earning Model using Deregulated Generation Proxies	14.52%
OCA	Argued against	
Intervener	Argued against	

SUMMARY OF CASE

Analysis Considered by Board	Staff's Recommended Emphasis to Board
DCF Analysis	9.2 - 10.13%
Risk Premium Analysis	8.99 - 10.99%
CAPM Analysis	Limit weight
Comparable Earnings Analysis	Do not use
Average authorized returns—other states; for reality check only	10.3 - 10.4%
Resulting Board Decision**	**10.1%**

** Simplified for illustration. Actual Board decision also considered other variables.

TO SUM UP AND RECAP

- Judicial Standards support cost of equity capital as estimate of a fair rate of return on equity.
- Application of models present educated guesses.
- And from that, the Board chooses the allowed return on equity (which feeds into the WACC).

ANYTHING ELSE?

- Yes, it's not this simple!
- But this 1,000 foot flyover gives an overview.
- The job is to identify an island of rationality among the sea of conflicting data and theory.
- And like a pilot landing a plane, as long as the Board hits a zone of reasonableness, its doing it's job!

QUESTIONS?

Chancy Bittner
Iowa Utilities Board
Chancy.Bittner@iub.state.ia.us

NARUC Energy Regulatory Partnership Program
The Public Services Regulatory Commission of Armenia
and The Iowa Utilities Board

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Major energy rate case decisions in US

Electric and gas rate case decisions as of March 31, 2023

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Table 1: Average ROEs authorized, 1990-March 2023

		Electric utilities			Gas utilities		
Year	Period	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations
1990	Full year	12.70	12.77	38	12.68	12.75	33
1991	Full year	12.54	12.50	42	12.45	12.50	31
1992	Full year	12.09	12.00	45	12.02	12.00	28
1993	Full year	11.46	11.50	28	11.37	11.50	40
1994	Full year	11.21	11.13	28	11.24	11.27	24
1995	Full year	11.58	11.45	28	11.44	11.30	13
1996	Full year	11.40	11.25	18	11.12	11.25	17
1997	Full year	11.33	11.58	10	11.30	11.25	12
1998	Full year	11.77	12.00	10	11.51	11.40	10
1999	Full year	10.72	10.75	6	10.74	10.65	6
2000	Full year	11.58	11.50	9	11.34	11.16	13
2001	Full year	11.07	11.00	15	10.96	11.00	5
2002	Full year	11.21	11.28	14	11.17	11.00	19
2003	Full year	10.96	10.75	20	10.99	11.00	25
2004	Full year	10.81	10.70	21	10.63	10.50	22
2005	Full year	10.51	10.35	24	10.41	10.40	26
2006	Full year	10.32	10.23	26	10.40	10.50	15
2007	Full year	10.30	10.20	38	10.22	10.20	35
2008	Full year	10.41	10.30	37	10.39	10.45	32
2009	Full year	10.52	10.50	41	10.22	10.26	30
2010	Full year	10.37	10.30	61	10.15	10.10	39
2011	Full year	10.29	10.17	42	9.92	10.03	16
2012	Full year	10.17	10.08	58	9.94	10.00	35
2013	Full year	10.03	9.95	49	9.68	9.72	21
2014	Full year	9.91	9.78	38	9.78	9.78	26
2015	Full year	9.84	9.60	31	9.60	9.68	16
2016	Full year	9.77	9.75	42	9.54	9.50	26
2017	**Full year**	**9.74**	**9.60**	**53**	**9.72**	**9.60**	**24**
	Q1	9.75	9.90	13	9.68	9.80	6
	Q2	9.54	9.50	13	9.43	9.50	7
	Q3	9.67	9.70	11	9.69	9.60	13
	Q4	9.42	9.50	11	9.53	9.60	14
2018	**Full year**	**9.60**	**9.58**	**48**	**9.59**	**9.60**	**40**
	Q1	9.73	9.70	12	9.55	9.70	4
	Q2	9.58	9.50	12	9.73	9.73	3
	Q3	9.55	9.60	7	9.80	9.90	3
	Q4	9.71	9.70	16	9.74	9.70	23
2019	**Full year**	**9.66**	**9.65**	**47**	**9.72**	**9.70**	**33**
	Q1	9.58	9.50	19	9.35	9.40	9
	Q2	9.55	9.45	9	9.55	9.65	3
	Q3	9.30	9.33	10	9.52	9.45	8
	Q4	9.32	9.50	17	9.50	9.60	15
2020	**Full year**	**9.44**	**9.45**	**55**	**9.47**	**9.44**	**35**
	Q1	9.46	9.25	10	9.71	9.74	10
	Q2	9.39	9.43	11	9.48	9.42	6
	Q3	9.38	9.40	13	9.43	9.50	11
	Q4	9.34	9.40	21	9.59	9.63	16
2021	**Full year**	**9.38**	**9.38**	**55**	**9.56**	**9.60**	**43**
	Q1	9.35	9.25	12	9.38	9.40	6
	Q2	9.45	9.20	7	9.23	9.23	3
	Q3	9.34	9.35	8	9.52	9.40	8
	Q4	9.71	9.80	26	9.65	9.63	16
2022	**Full year**	**9.54**	**9.50**	**53**	**9.53**	**9.60**	**33**
2023	Q1	9.71	9.68	10	9.75	9.60	7
LTM ended 3/31/2023		**9.61**	**9.56**	**51**	**9.60**	**9.60**	**34**

Data compiled April 20, 2023.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights.

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Table 2: Electric and gas utilities summary

Electric utilities

Year	Period	ROR (%)	Number of observations	ROE (%)	Number of observations	Common equity to total capital (%)	Number of observations	Rate change amount ($M)	Number of observations
2004	Full year	8.71	20	10.81	21	46.96	19	1,806.3	29
2005	Full year	8.44	23	10.51	24	47.34	23	936.1	31
2006	Full year	8.32	26	10.32	26	48.54	25	1,318.1	39
2007	Full year	8.18	37	10.30	38	47.88	36	1,405.7	43
2008	Full year	8.21	39	10.41	37	47.94	36	2,823.2	44
2009	Full year	8.28	41	10.52	41	48.36	40	4,191.7	58
2010	Full year	8.01	62	10.37	61	48.63	57	4,921.9	78
2011	Full year	8.00	43	10.29	42	48.26	42	2,595.1	56
2012	Full year	7.95	51	10.17	58	50.69	52	3,080.7	69
2013	Full year	7.66	45	10.03	49	49.25	43	3,328.6	61
2014	Full year	7.60	32	9.91	38	50.28	35	2,053.7	51
2015	Full year	7.35	36	9.84	31	49.23	31	1,963.2	53
2016	Full year	7.28	41	9.77	42	48.91	41	2,326.1	58
2017	Full year	7.18	48	9.74	53	48.90	48	2,695.6	77
2018	Full year	6.93	49	9.60	48	49.02	49	1,880.4	67
2019	Full year	6.97	44	9.66	47	49.94	40	1,661.2	63
2020	Full year	6.85	56	9.44	55	49.67	55	2,299.4	69
	Q1	6.79	11	9.46	10	49.98	11	850.6	15
	Q2	6.95	8	9.43	11	50.30	8	961.0	13
	Q3	6.98	14	9.38	13	50.15	12	980.5	21
	Q4	6.64	20	9.34	21	49.95	19	3,321.8	32
2021	Full year	6.81	53	9.38	55	50.06	50	6,113.9	81
	Q1	6.63	13	9.35	12	49.88	13	463.4	17
	Q2	6.71	7	9.45	7	50.04	7	828.7	14
	Q3	7.24	6	9.34	8	51.19	7	434.2	13
	Q4	6.93	27	9.71	26	50.47	26	2,545.1	33
2022	Full year	6.86	53	9.54	53	50.36	53	4,271.4	77
2023	Q1	6.80	8	9.71	10	49.36	8	1,436.3	16
LTM ended 3/31/2023		6.92	48	9.61	51	50.33	48	5,244.3	76

Gas utilities

Year	Period	ROR (%)	Number of observations	ROE (%)	Number of observations	Common equity to total capital (%)	Number of observations	Rate change amount ($M)	Number of observations
2004	Full year	8.51	23	10.63	22	45.81	22	306.0	33
2005	Full year	8.24	29	10.41	26	48.40	24	465.4	35
2006	Full year	8.44	17	10.40	15	47.24	16	392.5	23
2007	Full year	8.11	31	10.22	35	48.47	28	645.3	43
2008	Full year	8.49	33	10.39	32	50.35	32	700.0	40
2009	Full year	8.15	29	10.22	30	48.49	29	438.6	36
2010	Full year	7.99	40	10.15	39	48.70	40	776.5	50
2011	Full year	8.09	18	9.92	16	52.49	14	367.0	31
2012	Full year	7.98	30	9.94	35	51.13	32	264.0	41
2013	Full year	7.43	21	9.68	21	50.60	20	498.7	39
2014	Full year	7.65	27	9.78	26	51.11	28	544.2	48
2015	Full year	7.34	16	9.60	16	49.93	16	494.1	40
2016	Full year	7.08	28	9.54	26	50.06	26	1,263.8	59
2017	Full year	7.26	24	9.72	24	49.88	24	410.7	54
2018	Full year	7.00	45	9.59	40	50.12	44	939.1	66
2019	Full year	7.19	35	9.72	33	51.86	32	1,461.4	64
2020	Full year	6.99	37	9.47	35	51.87	36	1,048.9	60
	Q1	7.13	12	9.71	10	51.92	11	290.7	16
	Q2	6.89	5	9.48	6	50.56	5	69.9	8
	Q3	6.66	13	9.43	11	49.50	12	214.3	22
	Q4	6.67	17	9.59	16	51.34	18	760.8	28
2021	Full year	6.81	47	9.56	43	50.92	46	1,335.7	74
	Q1	6.68	3	9.38	6	50.24	5	144.9	9
	Q2	6.91	4	9.23	3	52.77	4	36.9	7
	Q3	6.85	7	9.52	8	50.52	7	461.0	12
	Q4	7.03	17	9.65	16	51.75	17	770.1	27
2022	Full year	6.94	31	9.53	33	51.38	33	1,413.0	55
2023	Q1	6.90	8	9.75	7	53.89	7	233.4	11
LTM ended 3/31/2022		6.95	36	9.60	34	52.05	35	1,501.5	57

Data compiled April 20, 2023.
ROR = rate of return.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights.

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Table 3: Electric authorized ROEs

Settled vs. fully litigated cases

	All cases			Settled cases			Fully litigated cases		
Year	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations
2007	10.30	10.20	38	10.42	10.33	14	10.23	10.15	24
2008	10.41	10.30	37	10.43	10.25	17	10.39	10.54	20
2009	10.52	10.50	41	10.61	10.61	17	10.45	10.50	24
2010	10.37	10.30	61	10.39	10.30	34	10.35	10.10	27
2011	10.29	10.17	42	10.12	10.07	16	10.39	10.25	26
2012	10.17	10.08	58	10.06	10.00	29	10.28	10.25	29
2013	10.03	9.95	49	10.12	9.98	32	9.85	9.75	17
2014	9.91	9.78	38	9.73	9.75	17	10.05	9.83	21
2015	9.84	9.60	31	10.04	9.60	15	9.66	9.62	16
2016	9.77	9.75	42	9.80	9.85	17	9.74	9.60	25
2017	9.74	9.60	53	9.75	9.60	29	9.73	9.56	24
2018	9.60	9.58	48	9.57	9.63	26	9.63	9.53	22
2019	9.66	9.65	47	9.76	9.73	20	9.58	9.50	27
2020	9.44	9.45	55	9.46	9.45	23	9.43	9.41	32
2021	9.38	9.38	55	9.57	9.50	25	9.22	9.20	30
2022	9.54	9.50	53	9.62	9.50	21	9.48	9.35	32
Q1'23	9.71	9.68	10	9.73	9.75	5	9.68	9.65	5
LTM ended 3/31/2023	9.61	9.56	51	9.70	9.50	22	9.55	9.65	29

General rate cases vs. limited-issue riders

	All cases			General rate cases			Limited-issue riders		
Year	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations
2007	10.30	10.20	38	10.32	10.23	36	9.90	9.90	1
2008	10.41	10.30	37	10.37	10.30	35	11.11	11.11	2
2009	10.52	10.50	40	10.52	10.50	39	10.55	10.55	2
2010	10.37	10.30	61	10.29	10.26	58	11.87	12.30	3
2011	10.29	10.17	42	10.19	10.14	40	12.30	12.30	2
2012	10.17	10.08	58	10.02	10.00	51	11.57	11.40	6
2013	10.03	9.95	49	9.82	9.82	40	11.34	11.40	7
2014	9.91	9.78	38	9.76	9.75	32	10.96	11.00	5
2015	9.84	9.60	31	9.60	9.53	23	10.87	11.00	6
2016	9.77	9.75	42	9.60	9.60	32	10.31	10.55	10
2017	9.74	9.60	53	9.68	9.60	42	10.01	9.95	10
2018	9.60	9.58	48	9.56	9.58	38	9.74	9.70	10
2019	9.66	9.65	47	9.65	9.65	33	9.68	9.31	14
2020	9.44	9.45	55	9.39	9.48	42	9.62	9.20	13
2021	9.38	9.38	55	9.39	9.50	35	9.37	9.20	19
2022	9.54	9.50	53	9.52	9.50	32	9.56	9.35	21
Q1'23	9.71	9.68	10	9.71	9.70	7	9.68	9.35	3
LTM ended 3/31/2023	9.61	9.56	51	9.58	9.60	35	9.68	9.35	16

Vertically integrated cases vs. distribution-only cases

	All cases			Vertically integrated cases			Distribution-only cases		
Year	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations
2007	10.30	10.20	38	10.50	10.45	26	9.86	9.98	10
2008	10.41	10.30	37	10.48	10.47	26	10.04	10.25	9
2009	10.52	10.50	41	10.66	10.66	28	10.16	10.25	11
2010	10.37	10.30	61	10.42	10.40	41	9.98	10.00	17
2011	10.29	10.17	42	10.33	10.20	28	9.85	10.00	12
2012	10.17	10.08	58	10.10	10.20	39	9.75	9.73	12
2013	10.03	9.95	49	9.95	10.00	31	9.37	9.36	9
2014	9.91	9.78	38	9.94	9.90	19	9.49	9.55	13
2015	9.84	9.60	31	9.75	9.70	17	9.17	9.07	6
2016	9.77	9.75	42	9.77	9.78	20	9.31	9.33	12
2017	9.74	9.60	53	9.80	9.65	28	9.43	9.55	14
2018	9.60	9.58	48	9.68	9.73	23	9.38	9.50	15
2019	9.66	9.65	47	9.74	9.73	25	9.37	9.60	8
2020	9.44	9.45	55	9.55	9.50	27	9.10	9.30	15
2021	9.38	9.38	55	9.53	9.50	25	9.04	9.45	10
2022	9.54	9.50	53	9.69	9.56	23	9.11	9.20	9
Q1'23	9.71	9.68	10	9.72	9.70	6	9.70	9.70	1
LTM ended 3/31/2023	9.61	9.56	51	9.72	9.70	26	9.19	9.50	9

Data compiled April 20, 2023.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights.

S&P Global
Market Intelligence

Table 4: Gas authorized ROEs

Settled vs. fully litigated cases

	All cases			Settled cases			Fully litigated cases		
Year	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations
2007	10.22	10.20	35	10.24	10.18	22	10.20	10.40	13
2008	10.39	10.45	32	10.34	10.28	20	10.47	10.68	12
2009	10.22	10.26	30	10.43	10.40	13	10.05	10.15	17
2010	10.15	10.10	39	10.30	10.15	12	10.08	10.10	27
2011	9.92	10.03	16	10.08	10.08	8	9.76	9.80	8
2012	9.94	10.00	35	9.99	10.00	14	9.92	9.90	21
2013	9.68	9.72	21	9.80	9.80	9	9.59	9.60	12
2014	9.78	9.78	26	9.51	9.50	11	9.98	10.10	15
2015	9.60	9.68	16	9.60	9.60	11	9.58	9.80	5
2016	9.54	9.50	26	9.50	9.50	16	9.61	9.58	10
2017	9.72	9.60	24	9.68	9.60	17	9.82	9.50	7
2018	9.59	9.60	40	9.59	9.60	23	9.59	9.50	17
2019	9.72	9.70	33	9.70	9.70	21	9.74	9.72	12
2020	9.47	9.44	35	9.48	9.50	23	9.44	9.42	12
2021	9.56	9.60	43	9.53	9.50	30	9.63	9.67	13
2022	9.53	9.60	33	9.47	9.40	24	9.67	9.80	9
Q1'23	9.75	9.60	7	9.49	9.57	3	9.95	9.93	4
LTM ended 3/31/2023	9.60	9.60	34	9.50	9.40	21	9.76	9.80	13

General rate cases vs. limited-issue riders

	All cases			General rate cases			Limited-issue riders		
Year	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations	Average ROE (%)	Median ROE (%)	Number of observations
2007	10.22	10.20	35	10.22	10.20	35	—	—	0
2008	10.39	10.45	32	10.39	10.45	32	—	—	0
2009	10.22	10.26	30	10.22	10.26	30	—	—	0
2010	10.15	10.10	39	10.15	10.10	39	—	—	0
2011	9.92	10.03	16	9.91	10.05	15	10.00	10.00	1
2012	9.94	10.00	35	9.93	10.00	34	10.40	10.40	1
2013	9.68	9.72	21	9.68	9.72	21	—	—	0
2014	9.78	9.78	26	9.78	9.78	26	—	—	0
2015	9.60	9.68	16	9.60	9.68	16	—	—	0
2016	9.54	9.50	26	9.53	9.50	25	9.70	9.70	1
2017	9.72	9.60	24	9.73	9.60	23	9.50	9.50	1
2018	9.59	9.60	40	9.59	9.60	39	9.50	9.50	1
2019	9.72	9.70	33	9.73	9.73	31	9.60	9.60	2
2020	9.47	9.44	35	9.47	9.44	35	—	—	0
2021	9.56	9.60	43	9.56	9.60	43	—	—	0
2022	9.53	9.60	33	9.53	9.60	33	—	—	0
Q1'23	9.75	9.60	7	9.64	9.90	6	10.44	10.44	1
LTM ended 3/31/2023	9.60	9.60	34	9.57	9.60	33	10.44	10.44	1

Data compiled April 20, 2023.
— = no observations.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights.

S&P Global
Market Intelligence

Table 5: Electric and gas utility decisions

El;ectric utility decisions

	Date	Company	State	ROR (%)	ROE (%)	Common equity as % of capital	Test year	Rate base	Rate change amount ($)	Footnotes
	1/19/23	Consumers Energy Co.	MI	—	9.90	—	12/23	Average	155.0	B
	1/23/23	Minnesota Power Enterprises Inc.	MN	7.12	9.65	52.50	12/22	Average	58.6	I
	1/25/23	Northern Indiana Public Service Co. LLC	IN	—	—	—	7/22	Year-end	6.6	LIR,1
	1/26/23	Cheyenne Light, Fuel and Power Co.	WY	7.48	9.75	52.00	12/21	Year-end	20.1	B
	1/26/23	Virginia Electric and Power Co.	VA	6.83	9.35	52.29	3/24	Average	16.9	LIR, Z,2
	2/2/23	Pacific Gas and Electric Co.	CA	—	—	— —	—		1037.9	B, LIR,3
	2/3/23	Appalachian Power Co.	WV	—	—	—	2/22	—	0.0	LIR,4
	2/9/23	Duke Energy Progress LLC	SC	6.83	9.60	52.43	12/21	Year-end	52.3	B
	2/16/23	Electric Transmission Texas LLC	TX	—	—	—	6/22	—	-14.0	T,B
	2/17/23	Southwestern Electric Power Co.	LA	—	9.50	— —	—		27.0	B
	2/21/23	Electric Transmission Texas LLC	TX	—	—	—	9/22	Year-end	—	T,B
	2/23/23	Virginia Electric and Power Co.	VA	7.36	10.35	52.29	3/24	Average	-15.6	LIR, Z,5
	2/27/23	Virginia Electric and Power Co.	VA	6.83	9.35	52.29	3/24	Average	-20.7	LIR,6
	3/2/23	Oklahoma Gas and Electric Co.	AR	5.33	—	38.57	3/22	Average	9.6	B,*,7
	3/9/23	Oncor Electric Delivery Co. LLC	TX	6.65	9.70	42.50	12/21	Year-end	100.5	D
	3/23/23	Wind Energy Transmission Texas LLC	TX	—	—	— —	—		-8.7	B,T
	3/24/23	Upper Peninsula Power Co.	MI	—	9.90	—	6/24	Average	10.8	B
2023		**Q1 averages/total**		**6.80**	**9.71**	**49.36**			**1,436.3**	
		Observations		**8**	**10**	**8**			**16**	

Gas utility decisions

	Date	Co.	State	ROR (%)	ROE (%)	Common equity as % of capital	Test year	Rate base	Rate change amount ($)	Footnotes
	1/19/23	Texas Gas Service Co. Inc.	TX	7.38	9.60	59.74	12/21	Year-end	8.8	
	1/23/23	Southwest Gas Corp.	AZ	6.73	9.30	50.00	8/21	Year-end	54.3	B
	1/23/23	Roanoke Gas Co.	VA	7.90	10.44	59.63	9/23	Average	1.0	LIR,8
	1/24/23	Florida Public Utilities Co.	FL	5.97	10.25	45.16	12/23	Average	17.2	I
	1/25/23	Indiana Gas Co. Inc.	IN	—	—	—	6/22	Year-end	22.9	LIR,1
	1/25/23	Southern Indiana Gas and Electric Co.	IN	—	—	—	6/22	Year-end	10.2	LIR,1
	1/26/23	Columbia Gas of Ohio Inc.	OH	7.08	9.60	50.60	12/21	Date Certain	68.2	B
	3/21/23	Atmos Energy Corp.	KS	—	—	—	12/22	Year-end	0.8	LIR,9
	3/23/23	Northern States Power Co.	MN	6.97	9.57	52.50	12/22	Average	20.9	B, I
	3/28/23	Pivotal Utility Holdings Inc.	FL	6.44	9.50	59.60	12/23	Average	23.3	
	3/28/23	MidAmerican Energy Co.	SD	6.75	—	—	12/21	Average	5.9	B, Z, I
2023		**Q1 averages/total**		**6.90**	**9.75**	**53.89**			**233.4**	
		Observations		**8**	**7**	**7**			**11**	

Data compiled April 20, 2023.
ROR = rate of return.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights.

Footnotes

A	Average.
B	Order followed stipulation or settlement by the parties. Decision particulars not necessarily precedent-setting or specifically adopted by the regulatory body.
D	Applies to electric delivery only.
I	Interim rates implemented prior to the issuance of final order, normally under bond and subject to refund.
LIR	Limited-issue rider proceeding.
NA	Not available at the time of publication.
T	Transmission-only case.
W	Case was withdrawn.
Z	Rate change implemented in multiple steps.
*	Capital structure includes cost-free items or tax credit balances at the overall rate of return.
1	Case established the rates to be charged to customers under the company's "transmission, distribution, and storage system improvement charge" statute.
2	Rate change approved under Rider B, which is the mechanism through which the company recovers the costs associated with the conversion of the Altavista, Hopewell and Southampton p
3	Rate increase authorized for the recovery of expenditures related to wildfire mitigation, COVID-19 costs and several other activities.
4	Electric rate change under expanded net energy cost proceeding.
5	Rate change approved under Rider W, which is the mechanism through which the company recovers its investment in the Warren County generation facility.
6	Rate change approved under Rider U, which is the mechanism through which the company recovers its investment in projects to underground certain "at risk" distribution facilities.
7	Rate change approved under company's formula rate plan.
8	Rate change approved under renewable natural gas rider.
9	Rate change approved under system integrity program rider.

S&P Global
Market Intelligence

Table 6: Composite electric and gas annual authorized ROEs

Year	Average ROE (%)	Median ROE (%)	Number of observations	30-year US Treasury yield*
1990	12.69	12.75	71	8.61
1991	12.50	12.50	73	8.14
1992	12.06	12.00	73	7.67
1993	11.40	11.50	68	6.59
1994	11.23	11.22	52	7.37
1995	11.53	11.38	41	6.89
1996	11.26	11.25	35	6.70
1997	11.31	11.28	22	6.61
1998	11.64	11.65	20	5.58
1999	10.73	10.70	12	5.87
2000	11.44	11.25	22	5.94
2001	11.04	11.00	20	5.49
2002	11.19	11.16	33	5.28
2003	10.98	10.75	45	4.92
2004	10.72	10.50	43	5.06
2005	10.46	10.40	50	4.56
2006	10.35	10.25	41	4.88
2007	10.26	10.20	73	4.84
2008	10.40	10.39	69	4.27
2009	10.39	10.40	71	4.07
2010	10.28	10.22	100	4.25
2011	10.19	10.10	58	3.91
2012	10.09	10.00	93	2.92
2013	9.92	9.80	70	3.44
2014	9.86	9.78	64	3.34
2015	9.76	9.60	47	2.84
2016	9.68	9.60	68	2.60
2017	9.73	9.60	77	2.89
2018	9.59	9.60	88	3.11
2019	9.68	9.70	80	2.58
2020	9.45	9.45	90	1.56
2021	9.46	9.43	98	2.06
2022	9.53	9.50	86	3.11
Q1'23	9.72	9.60	17	3.75
LTM ended 3/31/2023	9.61	9.60	83	3.48

Data compiled April 20, 2023.
*Average of the daily yields.
Source: Regulatory Research Associates, a group within S&P Global Commodity Insights.

J.P. Morgan Midwest Utilities Forum

Chicago, IL
April 5, 2023

"Safe Harbor" Statement Under the Private Securities Litigation Reform Act of 1995

Darcy Reese, Vice President

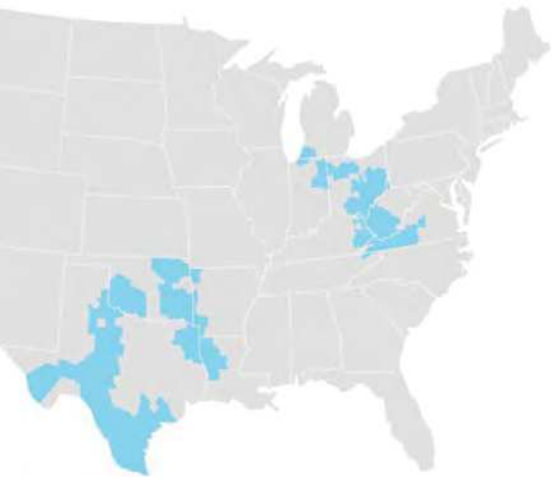
Investor Relations
614-716-2614
dlreese@aep.com

Annie Pribisko, Director

Investor Relations
614-716-2646
acpribisko@aep.com

This presentation contains forward-looking statements within the meaning of Section 21E of the Securities Exchange Act of 1934. Although AEP and each of its Registrant Subsidiaries believe that their expectations are based on reasonable assumptions, any such statements may be influenced by factors that could cause actual outcomes and results to be materially different from those projected. Among the factors that could cause actual results to differ materially from those in the forward-looking statements are: changes in economic conditions, electric market demand and demographic patterns in AEP service territories, the impact of pandemics and any associated disruption of AEP's business operations due to impacts on economic or market conditions, costs of compliance with potential government regulations, electricity usage, supply chain issues, customers, service providers, vendors and suppliers, the economic impact of increased global trade tensions including the conflict between Russia and Ukraine, and the adoption or expansion of economic sanctions or trade restrictions, inflationary or deflationary interest rate trends, volatility and disruptions in the financial markets precipitated by any cause including failure to make progress on federal budget or debt ceiling matters, particularly developments affecting the availability or cost of capital to finance new capital projects and refinance existing debt, the availability and cost of funds to finance working capital and capital needs, particularly (i) if expected sources of capital, such as proceeds from the sale of assets or subsidiaries, do not materialize, and (ii) during periods when the time lag between incurring costs and recovery is long and the costs are material, decreased demand for electricity, weather conditions, including storms and drought conditions, and the ability to recover significant storm restoration costs, the cost of fuel and its transportation, the creditworthiness and performance of fuel suppliers and transporters and the cost of storing and disposing of used fuel, including coal ash and spent nuclear fuel, the availability of fuel and necessary generation capacity and performance of generation plants, the ability to recover fuel and other energy costs through regulated or competitive electric rates, the ability to transition from fossil generation and the ability to build or acquire renewable generation, transmission lines and facilities (including the ability to obtain any necessary regulatory approvals and permits) when needed at acceptable prices and terms, including favorable tax treatment, and to recover those costs, new legislation, litigation or government regulation, including changes to tax laws and regulations, oversight of nuclear generation, energy commodity trading and new or heightened requirements for reduced emissions of sulfur, nitrogen, mercury, carbon, soot or particulate matter and other substances that could impact the continued operation, cost recovery and/or profitability of generation plants and related assets, the impact of federal tax legislation on results of operations, financial condition, cash flows or credit ratings, the risks before, during and after generation of electricity associated with the fuels used or the byproducts and wastes of such fuels, including coal ash and spent nuclear fuel, timing and resolution of pending and future rate cases, negotiations and other regulatory decisions, including rate or other recovery of new investments in generation, distribution and transmission service and environmental compliance, resolution of litigation, the ability to constrain operation and maintenance costs, prices and demand for power generated and sold at wholesale, changes in technology, particularly with respect to energy storage and new, developing, alternative or distributed sources of generation, the ability to recover through rates any remaining unrecovered investment in generation units that may be retired before the end of their previously projected useful lives, volatility and changes in markets for coal and other energy-related commodities, particularly changes in the price of natural gas, the impact of changing expectations and demands of customers, regulators, investors and stakeholders, including heightened emphasis on environmental, social and governance concerns, changes in utility regulation and the allocation of costs within regional transmission organizations, including ERCOT, PJM and SPP, changes in the creditworthiness of the counterparties with contractual arrangements, including participants in the energy trading market, actions of rating agencies, including changes in the ratings of debt, the impact of volatility in the capital markets on the value of the investments held by the pension, other postretirement benefit plans, captive insurance entity and nuclear decommissioning trust and the impact of such volatility on future funding requirements, accounting standards periodically issued by accounting standard-setting bodies, and other risks and unforeseen events, including wars and military conflicts, the effects of terrorism (including increased security costs), embargoes, naturally occurring and human-caused fires, cyber security threats and other catastrophic events, the ability to attract and retain requisite work force and key personnel.

AEP Is a Pure Play Regulated Utility



40k
TRANSMISSION MILES
Nation's largest electric transmission system

225k
DISTRIBUTION MILES
One of the largest distribution systems in the U.S.

25GW
OWNED GENERATION
Diverse generation fleet

$94B
TOTAL ASSETS
Strong balance sheet

$61B
RATE BASE
As of December 31, 2022

$47B
CURRENT MARKET CAPITALIZATION
As of April 4, 2023

17,000
EMPLOYEES
Across the system

5.6M
CUSTOMERS
Throughout 11 states

Statistics are as of December 31, 2022 except for market capitalization; data on this page currently includes Kentucky operations and Unregulated Contracted Renewables until sale transactions close.

AEP Is Powering the Future

One of the Largest Utilities in the U.S. by Rate Base and Market Cap

Delivering Consistent, Strong Performance

- Stable, resilient business allows us to keep customer rates affordable
- Commitment to 6%-7% annual operating earnings growth; dividend growth is in line with earnings
- 9%-10% consistent total shareholder return
- Strong balance sheet with a targeted FFO/Debt of 14%-15%
- 2023 operating earnings guidance range of $5.19-$5.39

Operating Attractive Transmission and Distribution Assets

- Largest transmission provider in the U.S.
- One of the largest distribution providers in the U.S.
- Bolstered by organic growth with diversity in geographic footprint and customer base
- Capital forecast of $40B includes $15B of transmission investment and $11B of distribution investment

Leading the Clean Energy Transition

- Proven track record of investing in sustainability and reducing fleet emissions
- Plans to add 17 GW of new resource opportunities between 2023 and 2032
- Goal of net zero by 2045
- Capital forecast includes $9B of regulated renewable investment

Actively Managing the Business and Portfolio

- Immediate-term focus on de-risking and simplifying business
- Thoughtful and proactive portfolio management and investment to support strategy
- Strong employee base led by experienced leaders with a shared passion for the AEP mission

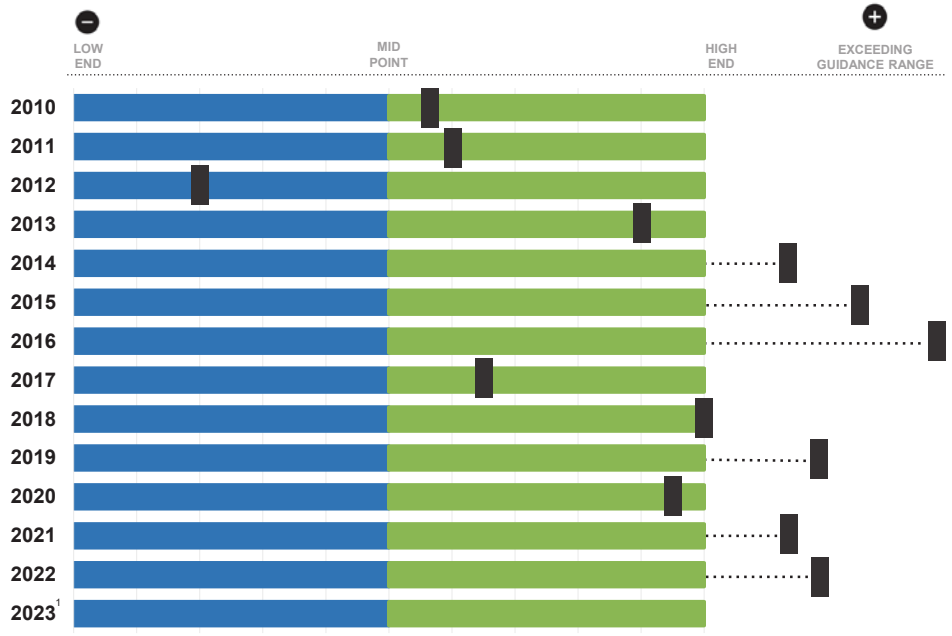
Proven Track Record of EPS Performance

Over a decade of meeting or exceeding original EPS guidance

[1] 2023 operating EPS guidance is $5.19-$5.39.

Actual Result

Actual operating EPS in comparison to original EPS guidance range



Strong Dividend Growth

Targeted payout ratio 60-70% of operating earnings

Over 112 years of consecutive quarterly dividends

Targeted dividend growth in line with earnings

[1] Targeted dividend growth is in-line with 6%-7% annual operating earnings growth, subject to approval by Board of Directors.

EPS Growth + Dividend Yield = 9% to 10% Annual Return Opportunity

Stakeholder Commitments

6%-7% Annual Operating Earnings Growth

Dividend Growth In-line with Earnings Growth and Targeted Payout Ratio of 60%-70%

Strong Balance Sheet with a Target FFO/Debt of 14%-15%

ESG Goal of Net Zero by 2045

Customer Care: Commitment to Identification and Realization of Efficiencies to Keep Customer Rates Affordable

Active Management of the AEP Portfolio with the Primary Objective to De-risk and Simplify Our Business

Positioning for the Future

- Inflation Reduction Act (IRA) Quick Takeaways
- 2023-2027 Capital Forecast
- Shift to Wires and Renewables
- 2023-2027 Cash Flows and Financial Metrics
- Rate Base Growth
- Efficient Cost Recovery Mechanisms

IRA Quick Takeaways

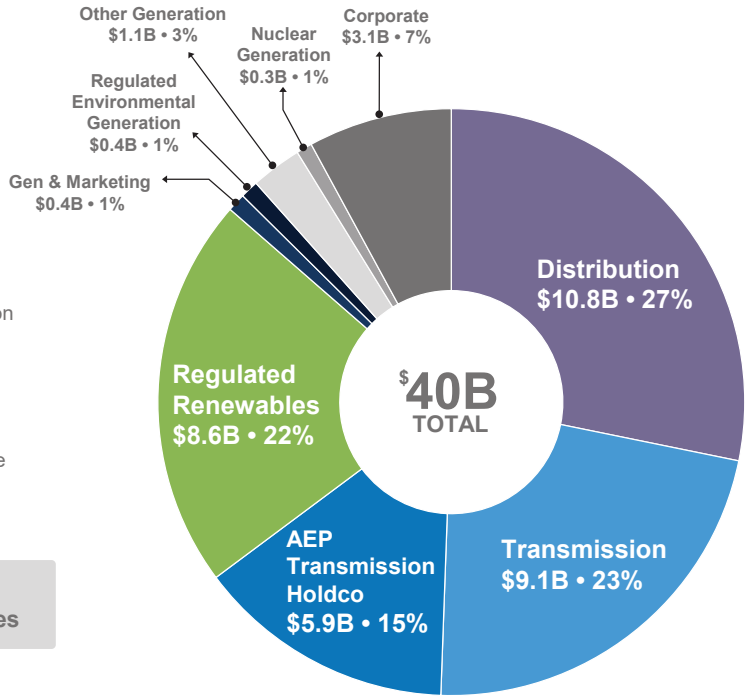
1 Poised to Deliver Significant Benefits for Our Customers	• Extension and modification of renewable energy tax credits and inclusion of nuclear Production Tax Credit (PTC) supports our customers desire for an affordable and reliable clean energy transition • Incentives for electrification and domestic manufacturing support economic growth in our regions
2 Improves Opportunity for Utility-Scale Ownership Providing Further Value to Customers	• Supports efficient monetization of tax credits for our customers, including option to utilize PTCs for solar investments and transferability of credits
3 Corporate Alternative Minimum Tax (CAMT) Begins in 2023 and We Expect to Maintain Our Target FFO/Debt of 14%-15%	• Applicable to corporations with financial statement income in excess of $1B • Expect adjustments to financial statement income for accelerated tax depreciation • Plan to use credit carryforwards plus the generation of new tax credits to offset CAMT

2023-2027 Capital Forecast of $40B

The ability to quickly redeploy transmission and distribution investment ensures we maintain capital spend while mitigating customer bill impact

On a system average, we expect rates to go up approximately 4% annually over the forecasted period

Capital forecast emphasizes investment in wires and renewables



99%
of capital allocated to regulated businesses

$26B 65%
allocated to wires

$9B 22%
allocated to regulated renewables

7.6%
resulting rate base CAGR

2023-2027 Capital Forecast by Subsidiary

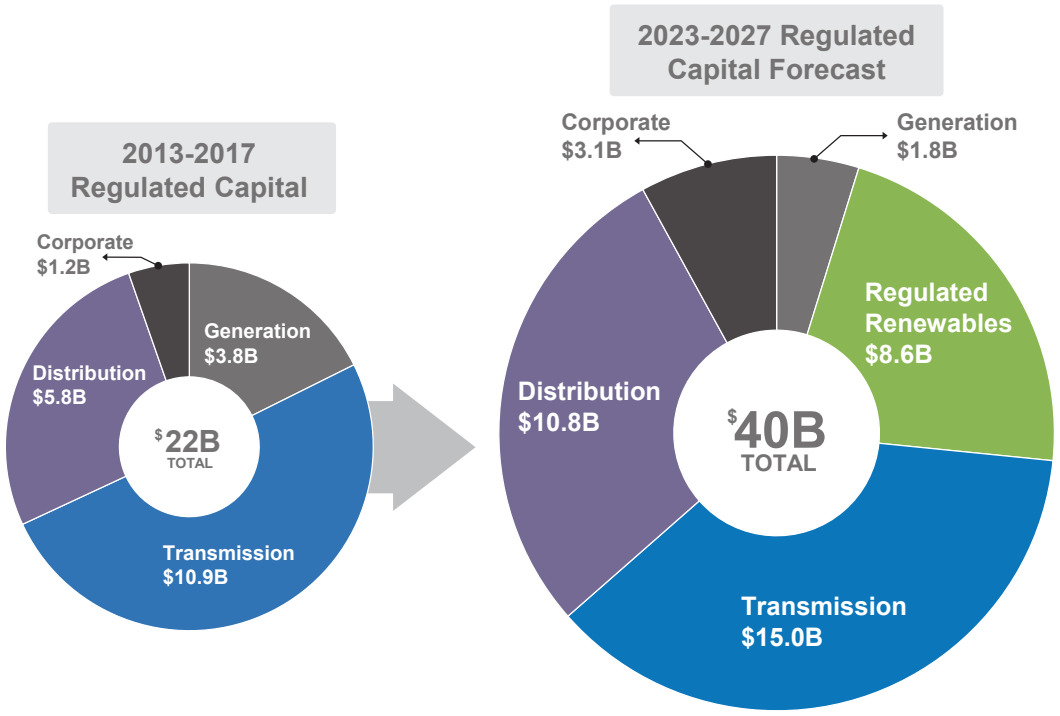
$ in millions, excludes AFUDC	2023E	2024E	2025E	2026E	2027E	Total
Appalachian Power Company	$ 1,118	$ 2,011	$ 1,523	$ 1,188	$ 843	**$ 6,683**
Wheeling Power Company	$ 135	$ 49	$ 42	$ 47	$ 42	**$ 315**
Kingsport Power Company	$ 40	$ 36	$ 35	$ 36	$ 21	**$ 168**
Indiana Michigan Power Company	$ 580	$ 518	$ 1,026	$ 1,029	$ 491	**$ 3,644**
AEP Ohio	$ 962	$ 1,046	$ 909	$ 904	$ 924	**$ 4,745**
Public Service Company of Oklahoma	$ 564	$ 1,399	$ 1,243	$ 491	$ 945	**$ 4,642**
Southwestern Electric Power Company	$ 696	$ 1,083	$ 2,538	$ 1,024	$ 955	**$ 6,296**
AEP Texas Company	$ 1,318	$ 1,464	$ 1,371	$ 1,386	$ 1,301	**$ 6,840**
AEP Generating Company	$ 24	$ 8	$ 10	$ 10	$ 8	**$ 60**
AEP Transmission Holdco	$ 1,310	$ 1,225	$ 964	$ 1,107	$ 1,247	**$ 5,853**
Generation & Marketing	$ 70	$ 77	$ 72	$ 76	$ 104	**$399**
Other	$ 30	$ 27	$ 15	$ 15	$ 4	**$ 91**
Total Capital and Equity Contributions	**$ 6,847**	**$ 8,943**	**$ 9,748**	**$ 7,313**	**$ 6,885**	**$ 39,736**

Capital plans are continuously optimized which may result in redeployment between functions and companies.

Shift to Wires and Renewables

~90% of future investment is in wires and renewable generation

For comparative purposes, data excludes Kentucky-related capital.



2023-2027 Cash Flows and Financial Metrics

The strength of our balance sheet is a top priority; we will revisit equity needs after sale completion of both Kentucky operations and unregulated contracted renewables as we use asset sales to responsibly eliminate equity while maintaining a strong balance sheet

$ in millions	2023E	2024E	2025E	2026E	2027E
Cash from Operations	$ 5,400	$ 6,600	$ 7,000	$ 7,600	$ 8,000
Net Cash Proceeds from Sale of Assets[1]	2,400	-	-	-	-
Capital and JV Equity Contributions	(6,800)	(8,900)	(9,700)	(7,300)	(6,900)
Other Investing Activities	(100)	(300)	(200)	(300)	(300)
Common Dividends[2]	(1,700)	(1,900)	(2,100)	(2,200)	(2,400)
Required Capital	**$ (800)**	**$ (4,500)**	**$ (5,000)**	**$ (2,200)**	**$ (1,600)**
Financing					
Required Capital	$ (800)	$ (4,500)	$ (5,000)	$ (2,200)	$ (1,600)
Long-term Debt Maturities	(2,500)	(1,700)	(2,300)	(1,500)	(1,500)
Short-term Debt Repayments	(1,000)	-	-	-	-
Securitization Amortizations	(100)	(200)	(100)	(100)	(100)
Equity Units Conversion	850	-	-	-	-
Equity Issuances – Includes DRP	100	600	700	700	700
Debt Capital Market Needs (New)	**$ (3,450)**	**$ (5,800)**	**$ (6,700)**	**$ (3,100)**	**$ (2,500)**
Financial Metrics					
Debt to Capitalization (GAAP)			Approximately 60%		
FFO/Total Debt (Moody's)			14%-15% Target Range		

[1] Cash proceeds to Parent of $2.4B in 2023 relate to the sale of Kentucky operations of $1.2B and the sale of unregulated contracted renewable assets of $1.2B. Proceeds are net of KPCo/Kentucky Transco indebtedness, tax and transaction costs.

[2] Targeted dividend growth is in-line with 6%-7% annual operating earnings growth, subject to approval by Board of Directors. Stated target payout ratio range is 60%-70% of operating earnings.

Actual cash flows will vary by company and jurisdiction based on regulatory outcomes.

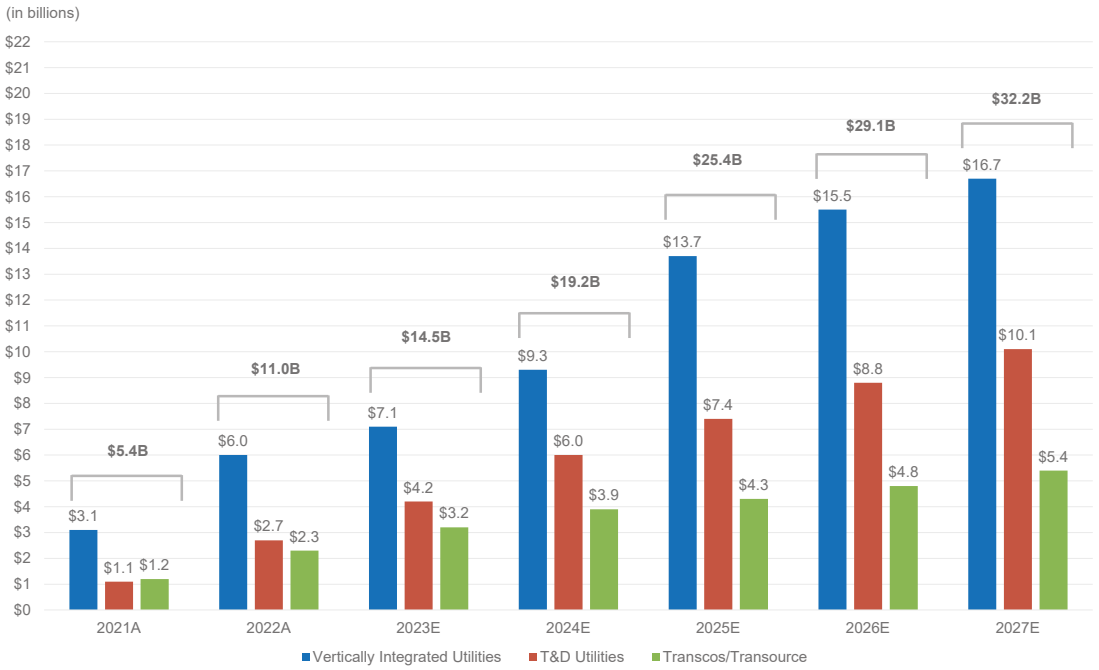
7.6% CAGR in Rate Base Growth

Cumulative change from 2020 base

6-7% EPS growth is predicated on regulated rate base growth

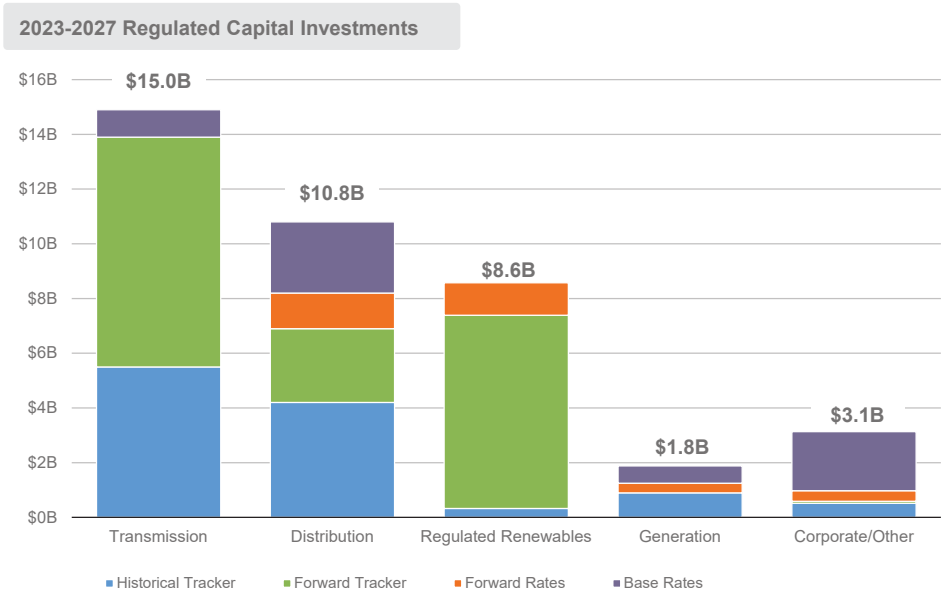
2020 RATE BASE PROXY	
Vertically Integrated Utilities	$25.3B
T&D Utilities	$13.8B
Transcos/Transource	$9.2B
TOTAL	**$48.3B**

For comparative purposes, data excludes Kentucky-related rate base.



Efficient Cost Recovery Mechanisms

~85% of capital plan is recovered through reduced lag mechanisms



Financial Information

Regulated Returns and 2023 Forecasted ROE
2023 Operating Earnings Guidance
2023 Key Guidance Sensitivities and Assumptions
Continued Focus on O&M Efficiency
Normalized Retail Load Trends
Capitalization and Liquidity
2023 Debt Issuances and Maturities Overview
Credit Ratings

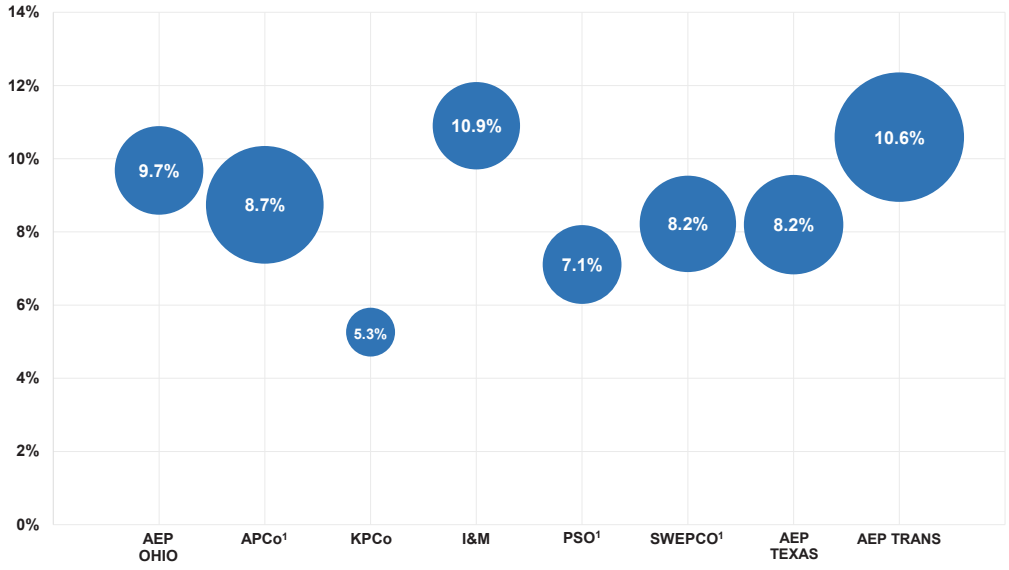
Regulated Returns

2023 Forecasted Regulated ROE is 9.4%

[1] Base rate cases pending/order recently received.

Sphere size based on each company's relative equity balance.

Twelve Months Ended 12/31/2022 Earned ROE's – Total Regulated ROE was 9.1%
(non-GAAP operating earnings, not weather normalized)



2023 Operating Earnings Guidance

2023 Key Drivers

[1] Represents the net impact to operating earnings of Kentucky operations being included in AEP consolidated results for 12 months in 2022 and excluded from 2023 earnings due to expected close on sale in 2023.

2023 Key Guidance Sensitivities and Assumptions

Assumptions

2023 Regulated Connected Load
(Billed and Accrued)

Residential	56,805 GWh
Commercial	49,338 GWh
Industrial	58,473 GWh

Rate Changes: $290M; $106M secured
Average Shares Outstanding: 517.8M

Sensitivity Analysis

	SENSITIVITY		EPS	
Retail Sales			VIU	T&D
Residential	1.0%	+/-	$0.029	$0.011
Commercial	1.0%	+/-	$0.014	$0.005
Industrial	1.0%	+/-	$0.009	$0.001
O&M Expense (excludes O&M with offsets)	1.0%	+/-	$0.04	
Interest Expense (floating debt)	25 bps	+/-	$0.02	
Interest Expense (new issuances)	25 bps	+/-	$0.01	
Regulated ROE	10 bps	+/-	$0.06	

A $6.6M change in pretax earnings equals $0.01 per share

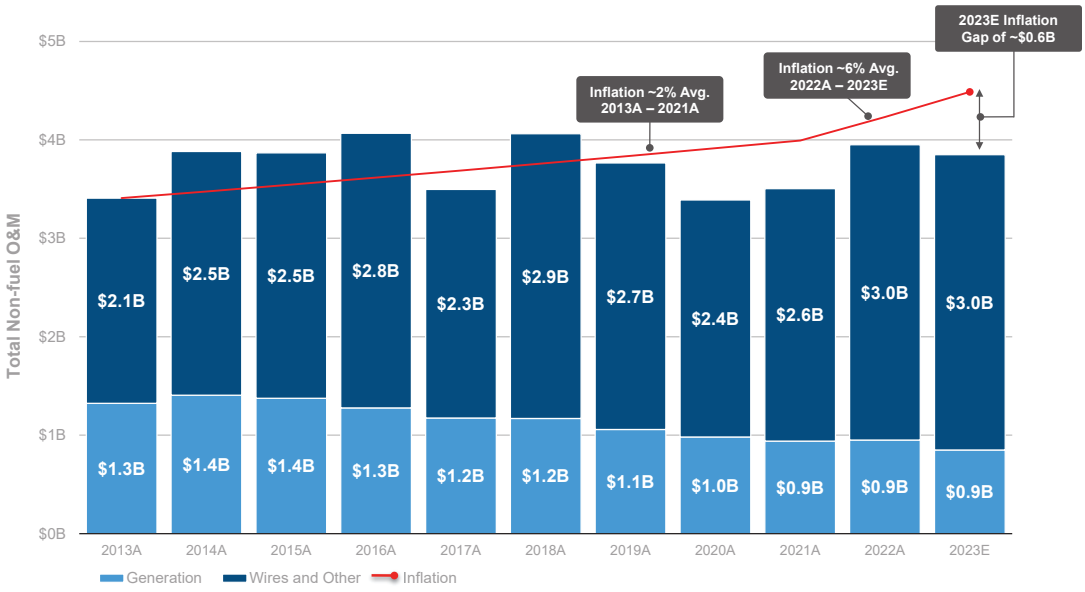
Continuous Focus on O&M Efficiency

O&M discipline over time amid rising costs and growing asset base helps keep customer rates affordable

$41B 2013A Net Plant

$76B 2023E Net Plant

Total tracked and untracked O&M are both actively managed to address customer affordability

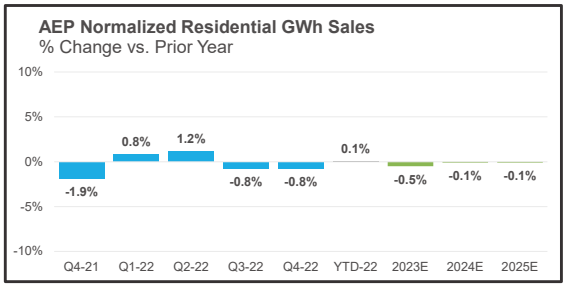


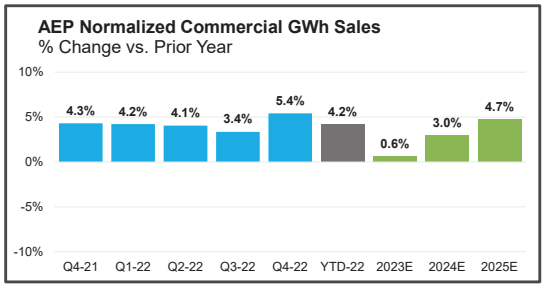
(in billions)	2013A	2014A	2015A	2016A	2017A	2018A	2019A	2020A	2021A	2022A	2023E
Untracked O&M	$2.7	$3.0	$2.9	$3.0	$2.7	$3.0	$2.9	$2.5	$2.6	$2.8	$2.8

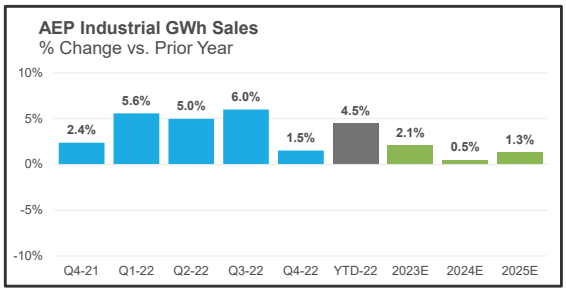
For comparative purposes, data excludes Kentucky-related O&M.

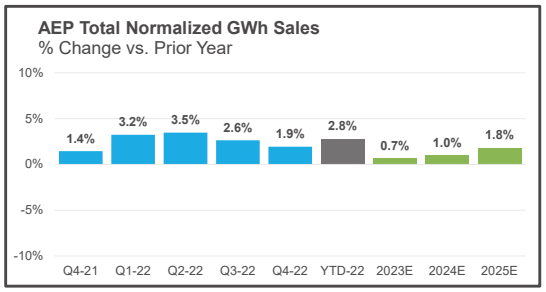
Weather Normalized Billed Retail Load Trends

Load in AEP's service territory remains strong, benefiting from economic development efforts









Load figures are billed retail sales excluding firm wholesale load.

2023 estimates based on forecast provided at 2022 EEI Financial Conference and adjusted to reflect 2022 actual results.

2023, 2024 and 2025 full year estimates exclude Kentucky operations.

Capitalization and Liquidity

Maintaining strong balance sheet with a target FFO/Debt of 14%-15%; strong liquidity and pension funding status

Credit Statistics[1]

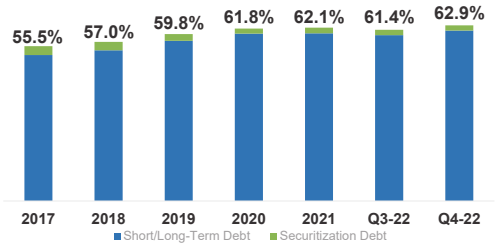
	Moody's	GAAP
FFO to Total Debt	13.2%	13.2%
Targeted Range	14.0%-15.0%	

Liquidity Summary

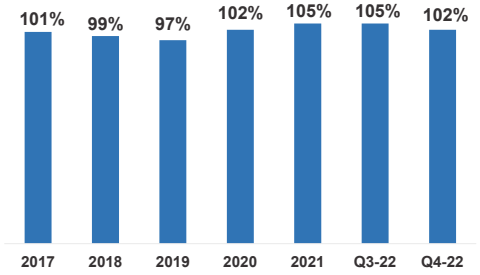
($ in millions)	12/31/2022 Actual	
	Amount	**Maturity**
Revolving Credit Facility	$ 4,000	March 2027
Revolving Credit Facility	1,000	March 2024
Plus		
Cash & Cash Equivalents	509	
Less		
Commercial Paper Outstanding	(2,862)	
Net Available Liquidity	**$ 2,647**	

[1] Represents the trailing 12 months as of 12/31/2022. See Appendix for reconciliation to GAAP.

Total Debt/Total Capitalization



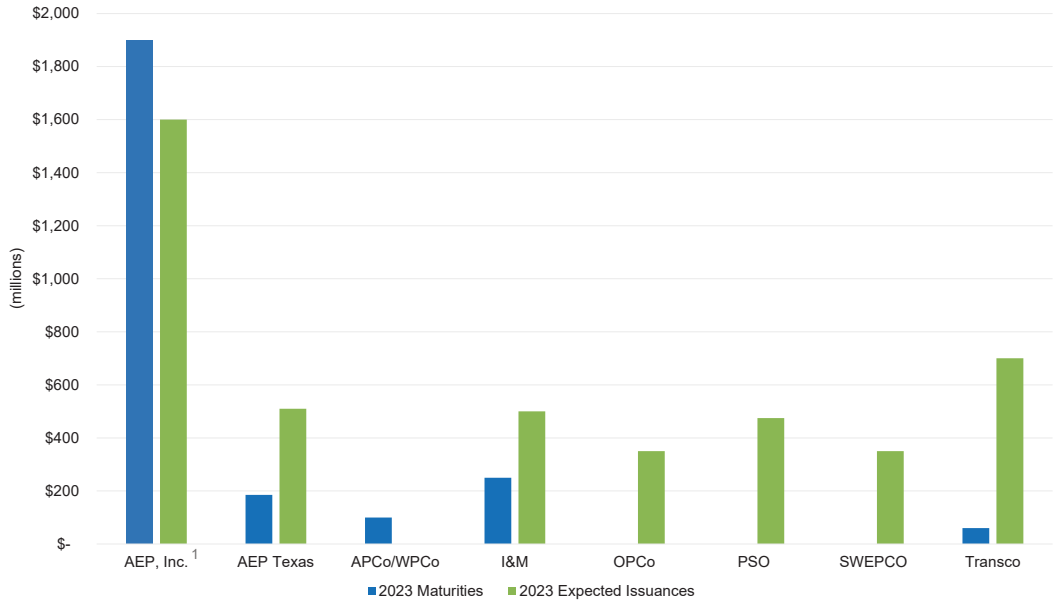
Qualified Pension Funding



2023 Debt Issuances and Maturities Overview

[1] $850M maturity and issuance are associated with the mandatory convertible remarketing.

Chart excludes securitization bonds and nuclear fuel leases; no significant maturities and issuances are planned for AEG 2023.



Credit Ratings

Current ratings for AEP and subsidiaries as of 3/14/2023

Company	Moody's		S&P		Fitch	
	Senior Unsecured	Outlook	Senior Unsecured	Outlook	Senior Unsecured	Outlook
American Electric Power Company, Inc.	Baa2	S	BBB+	S	BBB	S
AEP, Inc. Short Term Rating	P2	S	A2	S	NR	NR
AEP Texas Inc.	Baa2	S	A-	S	BBB+	S
AEP Transmission Company, LLC	A2	S	A-	S	A	S
Appalachian Power Company[1]	Baa1	S	A-	S	A-	S
Indiana Michigan Power Company[1]	A3	S	A-	S	A	S
AEP Ohio	Baa1	S	A-	S	A	S
Public Service Company of Oklahoma	Baa1	S	A-	S	A-	S
Southwestern Electric Power Company	Baa2	S	A-	S	BBB+	S
Transource Energy[2]	A2	S	NR	NR	NR	NR

[1] In conjunction with the unenhanced VRDN remarketings, APCo and I&M both received short-term credit ratings of A-2/P2 from S&P/Moody's.

[2] NR stands for Not Rated.

Competitive Business Portfolio Management

Unregulated Contracted Renewable Assets

Competitive Business Platform

Transaction Overview of Unregulated Contracted Renewables Sale

Transaction Description	• On 02/22/2023, AEP signed an agreement to sell 100% of equity of 1,365 MW unregulated contracted renewable assets containing 14 large-scale projects
Buyer	• IRG Acquisition Holdings, consortium owned by Invenergy (20%), CDPQ (40%) and funds managed by Blackstone Infrastructure (40%)
Purchase Price	• $1.5 billion enterprise value / $1.3 billion equity value
Financial Impact	• AEP expects the sale to result in an after-tax GAAP loss ranging from $100-$150 million in Q1 2023 • Reaffirm 2023 operating earnings guidance range of $5.19-$5.39 and 6%-7% long-term growth rate
Use of Proceeds	• $1.2 billion cash proceeds after tax and transaction costs • Proceeds will be directed to support regulated businesses
Timing	• Expect to close in Q2 2023 after regulatory approval by FERC, clearance from the Committee on Foreign Investment in the United States and approval under applicable competition laws

De-risking AEP and Prioritizing Investments

Competitive Business Platform

CUSTOMER CLASSES

- Residential
- Commercial
- Industrial
- Municipals
- Cooperatives

DISTRIBUTED RESOURCES

AEP ONSITE PARTNERS

- Solar
- Energy Storage
- Reciprocating Engines
- Fuel Cells
- Substations

RETAIL SERVICES

AEP ENERGY

- Electric Sales
- Natural Gas Sales
- Demand Response Sales
- Sustainability Services

WHOLESALE SERVICES

AEP ENERGY PARTNERS

- Electric Sales
- Renewable PPA Sourcing
- Congestion Management
- RTO Services
- Portfolio Optimization

Customer Centric, Commercial Mindset

Environmental, Social and Governance (ESG)

Commitment to ESG

Proven Track Record of Reducing Fleet Emissions

Coal Fleet Transition

Transforming Our Generation Fleet

Committed to Being a Top ESG Employer

Commitment to ESG

ENVIRONMENTAL

- Accelerated CO_2 emission goals: 80% reduction by 2030 off a new 2005 baseline and accelerated net-zero goal by 2045
- 47% reduction in coal capacity as a percent of total capacity by 2032
- 2021 coal capacity = 13.1% of rate base; 2021 coal revenue = 13.6% of total revenue
- Clean energy transition tied to long-term incentive compensation

SOCIAL

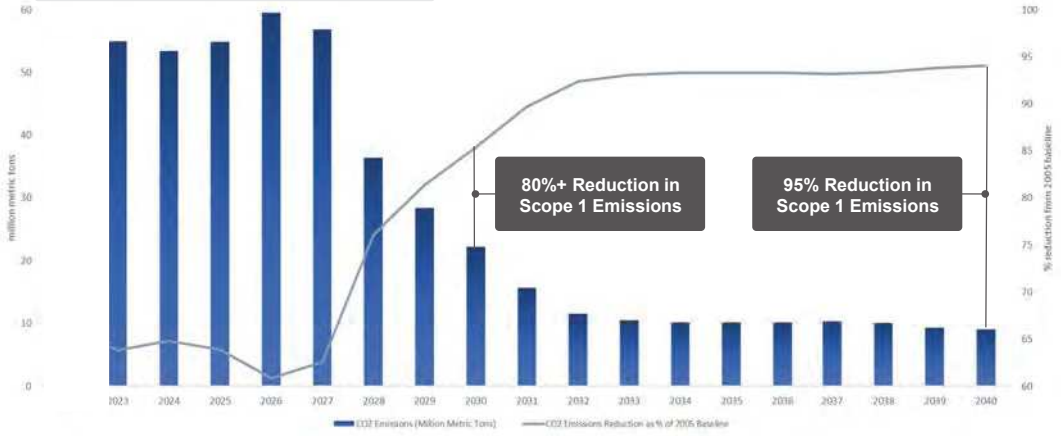
- Promote diversity, equity and inclusion
- Service territory economic and business development
- Just Transition strategy
- Environmental and Social Justice Policy
- AEP Foundation Launched Delivering on the Dream: Social and Racial Justice grant program in 2021
- Zero Harm Safety Culture
- Human Rights Policy

GOVERNANCE

- 13 Board of Directors, 11 independent directors
- 62% Board diversity
- Average Board tenure of 6.5 years
- Annual shareholder engagement on strategy and ESG matters with lead independent director participation
- Environmental reports provided at every Board meeting

Proven Track Record of Reducing Fleet Emissions

Forecasted CO_2 Emissions (Scope 1)



Projections based upon filed Integrated Resource Plans current as of 12/31/2022 for regulated companies and also assumes an extension of the Cook nuclear power plant through the forecast period. Ability to meet the transition timeline is dependent upon market availability of resources, regulatory approvals, transmission system availability, etc.

66%
Reduction in CO_2 emissions from 152M metric tons in 2005 to 51M metric tons in 2022

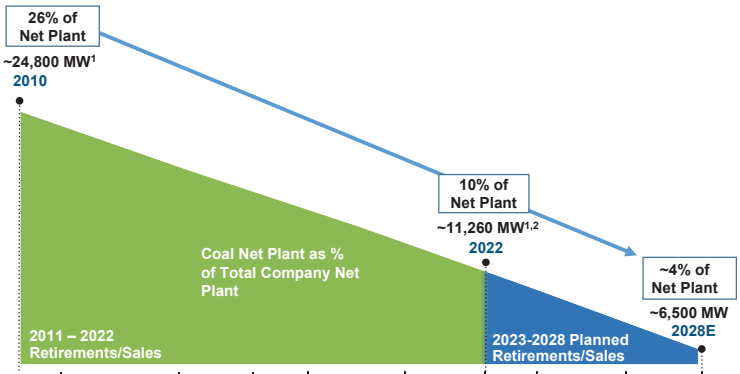
98%
Reduction in SO_2 emissions between 1990-2022

95%
Reduction in NO_X emissions between 1990-2022

98%
Reduction in mercury air emissions from 2001-2022

Continuing to Advance Our Coal Fleet Transition

Coal-fired generation retirements pave the way for ~17 GW of new generation opportunities over the next ten years



Year	Plant	Capacity	Year	Plant	Capacity	Year	Plant	Capacity
2011	Sporn 5	450 MW	2016	Big Sandy 1	278 MW	2023	Pirkey	580 MW
2012	Conesville 3	165 MW	2016	Clinch River 1-2	470 MW	2026	Northeastern 3	465 MW
2014	Beckjord	53 MW	2016	Northeastern 4	470 MW	2028	Rockport 1	1,310 MW
2015	Big Sandy 2	800 MW	2016	Welsh 2	528 MW	2028	Rockport 2	1,310 MW
2015	Clinch River 3	235 MW	2017	Gavin 1-2	2,640 MW	2028	Welsh	1,053 MW
2015	Glen Lyn 5-6	335 MW	2017	Zimmer	330 MW			
2015	Kammer 1-3	630 MW	2018	Stuart 1-4	600 MW			
2015	Kanawha River 1-2	400 MW	2019	Conesville 5-6	820 MW			
2015	Muskingum River 1-5	1,440 MW	2020	Conesville 4	651 MW			
2015	Picway 5	100 MW	2020	Oklaunion	460 MW			
2015	Sporn 1-4	600 MW	2021	Dolet Hills	257 MW			
2015	Tanners Creek 1-4	995 MW	2022[3]	Cardinal 1	595 MW			

[1] Total includes owned coal units and Rockport 2; excludes AEP's investment in OVEC.

[2] Includes 2012 Turk Plant addition.

[3] In April 2022, AEP executed simultaneous agreements with Buckeye Power to sell Cardinal 1 and purchase 100% of the output through 2028 via a PPA. The sale was completed in August 2022.

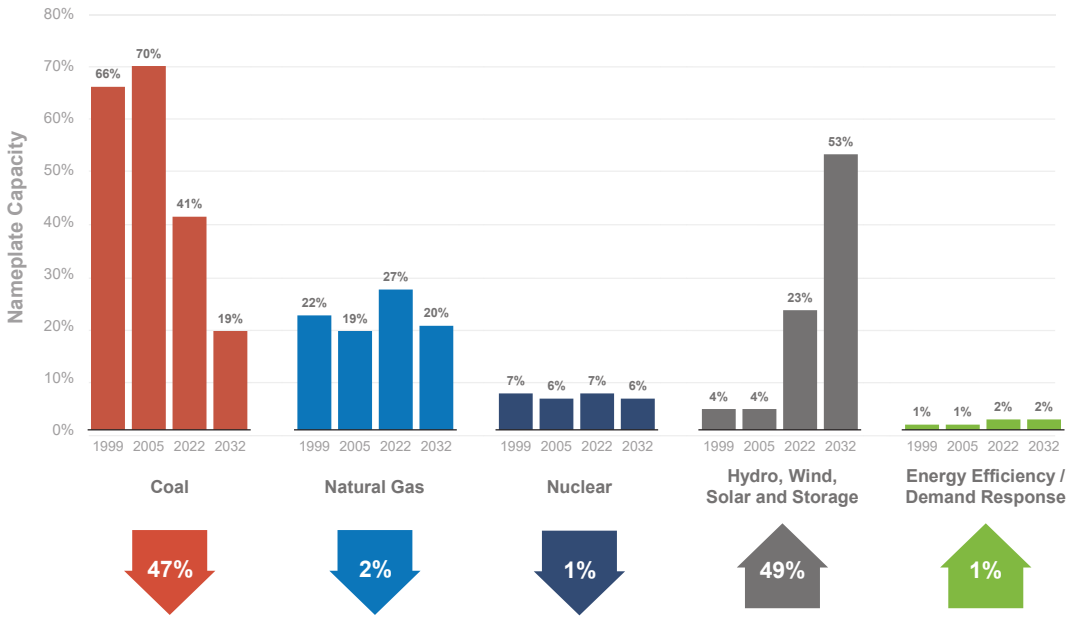
Transforming Our Generation Fleet

Capacity includes both owned and PPA generation. Energy Efficiency / Demand Response represents avoided capacity rather than physical assets.

2022 data as of 12/31/2022 and includes current capacity of KPCo. In October 2021, AEP entered into an agreement to sell its Kentucky operations to Algonquin Power & Utilities, and parties reached an amended agreement in September 2022. The sale is expected to close following FERC approval. 2032 includes forecasted additions and retirements and excludes previously identified projected resource additions for KPCo.

2032 coal capacity includes Amos, Mountaineer and Mitchell plants as both VA and WV approved ELG investment to keep optionality for these plants to operate post-2028. 2032 coal capacity also includes SWEPCO's Turk and Flint Creek plants.

2032 Hydro, Wind, Solar and Storage capacity includes unregulated contracted renewable assets business. In February 2023, AEP signed an agreement to sell the unregulated contracted renewable assets to IRG Acquisition Holdings. The sale is expected to close in Q2 2023. Excluding this capacity would not materially change 2032 projected capacity mix.



Committed to Being a Top ESG Employer

Building an inclusive and high performing culture

Recognizes companies that set the standard in commitment to their stakeholders

Recognizes organizations with engaged workplace cultures

Recognizes companies that are trailblazers in their commitment to gender reporting and advancing women's equality

Other Awards / Recognitions

- Newsweek's Most Responsible Companies
- Fortune's World's Most Admired Companies
- JUST Capital's Top 100 U.S. Companies Supporting Healthy Communities and Families
- JUST Capital's Top 100 U.S. Companies for Workforce Equity and Mobility
- Forbes America's Best Employers
- Forbes America's Best Employers for Women
- Forbes America's Best Employers for New Grads
- Site Selection Magazine's Top Utilities for Economic Development
- Investor Business Daily's Best ESG Companies
- American Opportunity Index

Regulated Investments

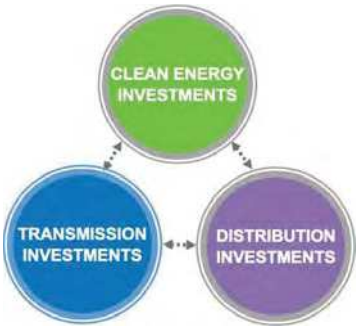
Regulated Capital Investment Strategy

Transmission

Distribution

Regulated New Generation

Linking Investments to Outcomes: Regulated Capital Investment Strategy



KEY INVESTMENT STRATEGIES

- **Transform our electric generation fleet** to drive down costs to customers and achieve our climate goals
- **Develop a modern and secure electric transmission grid** to bolster system reliability, enhance market efficiency and integrate new generation resources
- **Modernize the electric distribution system** to enhance reliability, accommodate changing resources, loads, advanced technologies and increase customer satisfaction
- Work with regulators, policymakers, and key stakeholders to **ensure a durable and sustainable transition to a clean energy economy** by balancing decarbonization goals and timelines with system reliability, resiliency, security and affordability

Our flexible and robust capital plan is designed to meet our customer needs and provide the ability to strategically shift capital to deliver on our 6-7% EPS growth commitment

2023-2027 CAPITAL INVESTMENT

$15.0B
TRANSMISSION
Transmission Investment in Current 5-year Capital Plan

$10.8B
DISTRIBUTION
Distribution Investment in Current 5-year Capital Plan

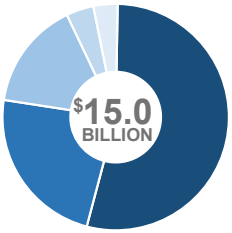
$8.6B
REGULATED RENEWABLES
Regulated Renewable Investment in Current 5-year Capital Plan

We have developed a significant pipeline of organic growth opportunities beyond the investments included in our 5-year capital plan

Transmission Organic Growth Opportunity

AEP has a long runway of organic transmission investment opportunities focused on improving system performance, increasing reliability and resiliency, and enhancing market efficiency

2023-2027 CAPEX



DRIVERS

ASSET REPLACEMENT	LOCAL RELIABILITY	RTO DRIVEN	TELECOM / TECHNOLOGY	CUSTOMER SERVICE
Asset renewal investments based on condition, performance and risk to reduce customer outages and interruption times	*Multi-driver projects on the local network addressing reliability and customer concerns*	*Upgrades needed to address RTO standards related to thermal voltage overloads and contingency conditions; opportunities driven by enabling access to renewable generation*	*Asset health monitoring, cyber-security requirements and enhanced situational awareness for grid operations*	*Upgrades to connect new customers and enhanced service requests; facilitates local economic development*

TRANSMISSION PIPELINE

Large-scale and Growing Pipeline

We have a **transmission investment pipeline of over $35B** in various phases of development over the next 10 years (inclusive of current 5-year capital plan)

Capital Flexibility

Additional investments in the pipeline are currently being planned to ensure long-term capital investment flexibility

Future Growth Drivers

Integration of renewable resources, fossil-fuel generation retirements, regional reliability, inter-regional projects, customer interconnections, positive policy changes that influence inter-regional expansion and cost allocation

Investments in Asset Renewal Strengthen and Enable the Grid of the Future

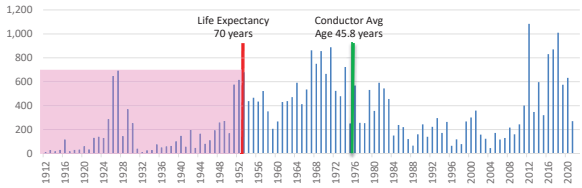
Asset renewal projects are prioritized based on performance, condition and risk

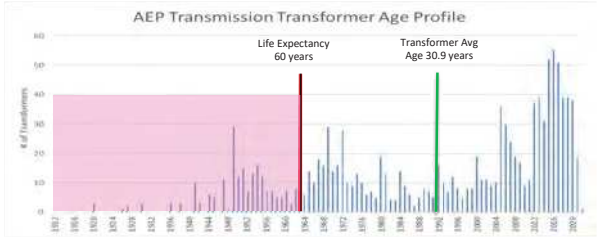
AEP Transmission Assets	Line Miles	Transformers	Circuit Breakers
Life Expectancy (Years)	70	60	50
Current Quantity Over Life Expectancy	6,263	191	726
Quantity That Will Exceed Life Expectancy in Next 10 Years	4,154	151	281
Total Replacement Need Over Next 10 Years	10,417	342	1,007
% of AEP System	31%	29%	11%

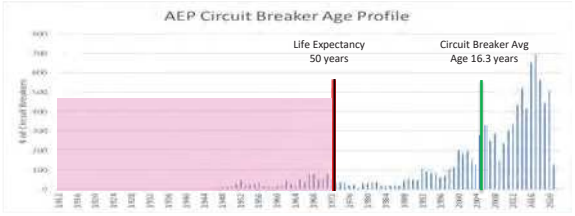
Average Age (years)	Line Miles	Transformers	Circuit Breakers
2016 Year-End	52.5	36.1	22.9
End 2022 2nd Quarter	45.8	30.9	16.3

$3B of annual on-system capital investment is required to replace and enhance all asset beyond life expectancy over the next 10 years

AEP T-Line Age Profile - (Line Mile Age based on oldest conductor age)



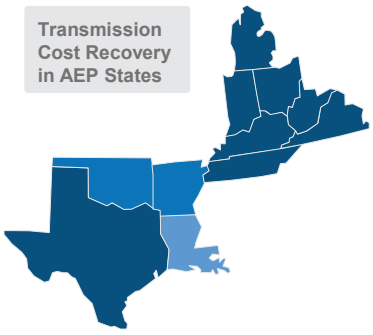




Beyond Life Expectancy Range

Stable and Efficient Transmission Investment Recovery

Transmission Cost Recovery in AEP States



- Full tracker or rider recovery
- Partial tracker or rider recovery
- Pending formula or base case recovery

	pjm	SPP Southwest Power Pool	ercot[2]
ROE	9.85% Base[1] + 0.50% RTO adder	10.0% Base + 0.50% RTO adder	9.4%
Forward Looking Rates	Yes	Yes	Capital updates allowed 2x per year (not forward looking)
Equity Layer	Capped at 55%	No Cap	Capped at 42.5%
Rate Approval Date	May 2019	June 2019	April 2020

[1] AEP Ohio Transmission, represents base ROE only.

[2] Table data for ERCOT reflects AEP Texas subsidiary; AEP's ETT joint venture in ERCOT has 9.6% ROE, 40% equity layer with rate approved in January 2021.

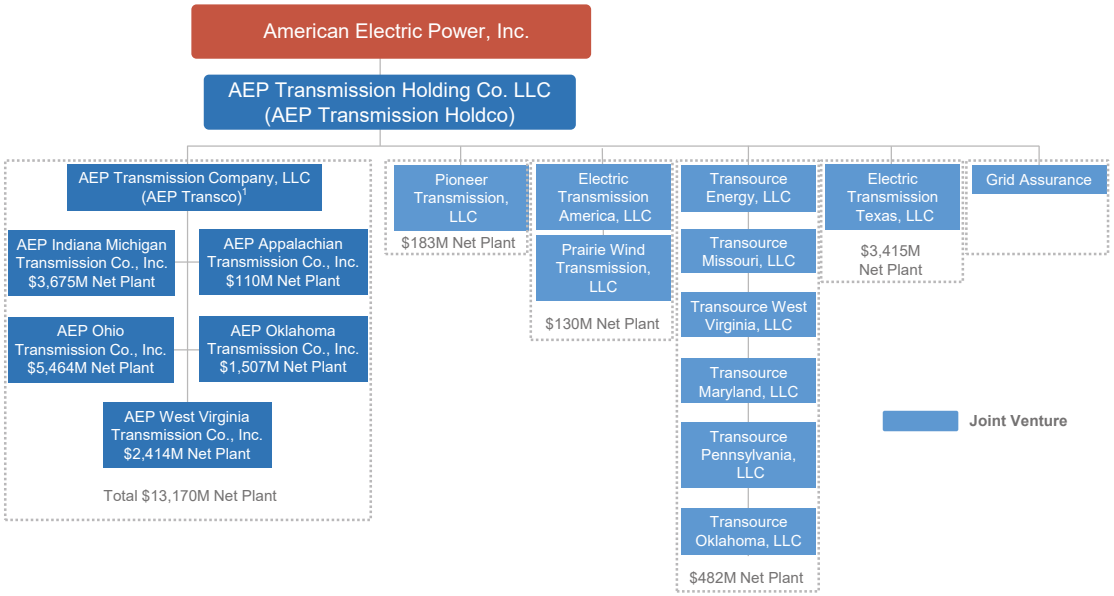
~92% of transmission capital investment is recovered through state tracker/rider mechanisms

TRANSMISSION | DISTRIBUTION | REGULATED NEW GENERATION

AEP Transmission Holdco Legal Entity Structure

AEP Transmission Company, LLC (AEP Transco) is wholly-owned by AEP Transmission Holding Company, LLC (AEP Transmission Holdco)

AEP Transmission Holdco is a wholly-owned subsidiary of American Electric Power Company, Inc. (AEP), one of the largest utility holding companies in the U.S.



Joint Venture net plant balances are inclusive of non-affiliate share.

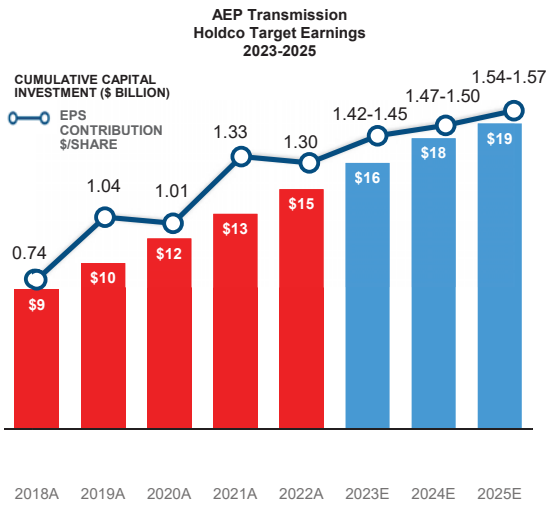
Net plant totals as of 12/31/2022.

[1] Debt issued at AEP Transco level for transmission companies.

TRANSMISSION | DISTRIBUTION | REGULATED NEW GENERATION

AEP Transmission Holdco Delivering Significant Customer and Shareholder Value

Shareholder Benefits



For comparative purposes, data excludes Kentucky-related earnings.

Customer Benefits

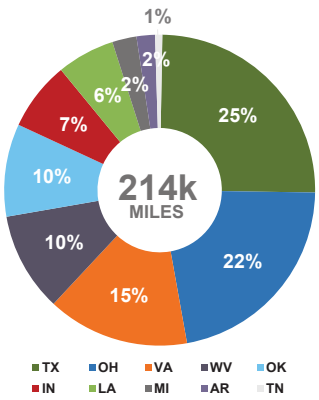
Reducing customer costs — Enabling efficient economic dispatch of generation in each of our regions

Driving down emissions — Facilitating the fast and reliable interconnection of renewables to the grid to meet customer demand and public policy goals for clean energy

Improving reliability and security — Keeping the economy productive and connected by powering communication networks and electronics with reduced outages and a storm-hardened system

Creating economic benefits — Supporting economic development through construction projects that deliver community benefits including jobs, state and local taxes and economic stimulus

Transforming the Distribution Grid



INVESTING IN THE DISTRIBUTION GRID OF THE FUTURE

Improve Reliability and Resiliency through Broad Asset Renewal and Reliability Investments	**Significantly Enhance Reliability Performance Across All Operating Companies**
Accelerate Service Delivery to All Customers through Enhanced Capacity Investments	**Enable Economic Development, Electrification and Decarbonization Across Our Customer Base**
Expand Operational Flexibility and Visibility through Targeted Telecommunications, Monitoring and Automation Investments	**Enable a Seamless 2-way Exchange of Information and Energy and Optimize Operations for All Customers**

AEP's distribution system is among the largest distribution systems in the U.S.

AEP DISTRIBUTION SYSTEM AT A GLANCE:

~214k
CIRCUIT MILES[1,2]

2,300+
DISTRIBUTION SUBSTATIONS[2]

$10.8B
5-YEAR CAPEX (2023-2027)

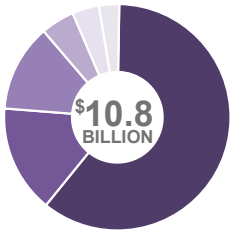
[1] Includes approximately 36,400 miles of underground circuits.

[2] As of year-end 2021.

Distribution Organic Growth Opportunity

AEP's expansive, aged distribution system provides significant opportunity for investment and we are developing a portfolio of projects to address system needs and ramping-up our capabilities to execute these projects

2023-2027 CAPEX



DRIVERS

CAPACITY EXPANSION, RELIABILITY AND MODERNIZATION	CUSTOMER REQUESTS	AUTOMATION AND TECHNOLOGY	RESTORATION AND SPARING	ADVANCED METERIING (AMI)	RURAL BROADBAND
Asset renewal and reliability investments including pole, conductor, cutout, station transformer and breaker replacements and capacity additions	*Investments for new service, upgrades, relocation*	*Implementation of automated technology including distribution supervisory control and data acquisition, smart switches and reclosers, volt-var optimization and sensors*	*Storm restoration and spare equipment*	*Advanced metering technology for the remaining AEP customers*	*Investment in fiber assets to provide middle mile broadband to rural communities and for company use*

DISTRIBUTION PIPELINE

Robust Pipeline Under Development

Significant capital investment opportunity over the next 10-years to renew the distribution system, improve reliability and resilience, and expand operational capabilities

Capital Flexibility

Additional investments in the pipeline are currently being planned to ensure long-term capital investment flexibility

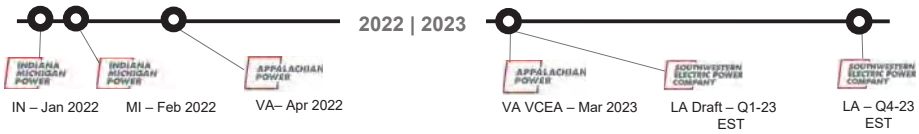
Future Growth Drivers

Electrification and higher penetration levels of distributed resources will drive additional distribution investment opportunities

Resource Plans Are Aligned with Climate Goals

Current IRPs identify a significant need for new clean energy resources over the next 10 years

IRP FILINGS



10-YEAR RESOURCE NEEDS

GENERATION ADDITIONS 2023-2032 (MW)[1,2]	SOLAR	WIND	STORAGE	NAT. GAS[3]	TOTAL
APCo	1,020	1,154	250	-	**2,424**
I&M	1,300	800	315	750	**3,165**
PSO	2,550	2,800	-	-	**5,350**
SWEPCO	3,300	2,450	-	528	**6,278**
TOTAL	**8,170**	**7,204**	**565**	**1,278**	**17,217**

1.5 GW
North Central Wind In-Service

~17 GW
2023-2032

~18.5 GW
New Generation Opportunity Over Next 10-years

[1] Resource additions are from most recent Integrated Resource Plans (IRP) filings. Kentucky is excluded from 2023 IRP filings due to expected close on sale in 2023

[2] Investments in renewables will be subject to market availability of viable projects and regulatory approvals.

[3] Natural gas additions are peaking units and fuel switching that are primarily selected for capacity (i.e., expected low capacity factors).

Regulated New Generation Regulatory Status

Total Investment	Resource	Project	MWs	Projected In-Service Date	Jurisdictional Status
APPALACHIAN POWER					
209 MW / ~$500M	Solar	Amherst / Virginia	5	Q2-23	Projects Approved July 2022[1]
	Wind	Top Hat / Illinois	204	Q3-25	
151 MW / ~$466M	Wind	Grover Hill / Ohio	143	Q3-25	Virginia Order Expected Q3 2023[2] Docket # PUR-2023-00001
	Storage	Glade-White Top / Virginia	8	2025	
INDIANA MICHIGAN POWER					
469 MW / ~$1.0B	Solar	Lake Trout / Indiana	245	Q2-26	Indiana Order Expected[3] Q3 2023 Docket # 45868
	Solar	Mayapple / Indiana	224	Q2-26	Michigan Order Expected[3] Q3 2023-Q1 2024 Docket # U-21377, U-21189
SOUTHWESTERN ELECTRIC POWER COMPANY					
999 MW / ~$2.2B	Solar	Mooringsport / Louisiana	200	Q4-25	Louisiana Settlement Filed March 2023 and Order Expected Q2 2023 Docket # U-36385
	Wind	Diversion / Texas	201	Q4-24	Arkansas Settlement Filed January 2023 and Order Expected Q2 2023 Docket # 22-019-U
	Wind	Wagon Wheel / Oklahoma	598	Q4-25	Texas Order Expected: Q3 2023 Docket # 53625
PUBLIC SERVICE COMPANY OF OKLAHOMA					
995.5 MW / ~$2.5B[4]	Solar	Algodon / Texas	150	Q4-25	Oklahoma Settlement Filed April 2023 and Order Expected Q3 2023 Docket # 2022-000121
	Solar	Chisholm Trail / Kansas	103.5	Q4-25	
	Solar	Pixley / Kansas	189	Q2-25	
	Wind	Flat Ridge IV / Kansas	135	Q4-25	
	Wind	Flat Ridge V / Kansas	153	Q4-25	
	Wind	Lazbuddie / Texas	265	Q2-25	

[1] Approved projects may be impacted by market conditions during development.

[2] APCo also seeks regulatory approval of PPAs for seven solar facilities for a total of 204 MW.

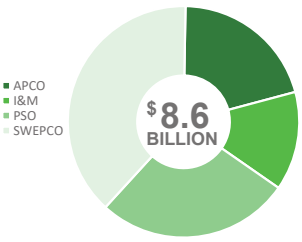
[3] I&M also seeks regulatory approval of PPAs for two solar facilities for a total of 280 MW.

[4] Additional RFP issuance expected in the near term consistent with the IRPs for energy and capacity needs.

Regulated New Generation Investment Growth

Continuing execution on the $8.6B regulated renewables investment over the next five years

2023-2027 CAPEX



RFPs IN PROGRESS[1]	APPALACHIAN POWER	INDIANA MICHIGAN POWER	SOUTHWESTERN ELECTRIC POWER COMPANY
RFP Issued	April 2023	March 2023[2]	September 2022
Wind	600 MW	800 MW	1,900 MW
Solar		850 MW	500 MW
Storage	-	315 MW	-
Natural Gas	-	540 MW	-
Reg. Filings and Approvals	Q2-24 – Q4-24	Q1-24 – Q2-25	Q4-23 – Q4-24
Projected In-service Dates	YE26	YE27	YE25 – YE26

REGULATED GENERATION PIPELINE

~17 GW Pipeline
Long-term investment potential beyond current 5-year plan

Capital Flexibility
Investments contingent upon markets and regulatory approvals and are backed-up by a flexible pipeline of T&D investments

Growth Drivers
Generation needs coupled with new federal legislation support our clean energy goals and extend our investment runway

[1] RFPs represent up-to MW capacity values.

[2] RFP is an all-source solicitation seeking proposals for both owned and PPAs from various types of generation.

Regulatory Initiatives

- Regulatory Timeline of Kentucky Sale
- Current Rate Case Activity
- Actively Managing Fuel Cost Impacts
- Actions to Close the ROE Gap
- Review of Multi-jurisdictional Regulatory Constructs
- Economic Development Project Highlights
- Recent AEP Reshoring Successes

Regulatory Timeline of Kentucky Sale

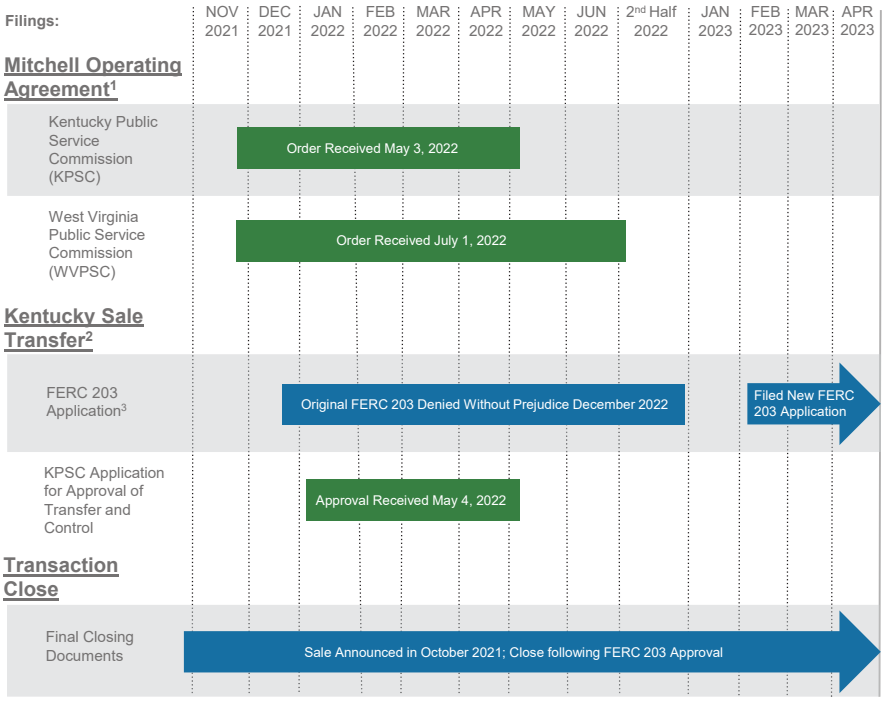
In October 2021, AEP entered into an agreement to sell its Kentucky operations to Liberty (Algonquin Power & Utilities), and parties reached an amended agreement in September 2022

Parties filed a new FERC 203 application in February 2023 requesting expedited approval; the sale is expected to close following FERC approval

[1] On 7/11/2022, AEP made a compliance filing as required by the WVPSC stating its plan to move forward under the existing Mitchell Operating Agreement to implement the near-term operational changes directed by WVPSC and KPSC. AEP also filed an update with KPSC sharing the same information. On 9/1/2022, AEP filed updates with the commissions providing resolutions adopted by the Mitchell Operating Committee consistent with the 7/11/2022 compliance filing.

[2] Clearance from both Committee on Foreign Investment in the United States and Hart-Scott-Rodino (HSR) review was obtained in January 2022. HSR expired after one year; refiled in February 2023 and received clearance in March 2023.

[3] On 12/15/2022, FERC denied the 203 application without prejudice, stating the applicants failed to submit evidence that the transaction would not adversely affect rates. Parties filed a new FERC 203 application on 2/14/2023 requesting expedited approval to close the transaction.



Mitchell Operating Agreement Update:

- Filings made 7/11/2022 with Commissions
- Move forward under existing Mitchell Operating Agreement

Kentucky Sale Transfer Update:

- Original FERC 203 denied without prejudice on 12/15/2022
- Filed a new FERC 203 application on 2/14/2023 requesting expedited approval

Transaction Close Update:

- Expect close following FERC approval under the new FERC 203 application

Current Rate Case Activity

APCo – Virginia

Docket #	PUR-2023-00002
Filing Date	3/31/2023
Requested Rate Base	$2.9B
Requested ROE	10.6%
Cap Structure	51.7%D / 48.3%E
Gross Revenue Increase	$213M (Less $53M D&A)
Net Revenue Increase	$160M
Test Year	12/31/2022

PSO – Oklahoma

Docket #	PUD 2022-000093
Filing Date	11/22/2022
Requested Rate Base	$4.4B
Requested ROE	10.4%
Cap Structure	45.4%D / 54.6%E
Gross Revenue Increase	$173M[1] (Less $70M D&A)
Net Revenue Increase	$103M
Test Year	6/30/2022
Procedural Schedule	
Rebuttal Testimony	4/4/2023
Hearing	5/9/2023
Expected Commission Order	Q2-2023

SWEPCO – Louisiana

Docket #	U-35441
Filing Date	12/18/2020
Requested Rate Base	$2.1B
Requested ROE	10.35%
Cap Structure	49%D / 51%E
Gross Revenue Increase	$114M (Less $41M D&A)
Net Revenue Increase	$73M
Test Year	12/31/2019[2]
Settlement Summary[3]	
Settlement Filed	1/13/2023
Commission Order	1/18/2023
Effective Date	1/31/2023
ROE	9.5%
Cap Structure	49%D / 51%E
Net Revenue Increase	$27M

[1] Does not include $75M of current riders moving to base rates.

[2] Includes proposed pro-forma adjustment to plant-in-service through 12/31/2020.

[3] The settlement reestablished the Formula Rate Plan for an initial three-year term starting with 2022 test year, to be filed in April each year with an effective date in August.

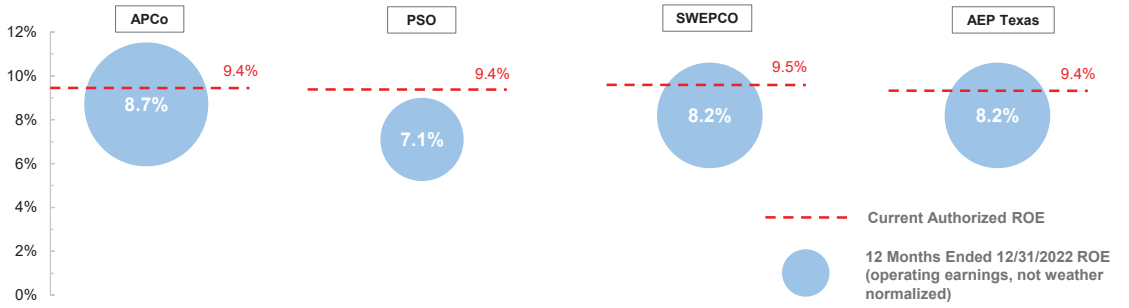
Actively Managing Current Fuel Cost Impacts

Adapting fuel clause recovery with a focus on customer impacts

APCo VA	• Current Mechanism: 12-month fuel clause to reset and account for prior year • Adjustment: Reset base of fuel level and seek a 24-month recovery with carrying charge on under-recovered balance (September 2022)
APCo/WPCo WV	• Current Mechanism: 12-month fuel clause to reset and account for prior year, case currently open • Adjustment: Securitization legislation effective March 2023; current fuel case pending staff prudence review
PSO OK	• Current Mechanism: 12-month fuel clause to reset and account for prior year • Adjustment: Reset base of fuel level for 15-month period of October 2022-December 2023 which includes 27 months to recover under recovered balance
SWEPCO AR	• Current Mechanism: 12-month fuel clause to reset and account for prior year filed annually in March, effective for April bills • Adjustment: Filed an interim factor effective October 2022 to recover the under recovery in a 6-month surcharge; this makes the increase effective during the lower winter seasonal rate
SWEPCO TX	• Current Mechanism: SWEPCO may update its factor up to three times per year in a process resetting fuel (filed only in January, May, and/or September); this is not done every year • Adjustment: A utility can file for temporary relief of costs without updating the fuel factor; SWEPCO entered a settlement agreement in March 2023 to update its fuel surcharge to collect the under recovered balance over a 16-month period starting in February 2023 (subject to refund); this settlement is subject to commission approval

Actions to Close the ROE Gap

Focus on achieving authorized ROEs in all operating companies



ACTION PLANS TO CLOSE GAP

APCo	PSO	SWEPCO	AEP Texas
✓ Securitization legislation passed in WV	✓ Securitization of Winter Storm Uri costs and North Central rates put in place in 2022	✓ Finalized LA rate case in January 2023 and implemented formula rate going forward	✓ Bi-annual TCOS filings recover significant capital investment
✓ Implemented VA triennial rate adjustment pursuant to VA Supreme Court ruling in APCo's favor in 2022	✓ Base case filed November 2022; pursuing approval of more efficient cost recovery mechanisms and continuation or expansion of T&D trackers	✓ Legislation modified to allow AR base case filing flexibility	✓ Annual DCRF filings recover D-related capital
✓ Filed new VA triennial in 2023		✓ Filed Turk CCN and rider request in AR with hearing date in July 2023	• Pursuing regulatory and legislative options to further close gap
✓ G, T, broadband, EE, RPS and DR trackers recover most incremental investment; triennial process for balance of recovery in VA		✓ Filed LA formula rate update in April 2023	• Reviewing rate structures for 2024 rate case filing
• New VA biennial rate case legislation		• Filing AR formula rate update in April 2023	
• Rate base and renewables capital trackers in place for WV		• G, T and D trackers in place in TX	
		• Timing of formula rate updates and new generation in-service dates to minimize lag	

✓ Complete

Other ROEs – 12 Months Ended 12/31/2022:

- AEP Ohio – authorized 9.7% vs earned 9.7%.
- I&M – authorized 9.7% vs. earned 10.9%.
- AEP Transmission Holdco – authorized 10.4% vs. earned 10.6%.

Authorized ROE in multijurisdictional companies is estimated by weighting various jurisdictional factors.

Review of Multi-jurisdictional Regulatory Constructs

Allows customers and states greater flexibility in generation transformation

APCo

Owned Generating Capacity	7,461 MW
PPA Capacity	968 MW
Generating & PPA Capacity by Fuel Mix	
Coal	63.7%
Natural Gas	19.5%
Hydro, Wind & Solar	16.8%

Recent State-level Divergence and Need:

- ELG investments for existing coal assets now approved in both Virginia and West Virginia
- Virginia Clean Energy Act (VCEA) mandated renewables now being planned and built to serve Virginia-jurisdictional customers
- Customer Focus – Develop renewables tariff and contract offerings to meet customer needs and support economic development
- Studying the Future – Reviewing IRA options and infrastructure support for new potential options in Appalachia

SWEPCO

Owned Generating Capacity	5,585 MW
PPA Capacity	469 MW
Generating & PPA Capacity by Fuel Mix	
Coal	39.1%
Natural Gas	39.8%
Wind	21.1%

Recent State-level Divergence and Need:

- Arkansas portion of Turk was never included in rates due to Arkansas Supreme Court ruling; presenting the commission an option to allow customers to benefit from physical hedge provided by Turk
- North Central Wind declined in Texas and flexed up in Louisiana and Arkansas; costs/benefits of resource being direct assigned by states
- SPP raised reserve margin from 12% to 15%, driving further need for new supply for SWEPCO

Reviewing current construct to ensure individual states and AEP alignment on generation supply

- Reviewing path to dedicated state-by-state resources
- Determining process to organize resource mix based on state policy
- Applying lessons learned in past execution to manage the generation fleet

Economic Development Project Announcements: 2021-2022

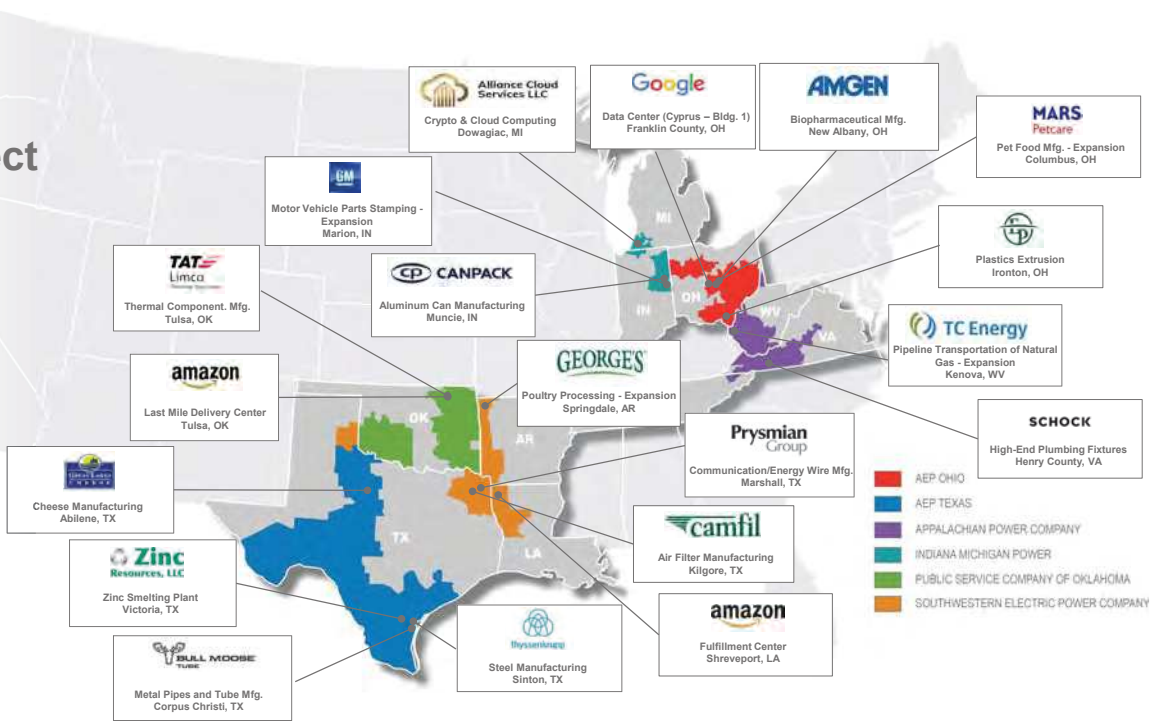
AEP has an attractive service territory for economic development

Summary of future impacts

24,200 direct jobs

69,900 total jobs

1,969 MW from 2021-2022 announced projects



Recent AEP Reshoring Successes

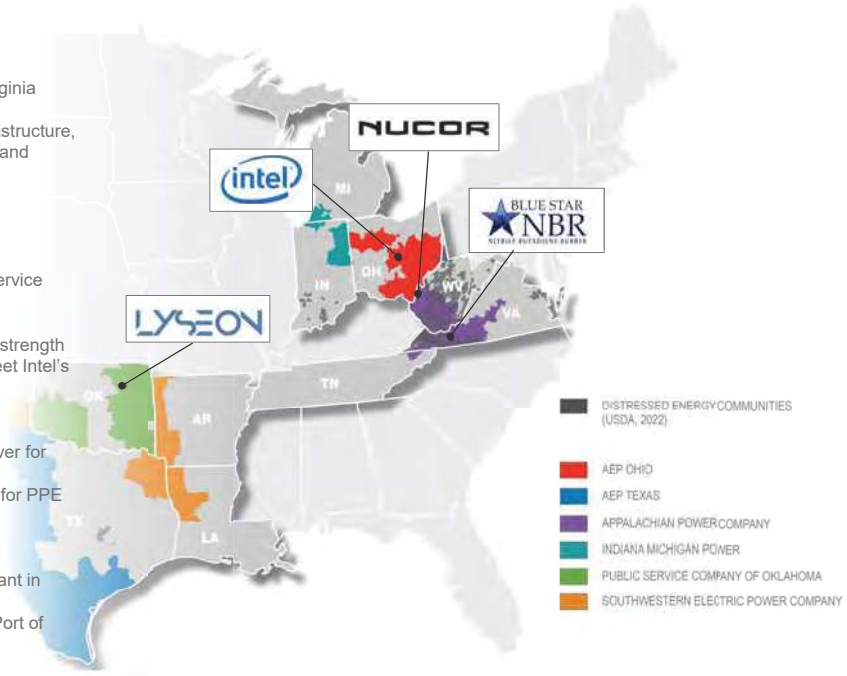
Parts of AEP service territory in OH, VA and WV may be eligible for announced federal tax credits from the IRA

Nucor (APCo)
- The largest single investment in West Virginia history.
- Site chosen because of high voltage infrastructure, AEP's proven ability to serve large loads and AEP's excellent customer service.

Intel (AEP Ohio)
- $20B investment at the first Midwest chip production plant.
- Property being annexed into AEP Ohio service territory.
- The site was selected because of AEP's competence in serving large loads, team strength and depth and demonstrated ability to meet Intel's unique needs.

Blue Star NBR (APCo)
- Largest economic development project ever for Southwest Virginia.
- Supported by Federal dollars designated for PPE production.

Lyseon North America (PSO)
- Automotive supplier to Navistar/IC bus plant in Tulsa, Oklahoma, for electric buses.
- Locating in large vacant facility at Tulsa Port of Catoosa.



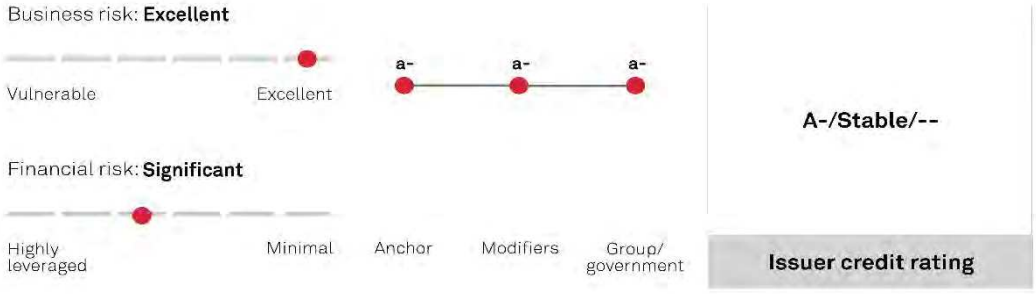
S&P Global Ratings

RatingsDirect®

Ohio Power Co.

December 14, 2022

Ratings Score Snapshot



PRIMARY CONTACT

Daria Babitsch
New York
917-574-4573
daria.babitsch1
@spglobal.com

SECONDARY CONTACTS

Gabe Grosberg
New York
1-212-438-6043
gabe.grosberg
@spglobal.com

Daniela Fame
New York
1-2124380869
daniela.fame
@spglobal.com

Credit Highlights

Overview

Key strengths	Key risks
Fully regulated, lower-risk electricity transmission and distribution (T&D) operations.	Limited geographic and regulatory diversity.
Generally stable regulatory framework for its distribution operations in Ohio.	Elevated capital spending that, combined with its dividend payments, will result in discretionary cash flow (DCF) deficits.
Electricity transmission operations receive steady cost recovery through the U.S. Federal Energy Regulatory Commission's (FERC) regulatory framework.	Ongoing financial obligations under a long-term power purchase agreement.
Large, mostly residential customer base of about 1.5 million, which provides stable cash flow.	

Ohio Power Co. (OPCo) is currently seeking storm-cost recovery. In June 2022, strong winds from multiple storms led to power outages and damage to the company's T&D infrastructure. As of Sept. 30, 2022, OPCo had incurred approximately $20 million in costs, which we expect it will seek to recover.

The company's leverage will remain elevated over the forecast period. We expect OPCo's debt to EBITDA will remain elevated in the 4.5x-5.0x range over the next few years as it takes on additional debt to fund its capital spending. The company's plans comprise about $4.7 billion of spending between 2023 and 2027, of which it will allocate about 85% to wires.

Outlook

The stable outlook on **OPCo** reflects our stable outlook on its parent, **American Electric Power Co. Inc. (AEP),** because we assess OPCo. as a core subsidiary of AEP. We expect OPCo' stand-alone funds from operations (FFO) to debt to be in the 14%-16% range over the next three years.

Downside scenario

We could lower our ratings on OPCo. over the next two years if we downgrade its parent AEP.

Upside scenario

While unlikely, we could upgrade OPCo. over the next two years if we upgrade its parent AEP.

Our Base-Case Scenario

Assumptions

- EBITDA expands by about 2% on average through 2024;
- Gross margin rises by about 1% through 2024;
- The effective management of its regulatory risk and continued cost recovery enable the utility to earn close to its allowed return on equity;
- Capital spending of about $790 million per year, on average, over the next few years for T&D infrastructure investments;
- Annual dividends remain flat over the next few years; and
- The company refinances all of its debt maturities.

Key metrics

Ohio Power Co.--Key Metrics*

	2021a	2022e	2023f	2024f
Debt to EBITDA (x)	4.7	4.5-5.0	4.5-5.0	4.5-5.0
FFO to debt (%)	17.9	16.5-17.5	16.5-17.5	16.5-17.5
FFO cash interest coverage (x)	5.6	5.5-6.0	5.5-6.0	5.5-6.0

*All figures adjusted by S&P Global Ratings. a--Actual. e--Estimate. f--Forecast. FFO--Funds from operations.

Company Description

OPCo is an electricity T&D utility in Ohio with about 1.5 million customers.

Peer Comparison

Ohio Power Co.--Peer Comparisons

	Ohio Power Co.	Ohio Edison Co.	PPL Electric Utilities Corp.	Ameren Illinois Co.
Foreign currency issuer credit rating	A-/Stable/--	BBB/Stable/A-2	A/Stable/A-1	BBB+/Stable/A-2
Local currency issuer credit rating	A-/Stable/--	BBB/Stable/A-2	A/Stable/A-1	BBB+/Stable/A-2
Period	Annual	Annual	Annual	Annual
Period ending	2021-12-31	2021-12-31	2021-12-31	2021-12-31
Mil.	$	$	$	$
Revenue	2,899	1,664	2,402	2,895
EBITDA	708	569	1,189	1,143
Funds from operations (FFO)	588	473	969	1,022
Interest	144	66	162	172
Cash interest paid	127	63	156	162
Operating cash flow (OCF)	587	533	969	648
Capital expenditure	728	272	904	1,425
Free operating cash flow (FOCF)	(141)	261	65	(777)
Discretionary cash flow (DCF)	(241)	(290)	(843)	(791)
Cash and short-term investments	3	75	21	0
Gross available cash	3	75	21	0
Debt	3,292	856	4,491	4,523
Equity	2,846	1,361	5,736	5,616
EBITDA margin (%)	24.4	34.2	49.5	39.5
Return on capital (%)	6.7	15.8	7.7	7.1
EBITDA interest coverage (x)	4.9	8.6	7.3	6.6
FFO cash interest coverage (x)	5.6	8.5	7.2	7.3
Debt/EBITDA (x)	4.7	1.5	3.8	4.0
FFO/debt (%)	17.9	55.3	21.6	22.6
OCF/debt (%)	17.8	62.3	21.6	14.3
FOCF/debt (%)	(4.3)	30.5	1.4	(17.2)
DCF/debt (%)	(7.3)	(33.9)	(18.8)	(17.5)

Business Risk

Our assessment of OPCo's business risk reflects its low-risk, rate-regulated T&D electric utility operations under mostly constructive regulatory frameworks. The regulatory frameworks in Ohio and under the FERC provide it with the timely recovery of approved capital spending and prudently incurred costs. The company has an approved rate plan, or electricity security plan, through May 2024. In addition, the utility benefits from the timely recovery of its infrastructure investments through a rate rider.

OPCo has a large customer base of about 1.5 million. However, its regulatory and geographic diversity are limited because it only operates in Ohio. The utility has negligible customer concentration given that most of its customer base is residential and commercial, which provides stability to its operating cash flow. OPCo and its service territory has been expanding modestly and includes a large state university and Columbus, the capital.

Financial Risk

Our assessment of OPCo's financial risk incorporates our base-case assumptions, which include S&P Global Ratings-adjusted FFO to debt in the 16.5%-17.5% range through 2024. This reflects the company's cost recovery through various recovery mechanisms--such as the infrastructure cost rider--and formulaic transmission rates through the FERC.

We also assume OPCo will partly fund its ongoing DCF deficits, due to its heightened capital expenditure and dividends, with debt. Our expectation for S&P Global Ratings-adjusted debt to EBITDA in the high 4.0x area further bolsters our assessment. We assume the utility's FFO cash interest coverage remains in the 5.5x-6.0x range in 2024.

We assess OPCo's financial risk profile using our medial volatility financial benchmarks, which reflect its lower-risk regulated utility operations and effective management of regulatory risk. These benchmarks are more relaxed than those we use for typical corporate issuers.

Ohio Power Co.--Financial Summary

Period ending	Dec-31-2016	Dec-31-2017	Dec-31-2018	Dec-31-2019	Dec-31-2020	Dec-31-2021
Reporting period	2016a	2017a	2018a	2019a	2020a	2021a
Display currency (mil.)	$	$	$	$	$	$
Revenues	2,906	2,836	3,015	2,798	2,749	2,899
EBITDA	700	750	645	660	700	708
Funds from operations (FFO)	366	596	487	542	605	588
Interest expense	116	107	126	133	141	144
Cash interest paid	113	105	106	111	121	127
Operating cash flow (OCF)	603	579	985	429	420	587
Capital expenditure	413	564	720	793	809	728
Free operating cash flow (FOCF)	191	15	265	(363)	(388)	(141)
Discretionary cash flow (DCF)	41	(115)	(73)	(448)	(476)	(241)
Cash and short-term investments	3	3	5	4	7	3
Gross available cash	3	3	5	4	7	3
Debt	1,672	1,771	2,135	2,587	3,069	3,292
Common equity	2,118	2,310	2,297	2,509	2,693	2,846
Adjusted ratios						
EBITDA margin (%)	24.1	26.4	21.4	23.6	25.5	24.4
Return on capital (%)	13.6	14.7	10.3	9.0	7.8	6.7
EBITDA interest coverage (x)	6.0	7.0	5.1	5.0	5.0	4.9
FFO cash interest coverage (x)	4.2	6.7	5.6	5.9	6.0	5.6
Debt/EBITDA (x)	2.4	2.4	3.3	3.9	4.4	4.7
FFO/debt (%)	21.9	33.7	22.8	21.0	19.7	17.9

Ohio Power Co.--Financial Summary

OCF/debt (%)	36.1	32.7	46.1	16.6	13.7	17.8
FOCF/debt (%)	11.4	0.9	12.4	(14.0)	(12.7)	(4.3)
DCF/debt (%)	2.4	(6.5)	(3.4)	(17.3)	(15.5)	(7.3)

Reconciliation Of Ohio Power Co. Reported Amounts With S&P Global Adjusted Amounts (Mil. $)

	Debt	Shareholder Equity	Revenue	EBITDA	Operating income	Interest expense	S&PGR adjusted EBITDA	Operating cash flow	Dividends	Capital expenditure
Financial year	Dec-31-2021									
Company reported amounts	2,969	2,846	2,899	689	385	124	708	576	100	733
Cash taxes paid	-	-	-	-	-	-	8	-	-	-
Cash interest paid	-	-	-	-	-	-	(120)	-	-	-
Lease liabilities	101	-	-	-	-	-	-	-	-	-
Operating leases	-	-	-	19	3	3	(3)	16	-	-
Accessible cash and liquid investments	(3)	-	-	-	-	-	-	-	-	-
Capitalized interest	-	-	-	-	-	5	(5)	(5)	-	(5)
Asset-retirement obligations	2	-	-	0	0	0	-	-	-	-
Nonoperating income (expense)	-	-	-	-	13	-	-	-	-	-
Debt: other	224	-	-	-	-	-	-	-	-	-
Interest expense: other	-	-	-	-	-	12	-	-	-	-
Total adjustments	323	-	-	19	16	20	(119)	11	-	(5)
S&P Global Ratings adjusted	**Debt**	**Equity**	**Revenue**	**EBITDA**	**EBIT**	**Interest expense**	**Funds from Operations**	**Operating cash flow**	**Dividends**	**Capital expenditure**
	3,292	2,846	2,899	708	401	144	588	587	100	728

Liquidity

We assess OPCo's stand-alone liquidity as adequate because we believe its sources of cash will likely be more than 1.1x its uses over the next 12 months and meet its cash outflows even if its EBITDA declines by 10%. We believe OPCo has sound banking relationships, the ability to absorb high-impact, low-probability events without refinancing, and a satisfactory standing in the credit markets.

Principal liquidity sources

- Estimated cash FFO of $620 million;
- Available borrowing capacity from the AEP money pool of $500 million; and
- Cash and liquid investments of about $7.5 million.

Principal liquidity uses

- Debt maturities of about $60 million;
- Capital spending of about $800 million; and
- Dividends of about $100 million.

Environmental, Social, And Governance

ESG Credit Indicators

E-1	**E-2**	E-3	E-4	E-5	S-1	**S-2**	S-3	S-4	S-5	G-1	**G-2**	G-3	G-4	G-5

ESG credit indicators provide additional disclosure and transparency at the entity level and reflect S&P Global Ratings' opinion of the influence that environmental, social, and governance factors have on our credit rating analysis. They are not a sustainability rating or an S&P Global Ratings ESG Evaluation. The extent of the influence of these factors is reflected on an alphanumerical 1-5 scale where 1 = positive, 2 = neutral, 3 = moderately negative, 4 = negative, and 5 = very negative. For more information, see our commentary "ESG Credit Indicator Definitions And Applications," published Oct. 13, 2021.

ESG factors have no material influence on our credit rating analysis of OPCo.

Group Influence

Under our group rating methodology, we consider OPCo to be a core subsidiary of its parent AEP, which reflects our view that OPCo is highly unlikely to be sold because it accounts for about 11% of AEP's consolidated revenue, is integral to the group's overall strategy of growing its regulated utility businesses, possesses a strong long-term commitment from senior management, and is closely linked to the parent's name and reputation. Therefore, our issuer credit rating on OPCo is in line with our 'a-' group credit profile for AEP.

Issue Ratings--Subordination Risk Analysis

Capital structure

OPCo's capital structure comprises about $3.6 billion of debt.

Analytical conclusions

We rate OPCo's senior unsecured debt the same as our issuer credit rating because it is the debt of a qualifying investment-grade utility.

Rating Component Scores

Foreign currency issuer credit rating	**A-/Stable/--**
Local currency issuer credit rating	**A-/Stable/--**
Business risk	**Excellent**
Country risk	Very Low
Industry risk	Very Low
Competitive position	Strong
Financial risk	**Significant**
Cash flow/leverage	Significant
Anchor	**a-**
Diversification/portfolio effect	Neutral (no impact)
Capital structure	Neutral (no impact)
Financial policy	Neutral (no impact)
Liquidity	Adequate (no impact)
Management and governance	Satisfactory (no impact)
Comparable rating analysis	Neutral (no impact)
Stand-alone credit profile	**a-**

Related Criteria

- General Criteria: Environmental, Social, And Governance Principles In Credit Ratings, Oct. 10, 2021
- General Criteria: Group Rating Methodology, July 1, 2019
- General Criteria: Hybrid Capital: Methodology And Assumptions, July 1, 2019
- Criteria | Corporates | General: Corporate Methodology: Ratios And Adjustments, April 1, 2019
- Criteria | Corporates | General: Reflecting Subordination Risk In Corporate Issue Ratings, March 28, 2018
- General Criteria: Methodology For Linking Long-Term And Short-Term Ratings, April 7, 2017
- Criteria | Corporates | General: Methodology And Assumptions: Liquidity Descriptors For Global Corporate Issuers, Dec. 16, 2014
- Criteria | Corporates | General: Corporate Methodology, Nov. 19, 2013
- General Criteria: Country Risk Assessment Methodology And Assumptions, Nov. 19, 2013
- General Criteria: Methodology: Industry Risk, Nov. 19, 2013
- Criteria | Corporates | Utilities: Key Credit Factors For The Regulated Utilities Industry, Nov. 19, 2013
- General Criteria: Methodology: Management And Governance Credit Factors For Corporate Entities, Nov. 13, 2012
- General Criteria: Principles Of Credit Ratings, Feb. 16, 2011

Ratings Detail (as of December 14, 2022)*

Ohio Power Co.

Issuer Credit Rating	A-/Stable/--
Senior Unsecured	A-

Ratings Detail (as of December 14, 2022)*

Issuer Credit Ratings History	
05-May-2022	A-/Stable/--
28-Apr-2021	A-/Negative/--
02-Feb-2017	A-/Stable/--
Related Entities	
AEP Generating Co.	
Issuer Credit Rating	A-/Stable/--
AEP Texas Inc.	
Issuer Credit Rating	A-/Stable/--
Senior Unsecured	A-
AEP Transmission Co. LLC	
Issuer Credit Rating	A-/Stable/--
Senior Unsecured	A-
American Electric Power Co. Inc.	
Issuer Credit Rating	A-/Stable/A-2
Commercial Paper	
Local Currency	A-2
Junior Subordinated	BBB
Junior Subordinated	BBB+
Senior Unsecured	BBB+
Appalachian Power Co.	
Issuer Credit Rating	A-/Stable/A-2
Senior Unsecured	A-
Indiana Michigan Power Co.	
Issuer Credit Rating	A-/Stable/A-2
Kentucky Power Co.	
Issuer Credit Rating	BBB+/Watch Neg/--
Senior Unsecured	BBB+/Watch Neg
Public Service Co. of Oklahoma	
Issuer Credit Rating	A-/Stable/--
Senior Unsecured	A-
RGS (AEGCO) Funding Corp.	
Issuer Credit Rating	A-/Stable/--
RGS (I&M) Funding Corp.	
Issuer Credit Rating	A-/Stable/--
Southwestern Electric Power Co.	
Issuer Credit Rating	A-/Stable/--
Senior Unsecured	A-

Ratings Detail (as of December 14, 2022)*

Wheeling Power Co.

Issuer Credit Rating	A-/Stable/--

*Unless otherwise noted, all ratings in this report are global scale ratings. S&P Global Ratings credit ratings on the global scale are comparable across countries. S&P Global Ratings credit ratings on a national scale are relative to obligors or obligations within that specific country. Issue and debt ratings could include debt guaranteed by another entity, and rated debt that an entity guarantees.

Table 1

Rate of Return Summary
The Ohio Power Company
Capital Structure as 2022 end of Fiscal Year

	Amount $	% of Total	% Cost	Weighted Cost %
Long Term Debt	$3,226,300	51.09%	4.010%	2.05%
Preferred Stock	$0	0.00%	0.00%	0.00%
Common Equity	$3,088,100	48.91%	9.51%	4.65%
Total Capital	$6,314,400	100.00%		6.70%

The Dayton Power and Light Company
Case No.: 20-1651-EL-AIR

Embedded Cost of Long-Term Debt
As of June 30, 2020

Data: Actual
Type of Filing: Original
Work Paper Reference No(s).: WPD-3.1, WPD-3.2, WPD-3.3

Schedule D-3
Page 1 of 1
Witness Responsible: Dustin J. Illyes

Line No.	Description	Date Issued (Mo/Day/Yr)	Maturity Date (Mo/Day/Yr)	Principal Amount	Face Amount Outstanding	Unamort (Discount) or Premium	Unamort Debt Expense	Unamort Gain or (Loss) On Reacquired Debt	Carrying Value	Annual Interest Cost[1]
(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J) = (F)+(G)-(H)+(I)	(K)
1	First Mortgage Bonds:									
2										
3										
4	Fixed Rate 3.20%	7/31/2020	7/31/2040	$ 140,000,000	$ 140,000,000		$ 400,000		$ 139,600,000	$ 4,500,000
5	Fixed Rate 3.95%	6/6/2019	6/15/2049	$ 425,000,000	$ 425,000,000	$ (2,642,260)	$ 5,408,076	$ (8,551,441)	$ 408,398,223	$ 19,852,855
6										
7	Subtotal			$ 565,000,000	$ 565,000,000	$ (2,642,260)	$ 5,808,076	$ (8,551,441)	$ 547,998,223	$ 24,352,855
8										
9	Other Long-Term Debt:									
10										
11	WPAFB Loan			$ 17,965,335	$ 17,436,623	$ -	$ -	$ -	$ 17,436,623	$ 732,338
12										
13	TOTALS				$ 582,436,623	$ (2,642,260)	$ 5,808,076	$ (8,551,441)	$ 565,434,846	$ 25,085,193
14										
15	EMBEDDED COST OF LONG-TERM DEBT									4.436%
16										
17	EMBEDDED COST OF LONG-TERM DEBT (excluding WPAFB Loan) [2]									4.444%

[1] Annualized interest expense plus (or minus) amortization of discount or premium plus amortization of issue costs minus (or plus) amortization of gain (or loss) on reacquired debt.

[2] Equals Line 7 Column K / Column J

Date	10 Year	30 Year
5/1/1993	6.16	6.98
6/1/1993	5.8	6.68
7/1/1993	5.83	6.57
8/1/1993	5.45	6.09
9/1/1993	5.4	6.04
10/1/1993	5.388	5.965
11/1/1993	5.795	6.286
12/1/1993	5.783	6.339
1/1/1994	5.638	6.224
2/1/1994	6.15	6.671
3/1/1994	6.774	7.125
4/1/1994	7.035	7.302
5/1/1994	7.152	7.435
6/1/1994	7.329	7.612
7/1/1994	7.095	7.379
8/1/1994	7.165	7.441
9/1/1994	7.599	7.819
10/1/1994	7.793	7.962
11/1/1994	7.888	7.977
12/1/1994	7.827	7.87
1/1/1995	7.593	7.69
2/1/1995	7.21	7.445
3/1/1995	7.189	7.43
4/1/1995	7.046	7.333
5/1/1995	6.286	6.644
6/1/1995	6.203	6.624
7/1/1995	6.429	6.855
8/1/1995	6.273	6.645
9/1/1995	6.157	6.482
10/1/1995	6.003	6.317
11/1/1995	5.745	6.132
12/1/1995	5.575	5.949
1/1/1996	5.581	6.023
2/1/1996	6.112	6.492
3/1/1996	6.334	6.679
4/1/1996	6.633	6.877
5/1/1996	6.844	6.991
6/1/1996	6.711	6.898
7/1/1996	6.79	6.966
8/1/1996	6.936	7.107
9/1/1996	6.699	6.923
10/1/1996	6.349	6.65
11/1/1996	6.04	6.352
12/1/1996	6.407	6.635
1/1/1997	6.503	6.797
2/1/1997	6.535	6.787
3/1/1997	6.907	7.101
4/1/1997	6.702	6.951
5/1/1997	6.663	6.913
6/1/1997	6.502	6.794
7/1/1997	6.004	6.294
8/1/1997	6.33	6.601
9/1/1997	6.107	6.407
10/1/1997	5.819	6.144
11/1/1997	5.851	6.036
12/1/1997	5.739	5.925

Date	10 Year	30 Year
1/1/1998	5.512	5.805
2/1/1998	5.616	5.918
3/1/1998	5.662	5.937
4/1/1998	5.667	5.946
5/1/1998	5.546	5.8
6/1/1998	5.434	5.618
7/1/1998	5.494	5.717
8/1/1998	5.032	5.291
9/1/1998	4.41	4.976
10/1/1998	4.603	5.143
11/1/1998	4.726	5.07
12/1/1998	4.638	5.084
1/1/1999	4.653	5.086
2/1/1999	5.272	5.553
3/1/1999	5.234	5.621
4/1/1999	5.35	5.673
5/1/1999	5.611	5.823
6/1/1999	5.81	5.988
7/1/1999	5.907	6.104
8/1/1999	5.979	6.066
9/1/1999	5.885	6.056
10/1/1999	6.003	6.149
11/1/1999	6.163	6.281
12/1/1999	6.435	6.477
1/1/2000	6.667	6.491
2/1/2000	6.409	6.133
3/1/2000	6.023	5.846
4/1/2000	6.214	5.962
5/1/2000	6.285	6.017
6/1/2000	6.018	5.881
7/1/2000	6.029	5.78
8/1/2000	5.729	5.674
9/1/2000	5.778	5.869
10/1/2000	5.757	5.784
11/1/2000	5.439	5.586
12/1/2000	5.11	5.459
1/1/2001	5.179	5.536
2/1/2001	4.908	5.337
3/1/2001	4.915	5.453
4/1/2001	5.338	5.772
5/1/2001	5.413	5.779
6/1/2001	5.39	5.736
7/1/2001	5.037	5.502
8/1/2001	4.816	5.368
9/1/2001	4.575	5.415
10/1/2001	4.263	4.873
11/1/2001	4.744	5.265
12/1/2001	5.032	5.478
1/1/2002	5.025	5.426
2/1/2002	4.859	5.409
3/1/2002	5.406	5.815
4/1/2002	5.091	5.594
5/1/2002	5.043	5.612
6/1/2002	4.824	5.517
7/1/2002	4.465	5.305
8/1/2002	4.137	4.937

Date	10 Year	30 Year
9/1/2002	3.607	4.662
10/1/2002	3.911	5.007
11/1/2002	4.213	5.048
12/1/2002	3.818	4.783
1/1/2003	3.975	4.847
2/1/2003	3.696	4.676
3/1/2003	3.823	4.837
4/1/2003	3.857	4.778
5/1/2003	3.35	4.362
6/1/2003	3.528	4.566
7/1/2003	4.474	5.41
8/1/2003	4.454	5.224
9/1/2003	3.937	4.884
10/1/2003	4.301	5.145
11/1/2003	4.32	5.126
12/1/2003	4.257	5.068
1/1/2004	4.138	4.965
2/1/2004	3.984	4.857
3/1/2004	3.837	4.777
4/1/2004	4.501	5.282
5/1/2004	4.655	5.348
6/1/2004	4.617	5.313
7/1/2004	4.475	5.205
8/1/2004	4.132	4.938
9/1/2004	4.119	4.891
10/1/2004	4.029	4.794
11/1/2004	4.358	5.012
12/1/2004	4.216	4.822
1/1/2005	4.133	4.59
2/1/2005	4.359	4.706
3/1/2005	4.496	4.766
4/1/2005	4.201	4.519
5/1/2005	4.006	4.347
6/1/2005	3.945	4.219
7/1/2005	4.286	4.474
8/1/2005	4.02	4.261
9/1/2005	4.328	4.568
10/1/2005	4.559	4.755
11/1/2005	4.5	4.703
12/1/2005	4.395	4.547
1/1/2006	4.527	4.685
2/1/2006	4.547	4.503
3/1/2006	4.853	4.893
4/1/2006	5.069	5.169
5/1/2006	5.113	5.207
6/1/2006	5.138	5.186
7/1/2006	4.988	5.07
8/1/2006	4.732	4.878
9/1/2006	4.633	4.767
10/1/2006	4.606	4.719
11/1/2006	4.458	4.561
12/1/2006	4.71	4.818
1/1/2007	4.826	4.926
2/1/2007	4.55	4.669

Date	10 Year	30 Year
3/1/2007	4.648	4.848
4/1/2007	4.63	4.817
5/1/2007	4.89	5.011
6/1/2007	5.033	5.126
7/1/2007	4.771	4.922
8/1/2007	4.537	4.831
9/1/2007	4.579	4.833
10/1/2007	4.475	4.751
11/1/2007	3.972	4.403
12/1/2007	4.035	4.459
1/1/2008	3.639	4.354
2/1/2008	3.534	4.421
3/1/2008	3.432	4.306
4/1/2008	3.759	4.497
5/1/2008	4.046	4.707
6/1/2008	3.979	4.531
7/1/2008	3.979	4.603
8/1/2008	3.813	4.412
9/1/2008	3.827	4.305
10/1/2008	3.97	4.369
11/1/2008	2.957	3.487
12/1/2008	2.244	2.691
1/1/2009	2.844	3.603
2/1/2009	3.041	3.722
3/1/2009	2.685	3.561
4/1/2009	3.124	4.044
5/1/2009	3.465	4.338
6/1/2009	3.523	4.311
7/1/2009	3.501	4.311
8/1/2009	3.401	4.181
9/1/2009	3.307	4.048
10/1/2009	3.392	4.236
11/1/2009	3.201	4.194
12/1/2009	3.843	4.641
1/1/2010	3.609	4.51
2/1/2010	3.595	4.529
3/1/2010	3.833	4.715
4/1/2010	3.663	4.527
5/1/2010	3.301	4.214
6/1/2010	2.951	3.909
7/1/2010	2.907	3.977
8/1/2010	2.477	3.533
9/1/2010	2.517	3.687
10/1/2010	2.612	4
11/1/2010	2.797	4.102
12/1/2010	3.305	4.362
1/1/2011	3.378	4.571
2/1/2011	3.414	4.49
3/1/2011	3.454	4.508
4/1/2011	3.296	4.406
5/1/2011	3.05	4.216
6/1/2011	3.158	4.382
7/1/2011	2.805	4.132
8/1/2011	2.218	3.592
9/1/2011	1.924	2.921

Date	10 Year	30 Year
10/1/2011	2.175	3.199
11/1/2011	2.068	3.062
12/1/2011	1.871	2.889
1/1/2012	1.799	2.934
2/1/2012	1.977	3.086
3/1/2012	2.216	3.345
4/1/2012	1.915	3.109
5/1/2012	1.581	2.672
6/1/2012	1.659	2.763
7/1/2012	1.492	2.577
8/1/2012	1.562	2.684
9/1/2012	1.637	2.834
10/1/2012	1.686	2.851
11/1/2012	1.606	2.794
12/1/2012	1.756	2.952
1/1/2013	1.985	3.17
2/1/2013	1.888	3.094
3/1/2013	1.852	3.104
4/1/2013	1.675	2.884
5/1/2013	2.164	3.308
6/1/2013	2.478	3.498
7/1/2013	2.593	3.646
8/1/2013	2.749	3.676
9/1/2013	2.615	3.686
10/1/2013	2.542	3.631
11/1/2013	2.741	3.808
12/1/2013	3.026	3.964
1/1/2014	2.668	3.622
2/1/2014	2.658	3.592
3/1/2014	2.723	3.561
4/1/2014	2.648	3.458
5/1/2014	2.457	3.314
6/1/2014	2.516	3.338
7/1/2014	2.556	3.311
8/1/2014	2.343	3.08
9/1/2014	2.508	3.212
10/1/2014	2.335	3.06
11/1/2014	2.194	2.91
12/1/2014	2.17	2.749
1/1/2015	1.675	2.251
2/1/2015	2.002	2.6
3/1/2015	1.934	2.544
4/1/2015	2.046	2.753
5/1/2015	2.095	2.847
6/1/2015	2.335	3.104
7/1/2015	2.205	2.927
8/1/2015	2.2	2.931
9/1/2015	2.06	2.88
10/1/2015	2.151	2.933
11/1/2015	2.218	2.99
12/1/2015	2.269	3.015
1/1/2016	1.931	2.758
2/1/2016	1.74	2.615
3/1/2016	1.786	2.62
4/1/2016	1.819	2.666
5/1/2016	1.834	2.629

Date	10 Year	30 Year
6/1/2016	1.488	2.307
7/1/2016	1.458	2.182
8/1/2016	1.568	2.231
9/1/2016	1.608	2.336
10/1/2016	1.834	2.589
11/1/2016	2.368	3.017
12/1/2016	2.446	3.063
1/1/2017	2.451	3.051
2/1/2017	2.358	2.968
3/1/2017	2.396	3.018
4/1/2017	2.282	2.952
5/1/2017	2.196	2.857
6/1/2017	2.302	2.84
7/1/2017	2.292	2.898
8/1/2017	2.121	2.725
9/1/2017	2.326	2.857
10/1/2017	2.376	2.875
11/1/2017	2.417	2.832
12/1/2017	2.405	2.739
1/1/2018	2.72	2.942
2/1/2018	2.868	3.127
3/1/2018	2.741	2.972
4/1/2018	2.936	3.097
5/1/2018	2.822	2.986
6/1/2018	2.849	2.983
7/1/2018	2.964	3.083
8/1/2018	2.853	3.01
9/1/2018	3.056	3.197
10/1/2018	3.159	3.402
11/1/2018	3.013	3.311
12/1/2018	2.686	3.02
1/1/2019	2.635	3.005
2/1/2019	2.711	3.083
3/1/2019	2.414	2.822
4/1/2019	2.509	2.94
5/1/2019	2.142	2.583
6/1/2019	2	2.528
7/1/2019	2.021	2.527
8/1/2019	1.506	1.97
9/1/2019	1.675	2.121
10/1/2019	1.691	2.176
11/1/2019	1.776	2.202
12/1/2019	1.919	2.389
1/1/2020	1.52	2.015
2/1/2020	1.127	1.671
3/1/2020	0.698	1.351
4/1/2020	0.622	1.266
5/1/2020	0.648	1.407
6/1/2020	0.653	1.409
7/1/2020	0.536	1.198
8/1/2020	0.693	1.452
9/1/2020	0.677	1.451
10/1/2020	0.86	1.64
11/1/2020	0.844	1.573
12/1/2020	0.917	1.646
1/1/2021	1.093	1.858

Date	10 Year	30 Year
2/1/2021	1.46	2.182
3/1/2021	1.746	2.425
4/1/2021	1.631	2.301
5/1/2021	1.581	2.263
6/1/2021	1.443	2.065
7/1/2021	1.239	1.897
8/1/2021	1.304	1.927
9/1/2021	1.529	2.092
10/1/2021	1.557	1.942
11/1/2021	1.443	1.787
12/1/2021	1.512	1.905
1/1/2022	1.782	2.098
2/1/2022	1.839	2.182
3/1/2022	2.327	2.448
4/1/2022	2.887	2.947
5/1/2022	2.844	3.057
6/1/2022	2.972	3.119
7/1/2022	2.642	2.974
8/1/2022	3.133	3.255
9/1/2022	3.804	3.765
10/1/2022	4.077	4.204
11/1/2022	3.703	3.822
12/1/2022	3.879	3.975
1/1/2023	3.529	3.661
2/1/2023	3.916	3.931
3/1/2023	3.494	3.689
	3.847412	4.39245682

4.11993454

Average	4.12
CAPM=RF+B(Market Risk Premium)	
Risk Free (RF) =	4.12
Beta	0.88
NYU Stern College	5.94
CAPM=4.12+..88(5.94)	9.35

Value Line Average Beta	BETA
D	0.8
DTE	0.95
DUK	0.85
PEG	0.9
SRE	0.95
XEL	0.8
	0.875

*EXC was eliminate because value line did not provide a beta

DCF Price, Dividend, and Growth Rate

Stock Prices[1] ($):

	D	DTE	DUK	PEG	SRE	XEL
4/13/2022	83.814697	132.453094	110.744057	69.111282	165.354797	72.279015
4/14/2022	84.016571	132.976593	110.493919	70.31868	166.16011	72.24984
4/18/2022	83.468636	132.976593	109.907043	69.961281	166.033981	72.11377
4/19/2022	83.60321	133.558243	110.128334	70.589127	165.209259	72.735779
4/20/2022	83.622437	134.866959	111.051918	72.182892	167.537903	73.231438
4/21/2022	83.199471	134.052628	110.9076	72.124931	165.364487	73.182854
4/22/2022	81.603737	132.627594	109.945541	71.361862	163.239594	72.210976
4/25/2022	81.286507	131.551514	109.454865	70.164131	160.4646	71.627838
4/26/2022	80.334831	130.407593	109.195122	68.831169	159.552536	71.316833
4/27/2022	80.152184	130.262177	108.800659	68.048775	158.824814	70.918365
4/28/2022	80.623222	131.377014	109.483749	68.724915	160.581024	72.774658
4/29/2022	78.479538	127.033966	105.981804	67.285706	156.564072	71.200211
5/2/2022	77.912392	124.804298	104.577179	66.503304	154.914597	70.626793
5/3/2022	78.085419	125.647697	104.250061	66.165237	155.913986	70.101982
5/4/2022	79.315872	126.762527	106.318527	66.908997	159.620438	71.336273
5/5/2022	79.825356	124.891541	105.875977	66.541939	156.331192	70.743423
5/6/2022	80.76741	125.715553	107.097801	67.063538	159.99884	71.025276
5/9/2022	80.527084	125.56044	106.597527	66.706146	157.214172	71.579247
5/10/2022	78.787163	124.484375	104.779213	66.00103	153.827881	71.423737
5/11/2022	79.806122	126.132401	105.741287	66.599899	154.099579	71.890251
5/12/2022	79.690773	124.775215	105.668472	65.962395	153.265137	71.482063
5/13/2022	80.373283	125.841568	106.105316	66.242516	156.272964	72.395622
5/16/2022	80.450188	126.384453	106.81398	65.740234	156.70961	72.726067
5/17/2022	80.98851	125.647697	106.153854	66.31012	158.980057	73.182854
5/18/2022	79.460068	124.387428	105.71701	65.54705	157.941864	72.784378
5/19/2022	79.027489	124.881851	105.765541	65.363533	157.078323	72.901016
5/20/2022	79.344704	124.784889	106.619827	65.247612	155.351227	72.133217
5/23/2022	79.854195	126.791618	107.571182	65.952736	158.921829	72.764946
5/24/2022	81.632568	130.0392	109.677765	66.358421	161.172897	74.11586
5/25/2022	81.382645	128.953445	109.105003	65.807838	161.78418	73.571602
5/26/2022	81.30574	129.118256	109.920456	65.662964	159.950348	72.852409
5/27/2022	81.863281	130.194336	111.056252	66.686829	161.696838	74.193611
5/31/2022	80.959671	128.652924	109.231201	66.203873	158.989777	73.221718
6/1/2022	80.469414	128.507492	108.406052	65.778862	158.659866	73.007919
6/2/2022	80.893845	128.730484	108.522537	66.203873	158.068008	73.357788
6/3/2022	80.147697	128.051865	107.910957	66.165237	155.487061	72.774658
6/6/2022	80.167084	128.517197	107.862419	66.058983	156.379715	72.609436
6/7/2022	80.52562	129.95195	109.056465	66.599899	158.834518	73.454987
6/8/2022	78.674789	127.382973	107.260529	65.35376	154.710846	71.11274
6/9/2022	76.882095	124.513458	104.581207	63.435894	150.54834	69.275871
6/10/2022	76.853027	123.602196	104.620041	63.73769	150.063217	69.013474
6/13/2022	73.955658	118.280037	100.406891	61.430397	142.786133	66.467125
6/14/2022	72.28894	115.468697	97.98967	59.356762	140.515686	64.487862
6/15/2022	72.560265	115.565628	97.251884	58.918667	140.438065	64.458496
6/16/2022	72.07576	113.890625	96.630592	57.438885	137.740692	63.577515
6/17/2022	71.135811	113.021378	94.960861	57.594646	135.344101	62.55949
6/21/2022	72.269562	114.408264	96.310234	58.081421	138.575134	63.391533
6/22/2022	73.083534	115.150543	97.232475	58.237186	139.176697	64.389977
6/23/2022	74.759949	117.562943	100.387474	58.831051	142.000214	65.858284
6/24/2022	75.719276	120.043709	101.474739	60.85601	144.998367	67.111229
6/27/2022	76.18441	121.450127	102.12516	61.167545	146.191788	67.86496
6/28/2022	76.097198	122.309608	102.610535	60.972836	146.715744	68.511009
6/29/2022	76.572014	123.110481	102.911476	60.953369	145.842499	68.726364
6/30/2022	77.33754	123.794159	104.076401	61.605637	145.80368	69.26474
7/1/2022	78.723236	126.147964	106.415962	62.958858	148.995895	71.095222
7/5/2022	76.969307	121.293854	103.231834	60.90469	142.621201	68.413132
7/6/2022	77.550728	123.217918	104.435593	61.313572	144.2005	69.50946
7/7/2022	77.347237	122.417038	103.70752	61.138336	144.415604	68.10968
7/8/2022	76.920853	121.938469	102.814407	60.807331	144.014679	68.12925
7/11/2022	77.308472	123.061638	104.804482	60.826805	145.246826	68.413132
7/12/2022	76.794891	122.29007	104.522964	60.106388	143.603973	68.031364
7/13/2022	76.223167	121.606392	104.10553	59.385967	143.486603	67.737701
7/14/2022	76.329758	121.606392	103.823997	58.743431	144.738312	67.845383
7/15/2022	76.746429	122.260773	104.289978	58.947872	147.896942	68.481651
7/18/2022	75.593307	120.785988	102.348434	58.470837	146.058487	67.10144
7/19/2022	75.370422	121.19619	102.455215	58.811573	148.239197	67.404892
7/20/2022	73.422691	118.627525	99.979752	58.061947	149.393112	66.171516
7/21/2022	73.606812	118.686119	100.513672	58.023006	150.097198	66.269409
7/22/2022	74.953743	120.86412	101.911591	58.509777	150.830627	67.218903
7/25/2022	76.165024	121.99707	102.882362	59.084167	154.771545	67.99221

DCF Price, Dividend, and Growth Rate

Stock Prices[1] ($):

	D	DTE	DUK	PEG	SRE	XEL
7/26/2022	76.794891	123.305817	103.891953	59.824059	156.15036	68.726364
7/27/2022	76.746429	123.686722	103.406578	60.262154	156.414398	68.765526
7/28/2022	78.800758	126.196793	105.765541	63.708485	159.964157	70.684097
7/29/2022	79.440323	127.261383	106.716904	63.9324	162.135086	71.633606
8/1/2022	79.982971	127.378563	106.639244	63.942135	161.714584	71.643394
8/2/2022	79.614746	126.870697	106.415962	63.426159	160.081497	71.897896
8/3/2022	80.622513	127.378563	107.580887	63.650074	160.932281	72.739716
8/4/2022	80.322121	125.991684	106.522758	63.017277	157.87146	72.984436
8/5/2022	80.012039	126.089363	105.969414	63.027004	156.257935	72.240509
8/8/2022	78.868591	126.72419	105.852921	63.708485	157.402084	72.338394
8/9/2022	79.827919	129.458893	106.60041	64.282875	158.95694	73.238945
8/10/2022	79.59536	129.175659	106.843109	64.828049	159.866364	73.52282
8/11/2022	79.227142	130.220718	106.309158	64.925415	160.267303	73.033386
8/12/2022	80.263985	131.76387	108.01387	65.821068	162.69249	74.354858
8/15/2022	82.027603	132.887054	108.729065	67.008789	163.817078	75.069435
8/16/2022	82.802811	132.916336	109.836143	66.969841	165.313248	75.382668
8/17/2022	82.967552	131.822464	109.757767	66.989311	165.841309	75.304367
8/18/2022	82.99662	132.281509	110.296616	67.55397	166.672516	75.363091
8/19/2022	82.967552	132.965179	110.943222	67.563705	166.300903	75.314148
8/22/2022	81.950081	131.500168	109.777359	66.054718	164.452698	74.58979
8/23/2022	81.329903	130.757904	108.778046	65.597153	164.579834	73.757744
8/24/2022	81.698135	131.129013	108.680069	65.460854	164.70694	73.816483
8/25/2022	81.688446	131.646652	108.454742	66.006042	164.94165	74.472321
8/26/2022	80.506241	130.113281	106.524696	64.925415	162.858719	73.346619
8/29/2022	81.019821	130.386734	106.985161	64.66256	164.570038	74.022049
8/30/2022	79.789154	128.384552	105.495995	63.494305	162.389343	73.111702
8/31/2022	79.265892	127.300438	104.741608	62.657059	161.323441	72.680992
9/1/2022	80.465645	129.644455	105.995651	63.114624	164.296234	73.826271
9/2/2022	79.947845	128.081772	104.829788	62.316326	163.112991	72.837616
9/6/2022	79.625427	128.140381	104.59465	61.849022	164.120224	72.866982
9/7/2022	81.471954	132.134995	108.01387	65.451126	169.655106	75.353317
9/8/2022	80.866211	131.539215	106.985161	66.619019	169.117264	74.971542
9/9/2022	81.247246	132.340103	107.651367	66.736786	169.919144	75.353317
9/12/2022	82.263321	132.799133	108.631088	67.894867	171.767365	75.774223
9/13/2022	80.348404	129.878876	105.995651	65.598335	167.053909	73.493454
9/14/2022	80.543808	130.923904	107.053734	66.020348	169.860458	74.200882
9/15/2022	79.058762	127.554382	104.124382	65.235207	167.102798	72.299301
9/16/2022	78.961067	127.73629	103.95784	65.127258	164.716751	72.811646
9/19/2022	79.312782	128.719635	104.643639	65.382423	169.107483	73.432365
9/20/2022	78.18924	126.526779	103.497368	64.165459	165.127457	72.397835
9/21/2022	77.11454	124.481422	102.174751	63.282181	162.584915	71.432266
9/22/2022	76.635811	124.471588	102.556839	62.781651	161.674088	71.382996
9/23/2022	75.961678	123.566917	101.606514	61.770782	159.30101	70.506104
9/26/2022	74.095612	120.96106	98.794724	59.670536	154.820724	68.919815
9/27/2022	72.327248	119.672874	96.325836	58.453575	151.787933	67.363091
9/28/2022	73.138153	121.108559	97.589668	58.767632	154.57457	67.895142
9/29/2022	69.425552	116.250839	93.171143	55.862617	149.158844	64.397415
9/30/2022	67.520409	113.133652	91.133331	55.185432	147.642441	63.057446
10/3/2022	69.454865	114.982323	93.396484	56.834225	152.743073	64.574768
10/4/2022	69.855431	116.654007	95.150177	58.698929	155.214615	65.491066
10/5/2022	67.422707	114.175987	92.113052	57.383823	151.177429	63.382587
10/6/2022	64.442856	108.865929	88.92897	55.607449	146.628235	60.909554
10/7/2022	62.90897	105.69957	87.263451	54.292339	144.777039	58.978416
10/10/2022	63.016445	104.588387	87.341827	54.380669	145.289078	59.323261
10/11/2022	63.338856	104.529396	87.714111	54.105869	144.708115	58.94886
10/12/2022	61.218765	101.294189	84.226326	52.486519	138.544037	57.086689
10/13/2022	63.544022	104.735893	86.205353	53.948845	140.838333	58.860188
10/14/2022	62.830811	102.759369	85.059082	52.81039	139.331772	57.993145
10/17/2022	63.7785	105.217728	87.292839	54.243267	142.650131	59.70752
10/18/2022	65.009521	108.059593	88.968155	54.655464	143.18187	60.712494
10/19/2022	64.17907	106.82058	87.478989	53.781998	141.537445	60.200153
10/20/2022	62.928513	104.126221	85.460777	52.771133	137.598755	58.85033
10/21/2022	64.022751	105.660225	86.665817	53.291286	140.099808	60.003101
10/24/2022	64.491714	105.709396	86.891159	54.194199	141.93132	60.673088
10/25/2022	65.380775	107.312248	88.409714	55.038223	143.979462	61.48101
10/26/2022	65.57618	107.410591	88.968155	54.537697	145.269379	61.648506
10/27/2022	65.820427	107.459755	89.193489	54.459183	147.701523	62.318493
10/28/2022	67.813507	111.747124	92.093452	56.363144	150.054901	64.407272
10/31/2022	68.360634	110.242615	91.290085	55.028404	148.627121	64.1511
11/1/2022	68.116379	110.655617	91.838722	55.283577	149.129303	64.929459
11/2/2022	67.452019	109.170769	90.99617	55.558376	148.233246	64.348152

DCF Price, Dividend, and Growth Rate

Stock Prices[1] ($):

	D	DTE	DUK	PEG	SRE	XEL
11/3/2022	67.63765	109.99678	91.329277	56.000015	150.27153	64.190506
11/4/2022	65.585945	110.517952	91.711372	56.814594	152.45752	64.584625
11/7/2022	61.492321	108.826599	90.35936	56.245373	147.41597	64.28904
11/8/2022	61.179684	109.396942	91.309677	56.775337	149.405014	65.116661
11/9/2022	59.030281	108.924927	91.554611	56.206116	147.770462	64.643738
11/10/2022	60.935432	113.615479	95.130577	58.414318	153.4422	68.092186
11/11/2022	60.241764	112.356804	93.239723	57.207169	152.280258	66.496048
11/14/2022	56.626869	111.166962	93.514046	56.294445	153.225571	65.845772
11/15/2022	57.525707	112.573135	95.159966	56.049088	153.048309	66.397514
11/16/2022	58.238918	113.261475	95.953545	56.716454	154.997986	67.31382
11/17/2022	57.027435	111.35379	94.552864	54.832119	151.719009	66.151199
11/18/2022	57.799267	112.691132	95.810013	56.618309	155.421387	67.37294
11/21/2022	58.170525	111.11779	96.05748	56.775337	156.337143	67.668526
11/22/2022	58.864197	111.776627	96.690994	57.266052	157.87323	67.836014
11/23/2022	59.626255	112.58297	97.54229	57.913788	160.502319	68.180862
11/25/2022	60.11475	112.868134	98.611359	58.119892	160.955292	68.604523
11/28/2022	59.225685	113.379486	97.61158	57.266052	160.5811	68.368065
11/29/2022	58.395237	112.228966	96.948364	57.207169	158.848083	67.836014
11/30/2022	59.704414	114.07766	98.918221	59.425182	163.643448	69.185837
12/1/2022	59.633293	114.185822	99.294365	59.277973	164.657654	69.156288
12/2/2022	59.732075	113.143471	98.512367	59.788307	163.387421	68.12175
12/5/2022	58.546719	112.160133	98.126312	59.150387	161.181763	67.668526
12/6/2022	57.539165	113.939987	99.492348	59.474251	162.81633	68.299095
12/7/2022	57.292217	112.504303	98.571762	58.83633	159.931198	67.855721
12/8/2022	57.578678	115.700172	99.432945	59.420631	159.616119	68.781876
12/9/2022	57.568798	115.237999	99.333961	59.192852	158.680664	68.811432
12/12/2022	59.248055	118.148697	101.284019	60.034645	162.993546	70.53566
12/13/2022	59.248055	118.453529	102.056122	60.529816	162.136902	70.545517
12/14/2022	58.546719	118.591194	102.254097	60.589237	161.240829	70.200668
12/15/2022	58.121967	117.126015	101.472099	59.757351	159.429031	69.579956
12/16/2022	57.904652	114.80941	99.324059	58.667973	154.909363	68.890251
12/19/2022	58.526962	114.174995	99.215179	58.786812	154.869965	68.377914
12/20/2022	58.85294	114.462463	99.195381	58.63826	154.13147	68.466591
12/21/2022	59.3172	116.405365	100.888069	59.915806	155.47554	69.373047
12/22/2022	59.751831	115.731293	100.917763	59.549377	155.773117	68.998642
12/23/2022	60.048172	117.505676	101.947235	60.490204	156.477386	69.885384
12/27/2022	61.026089	118.189659	102.620346	61.213158	157.558594	70.515953
12/28/2022	60.709991	117.188469	101.858147	60.698177	155.058929	70.008034
12/29/2022	60.887798	118.140091	102.788628	61.232964	154.622482	70.504051
12/30/2022	60.571701	116.504486	101.947235	60.678368	153.293274	69.551697
1/3/2023	62.201569	116.831612	102.65004	61.450836	152.469986	69.512016
1/4/2023	62.438637	118.516777	103.748802	61.906395	153.789246	70.107239
1/5/2023	60.709991	115.562782	102.2145	60.529816	151.249908	68.688622
1/6/2023	61.11499	118.397827	104.115059	62.035141	153.293274	70.722305
1/9/2023	60.838409	119.40892	104.124962	62.876934	155.862396	71.406807
1/10/2023	61.075481	118.972763	104.362534	63.055191	156.239319	71.535774
1/11/2023	61.618767	119.666656	104.590202	63.352299	160.752625	72.200432
1/12/2023	62.1423	118.348259	104.016075	62.183693	159.631729	71.377045
1/13/2023	62.152176	116.901001	103.917091	62.054947	159.532547	70.603256
1/17/2023	61.757057	116.286407	103.16478	62.292629	160.464966	70.523888
1/18/2023	61.055725	112.906166	101.214729	60.242619	155.425949	68.212448
1/19/2023	61.253281	111.57785	100.937561	59.440441	154.523285	67.458496
1/20/2023	61.658276	112.975555	100.789078	59.846481	156.715454	68.00412
1/23/2023	62.201569	112.77729	99.967484	60.302036	157.459412	67.468422
1/24/2023	61.717545	112.440262	100.343643	60.361458	157.836334	67.795792
1/25/2023	61.559498	112.420441	100.393127	60.262424	157.697464	68.014038
1/26/2023	61.81633	112.360962	100.313934	60.440685	159.2052	68.252129
1/27/2023	61.687912	112.598862	100.551514	60.044548	160.524475	67.885078
1/30/2023	61.924984	113.332413	100.610901	60.51001	159.93924	67.557701
1/31/2023	62.863392	115.354614	101.412697	61.331997	159.036575	68.222366
2/1/2023	62.329979	115.176186	101.501793	61.213158	158.59021	69.055679
2/2/2023	61.243404	113.709091	101.006851	61.530067	159.830124	69.006073
2/3/2023	59.514759	111.776115	99.561638	60.262424	154.642303	67.43866
2/6/2023	60.98658	112.826859	100.779182	60.688271	156.368271	68.252129
2/7/2023	60.848286	112.717819	99.799202	60.420879	155.832642	68.33149
2/8/2023	58.84306	111.300301	98.175812	59.55928	153.174255	67.309692
2/9/2023	57.025513	111.022743	96.562317	58.984882	151.527649	66.783913
2/10/2023	58.813423	112.68808	98.106522	60.064358	155.862396	67.934677
2/13/2023	57.924408	113.044945	99.027107	60.717983	156.507141	68.162842
2/14/2023	57.351486	112.707909	98.462875	60.569431	155.584656	67.43866
2/15/2023	57.539165	113.213455	98.255005	61.163635	157.112228	67.359299

DCF Price, Dividend, and Growth Rate

Stock Prices[1] ($):

	D	DTE	DUK	PEG	SRE	XEL
2/16/2023	57.390995	112.41053	98.290001	61.173542	156.199646	66.724396
2/17/2023	57.983677	114.293953	99.489998	61.629097	157.211426	67.468422
2/21/2023	57.390995	112.251923	97.68	60.559528	154.166183	66.664864
2/22/2023	57.005756	111.825668	97.470001	60.212906	153.908295	66.158936
2/23/2023	56.590881	111.339951	96.839996	59.955418	154.404251	65.801804
2/24/2023	56.30442	112.014015	96.919998	60.559528	154.027313	65.285934
2/27/2023	55.642597	110.566757	95.809998	60.925957	153.630554	64.879204
2/28/2023	54.941257	108.752724	94.260002	59.846481	148.750244	64.055817
3/1/2023	54.072002	105.927589	91.910004	57.974731	146.667175	62.766167
3/2/2023	54.990002	107.414505	93.769997	59.291885	147.490479	63.827641
3/3/2023	55.939999	108.395859	95.389999	59.78706	149.672729	64.581589
3/6/2023	55.970001	107.969612	95.980003	59.519665	149.841354	64.531998
3/7/2023	54.66	105.372482	93.519997	57.984634	147.103622	63.103458
3/8/2023	54.959999	106.393494	94.669998	58.459999	147.421036	63.887169
3/9/2023	54.27	105.798729	94.220001	57.759998	146.429108	63.738361
3/10/2023	53.209999	103.568359	92.830002	56.360001	142.947433	62.716564
3/13/2023	54.200001	105.937508	94.169998	57.07	142.808563	64.780006
3/14/2023	54.709999	106.542183	95.089996	58.52	145.665329	65.440002
3/15/2023	55.91	108.01918	96.830002	58.619999	145.179276	67.309998
3/16/2023	55.880001	108.266998	97.199997	59.18	147.490479	67.239998
3/17/2023	55.400002	107.040001	96.389999	58.529999	144.167496	66.879997
3/20/2023	55.619999	108.400002	97.309998	59.32	146.319992	67.389999
3/21/2023	54.09	106.290001	94.769997	58.529999	145.589996	65.5
3/22/2023	53.209999	103.980003	92.949997	57.130001	142	64.150002
3/23/2023	52.220001	102.660004	91.550003	56.740002	139.690002	63.310001
3/24/2023	53.830002	106.75	94.370003	58.779999	142.779999	65.550003
3/27/2023	54.130001	105.690002	94.690002	59.220001	144.320007	65.290001
3/28/2023	54.720001	106.25	94.75	59.880001	145.449997	65.400002
3/29/2023	55.580002	107.940002	96.269997	61.34	148.449997	66.540001
3/30/2023	55.689999	108.690002	96.160004	61.869999	149.559998	66.910004
3/31/2023	55.91	109.540001	96.470001	62.450001	151.160004	67.440002
4/3/2023	55.57	108.989998	95.089996	61.310001	149.580002	67.519997
4/4/2023	56.310001	108.709999	96.230003	61.43	150.259995	68.449997
4/5/2023	57.41	112.129997	98.839996	63.169998	153.139999	71.120003
4/6/2023	58.060001	113.849998	99.739998	63.310001	155.339996	71.269997
4/10/2023	57.959999	113.589996	99.129997	63.23	155.289993	70.760002
4/11/2023	58.080002	113.910004	99.349998	63.650002	154.75	71.040001
4/12/2023	57.889999	113.720001	99.410004	63.59	153.949997	71.040001

Average Stock Price:	**68.65**	**118.35**	**100.63**	**61.26**	**154.46**	**68.64**
QUARTERLY DIV.[2] ($)	0.66750	0.8850	0.985	0.54000	1.14500	0.45750
	0.66750	0.8850	0.985	0.54000	1.14500	0.45750
	0.66750	0.8850	1.005	0.54000	1.14500	0.45750
	0.66750	0.9525	1.005	0.54000	1.14500	0.45750
ANNUAL DIVIDEND ($)	2.6700	3.6075	3.9800	2.1600	4.5800	1.8300
YIELD	3.89%	3.05%	3.96%	3.53%	2.97%	2.67%
Zack's	14.89%	6.00%	5.44%	4.33%	5.43%	6.62%
Yahoo	5.60%	7.40%	5.30%	2.40%	4.14%	6.40%
DCF GROWTH FACTOR	10.25%	6.70%	5.37%	3.37%	4.79%	6.51%
VALUE LINE[2]						
24 EARNINGS (EPS)	4.35	6.70	6.00	3.70	9.30	3.35
26-28 EARNINGS (EPS)	5.10	8.30	6.80	4.50	11.25	4.00
	3.98%	5.35%	3.13%	4.89%	4.76%	4.43%

DCF Price, Dividend, and Growth Rate

Stock Prices[1] ($):	**D**	**DTE**	**DUK**	**PEG**	**SRE**	**XEL**
VALUE LINE "BOXED" (Earnings)[2]	4.00%	4.50%	5.00%	4.50%	8.00%	6.00%
VALUE LINE AVERAGE	3.99%	4.93%	4.06%	4.70%	6.38%	5.22%
DCF GROWTH ESTIMATE	7.12%	5.81%	4.72%	4.03%	5.58%	5.86%
DCF COST OF EQUITY ESTIMATE	10.91%	9.51%	9.98%	9.35%	9.35%	9.14%
DCF AVERAGE	9.707%					
CAPM RATE	9.32%					
DCF & CAPM AVERAGE	9.514%					

Sources:
1 Yahoo Finance
2 Value Line Investment Guide
3. Zacks

Schedule D-1.10

Growth in U.S. Gross National Product, 1929 to 2019

Year	GNP ($billion)	Change ($billion)	Growth (%)
1929	105.3		
1930	92.9	-12.40	-11.78%
1931	77.9	-15.00	-16.15%
1932	59.9	-18.00	-23.11%
1933	57.5	-2.40	-4.01%
1934	67.1	9.60	16.70%
1935	74.6	7.50	11.18%
1936	85.1	10.50	14.08%
1937	93.4	8.30	9.75%
1938	87.7	-5.70	-6.10%
1939	93.8	6.10	6.96%
1940	103.2	9.40	10.02%
1941	129.7	26.50	25.68%
1942	166.4	36.70	28.30%
1943	203.4	37.00	22.24%
1944	224.8	21.40	10.52%
1945	228.3	3.50	1.56%
1946	228.2	-0.10	-0.04%
1947	250.7	22.50	9.86%
1948	275.9	25.20	10.05%
1949	273.8	-2.10	-0.76%
1950	301.3	27.50	10.04%
1951	348.8	47.50	15.77%
1984	4,073.9	402.80	10.97%
1985	4,364.3	290.40	7.13%
1986	4,596.6	232.30	5.32%
1987	4,872.7	276.10	6.01%
1988	5,259.1	386.40	7.93%
1989	5,666.4	407.30	7.74%
1990	5,997.8	331.40	5.85%
1991	6,189.7	191.90	3.20%
1992	6,551.4	361.70	5.84%
1993	6,889.7	338.30	5.16%
1994	7,310.2	420.50	6.10%
1995	7,667.7	357.50	4.89%
1996	8,104.0	436.30	5.69%
1997	8,600.9	496.90	6.13%
1998	9,080.2	479.30	5.57%
1999	9,656.2	576.00	6.34%
2000	10,287.4	631.20	6.54%
2001	10,630.6	343.20	3.34%
2002	10,981.7	351.10	3.30%
2003	11,516.6	534.90	4.87%
2004	12,291.9	775.30	6.73%
2005	13,114.6	822.70	6.69%
2006	13,865.1	750.50	5.72%
2007	14,560.9	695.80	5.02%
2008	14,867.5	306.60	2.11%
2009	14,590.9	-276.60	-1.86%
2010	15,187.8	596.90	4.09%
2011	15,779.0	591.20	3.89%
2012	16,429.3	650.30	4.12%
2013	17,015.6	586.30	3.57%
2014	17,768.3	752.70	4.42%
2015	18,458.7	690.40	3.89%
2016	18,977.1	518.40	2.81%
2017	19,835.3	858.20	4.52%
2018	20,896.6	1,061.30	5.35%
2019	21,702.9	806.30	3.86%
2020	21,060.5	-642.40	-2.96%
2021	23,315.10	2,254.60	10.71%
2022	25,462.70	2,147.60	9.21%
Average			**6.50%**

Sources: (1) National Income and Product Accounts (NIPA) from the U. S. Bureau of Economic Analysis and Econostats; BEA Data; NIPA Index; Section 1. Domestic Product and Income Table 1.7.5 Relation of Gross Domestic Product, Gross National Product, Net National Product, National Income, and Personal Income. (2) U. S. Department of Commerce; Survey of Current of the United States Business and Historical Statistics

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
1	0.0712	2.86001467
2	0.0712	3.06355203
3	0.0712	3.28157444
4	0.0712	3.51511275
5	0.0712	3.76527117
6	0.0708579	4.0320703
7	0.0705492	4.31652968
8	0.0702405	4.61972508
9	0.0699319	4.94279114
10	0.0696232	5.28692415
11	0.0693145	5.65338491
12	0.0690059	6.04350173
13	0.0686972	6.45867348
14	0.0683886	6.90037281
15	0.0680799	7.3701494
16	0.0677712	7.86963342
17	0.0674626	8.40053899
18	0.0671539	8.96466785
19	0.0668452	9.56391307
20	0.0665366	10.2002629
21	0.0662279	10.8758048
22	0.0659192	11.5927295
23	0.0656106	12.3533349
24	0.0653019	13.1600311
25	0.0649932	14.015344
26	0.0649932	14.9262465
27	0.0649932	15.8963514
28	0.0649932	16.9295066
29	0.0649932	18.0298099
30	0.0649932	19.2016254
31	0.0649932	20.4496011
32	0.0649932	21.7786866
33	0.0649932	23.1941538
34	0.0649932	24.7016167
35	0.0649932	26.3070546
36	0.0649932	28.016835
37	0.0649932	29.8377395
38	0.0649932	31.7769905

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
39	0.0649932	33.8422797
40	0.0649932	36.0417987
41	0.0649932	38.3842716
42	0.0649932	40.8789893
43	0.0649932	43.5358468
44	0.0649932	46.365382
45	0.0649932	49.3788179
46	0.0649932	52.5881067
47	0.0649932	56.0059775
48	0.0649932	59.6459868
49	0.0649932	63.5225721
50	0.0649932	67.6511091
51	0.0649932	72.0479731
52	0.0649932	76.7306034
53	0.0649932	81.7175731
54	0.0649932	87.0286619
55	0.0649932	92.6849356
56	0.0649932	98.7088288
57	0.0649932	105.124234
58	0.0649932	111.956598
59	0.0649932	119.233018
60	0.0649932	126.982357
61	0.0649932	135.23535
62	0.0649932	144.024732
63	0.0649932	153.385365
64	0.0649932	163.354375
65	0.0649932	173.971303
66	0.0649932	185.27826
67	0.0649932	197.320092
68	0.0649932	210.144562
69	0.0649932	223.802535
70	0.0649932	238.348184
71	0.0649932	253.839202
72	0.0649932	270.337032
73	0.0649932	287.907108
74	0.0649932	306.619121
75	0.0649932	326.547287
76	0.0649932	347.770649
77	0.0649932	370.373387

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
78	0.0649932	394.445149
79	0.0649932	420.081412
80	0.0649932	447.38386
81	0.0649932	476.460781
82	0.0649932	507.427505
83	0.0649932	540.406857
84	0.0649932	575.529643
85	0.0649932	612.935173
86	0.0649932	652.771808
87	0.0649932	695.197556
88	0.0649932	740.380689
89	0.0649932	788.50042
90	0.0649932	839.747608
91	0.0649932	894.325516
92	0.0649932	952.450619
93	0.0649932	1014.35346
94	0.0649932	1080.27957
95	0.0649932	1150.49042
96	0.0649932	1225.26451
97	0.0649932	1304.8984
98	0.0649932	1389.70796
99	0.0649932	1480.02957
100	0.0649932	1576.22147
101	0.0649932	1678.66519
102	0.0649932	1787.76706
103	0.0649932	1903.95982
104	0.0649932	2027.70431
105	0.0649932	2159.49136
106	0.0649932	2299.84368
107	0.0649932	2449.31794
108	0.0649932	2608.50702
109	0.0649932	2778.04231
110	0.0649932	2958.59625
111	0.0649932	3150.88497
112	0.0649932	3355.67116
113	0.0649932	3573.76706
114	0.0649932	3806.03772
115	0.0649932	4053.4044
116	0.0649932	4316.84824

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
117	0.0649932	4597.41414
118	0.0649932	4896.21493
119	0.0649932	5214.43574
120	0.0649932	5553.33876
121	0.0649932	5914.26817
122	0.0649932	6298.65555
123	0.0649932	6708.02551
124	0.0649932	7144.00174
125	0.0649932	7608.31348
126	0.0649932	8102.80234
127	0.0649932	8629.42962
128	0.0649932	9190.28411
129	0.0649932	9787.59034
130	0.0649932	10423.7174
131	0.0649932	11101.1885
132	0.0649932	11822.6906
133	0.0649932	12591.0854
134	0.0649932	13409.4207
135	0.0649932	14280.9422
136	0.0649932	15209.1068
137	0.0649932	16197.5957
138	0.0649932	17250.3297
139	0.0649932	18371.4844
140	0.0649932	19565.5064
141	0.0649932	20837.1319
142	0.0649932	22191.4043
143	0.0649932	23633.6953
144	0.0649932	25169.7255
145	0.0649932	26805.5872
146	0.0649932	28547.7689
147	0.0649932	30403.1805
148	0.0649932	32379.1814
149	0.0649932	34483.6089
150	0.0649932	36724.81
151	0.0649932	39111.6739
152	0.0649932	41653.6679
153	0.0649932	44360.8742
154	0.0649932	47244.0307
155	0.0649932	50314.5727

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
156	0.0649932	53584.6793
157	0.0649932	57067.3206
158	0.0649932	60776.31
159	0.0649932	64726.3585
160	0.0649932	68933.1335
161	0.0649932	73413.3204
162	0.0649932	78184.6891
163	0.0649932	83266.1645
164	0.0649932	88677.9013
165	0.0649932	94441.3644
166	0.0649932	100579.414
167	0.0649932	107116.394
168	0.0649932	114078.235
169	0.0649932	121492.547
170	0.0649932	129388.74
171	0.0649932	137798.132
172	0.0649932	146754.078
173	0.0649932	156292.099
174	0.0649932	166450.027
175	0.0649932	177268.152
176	0.0649932	188789.381
177	0.0649932	201059.413
178	0.0649932	214126.913
179	0.0649932	228043.712
180	0.0649932	242865.009
181	0.0649932	258649.59
182	0.0649932	275460.062
183	0.0649932	293363.101
184	0.0649932	312429.716
185	0.0649932	332735.532
186	0.0649932	354361.088
187	0.0649932	377392.159
188	0.0649932	401920.094
189	0.0649932	428042.178
190	0.0649932	455862.021
191	0.0649932	485489.966
192	0.0649932	517043.526
193	0.0649932	550647.854
194	0.0649932	586436.236

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
195	0.0649932	624550.62
196	0.0649932	665142.181
197	0.0649932	708371.919
198	0.0649932	754411.296
199	0.0649932	803442.922
200	0.0649932	855661.271
201	0.0649932	911273.46
202	0.0649932	970500.064
203	0.0649932	1033576
204	0.0649932	1100751.44
205	0.0649932	1172292.83
206	0.0649932	1248483.92
207	0.0649932	1329626.92
208	0.0649932	1416043.67
209	0.0649932	1508076.92
210	0.0649932	1606091.71
211	0.0649932	1710476.79
212	0.0649932	1821646.2
213	0.0649932	1940040.87
214	0.0649932	2066130.39
215	0.0649932	2200414.87
216	0.0649932	2343426.94
217	0.0649932	2495733.82
218	0.0649932	2657939.62
219	0.0649932	2830687.69
220	0.0649932	3014663.22
221	0.0649932	3210595.92
222	0.0649932	3419262.91
223	0.0649932	3641491.85
224	0.0649932	3878164.16
225	0.0649932	4130218.57
226	0.0649932	4398654.81
227	0.0649932	4684537.58
228	0.0649932	4989000.8
229	0.0649932	5313252.07
230	0.0649932	5658577.48
231	0.0649932	6026346.69
232	0.0649932	6418018.42
233	0.0649932	6835146.16

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
234	0.0649932	7279384.37
235	0.0649932	7752495.06
236	0.0649932	8256354.75
237	0.0649932	8792961.89
238	0.0649932	9364444.87
239	0.0649932	9973070.38
240	0.0649932	10621252.4
241	0.0649932	11311561.9
242	0.0649932	12046736.8
243	0.0649932	12829693.1
244	0.0649932	13663536.3
245	0.0649932	14551573.7
246	0.0649932	15497327.4
247	0.0649932	16504548.7
248	0.0649932	17577232.7
249	0.0649932	18719633.7
250	0.0649932	19936283.2
251	0.0649932	21232006.6
252	0.0649932	22611943.2
253	0.0649932	24081566.4
254	0.0649932	25646705.2
255	0.0649932	27313567.3
256	0.0649932	29088764.3
257	0.0649932	30979337
258	0.0649932	32992784.1
259	0.0649932	35137091.6
260	0.0649932	37420764.6
261	0.0649932	39852860.9
262	0.0649932	42443027
263	0.0649932	45201536.4
264	0.0649932	48139330.2
265	0.0649932	51268060.6
266	0.0649932	54600137.4
267	0.0649932	58148776.6
268	0.0649932	61928053.3
269	0.0649932	65952957.4
270	0.0649932	70239453.1
271	0.0649932	74804541.9
272	0.0649932	79666330.5

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
273	0.0649932	84844102.6
274	0.0649932	90358394.7
275	0.0649932	96231078.5
276	0.0649932	102485447
277	0.0649932	109146307
278	0.0649932	116240078
279	0.0649932	123794896
280	0.0649932	131840726
281	0.0649932	140409480
282	0.0649932	149535145
283	0.0649932	159253917
284	0.0649932	169604344
285	0.0649932	180627477
286	0.0649932	192367040
287	0.0649932	204869595
288	0.0649932	218184732
289	0.0649932	232365262
290	0.0649932	247467430
291	0.0649932	263551137
292	0.0649932	280680177
293	0.0649932	298922487
294	0.0649932	318350425
295	0.0649932	339041047
296	0.0649932	361076419
297	0.0649932	384543941
298	0.0649932	409536693
299	0.0649932	436153805
300	0.0649932	464500849
301	0.0649932	494690259
302	0.0649932	526841776
303	0.0649932	561082923
304	0.0649932	597549514
305	0.0649932	636386186
306	0.0649932	677746979
307	0.0649932	721795943
308	0.0649932	768707791
309	0.0649932	818668592
310	0.0649932	871876507
311	0.0649932	928542576

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
312	0.0649932	988891556
313	0.0649932	1053162811
314	0.0649932	1121611262
315	0.0649932	1194508398
316	0.0649932	1272143355
317	0.0649932	1354824059
318	0.0649932	1442878449
319	0.0649932	1536655777
320	0.0649932	1636527997
321	0.0649932	1742891235
322	0.0649932	1856167363
323	0.0649932	1976805672
324	0.0649932	2105284654
325	0.0649932	2242113901
326	0.0649932	2387836121
327	0.0649932	2543029299
328	0.0649932	2708308983
329	0.0649932	2884330728
330	0.0649932	3071792693
331	0.0649932	3271438417
332	0.0649932	3484059761
333	0.0649932	3710500053
334	0.0649932	3951657430
335	0.0649932	4208488404
336	0.0649932	4482011652
337	0.0649932	4773312058
338	0.0649932	5083545019
339	0.0649932	5413941021
340	0.0649932	5765810526
341	0.0649932	6140549166
342	0.0649932	6539643280
343	0.0649932	6964675809
344	0.0649932	7417332575
345	0.0649932	7899408964
346	0.0649932	8412817055
347	0.0649932	8959593195
348	0.0649932	9541906081
349	0.0649932	1.0162E+10
350	0.0649932	1.0823E+10

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
351	0.0649932	1.1526E+10
352	0.0649932	1.2275E+10
353	0.0649932	1.3073E+10
354	0.0649932	1.3922E+10
355	0.0649932	1.4827E+10
356	0.0649932	1.5791E+10
357	0.0649932	1.6817E+10
358	0.0649932	1.791E+10
359	0.0649932	1.9074E+10
360	0.0649932	2.0314E+10
361	0.0649932	2.1634E+10
362	0.0649932	2.304E+10
363	0.0649932	2.4538E+10
364	0.0649932	2.6133E+10
365	0.0649932	2.7831E+10
366	0.0649932	2.964E+10
367	0.0649932	3.1566E+10
368	0.0649932	3.3618E+10
369	0.0649932	3.5803E+10
370	0.0649932	3.813E+10
371	0.0649932	4.0608E+10
372	0.0649932	4.3247E+10
373	0.0649932	4.6058E+10
374	0.0649932	4.9052E+10
375	0.0649932	5.224E+10
376	0.0649932	5.5635E+10
377	0.0649932	5.9251E+10
378	0.0649932	6.3102E+10
379	0.0649932	6.7203E+10
380	0.0649932	7.1571E+10
381	0.0649932	7.6222E+10
382	0.0649932	8.1176E+10
383	0.0649932	8.6452E+10
384	0.0649932	9.2071E+10
385	0.0649932	9.8055E+10
386	0.0649932	1.0443E+11
387	0.0649932	1.1121E+11
388	0.0649932	1.1844E+11
389	0.0649932	1.2614E+11

Table 5

D Non-Constant DCF Calculation

		non const		const	
g=	7.1167%	dcf=	10.909720%	dcf=	11.282652%
D=	2.6700			g(e)=	6.50%
		P=	-68.65		

YEAR	GROWTH RATE	DIVIDEND
390	0.0649932	1.3434E+11
391	0.0649932	1.4307E+11
392	0.0649932	1.5237E+11
393	0.0649932	1.6227E+11
394	0.0649932	1.7282E+11
395	0.0649932	1.8405E+11
396	0.0649932	1.9601E+11
397	0.0649932	2.0875E+11
398	0.0649932	2.2232E+11
399	0.0649932	2.3677E+11
400	0.0649932	2.5216E+11

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
1	0.0581	3.8172193
2	0.0581	4.03913048
3	0.0581	4.2739423
4	0.0581	4.52240473
5	0.0581	4.78531133
6	0.058477	5.06514293
7	0.05882	5.36307538
8	0.059163	5.68037153
9	0.059506	6.01838797
10	0.059849	6.37858244
11	0.060192	6.76252171
12	0.060535	7.17189023
13	0.060878	7.60849942
14	0.061221	8.07429777
15	0.061564	8.57138173
16	0.061907	9.10200758
17	0.06225	9.66860424
18	0.062593	10.2737872
19	0.062936	10.9203735
20	0.063278	11.6113981
21	0.063621	12.3501319
22	0.063964	13.1401005
23	0.064307	13.9851053
24	0.06465	14.8892462
25	0.064993	15.8569464
26	0.064993	16.8875405
27	0.064993	17.9851163
28	0.064993	19.1540271
29	0.064993	20.3989092
30	0.064993	21.7247001
31	0.064993	23.1366585
32	0.064993	24.6403846
33	0.064993	26.2418428
34	0.064993	27.9473849
35	0.064993	29.7637756
36	0.064993	31.6982195
37	0.064993	33.7583891
38	0.064993	35.9524558

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
39	0.064993	38.289122
40	0.064993	40.7776556
41	0.064993	43.4279271
42	0.064993	46.2504483
43	0.064993	49.2564142
44	0.064993	52.4577476
45	0.064993	55.867146
46	0.064993	59.4981322
47	0.064993	63.3651078
48	0.064993	67.4834108
49	0.064993	71.8693755
50	0.064993	76.5403982
51	0.064993	81.5150058
52	0.064993	86.8129292
53	0.064993	92.4551817
54	0.064993	98.4641425
55	0.064993	104.863645
56	0.064993	111.679072
57	0.064993	118.937455
58	0.064993	126.667584
59	0.064993	134.90012
60	0.064993	143.667714
61	0.064993	153.005142
62	0.064993	162.949441
63	0.064993	173.540051
64	0.064993	184.818979
65	0.064993	196.830961
66	0.064993	209.623641
67	0.064993	223.247758
68	0.064993	237.75735
69	0.064993	253.209968
70	0.064993	269.666901
71	0.064993	287.193424
72	0.064993	305.859052
73	0.064993	325.737819
74	0.064993	346.908571
75	0.064993	369.455279
76	0.064993	393.46737
77	0.064993	419.040085

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
78	0.064993	446.274853
79	0.064993	475.279696
80	0.064993	506.169658
81	0.064993	539.067258
82	0.064993	574.10298
83	0.064993	611.415786
84	0.064993	651.153672
85	0.064993	693.474251
86	0.064993	738.545381
87	0.064993	786.54583
88	0.064993	837.665983
89	0.064993	892.108599
90	0.064993	950.089617
91	0.064993	1011.83901
92	0.064993	1077.60169
93	0.064993	1147.63851
94	0.064993	1222.22724
95	0.064993	1301.66373
96	0.064993	1386.26306
97	0.064993	1476.36077
98	0.064993	1572.31422
99	0.064993	1674.504
100	0.064993	1783.33542
101	0.064993	1899.24015
102	0.064993	2022.6779
103	0.064993	2154.13826
104	0.064993	2294.14266
105	0.064993	2443.2464
106	0.064993	2602.04087
107	0.064993	2771.15591
108	0.064993	2951.26228
109	0.064993	3143.07434
110	0.064993	3347.35289
111	0.064993	3564.90816
112	0.064993	3796.60305
113	0.064993	4043.35654
114	0.064993	4306.14733
115	0.064993	4586.01775
116	0.064993	4884.07785

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
117	0.064993	5201.50983
118	0.064993	5539.57275
119	0.064993	5899.60747
120	0.064993	6283.042
121	0.064993	6691.39719
122	0.064993	7126.29269
123	0.064993	7589.45346
124	0.064993	8082.71654
125	0.064993	8608.03838
126	0.064993	9167.50259
127	0.064993	9763.32818
128	0.064993	10397.8784
129	0.064993	11073.6701
130	0.064993	11793.3836
131	0.064993	12559.8737
132	0.064993	13376.1805
133	0.064993	14245.5416
134	0.064993	15171.4054
135	0.064993	16157.444
136	0.064993	17207.5684
137	0.064993	18325.9438
138	0.064993	19517.0061
139	0.064993	20785.4793
140	0.064993	22136.3947
141	0.064993	23575.1105
142	0.064993	25107.333
143	0.064993	26739.1396
144	0.064993	28477.0027
145	0.064993	30327.815
146	0.064993	32298.9176
147	0.064993	34398.1285
148	0.064993	36633.7739
149	0.064993	39014.7212
150	0.064993	41550.4139
151	0.064993	44250.9094
152	0.064993	47126.9189
153	0.064993	50189.8495
154	0.064993	53451.8498
155	0.064993	56925.8581

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
156	0.064993	60625.6534
157	0.064993	64565.9103
158	0.064993	68762.2573
159	0.064993	73231.3383
160	0.064993	77990.8794
161	0.064993	83059.7585
162	0.064993	88458.0803
163	0.064993	94207.2565
164	0.064993	100330.09
165	0.064993	106850.867
166	0.064993	113795.45
167	0.064993	121191.383
168	0.064993	129068.002
169	0.064993	137456.549
170	0.064993	146390.293
171	0.064993	155904.671
172	0.064993	166037.419
173	0.064993	176828.727
174	0.064993	188321.397
175	0.064993	200561.012
176	0.064993	213596.12
177	0.064993	227478.421
178	0.064993	242262.978
179	0.064993	258008.431
180	0.064993	274777.232
181	0.064993	292635.892
182	0.064993	311655.243
183	0.064993	331910.723
184	0.064993	353482.673
185	0.064993	376456.653
186	0.064993	400923.786
187	0.064993	426981.117
188	0.064993	454731.999
189	0.064993	484286.499
190	0.064993	515761.842
191	0.064993	549282.869
192	0.064993	584982.536
193	0.064993	623002.44
194	0.064993	663493.38

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
195	0.064993	706615.957
196	0.064993	752541.209
197	0.064993	801451.291
198	0.064993	853540.198
199	0.064993	909014.531
200	0.064993	968094.32
201	0.064993	1031013.9
202	0.064993	1098022.82
203	0.064993	1169386.86
204	0.064993	1245389.09
205	0.064993	1326330.95
206	0.064993	1412533.48
207	0.064993	1504338.59
208	0.064993	1602110.41
209	0.064993	1706236.74
210	0.064993	1817130.57
211	0.064993	1935231.76
212	0.064993	2061008.72
213	0.064993	2194960.33
214	0.064993	2337617.88
215	0.064993	2489547.22
216	0.064993	2651350.93
217	0.064993	2823670.78
218	0.064993	3007190.26
219	0.064993	3202637.27
220	0.064993	3410787
221	0.064993	3632465.06
222	0.064993	3868550.69
223	0.064993	4119980.29
224	0.064993	4387751.11
225	0.064993	4672925.22
226	0.064993	4976633.72
227	0.064993	5300081.21
228	0.064993	5644550.6
229	0.064993	6011408.16
230	0.064993	6402108.99
231	0.064993	6818202.72
232	0.064993	7261339.72
233	0.064993	7733277.63

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
234	0.064993	8235888.31
235	0.064993	8771165.28
236	0.064993	9341231.63
237	0.064993	9948348.43
238	0.064993	10594923.7
239	0.064993	11283522
240	0.064993	12016874.5
241	0.064993	12797890
242	0.064993	13629666.2
243	0.064993	14515502.2
244	0.064993	15458911.5
245	0.064993	16463636.1
246	0.064993	17533661
247	0.064993	18673230.2
248	0.064993	19886863.7
249	0.064993	21179375.2
250	0.064993	22555891.2
251	0.064993	24021871.3
252	0.064993	25583130.3
253	0.064993	27245860.6
254	0.064993	29016657
255	0.064993	30902543.2
256	0.064993	32910999.2
257	0.064993	35049991.3
258	0.064993	37328003.4
259	0.064993	39754070.9
260	0.064993	42337816.3
261	0.064993	45089487.6
262	0.064993	48019999
263	0.064993	51140973.8
264	0.064993	54464790.8
265	0.064993	58004633.3
266	0.064993	61774541.7
267	0.064993	65789468.6
268	0.064993	70065338.6
269	0.064993	74619111.1
270	0.064993	79468848
271	0.064993	84633785
272	0.064993	90134408

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
273	0.064993	95992534.1
274	0.064993	102231399
275	0.064993	108875747
276	0.064993	115951934
277	0.064993	123488024
278	0.064993	131513910
279	0.064993	140061423
280	0.064993	149164467
281	0.064993	158859148
282	0.064993	169183916
283	0.064993	180179725
284	0.064993	191890187
285	0.064993	204361750
286	0.064993	217643880
287	0.064993	231789258
288	0.064993	246853991
289	0.064993	262897828
290	0.064993	279984407
291	0.064993	298181497
292	0.064993	317561276
293	0.064993	338200608
294	0.064993	360181357
295	0.064993	383590707
296	0.064993	408521505
297	0.064993	435072636
298	0.064993	463349412
299	0.064993	493463986
300	0.064993	525535803
301	0.064993	559692072
302	0.064993	596068266
303	0.064993	634808667
304	0.064993	676066932
305	0.064993	720006704
306	0.064993	766802265
307	0.064993	816639219
308	0.064993	869715239
309	0.064993	926240840
310	0.064993	986440222
311	0.064993	1050552157

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
312	0.064993	1118830933
313	0.064993	1191547367
314	0.064993	1268989877
315	0.064993	1351465626
316	0.064993	1439301740
317	0.064993	1532846607
318	0.064993	1632471256
319	0.064993	1738570833
320	0.064993	1851566165
321	0.064993	1971905427
322	0.064993	2100065927
323	0.064993	2236555991
324	0.064993	2381916985
325	0.064993	2536725460
326	0.064993	2701595437
327	0.064993	2877180846
328	0.064993	3064178118
329	0.064993	3263328946
330	0.064993	3475423229
331	0.064993	3701302205
332	0.064993	3941861784
333	0.064993	4198056107
334	0.064993	4470901327
335	0.064993	4761479637
336	0.064993	5070943571
337	0.064993	5400520564
338	0.064993	5751517830
339	0.064993	6125327542
340	0.064993	6523432354
341	0.064993	6947411282
342	0.064993	7398945970
343	0.064993	7879827355
344	0.064993	8391962774
345	0.064993	8937383527
346	0.064993	9518252935
347	0.064993	1.0137E+10
348	0.064993	1.0796E+10
349	0.064993	1.1497E+10
350	0.064993	1.2245E+10

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
351	0.064993	1.304E+10
352	0.064993	1.3888E+10
353	0.064993	1.4791E+10
354	0.064993	1.5752E+10
355	0.064993	1.6776E+10
356	0.064993	1.7866E+10
357	0.064993	1.9027E+10
358	0.064993	2.0264E+10
359	0.064993	2.1581E+10
360	0.064993	2.2983E+10
361	0.064993	2.4477E+10
362	0.064993	2.6068E+10
363	0.064993	2.7762E+10
364	0.064993	2.9567E+10
365	0.064993	3.1488E+10
366	0.064993	3.3535E+10
367	0.064993	3.5714E+10
368	0.064993	3.8035E+10
369	0.064993	4.0507E+10
370	0.064993	4.314E+10
371	0.064993	4.5944E+10
372	0.064993	4.893E+10
373	0.064993	5.211E+10
374	0.064993	5.5497E+10
375	0.064993	5.9104E+10
376	0.064993	6.2945E+10
377	0.064993	6.7036E+10
378	0.064993	7.1393E+10
379	0.064993	7.6033E+10
380	0.064993	8.0975E+10
381	0.064993	8.6238E+10
382	0.064993	9.1843E+10
383	0.064993	9.7812E+10
384	0.064993	1.0417E+11
385	0.064993	1.1094E+11
386	0.064993	1.1815E+11
387	0.064993	1.2583E+11
388	0.064993	1.3401E+11
389	0.064993	1.4272E+11

Table 6

ATO Non-Constant DCF Calculation

		non const		const	
g=	5.8134%	dcf=	9.508900%	dcf=	9.038836%
D=	3.6075			g(e)=	6.50%
		P=	-118.35		

YEAR	GROWTH RATE	DIVIDEND
390	0.064993	1.5199E+11
391	0.064993	1.6187E+11
392	0.064993	1.7239E+11
393	0.064993	1.8359E+11
394	0.064993	1.9553E+11
395	0.064993	2.0823E+11
396	0.064993	2.2177E+11
397	0.064993	2.3618E+11
398	0.064993	2.5153E+11
399	0.064993	2.6788E+11
400	0.064993	2.8529E+11

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
1	0.0472	4.16774733
2	0.0472	4.36435121
3	0.0472	4.57022943
4	0.0472	4.78581947
5	0.0472	5.01157948
6	0.048064	5.25245465
7	0.048955	5.50958725
8	0.049846	5.7842169
9	0.050737	6.07768958
10	0.051628	6.3914675
11	0.052519	6.72714006
12	0.05341	7.08643582
13	0.054301	7.47123573
14	0.055192	7.88358769
15	0.056083	8.32572264
16	0.056974	8.80007227
17	0.057865	9.30928859
18	0.058756	9.85626554
19	0.059647	10.4441629
20	0.060538	11.0764326
21	0.061429	11.7568482
22	0.06232	12.4895367
23	0.063211	13.279015
24	0.064102	14.1302291
25	0.064993	15.0485983
26	0.064993	16.0266553
27	0.064993	17.0682793
28	0.064993	18.1776019
29	0.064993	19.3590229
30	0.064993	20.6172283
31	0.064993	21.9572085
32	0.064993	23.3842784
33	0.064993	24.9040982
34	0.064993	26.5226959
35	0.064993	28.2464915
36	0.064993	30.0823222
37	0.064993	32.0374694
38	0.064993	34.119688

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
39	0.064993	36.3372367
40	0.064993	38.698911
41	0.064993	41.2140782
42	0.064993	43.8927142
43	0.064993	46.7454433
44	0.064993	49.7835806
45	0.064993	53.0191762
46	0.064993	56.4650637
47	0.064993	60.1349105
48	0.064993	64.0432724
49	0.064993	68.2056514
50	0.064993	72.6385569
51	0.064993	77.3595712
52	0.064993	82.3874195
53	0.064993	87.7420439
54	0.064993	93.4446826
55	0.064993	99.5179542
56	0.064993	105.985947
57	0.064993	112.874316
58	0.064993	120.210382
59	0.064993	128.023243
60	0.064993	136.343887
61	0.064993	145.205316
62	0.064993	154.642679
63	0.064993	164.693406
64	0.064993	175.397362
65	0.064993	186.797003
66	0.064993	198.937543
67	0.064993	211.867136
68	0.064993	225.637065
69	0.064993	240.301946
70	0.064993	255.919946
71	0.064993	272.553009
72	0.064993	290.267109
73	0.064993	309.132506
74	0.064993	329.224025
75	0.064993	350.621357
76	0.064993	373.409371
77	0.064993	397.678452

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
78	0.064993	423.524858
79	0.064993	451.051106
80	0.064993	480.366374
81	0.064993	511.586935
82	0.064993	544.836622
83	0.064993	580.247313
84	0.064993	617.959459
85	0.064993	658.122639
86	0.064993	700.896154
87	0.064993	746.449658
88	0.064993	794.963831
89	0.064993	846.631096
90	0.064993	901.656385
91	0.064993	960.257944
92	0.064993	1022.66821
93	0.064993	1089.13472
94	0.064993	1159.9211
95	0.064993	1235.30811
96	0.064993	1315.59478
97	0.064993	1401.09953
98	0.064993	1492.16151
99	0.064993	1589.1419
100	0.064993	1692.42537
101	0.064993	1802.42155
102	0.064993	1919.56675
103	0.064993	2044.32559
104	0.064993	2177.19291
105	0.064993	2318.69571
106	0.064993	2469.39523
107	0.064993	2629.88919
108	0.064993	2800.81418
109	0.064993	2982.84814
110	0.064993	3176.71307
111	0.064993	3383.17791
112	0.064993	3603.06156
113	0.064993	3837.23616
114	0.064993	4086.63053
115	0.064993	4352.23384
116	0.064993	4635.09957

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
117	0.064993	4936.34965
118	0.064993	5257.17895
119	0.064993	5598.85998
120	0.064993	5962.74797
121	0.064993	6350.28621
122	0.064993	6763.01181
123	0.064993	7202.56178
124	0.064993	7670.67953
125	0.064993	8169.22175
126	0.064993	8700.16585
127	0.064993	9265.61771
128	0.064993	9867.82012
129	0.064993	10509.1616
130	0.064993	11192.1859
131	0.064993	11919.6022
132	0.064993	12694.2957
133	0.064993	13519.3389
134	0.064993	14398.0044
135	0.064993	15333.7772
136	0.064993	16330.3689
137	0.064993	17391.7323
138	0.064993	18522.0771
139	0.064993	19725.8867
140	0.064993	21007.9357
141	0.064993	22373.3093
142	0.064993	23827.4229
143	0.064993	25376.0441
144	0.064993	27025.3151
145	0.064993	28781.7776
146	0.064993	30652.3982
147	0.064993	32644.5965
148	0.064993	34766.2742
149	0.064993	37025.8466
150	0.064993	39432.2759
151	0.064993	41995.1068
152	0.064993	44724.5044
153	0.064993	47631.2943
154	0.064993	50727.0059
155	0.064993	54023.9178

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
156	0.064993	57535.1066
157	0.064993	61274.499
158	0.064993	65256.9265
159	0.064993	69498.1848
160	0.064993	74015.0962
161	0.064993	78825.5762
162	0.064993	83948.7049
163	0.064993	89404.8022
164	0.064993	95215.509
165	0.064993	101403.872
166	0.064993	107994.437
167	0.064993	115013.344
168	0.064993	122488.433
169	0.064993	130449.352
170	0.064993	138927.676
171	0.064993	147957.034
172	0.064993	157573.24
173	0.064993	167814.433
174	0.064993	178721.235
175	0.064993	190336.905
176	0.064993	202707.515
177	0.064993	215882.131
178	0.064993	229913.007
179	0.064993	244855.796
180	0.064993	260769.765
181	0.064993	277718.034
182	0.064993	295767.825
183	0.064993	314990.731
184	0.064993	335462.995
185	0.064993	357265.818
186	0.064993	380485.677
187	0.064993	405214.67
188	0.064993	431550.879
189	0.064993	459598.764
190	0.064993	489469.572
191	0.064993	521281.779
192	0.064993	555161.565
193	0.064993	591243.308
194	0.064993	629670.119

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
195	0.064993	670594.413
196	0.064993	714178.508
197	0.064993	760595.275
198	0.064993	810028.818
199	0.064993	862675.206
200	0.064993	918743.252
201	0.064993	978455.342
202	0.064993	1042048.31
203	0.064993	1109774.4
204	0.064993	1181902.22
205	0.064993	1258717.86
206	0.064993	1340526
207	0.064993	1427651.11
208	0.064993	1520438.76
209	0.064993	1619256.99
210	0.064993	1724497.73
211	0.064993	1836578.4
212	0.064993	1955943.56
213	0.064993	2083066.65
214	0.064993	2218451.87
215	0.064993	2362636.22
216	0.064993	2516191.58
217	0.064993	2679726.99
218	0.064993	2853891.1
219	0.064993	3039374.7
220	0.064993	3236913.47
221	0.064993	3447290.92
222	0.064993	3671341.49
223	0.064993	3909953.83
224	0.064993	4164074.35
225	0.064993	4434710.98
226	0.064993	4722937.17
227	0.064993	5029896.1
228	0.064993	5356805.29
229	0.064993	5704961.36
230	0.064993	6075745.21
231	0.064993	6470627.51
232	0.064993	6891174.48
233	0.064993	7339054.16

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
234	0.064993	7816042.98
235	0.064993	8324032.84
236	0.064993	8865038.61
237	0.064993	9441206.09
238	0.064993	10054820.6
239	0.064993	10708315.8
240	0.064993	11404283.8
241	0.064993	12145485
242	0.064993	12934859.3
243	0.064993	13775537.6
244	0.064993	14670854.2
245	0.064993	15624360.4
246	0.064993	16639838.1
247	0.064993	17721314.8
248	0.064993	18873080.3
249	0.064993	20099702.7
250	0.064993	21406047.3
251	0.064993	22797295.4
252	0.064993	24278965.2
253	0.064993	25856933.6
254	0.064993	27537459.2
255	0.064993	29327207.5
256	0.064993	31233277.4
257	0.064993	33263229
258	0.064993	35425113.6
259	0.064993	37727506.1
260	0.064993	40179538.5
261	0.064993	42790936.4
262	0.064993	45572057.5
263	0.064993	48533932.7
264	0.064993	51688309.6
265	0.064993	55047699.8
266	0.064993	58625427.5
267	0.064993	62435683.3
268	0.064993	66493579.9
269	0.064993	70815212.3
270	0.064993	75417721.6
271	0.064993	80319362.8
272	0.064993	85539577.5

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
273	0.064993	91099070.8
274	0.064993	97019893.5
275	0.064993	103325530
276	0.064993	110040989
277	0.064993	117192908
278	0.064993	124809654
279	0.064993	132921436
280	0.064993	141560429
281	0.064993	150760899
282	0.064993	160559336
283	0.064993	170994606
284	0.064993	182108097
285	0.064993	193943891
286	0.064993	206548930
287	0.064993	219973212
288	0.064993	234269981
289	0.064993	249495943
290	0.064993	265711490
291	0.064993	282980938
292	0.064993	301372783
293	0.064993	320959973
294	0.064993	341820197
295	0.064993	364036196
296	0.064993	387696083
297	0.064993	412893703
298	0.064993	439728998
299	0.064993	468308405
300	0.064993	498745280
301	0.064993	531160346
302	0.064993	565682172
303	0.064993	602447682
304	0.064993	641602702
305	0.064993	683302533
306	0.064993	727712571
307	0.064993	775008960
308	0.064993	825379294
309	0.064993	879023359
310	0.064993	936153925
311	0.064993	996997591

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
312	0.064993	1061795683
313	0.064993	1130805212
314	0.064993	1204299894
315	0.064993	1282571232
316	0.064993	1365929677
317	0.064993	1454705856
318	0.064993	1549251886
319	0.064993	1649942767
320	0.064993	1757177874
321	0.064993	1871382537
322	0.064993	1993009730
323	0.064993	2122541866
324	0.064993	2260492714
325	0.064993	2407409434
326	0.064993	2563874745
327	0.064993	2730509241
328	0.064993	2907973852
329	0.064993	3096972461
330	0.064993	3298254699
331	0.064993	3512618920
332	0.064993	3740915363
333	0.064993	3984049530
334	0.064993	4242985770
335	0.064993	4518751113
336	0.064993	4812439336
337	0.064993	5125215305
338	0.064993	5458319594
339	0.064993	5813073405
340	0.064993	6190883813
341	0.064993	6593249338
342	0.064993	7021765898
343	0.064993	7478133132
344	0.064993	7964161146
345	0.064993	8481777690
346	0.064993	9033035804
347	0.064993	9620121963
348	0.064993	1.0245E+10
349	0.064993	1.0911E+10
350	0.064993	1.162E+10

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
351	0.064993	1.2376E+10
352	0.064993	1.318E+10
353	0.064993	1.4037E+10
354	0.064993	1.4949E+10
355	0.064993	1.592E+10
356	0.064993	1.6955E+10
357	0.064993	1.8057E+10
358	0.064993	1.9231E+10
359	0.064993	2.0481E+10
360	0.064993	2.1812E+10
361	0.064993	2.3229E+10
362	0.064993	2.4739E+10
363	0.064993	2.6347E+10
364	0.064993	2.8059E+10
365	0.064993	2.9883E+10
366	0.064993	3.1825E+10
367	0.064993	3.3894E+10
368	0.064993	3.6096E+10
369	0.064993	3.8442E+10
370	0.064993	4.0941E+10
371	0.064993	4.3602E+10
372	0.064993	4.6436E+10
373	0.064993	4.9454E+10
374	0.064993	5.2668E+10
375	0.064993	5.6091E+10
376	0.064993	5.9736E+10
377	0.064993	6.3619E+10
378	0.064993	6.7754E+10
379	0.064993	7.2157E+10
380	0.064993	7.6847E+10
381	0.064993	8.1841E+10
382	0.064993	8.7161E+10
383	0.064993	9.2825E+10
384	0.064993	9.8858E+10
385	0.064993	1.0528E+11
386	0.064993	1.1213E+11
387	0.064993	1.1941E+11
388	0.064993	1.2717E+11
389	0.064993	1.3544E+11

Table 7

DUK Non-Constant DCF Calculation

		non const		const	
g=	4.72%	dcf=	9.983033%	dcf=	8.859106%
D=	3.9800			g(e)=	6.50%
		P=	-100.63		

YEAR	GROWTH RATE	DIVIDEND
390	0.064993	1.4424E+11
391	0.064993	1.5362E+11
392	0.064993	1.636E+11
393	0.064993	1.7424E+11
394	0.064993	1.8556E+11
395	0.064993	1.9762E+11
396	0.064993	2.1046E+11
397	0.064993	2.2414E+11
398	0.064993	2.3871E+11
399	0.064993	2.5422E+11
400	0.064993	2.7075E+11

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
1	0.0558	4.83566525
2	0.0558	5.10560228
3	0.0558	5.39060777
4	0.0558	5.69152285
5	0.0558	6.00923566
6	0.056281	6.34743943
7	0.056739	6.70758819
8	0.057198	7.09124732
9	0.057656	7.50010263
10	0.058115	7.93597026
11	0.058573	8.40080737
12	0.059032	8.89672383
13	0.059491	9.42599488
14	0.059949	9.9910749
15	0.060408	10.5946124
16	0.060866	11.2394665
17	0.061325	11.9287243
18	0.061783	12.6657207
19	0.062242	13.4540591
20	0.0627	14.2976347
21	0.063159	15.200659
22	0.063618	16.1676879
23	0.064076	17.2036505
24	0.064535	18.3138825
25	0.064993	19.5041608
26	0.064993	20.7717992
27	0.064993	22.1218255
28	0.064993	23.5595943
29	0.064993	25.0908084
30	0.064993	26.7215411
31	0.064993	28.4582603
32	0.064993	30.3078545
33	0.064993	32.2776598
34	0.064993	34.3754891
35	0.064993	36.6096631
36	0.064993	38.9890433
37	0.064993	41.5230671
38	0.064993	44.2217853

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
39	0.064993	47.0959019
40	0.064993	50.1568166
41	0.064993	53.41667
42	0.064993	56.8883919
43	0.064993	60.5857521
44	0.064993	64.5234157
45	0.064993	68.7170008
46	0.064993	73.1831405
47	0.064993	77.9395491
48	0.064993	83.005092
49	0.064993	88.3998609
50	0.064993	94.1452532
51	0.064993	100.264057
52	0.064993	106.780542
53	0.064993	113.720554
54	0.064993	121.11162
55	0.064993	128.983055
56	0.064993	137.36608
57	0.064993	146.293945
58	0.064993	155.802061
59	0.064993	165.92814
60	0.064993	176.712346
61	0.064993	188.197451
62	0.064993	200.429011
63	0.064993	213.45554
64	0.064993	227.328705
65	0.064993	242.103531
66	0.064993	257.838621
67	0.064993	274.596385
68	0.064993	292.443291
69	0.064993	311.450125
70	0.064993	331.692274
71	0.064993	353.250025
72	0.064993	376.208885
73	0.064993	400.659915
74	0.064993	426.700096
75	0.064993	454.432713
76	0.064993	483.967762
77	0.064993	515.422389

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
78	0.064993	548.921354
79	0.064993	584.597525
80	0.064993	622.592406
81	0.064993	663.056696
82	0.064993	706.150891
83	0.064993	752.045918
84	0.064993	800.92381
85	0.064993	852.978434
86	0.064993	908.416256
87	0.064993	967.457161
88	0.064993	1030.33533
89	0.064993	1097.30014
90	0.064993	1168.61722
91	0.064993	1244.56943
92	0.064993	1325.45801
93	0.064993	1411.60381
94	0.064993	1503.3485
95	0.064993	1601.05597
96	0.064993	1705.11377
97	0.064993	1815.93462
98	0.064993	1933.95807
99	0.064993	2059.65225
100	0.064993	2193.5157
101	0.064993	2336.07936
102	0.064993	2487.9087
103	0.064993	2649.60592
104	0.064993	2821.81236
105	0.064993	3005.21106
106	0.064993	3200.52943
107	0.064993	3408.54217
108	0.064993	3630.07432
109	0.064993	3866.00457
110	0.064993	4117.26869
111	0.064993	4384.86328
112	0.064993	4669.8497
113	0.064993	4973.3583
114	0.064993	5296.59292
115	0.064993	5640.83559
116	0.064993	6007.4517

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
117	0.064993	6397.89539
118	0.064993	6813.71526
119	0.064993	7256.56061
120	0.064993	7728.18791
121	0.064993	8230.4678
122	0.064993	8765.39247
123	0.064993	9335.08362
124	0.064993	9941.80084
125	0.064993	10587.9506
126	0.064993	11276.0957
127	0.064993	12008.9655
128	0.064993	12789.467
129	0.064993	13620.6957
130	0.064993	14505.9487
131	0.064993	15448.7371
132	0.064993	16452.8004
133	0.064993	17522.121
134	0.064993	18660.9403
135	0.064993	19873.775
136	0.064993	21165.4358
137	0.064993	22541.0458
138	0.064993	24006.0612
139	0.064993	25566.2926
140	0.064993	27227.9285
141	0.064993	28997.5594
142	0.064993	30882.2044
143	0.064993	32889.3386
144	0.064993	35026.9229
145	0.064993	37303.4357
146	0.064993	39727.9064
147	0.064993	42309.9513
148	0.064993	45059.8116
149	0.064993	47988.3942
150	0.064993	51107.3149
151	0.064993	54428.9443
152	0.064993	57966.4571
153	0.064993	61733.8843
154	0.064993	65746.1687
155	0.064993	70019.2245

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
156	0.064993	74569.9999
157	0.064993	79416.545
158	0.064993	84578.0826
159	0.064993	90075.0852
160	0.064993	95929.3558
161	0.064993	102164.114
162	0.064993	108804.09
163	0.064993	115875.619
164	0.064993	123406.75
165	0.064993	131427.353
166	0.064993	139969.241
167	0.064993	149066.293
168	0.064993	158754.593
169	0.064993	169072.567
170	0.064993	180061.138
171	0.064993	191763.893
172	0.064993	204227.248
173	0.064993	217500.636
174	0.064993	231636.704
175	0.064993	246691.522
176	0.064993	262724.8
177	0.064993	279800.133
178	0.064993	297985.247
179	0.064993	317352.27
180	0.064993	337978.018
181	0.064993	359944.301
182	0.064993	383338.243
183	0.064993	408252.633
184	0.064993	434786.29
185	0.064993	463044.454
186	0.064993	493139.208
187	0.064993	525189.917
188	0.064993	559323.706
189	0.064993	595675.959
190	0.064993	634390.863
191	0.064993	675621.973
192	0.064993	719532.826
193	0.064993	766297.587
194	0.064993	816101.741

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
195	0.064993	869142.828
196	0.064993	925631.227
197	0.064993	985790.988
198	0.064993	1049860.73
199	0.064993	1118094.56
200	0.064993	1190763.14
201	0.064993	1268154.68
202	0.064993	1350576.15
203	0.064993	1438354.45
204	0.064993	1531837.75
205	0.064993	1631396.83
206	0.064993	1737426.58
207	0.064993	1850347.54
208	0.064993	1970607.6
209	0.064993	2098683.75
210	0.064993	2235083.98
211	0.064993	2380349.31
212	0.064993	2535055.89
213	0.064993	2699817.36
214	0.064993	2875287.21
215	0.064993	3062161.4
216	0.064993	3261181.16
217	0.064993	3473135.85
218	0.064993	3698866.16
219	0.064993	3939267.42
220	0.064993	4195293.12
221	0.064993	4467958.77
222	0.064993	4758345.83
223	0.064993	5067606.09
224	0.064993	5396966.17
225	0.064993	5747732.42
226	0.064993	6121296.11
227	0.064993	6519138.9
228	0.064993	6942838.79
229	0.064993	7394076.29
230	0.064993	7874641.18
231	0.064993	8386439.53
232	0.064993	8931501.31
233	0.064993	9511988.42

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
234	0.064993	10130203.3
235	0.064993	10788597.9
236	0.064993	11489783.7
237	0.064993	12236541.8
238	0.064993	13031834.2
239	0.064993	13878815.1
240	0.064993	14780844.1
241	0.064993	15741498.9
242	0.064993	16764589.7
243	0.064993	17854174.6
244	0.064993	19014575
245	0.064993	20250393.6
246	0.064993	21566532.1
247	0.064993	22968210.6
248	0.064993	24460988.8
249	0.064993	26050787.4
250	0.064993	27743912.2
251	0.064993	29547078.6
252	0.064993	31467438.6
253	0.064993	33512609
254	0.064993	35690701.7
255	0.064993	38010355.6
256	0.064993	40480771.3
257	0.064993	43111747.4
258	0.064993	45913719
259	0.064993	48897799.8
260	0.064993	52075825.7
261	0.064993	55460401.7
262	0.064993	59064952.3
263	0.064993	62903774.2
264	0.064993	66992093.6
265	0.064993	71346126
266	0.064993	75983141.1
267	0.064993	80921530.7
268	0.064993	86180882.2
269	0.064993	91782056
270	0.064993	97747268.1
271	0.064993	104100179
272	0.064993	110865985

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
273	0.064993	118071524
274	0.064993	125745373
275	0.064993	133917971
276	0.064993	142621732
277	0.064993	151891179
278	0.064993	161763077
279	0.064993	172276582
280	0.064993	183473393
281	0.064993	195397921
282	0.064993	208097463
283	0.064993	221622388
284	0.064993	236026343
285	0.064993	251366457
286	0.064993	267703574
287	0.064993	285102494
288	0.064993	303632226
289	0.064993	323366264
290	0.064993	344382882
291	0.064993	366765437
292	0.064993	390602707
293	0.064993	415989237
294	0.064993	443025721
295	0.064993	471819393
296	0.064993	502484458
297	0.064993	535142546
298	0.064993	569923187
299	0.064993	606964335
300	0.064993	646412907
301	0.064993	688425368
302	0.064993	733168355
303	0.064993	780819334
304	0.064993	831567303
305	0.064993	885613547
306	0.064993	943172430
307	0.064993	1004472251
308	0.064993	1069756146
309	0.064993	1139283051
310	0.064993	1213328735
311	0.064993	1292186886

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
312	0.064993	1376170283
313	0.064993	1465612033
314	0.064993	1560866890
315	0.064993	1662312669
316	0.064993	1770351735
317	0.064993	1885412610
318	0.064993	2007951662
319	0.064993	2138454923
320	0.064993	2277440012
321	0.064993	2425458191
322	0.064993	2583096549
323	0.064993	2750980333
324	0.064993	2929775426
325	0.064993	3120190989
326	0.064993	3322982275
327	0.064993	3538953621
328	0.064993	3768961641
329	0.064993	4013918626
330	0.064993	4274796156
331	0.064993	4552628958
332	0.064993	4848519012
333	0.064993	5163639915
334	0.064993	5499241543
335	0.064993	5856655004
336	0.064993	6237297921
337	0.064993	6642680049
338	0.064993	7074409270
339	0.064993	7534197967
340	0.064993	8023869816
341	0.064993	8545367019
342	0.064993	9100758009
343	0.064993	9692245652
344	0.064993	1.0322E+10
345	0.064993	1.0993E+10
346	0.064993	1.1708E+10
347	0.064993	1.2468E+10
348	0.064993	1.3279E+10
349	0.064993	1.4142E+10
350	0.064993	1.5061E+10

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
351	0.064993	1.604E+10
352	0.064993	1.7082E+10
353	0.064993	1.8193E+10
354	0.064993	1.9375E+10
355	0.064993	2.0634E+10
356	0.064993	2.1975E+10
357	0.064993	2.3403E+10
358	0.064993	2.4925E+10
359	0.064993	2.6544E+10
360	0.064993	2.827E+10
361	0.064993	3.0107E+10
362	0.064993	3.2064E+10
363	0.064993	3.4148E+10
364	0.064993	3.6367E+10
365	0.064993	3.8731E+10
366	0.064993	4.1248E+10
367	0.064993	4.3929E+10
368	0.064993	4.6784E+10
369	0.064993	4.9824E+10
370	0.064993	5.3063E+10
371	0.064993	5.6511E+10
372	0.064993	6.0184E+10
373	0.064993	6.4096E+10
374	0.064993	6.8262E+10
375	0.064993	7.2698E+10
376	0.064993	7.7423E+10
377	0.064993	8.2455E+10
378	0.064993	8.7814E+10
379	0.064993	9.3521E+10
380	0.064993	9.96E+10
381	0.064993	1.0607E+11
382	0.064993	1.1297E+11
383	0.064993	1.2031E+11
384	0.064993	1.2813E+11
385	0.064993	1.3646E+11
386	0.064993	1.4532E+11
387	0.064993	1.5477E+11
388	0.064993	1.6483E+11
389	0.064993	1.7554E+11

Table 8

PEG Non-Constant DCF Calculation

		non const		const	
g=	5.58%	dcf=	9.350333%	dcf=	8.712937%
D=	4.5800			g(e)=	6.50%
		P=	-154.46		

YEAR	GROWTH RATE	DIVIDEND
390	0.064993	1.8695E+11
391	0.064993	1.991E+11
392	0.064993	2.1204E+11
393	0.064993	2.2582E+11
394	0.064993	2.405E+11
395	0.064993	2.5613E+11
396	0.064993	2.7278E+11
397	0.064993	2.9051E+11
398	0.064993	3.0939E+11
399	0.064993	3.2949E+11
400	0.064993	3.5091E+11

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
1	0.0586	1.93729908
2	0.0586	2.05088946
3	0.0586	2.17114004
4	0.0586	2.29844131
5	0.0586	2.43320668
6	0.058951	2.57664754
7	0.059269	2.7293638
8	0.059587	2.89199936
9	0.059905	3.06524559
10	0.060223	3.24984491
11	0.060541	3.44659485
12	0.060859	3.65635228
13	0.061177	3.88003811
14	0.061495	4.11864225
15	0.061813	4.37322913
16	0.062131	4.64494352
17	0.062449	4.93501693
18	0.062767	5.24477452
19	0.063085	5.57564255
20	0.063403	5.92915649
21	0.063721	6.3069698
22	0.064039	6.71086342
23	0.064357	7.14275609
24	0.064675	7.60471552
25	0.064993	8.09897054
26	0.064993	8.62534878
27	0.064993	9.18593804
28	0.064993	9.78296181
29	0.064993	10.4187881
30	0.064993	11.0959388
31	0.064993	11.8170996
32	0.064993	12.5851311
33	0.064993	13.4030794
34	0.064993	14.2741888
35	0.064993	15.2019144
36	0.064993	16.1899359
37	0.064993	17.2421721
38	0.064993	18.3627965
39	0.064993	19.5562539
40	0.064993	20.827278
41	0.064993	22.1809101

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
42	0.064993	23.622519
43	0.064993	25.1578228
44	0.064993	26.7929109
45	0.064993	28.5342687
46	0.064993	30.3888029
47	0.064993	32.3638693
48	0.064993	34.4673017
49	0.064993	36.7074429
50	0.064993	39.0931781
51	0.064993	41.63397
52	0.064993	44.3398961
53	0.064993	47.2216891
54	0.064993	50.2907791
55	0.064993	53.5593392
56	0.064993	57.0403335
57	0.064993	60.747569
58	0.064993	64.6957496
59	0.064993	68.9005352
60	0.064993	73.3786034
61	0.064993	78.1477157
62	0.064993	83.2267881
63	0.064993	88.6359657
64	0.064993	94.3967033
65	0.064993	100.53185
66	0.064993	107.065739
67	0.064993	114.024287
68	0.064993	121.435094
69	0.064993	129.327553
70	0.064993	137.732968
71	0.064993	146.684678
72	0.064993	156.218189
73	0.064993	166.371313
74	0.064993	177.184322
75	0.064993	188.700103
76	0.064993	200.964332
77	0.064993	214.025653
78	0.064993	227.935871
79	0.064993	242.750159
80	0.064993	258.527275
81	0.064993	275.329798
82	0.064993	293.22437
83	0.064993	312.281968

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
84	0.064993	332.578182
85	0.064993	354.193511
86	0.064993	377.213691
87	0.064993	401.730027
88	0.064993	427.839758
89	0.064993	455.646445
90	0.064993	485.260379
91	0.064993	516.799017
92	0.064993	550.387454
93	0.064993	586.158911
94	0.064993	624.255271
95	0.064993	664.827636
96	0.064993	708.036931
97	0.064993	754.054537
98	0.064993	803.062976
99	0.064993	855.256631
100	0.064993	910.84252
101	0.064993	970.041116
102	0.064993	1033.08722
103	0.064993	1100.23089
104	0.064993	1171.73845
105	0.064993	1247.89352
106	0.064993	1328.99814
107	0.064993	1415.37402
108	0.064993	1507.36375
109	0.064993	1605.33219
110	0.064993	1709.66791
111	0.064993	1820.78475
112	0.064993	1939.12342
113	0.064993	2065.15332
114	0.064993	2199.3743
115	0.064993	2342.31873
116	0.064993	2494.55359
117	0.064993	2656.68268
118	0.064993	2829.34906
119	0.064993	3013.23759
120	0.064993	3209.07763
121	0.064993	3417.64595
122	0.064993	3639.76979
123	0.064993	3876.33018
124	0.064993	4128.26539
125	0.064993	4396.57469

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
126	0.064993	4682.32227
127	0.064993	4986.64151
128	0.064993	5310.73944
129	0.064993	5655.90155
130	0.064993	6023.49685
131	0.064993	6414.98335
132	0.064993	6831.91383
133	0.064993	7275.94197
134	0.064993	7748.82892
135	0.064993	8252.45033
136	0.064993	8788.80372
137	0.064993	9360.01645
138	0.064993	9968.35413
139	0.064993	10616.2296
140	0.064993	11306.2127
141	0.064993	12041.0399
142	0.064993	12823.626
143	0.064993	13657.0749
144	0.064993	14544.6922
145	0.064993	15489.9988
146	0.064993	16496.7438
147	0.064993	17568.9204
148	0.064993	18710.7813
149	0.064993	19926.8553
150	0.064993	21221.966
151	0.064993	22601.2501
152	0.064993	24070.1783
153	0.064993	25634.5769
154	0.064993	27300.6508
155	0.064993	29075.0082
156	0.064993	30964.6869
157	0.064993	32977.1818
158	0.064993	35120.4754
159	0.064993	37403.0684
160	0.064993	39834.0146
161	0.064993	42422.9558
162	0.064993	45180.1607
163	0.064993	48116.5652
164	0.064993	51243.8161
165	0.064993	54574.3171
166	0.064993	58121.2782
167	0.064993	61898.7677

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
168	0.064993	65921.7684
169	0.064993	70206.237
170	0.064993	74769.1669
171	0.064993	79628.6565
172	0.064993	84803.9799
173	0.064993	90315.6644
174	0.064993	96185.571
175	0.064993	102436.982
176	0.064993	109094.692
177	0.064993	116185.108
178	0.064993	123736.353
179	0.064993	131778.378
180	0.064993	140343.081
181	0.064993	149464.431
182	0.064993	159178.606
183	0.064993	169524.138
184	0.064993	180542.059
185	0.064993	192276.07
186	0.064993	204772.713
187	0.064993	218081.552
188	0.064993	232255.377
189	0.064993	247350.403
190	0.064993	263426.505
191	0.064993	280547.444
192	0.064993	298781.128
193	0.064993	318199.878
194	0.064993	338880.715
195	0.064993	360905.667
196	0.064993	384362.091
197	0.064993	409343.024
198	0.064993	435947.549
199	0.064993	464281.187
200	0.064993	494456.321
201	0.064993	526592.633
202	0.064993	560817.588
203	0.064993	597266.934
204	0.064993	636085.24
205	0.064993	677426.473
206	0.064993	721454.607
207	0.064993	768344.271
208	0.064993	818281.446
209	0.064993	871464.198

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
210	0.064993	928103.47
211	0.064993	988423.911
212	0.064993	1052664.77
213	0.064993	1121080.85
214	0.064993	1193943.52
215	0.064993	1271541.76
216	0.064993	1354183.37
217	0.064993	1442196.11
218	0.064993	1535929.1
219	0.064993	1635754.09
220	0.064993	1742067.02
221	0.064993	1855289.58
222	0.064993	1975870.84
223	0.064993	2104289.07
224	0.064993	2241053.61
225	0.064993	2386706.92
226	0.064993	2541826.71
227	0.064993	2707028.23
228	0.064993	2882966.73
229	0.064993	3070340.05
230	0.064993	3269891.36
231	0.064993	3482412.16
232	0.064993	3708745.36
233	0.064993	3949788.7
234	0.064993	4206498.22
235	0.064993	4479892.12
236	0.064993	4771054.77
237	0.064993	5081141.02
238	0.064993	5411380.78
239	0.064993	5763083.89
240	0.064993	6137645.31
241	0.064993	6536550.7
242	0.064993	6961382.23
243	0.064993	7413824.93
244	0.064993	7895673.35
245	0.064993	8408838.65
246	0.064993	8955356.22
247	0.064993	9537393.73
248	0.064993	10157259.7
249	0.064993	10817412.8
250	0.064993	11520471.4
251	0.064993	12269224.1

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
252	0.064993	13066640.5
253	0.064993	13915883.7
254	0.064993	14820321.9
255	0.064993	15783542.5
256	0.064993	16809365.8
257	0.064993	17901860.8
258	0.064993	19065360.5
259	0.064993	20304479.8
260	0.064993	21624133.5
261	0.064993	23029555.8
262	0.064993	24526321
263	0.064993	26120365.7
264	0.064993	27818012.6
265	0.064993	29625995.1
266	0.064993	31551484.2
267	0.064993	33602117
268	0.064993	35786027
269	0.064993	38111876.5
270	0.064993	40588890.3
271	0.064993	43226893.4
272	0.064993	46036348.7
273	0.064993	49028399.6
274	0.064993	52214913.6
275	0.064993	55608529.4
276	0.064993	59222707.3
277	0.064993	63071782.2
278	0.064993	67171020.9
279	0.064993	71536682.4
280	0.064993	76186082.4
281	0.064993	81137661.8
282	0.064993	86411060.4
283	0.064993	92027194.2
284	0.064993	98008338.6
285	0.064993	104378217
286	0.064993	111162094
287	0.064993	118386878
288	0.064993	126081223
289	0.064993	134275649
290	0.064993	143002657
291	0.064993	152296861
292	0.064993	162195126
293	0.064993	172736710

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
294	0.064993	183963427
295	0.064993	195919804
296	0.064993	208653264
297	0.064993	222214314
298	0.064993	236656739
299	0.064993	252037825
300	0.064993	268418577
301	0.064993	285863967
302	0.064993	304443189
303	0.064993	324229934
304	0.064993	345302685
305	0.064993	367745021
306	0.064993	391645957
307	0.064993	417100292
308	0.064993	444208986
309	0.064993	473079563
310	0.064993	503826531
311	0.064993	536571843
312	0.064993	571445380
313	0.064993	608585460
314	0.064993	648139394
315	0.064993	690264065
316	0.064993	735126555
317	0.064993	782904803
318	0.064993	833788314
319	0.064993	887978908
320	0.064993	945691524
321	0.064993	1007155069
322	0.064993	1072613329
323	0.064993	1142325932
324	0.064993	1216569382
325	0.064993	1295638153
326	0.064993	1379845860
327	0.064993	1469526497
328	0.064993	1565035768
329	0.064993	1666752495
330	0.064993	1775080120
331	0.064993	1890448308
332	0.064993	2013314647
333	0.064993	2144166465
334	0.064993	2283522766
335	0.064993	2431936282

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
336	0.064993	2589995672
337	0.064993	2758327853
338	0.064993	2937600485
339	0.064993	3128524624
340	0.064993	3331857539
341	0.064993	3548405717
342	0.064993	3779028060
343	0.064993	4024639293
344	0.064993	4286213594
345	0.064993	4564788453
346	0.064993	4861468791
347	0.064993	5177431342
348	0.064993	5513929320
349	0.064993	5872297387
350	0.064993	6253956952
351	0.064993	6660421804
352	0.064993	7093304120
353	0.064993	7554320854
354	0.064993	8045300554
355	0.064993	8568190610
356	0.064993	9125064979
357	0.064993	9718132411
358	0.064993	1.035E+10
359	0.064993	1.1022E+10
360	0.064993	1.1739E+10
361	0.064993	1.2502E+10
362	0.064993	1.3314E+10
363	0.064993	1.418E+10
364	0.064993	1.5101E+10
365	0.064993	1.6083E+10
366	0.064993	1.7128E+10
367	0.064993	1.8241E+10
368	0.064993	1.9427E+10
369	0.064993	2.0689E+10
370	0.064993	2.2034E+10
371	0.064993	2.3466E+10
372	0.064993	2.4991E+10
373	0.064993	2.6615E+10
374	0.064993	2.8345E+10
375	0.064993	3.0187E+10
376	0.064993	3.2149E+10
377	0.064993	3.4239E+10

Table 9

SRE Non-Constant DCF Calculation

		non const		const	
g=	5.86%	dcf=	9.141308%	dcf=	8.685558%
D=	1.8300			g(e)=	6.50%
		P=	-68.64		

YEAR	GROWTH RATE	DIVIDEND
378	0.064993	3.6464E+10
379	0.064993	3.8834E+10
380	0.064993	4.1358E+10
381	0.064993	4.4046E+10
382	0.064993	4.6909E+10
383	0.064993	4.9958E+10
384	0.064993	5.3204E+10
385	0.064993	5.6662E+10
386	0.064993	6.0345E+10
387	0.064993	6.4267E+10
388	0.064993	6.8444E+10
389	0.064993	7.2892E+10
390	0.064993	7.763E+10
391	0.064993	8.2675E+10
392	0.064993	8.8049E+10
393	0.064993	9.3771E+10
394	0.064993	9.9866E+10
395	0.064993	1.0636E+11
396	0.064993	1.1327E+11
397	0.064993	1.2063E+11
398	0.064993	1.2847E+11
399	0.064993	1.3682E+11
400	0.064993	1.4571E+11

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
1	0.0000	0
2	0.0000	0
3	0.0000	0
4	0.0000	0
5	0.0000	0
6	0.00325	0
7	0.006499	0
8	0.009749	0
9	0.012999	0
10	0.016248	0
11	0.019498	0
12	0.022748	0
13	0.025997	0
14	0.029247	0
15	0.032497	0
16	0.035746	0
17	0.038996	0
18	0.042246	0
19	0.045495	0
20	0.048745	0
21	0.051995	0
22	0.055244	0
23	0.058494	0
24	0.061744	0
25	0.064993	0
26	0.064993	0
27	0.064993	0
28	0.064993	0
29	0.064993	0
30	0.064993	0
31	0.064993	0
32	0.064993	0
33	0.064993	0
34	0.064993	0
35	0.064993	0
36	0.064993	0
37	0.064993	0
38	0.064993	0
39	0.064993	0
40	0.064993	0
41	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
42	0.064993	0
43	0.064993	0
44	0.064993	0
45	0.064993	0
46	0.064993	0
47	0.064993	0
48	0.064993	0
49	0.064993	0
50	0.064993	0
51	0.064993	0
52	0.064993	0
53	0.064993	0
54	0.064993	0
55	0.064993	0
56	0.064993	0
57	0.064993	0
58	0.064993	0
59	0.064993	0
60	0.064993	0
61	0.064993	0
62	0.064993	0
63	0.064993	0
64	0.064993	0
65	0.064993	0
66	0.064993	0
67	0.064993	0
68	0.064993	0
69	0.064993	0
70	0.064993	0
71	0.064993	0
72	0.064993	0
73	0.064993	0
74	0.064993	0
75	0.064993	0
76	0.064993	0
77	0.064993	0
78	0.064993	0
79	0.064993	0
80	0.064993	0
81	0.064993	0
82	0.064993	0
83	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
84	0.064993	0
85	0.064993	0
86	0.064993	0
87	0.064993	0
88	0.064993	0
89	0.064993	0
90	0.064993	0
91	0.064993	0
92	0.064993	0
93	0.064993	0
94	0.064993	0
95	0.064993	0
96	0.064993	0
97	0.064993	0
98	0.064993	0
99	0.064993	0
100	0.064993	0
101	0.064993	0
102	0.064993	0
103	0.064993	0
104	0.064993	0
105	0.064993	0
106	0.064993	0
107	0.064993	0
108	0.064993	0
109	0.064993	0
110	0.064993	0
111	0.064993	0
112	0.064993	0
113	0.064993	0
114	0.064993	0
115	0.064993	0
116	0.064993	0
117	0.064993	0
118	0.064993	0
119	0.064993	0
120	0.064993	0
121	0.064993	0
122	0.064993	0
123	0.064993	0
124	0.064993	0
125	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
126	0.064993	0
127	0.064993	0
128	0.064993	0
129	0.064993	0
130	0.064993	0
131	0.064993	0
132	0.064993	0
133	0.064993	0
134	0.064993	0
135	0.064993	0
136	0.064993	0
137	0.064993	0
138	0.064993	0
139	0.064993	0
140	0.064993	0
141	0.064993	0
142	0.064993	0
143	0.064993	0
144	0.064993	0
145	0.064993	0
146	0.064993	0
147	0.064993	0
148	0.064993	0
149	0.064993	0
150	0.064993	0
151	0.064993	0
152	0.064993	0
153	0.064993	0
154	0.064993	0
155	0.064993	0
156	0.064993	0
157	0.064993	0
158	0.064993	0
159	0.064993	0
160	0.064993	0
161	0.064993	0
162	0.064993	0
163	0.064993	0
164	0.064993	0
165	0.064993	0
166	0.064993	0
167	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
168	0.064993	0
169	0.064993	0
170	0.064993	0
171	0.064993	0
172	0.064993	0
173	0.064993	0
174	0.064993	0
175	0.064993	0
176	0.064993	0
177	0.064993	0
178	0.064993	0
179	0.064993	0
180	0.064993	0
181	0.064993	0
182	0.064993	0
183	0.064993	0
184	0.064993	0
185	0.064993	0
186	0.064993	0
187	0.064993	0
188	0.064993	0
189	0.064993	0
190	0.064993	0
191	0.064993	0
192	0.064993	0
193	0.064993	0
194	0.064993	0
195	0.064993	0
196	0.064993	0
197	0.064993	0
198	0.064993	0
199	0.064993	0
200	0.064993	0
201	0.064993	0
202	0.064993	0
203	0.064993	0
204	0.064993	0
205	0.064993	0
206	0.064993	0
207	0.064993	0
208	0.064993	0
209	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
210	0.064993	0
211	0.064993	0
212	0.064993	0
213	0.064993	0
214	0.064993	0
215	0.064993	0
216	0.064993	0
217	0.064993	0
218	0.064993	0
219	0.064993	0
220	0.064993	0
221	0.064993	0
222	0.064993	0
223	0.064993	0
224	0.064993	0
225	0.064993	0
226	0.064993	0
227	0.064993	0
228	0.064993	0
229	0.064993	0
230	0.064993	0
231	0.064993	0
232	0.064993	0
233	0.064993	0
234	0.064993	0
235	0.064993	0
236	0.064993	0
237	0.064993	0
238	0.064993	0
239	0.064993	0
240	0.064993	0
241	0.064993	0
242	0.064993	0
243	0.064993	0
244	0.064993	0
245	0.064993	0
246	0.064993	0
247	0.064993	0
248	0.064993	0
249	0.064993	0
250	0.064993	0
251	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
252	0.064993	0
253	0.064993	0
254	0.064993	0
255	0.064993	0
256	0.064993	0
257	0.064993	0
258	0.064993	0
259	0.064993	0
260	0.064993	0
261	0.064993	0
262	0.064993	0
263	0.064993	0
264	0.064993	0
265	0.064993	0
266	0.064993	0
267	0.064993	0
268	0.064993	0
269	0.064993	0
270	0.064993	0
271	0.064993	0
272	0.064993	0
273	0.064993	0
274	0.064993	0
275	0.064993	0
276	0.064993	0
277	0.064993	0
278	0.064993	0
279	0.064993	0
280	0.064993	0
281	0.064993	0
282	0.064993	0
283	0.064993	0
284	0.064993	0
285	0.064993	0
286	0.064993	0
287	0.064993	0
288	0.064993	0
289	0.064993	0
290	0.064993	0
291	0.064993	0
292	0.064993	0
293	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
294	0.064993	0
295	0.064993	0
296	0.064993	0
297	0.064993	0
298	0.064993	0
299	0.064993	0
300	0.064993	0
301	0.064993	0
302	0.064993	0
303	0.064993	0
304	0.064993	0
305	0.064993	0
306	0.064993	0
307	0.064993	0
308	0.064993	0
309	0.064993	0
310	0.064993	0
311	0.064993	0
312	0.064993	0
313	0.064993	0
314	0.064993	0
315	0.064993	0
316	0.064993	0
317	0.064993	0
318	0.064993	0
319	0.064993	0
320	0.064993	0
321	0.064993	0
322	0.064993	0
323	0.064993	0
324	0.064993	0
325	0.064993	0
326	0.064993	0
327	0.064993	0
328	0.064993	0
329	0.064993	0
330	0.064993	0
331	0.064993	0
332	0.064993	0
333	0.064993	0
334	0.064993	0
335	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
336	0.064993	0
337	0.064993	0
338	0.064993	0
339	0.064993	0
340	0.064993	0
341	0.064993	0
342	0.064993	0
343	0.064993	0
344	0.064993	0
345	0.064993	0
346	0.064993	0
347	0.064993	0
348	0.064993	0
349	0.064993	0
350	0.064993	0
351	0.064993	0
352	0.064993	0
353	0.064993	0
354	0.064993	0
355	0.064993	0
356	0.064993	0
357	0.064993	0
358	0.064993	0
359	0.064993	0
360	0.064993	0
361	0.064993	0
362	0.064993	0
363	0.064993	0
364	0.064993	0
365	0.064993	0
366	0.064993	0
367	0.064993	0
368	0.064993	0
369	0.064993	0
370	0.064993	0
371	0.064993	0
372	0.064993	0
373	0.064993	0
374	0.064993	0
375	0.064993	0
376	0.064993	0
377	0.064993	0

Table 10

XEL Non-Constant DCF Calculation

		non const		const	
g=	0.00%	dcf=	#NUM!	dcf=	#DIV/0!
D=	0.0000			g(e)=	6.50%
		P=	0.00		

YEAR	GROWTH RATE	DIVIDEND
378	0.064993	0
379	0.064993	0
380	0.064993	0
381	0.064993	0
382	0.064993	0
383	0.064993	0
384	0.064993	0
385	0.064993	0
386	0.064993	0
387	0.064993	0
388	0.064993	0
389	0.064993	0
390	0.064993	0
391	0.064993	0
392	0.064993	0
393	0.064993	0
394	0.064993	0
395	0.064993	0
396	0.064993	0
397	0.064993	0
398	0.064993	0
399	0.064993	0
400	0.064993	0

Country	*. Default Spre*	*Equity Risk Premium*	*Country Risk Premium*	*Corporate Tax Rate*	Moody's rating
Abu Dhabi	0.60%	6.79%	0.85%	15.00%	Aa2
Albania	5.51%	13.71%	7.77%	15.00%	B1
Algeria	3.68%	11.13%	5.19%	26.00%	NR
Andorra (Principal	2.33%	9.23%	3.29%	18.98%	Baa2
Angola	7.95%	17.16%	11.22%	25.00%	B3
Anguilla	7.93%	17.13%	11.19%	25.63%	NR
Antigua & Barbud	7.93%	17.13%	11.19%	25.63%	NR
Argentina	14.68%	26.65%	20.71%	35.00%	Ca
Armenia	4.40%	12.15%	6.21%	18.00%	Ba3
Aruba	2.33%	9.23%	3.29%	25.00%	Baa2
Australia	0.00%	5.94%	0.00%	30.00%	Aaa
Austria	0.49%	6.63%	0.69%	24.00%	Aa1
Azerbaijan	3.06%	10.26%	4.32%	20.00%	Ba1
Bahamas	5.51%	13.71%	7.77%	0.00%	B1
Bahrain	6.73%	15.43%	9.49%	0.00%	B2
Bangladesh	4.40%	12.15%	6.21%	32.50%	Ba3
Barbados	9.17%	18.88%	12.94%	5.50%	Caa1
Belarus	14.68%	26.65%	20.71%	18.00%	Ca
Belgium	0.73%	6.97%	1.03%	25.00%	Aa3
Belize	11.02%	21.48%	15.54%	27.18%	Caa2
Benin	5.51%	13.71%	7.77%	30.00%	B1
Bermuda	1.04%	7.40%	1.46%	0.00%	A2
Bolivia	6.73%	15.43%	9.49%	25.00%	B2
Bosnia and Herzeg	7.95%	17.16%	11.22%	10.00%	B3
Botswana	1.47%	8.01%	2.07%	22.00%	A3
Brazil	3.68%	11.13%	5.19%	34.00%	Ba2
British Virgin Islar	7.93%	17.13%	11.19%	25.63%	NR
Brunei	1.04%	7.40%	1.46%	18.50%	NR
Bulgaria	1.96%	8.70%	2.76%	10.00%	Baa1
Burkina Faso	9.17%	18.88%	12.94%	28.00%	Caa1
Cambodia	6.73%	15.43%	9.49%	20.00%	B2
Cameroon	6.73%	15.43%	9.49%	33.00%	B2
Canada	0.00%	5.94%	0.00%	25.00%	Aaa
Cape Verde	7.95%	17.16%	11.22%	0.00%	B3
Cayman Islands	0.73%	6.97%	1.03%	0.00%	Aa3
Channel Islands	1.07%	7.45%	1.51%	24.83%	NR
Chile	1.04%	7.40%	1.46%	27.00%	A2
China	0.86%	7.16%	1.22%	25.00%	A1
Colombia	2.33%	9.23%	3.29%	35.00%	Baa2
Congo (Democrati	7.95%	17.16%	11.22%	30.00%	B3
Congo (Republic o	11.02%	21.48%	15.54%	28.00%	Caa2
Cook Islands	5.51%	13.71%	7.77%	28.43%	B1
Costa Rica	6.73%	15.43%	9.49%	30.00%	B2
Croatia	2.33%	9.23%	3.29%	18.00%	Baa2
Cuba	14.68%	26.65%	20.71%	27.18%	Ca
Curacao	2.33%	9.23%	3.29%	22.00%	Baa2
Cyprus	3.06%	10.26%	4.32%	12.50%	Ba1
Czech Republic	0.73%	6.97%	1.03%	19.00%	Aa3
Denmark	0.00%	5.94%	0.00%	22.00%	Aaa
Dominican Republ	4.40%	12.15%	6.21%	27.00%	Ba3
Ecuador	12.24%	23.20%	17.26%	25.00%	Caa3
Egypt	6.73%	15.43%	9.49%	22.50%	B2
El Salvador	12.24%	23.20%	17.26%	30.00%	Caa3

Country	*. Default Spre*	*Equity Risk Premium*	*Country Risk Premium*	*Corporate Tax Rate*	Moody's rating
Estonia	0.86%	7.16%	1.22%	20.00%	A1
Ethiopia	11.02%	21.48%	15.54%	30.00%	Caa2
Falkland Islands	4.65%	12.51%	6.57%	31.46%	NR
Fiji	5.51%	13.71%	7.77%	20.00%	B1
Finland	0.49%	6.63%	0.69%	20.00%	Aa1
France	0.60%	6.79%	0.85%	25.00%	Aa2
French Guiana	4.65%	12.51%	6.57%	31.46%	NR
Gabon	9.17%	18.88%	12.94%	30.00%	Caa1
Gambia	6.73%	15.43%	9.49%	31.00%	NR
Georgia	3.68%	11.13%	5.19%	15.00%	Ba2
Germany	0.00%	5.94%	0.00%	30.00%	Aaa
Ghana	14.68%	26.65%	20.71%	25.00%	Ca
Gibraltar	1.07%	7.45%	1.51%	24.83%	NR
Greece	4.40%	12.15%	6.21%	22.00%	Ba3
Greenland	1.07%	7.45%	1.51%	24.83%	NR
Guatemala	3.06%	10.26%	4.32%	25.00%	Ba1
Guernsey (States o	0.00%	5.94%	0.00%	0.00%	Aaa
Guinea	11.02%	21.48%	15.54%	29.15%	NR
Guinea-Bissau	7.95%	17.16%	11.22%	29.15%	NR
Guyana	1.96%	8.70%	2.76%	18.64%	NR
Haiti	14.68%	26.65%	20.71%	18.64%	NR
Honduras	5.51%	13.71%	7.77%	25.00%	B1
Hong Kong	0.73%	6.97%	1.03%	16.50%	Aa3
Hungary	2.33%	9.23%	3.29%	9.00%	Baa2
Iceland	1.04%	7.40%	1.46%	20.00%	A2
India	2.69%	9.73%	3.79%	30.00%	Baa3
Indonesia	2.33%	9.23%	3.29%	15.00%	Baa2
Iran	5.51%	13.71%	7.77%	20.23%	NR
Iraq	9.17%	18.88%	12.94%	15.00%	Caa1
Ireland	0.86%	7.16%	1.22%	12.50%	A1
Isle of Man	0.73%	6.97%	1.03%	0.00%	Aa3
Israel	0.86%	7.16%	1.22%	23.00%	A1
Italy	2.69%	9.73%	3.79%	24.00%	Baa3
Ivory Coast	4.40%	12.15%	6.21%	25.00%	Ba3
Jamaica	6.73%	15.43%	9.49%	25.00%	B2
Japan	0.86%	7.16%	1.22%	23.20%	A1
Jersey (States of)	0.00%	5.94%	0.00%	0.00%	Aaa
Jordan	5.51%	13.71%	7.77%	20.00%	B1
Kazakhstan	2.33%	9.23%	3.29%	20.00%	Baa2
Kenya	6.73%	15.43%	9.49%	30.00%	B2
Korea, D.P.R.	14.68%	26.65%	20.71%	23.10%	NR
Kuwait	0.86%	7.16%	1.22%	15.00%	A1
Kyrgyzstan	7.95%	17.16%	11.22%	10.00%	B3
Laos	12.24%	23.20%	17.26%	22.81%	Caa3
Latvia	1.47%	8.01%	2.07%	20.00%	A3
Lebanon	17.50%	30.63%	24.69%	17.00%	C
Liberia	11.02%	21.48%	15.54%	29.15%	NR
Libya	3.68%	11.13%	5.19%	20.00%	NR
Liechtenstein	0.00%	5.94%	0.00%	12.50%	Aaa
Lithuania	1.04%	7.40%	1.46%	15.00%	A2
Luxembourg	0.00%	5.94%	0.00%	24.94%	Aaa
Macao	0.73%	6.97%	1.03%	22.81%	Aa3
Macedonia	4.40%	12.15%	6.21%	10.00%	Ba3
Madagascar	7.95%	17.16%	11.22%	20.00%	NR

Country	*. Default Spre*	*Equity Risk Premium*	*Country Risk Premium*	*Corporate Tax Rate*	Moody's rating
Malawi	14.68%	26.65%	20.71%	30.00%	NR
Malaysia	1.47%	8.01%	2.07%	24.00%	A3
Maldives	9.17%	18.88%	12.94%	22.81%	Caa1
Mali	11.02%	21.48%	15.54%	22.81%	Caa2
Malta	1.04%	7.40%	1.46%	35.00%	A2
Martinique	7.93%	17.13%	11.19%	25.63%	NR
Mauritius	2.69%	9.73%	3.79%	15.00%	Baa3
Mexico	2.33%	9.23%	3.29%	30.00%	Baa2
Moldova	7.95%	17.16%	11.22%	12.00%	B3
Mongolia	7.95%	17.16%	11.22%	25.00%	B3
Montenegro	5.51%	13.71%	7.77%	15.00%	B1
Montserrat	2.69%	9.73%	3.79%	27.18%	Baa3
Morocco	3.06%	10.26%	4.32%	31.00%	Ba1
Mozambique	11.02%	21.48%	15.54%	32.00%	Caa2
Myanmar	12.24%	23.20%	17.26%	25.00%	NR
Namibia	5.51%	13.71%	7.77%	32.00%	B1
Netherlands	0.00%	5.94%	0.00%	25.80%	Aaa
Netherlands Antill	7.93%	17.13%	11.19%	25.63%	NR
New Zealand	0.00%	5.94%	0.00%	28.00%	Aaa
Nicaragua	7.95%	17.16%	11.22%	30.00%	B3
Niger	7.95%	17.16%	11.22%	22.81%	B3
Nigeria	7.95%	17.16%	11.22%	30.00%	B3
Norway	0.00%	5.94%	0.00%	22.00%	Aaa
Oman	4.40%	12.15%	6.21%	15.00%	Ba3
Pakistan	9.17%	18.88%	12.94%	29.00%	Caa1
Palestinian Author	1.78%	8.45%	2.51%	15.18%	NR
Panama	2.33%	9.23%	3.29%	25.00%	Baa2
Papua New Guinea	6.73%	15.43%	9.49%	30.00%	B2
Paraguay	3.06%	10.26%	4.32%	10.00%	Ba1
Peru	1.96%	8.70%	2.76%	29.50%	Baa1
Philippines	2.33%	9.23%	3.29%	25.00%	Baa2
Poland	1.04%	7.40%	1.46%	19.00%	A2
Portugal	2.33%	9.23%	3.29%	21.00%	Baa2
Qatar	0.73%	6.97%	1.03%	10.00%	Aa3
Ras Al Khaimah (E	1.47%	8.01%	2.07%	0.00%	A3
Reunion	1.07%	7.45%	1.51%	24.83%	NR
Romania	2.69%	9.73%	3.79%	16.00%	Baa3
Russia	9.17%	18.88%	12.94%	20.00%	Caa1
Rwanda	6.73%	15.43%	9.49%	30.00%	B2
Saint Lucia	7.93%	17.13%	11.19%	25.63%	NR
Saudi Arabia	0.86%	7.16%	1.22%	20.00%	A1
Senegal	4.40%	12.15%	6.21%	30.00%	Ba3
Serbia	3.68%	11.13%	5.19%	15.00%	Ba2
Sharjah	3.06%	10.26%	4.32%	0.00%	Ba1
Sierra Leone	14.68%	26.65%	20.71%	30.00%	NR
Singapore	0.00%	5.94%	0.00%	17.00%	Aaa
Slovakia	1.04%	7.40%	1.46%	21.00%	A2
Slovenia	1.47%	8.01%	2.07%	19.00%	A3
Solomon Islands	9.17%	18.88%	12.94%	30.00%	Caa1
Somalia	14.68%	26.65%	20.71%	29.15%	NR
South Africa	3.68%	11.13%	5.19%	27.00%	Ba2
South Korea	0.60%	6.79%	0.85%	25.00%	Aa2
Spain	1.96%	8.70%	2.76%	25.00%	Baa1
Sri Lanka	14.68%	26.65%	20.71%	24.00%	Ca

Country	*. Default Spre*	*Equity Risk Premium*	*Country Risk Premium*	*Corporate Tax Rate*	Moody's rating
St. Maarten	3.68%	11.13%	5.19%	27.18%	Ba2
St. Vincent & the G	7.95%	17.16%	11.22%	27.18%	B3
Sudan	17.50%	30.63%	24.69%	35.00%	NR
Suriname	12.24%	23.20%	17.26%	36.00%	Caa3
Swaziland	7.95%	17.16%	11.22%	27.50%	B3
Sweden	0.00%	5.94%	0.00%	20.60%	Aaa
Switzerland	0.00%	5.94%	0.00%	18.00%	Aaa
Syria	17.50%	30.63%	24.69%	28.00%	NR
Taiwan	0.73%	6.97%	1.03%	20.00%	Aa3
Tajikistan	7.95%	17.16%	11.22%	18.00%	B3
Tanzania	6.73%	15.43%	9.49%	30.00%	B2
Thailand	1.96%	8.70%	2.76%	20.00%	Baa1
Togo	7.95%	17.16%	11.22%	22.81%	B3
Trinidad and Toba	3.68%	11.13%	5.19%	30.00%	Ba2
Tunisia	9.17%	18.88%	12.94%	15.00%	Caa1
Turkey	7.95%	17.16%	11.22%	23.00%	B3
Turks and Caicos I	1.96%	8.70%	2.76%	0.00%	Baa1
Uganda	6.73%	15.43%	9.49%	30.00%	B2
Ukraine	12.24%	23.20%	17.26%	18.00%	Caa3
United Arab Emira	0.60%	6.79%	0.85%	0.00%	Aa2
United Kingdom	0.73%	6.97%	1.03%	25.00%	Aa3
United States	0.00%	5.94%	0.00%	25.00%	Aaa
Uruguay	2.33%	9.23%	3.29%	25.00%	Baa2
Uzbekistan	5.51%	13.71%	7.77%	15.00%	B1
Venezuela	17.50%	30.63%	24.69%	34.00%	C
Vietnam	3.68%	11.13%	5.19%	20.00%	Ba2
Yemen	17.50%	30.63%	24.69%	20.00%	NR
Zambia	14.68%	26.65%	20.71%	35.00%	Ca
Zimbabwe	9.17%	18.88%	12.94%	25.00%	NR

Last updated: January 2023

Ohio Power Company | Financial Highlights

(MI KEY: 4057015; SPCIQ KEY: 3063105)

Source: Recommended
Period Category: Fiscal
Period Type: Years
Reporting Basis: Current/Restated
Sort Order: Latest on Right
Currency: U.S. Dollar (USD)
Magnitude: Thousands (K)

RECOMMENDED: S&P CAPITAL IQ - STANDARD	2018 FY	2019 FY	2020 FY	2021 FY	2022 FY
	Current/Restated	Current/Restated	Current/Restated	Current/Restated	Current/Restated
Period Ended	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Financial Filing Date	2/25/2021	2/24/2022	2/23/2023	2/23/2023	2/23/2023
Spot Exchange Rate	1.000000	1.000000	1.000000	1.000000	1.000000
Average Exchange Rate	1.000000	1.000000	1.000000	1.000000	1.000000
Balance Sheet ($000)					
Cash & Short Term Investments	4,900	3,700	7,400	3,000	9,600
Net Property, Plant & Equipment	6,274,900	6,995,000	7,544,100	8,044,200	8,683,100
Total Assets	7,435,900	8,043,600	8,710,400	9,265,800	10,003,100
Net Debt	1,837,900	2,317,900	2,796,200	3,066,500	3,226,300
Total Debt	1,842,800	2,321,600	2,803,600	3,069,500	3,235,900
Total Common Equity	2,297,400	2,508,500	2,692,700	2,846,300	3,088,100
Total Equity	2,297,400	2,508,500	2,692,700	2,846,300	3,088,100
Current Ratio (x)	0.24	0.18	0.13	0.26	0.25
Quick Ratio (x)	0.15	0.11	0.07	0.12	0.15
Total Debt/Equity (%)	80.21	92.55	104.12	107.84	104.79
Total Debt / Total Capital (%)	44.51	48.07	51.01	51.89	51.17
Total Debt / EBITDA (x)	2.76	3.50	3.94	4.26	4.34
Income Statement ($000)					
Total Revenue	3,063,400	2,797,600	2,749,100	2,899,100	3,665,100
Gross Profit	1,092,300	1,076,300	1,130,500	1,174,200	1,210,400
Earnings from Cont. Ops.	325,500	297,100	271,400	253,600	287,800
Net Income	325,500	297,100	271,400	253,600	287,800
EBITDA	667,900	645,200	693,700	700,900	728,900
EBIT	435,300	415,800	418,700	399,800	435,800

Ohio Power Company | Financial Highlights

RECOMMENDED: S&P CAPITAL IQ - STANDARD	2018 FY	2019 FY	2020 FY	2021 FY	2022 FY
EBITDA / Interest Expense (x)	6.63	6.25	6.07	5.79	6.24
EBIT / Interest Expense (x)	4.32	3.92	3.57	3.21	3.64
Avg. Days Sales Out.	22.1	21.9	17.4	17.3	19.1
Avg. Days Inventory Out.	7.9	10.1	13.5	14.9	13.7
Accounts Receivable Turnover (x)	16.54	16.68	20.98	21.13	19.10
Inventory Turnover (x)	46.49	36.16	27.16	24.47	26.74
Fixed Asset Turnover (x)	0.51	0.42	0.38	0.37	0.44
Total Asset Turnover (x)	0.42	0.36	0.33	0.32	0.38
Cash Flow ($000)					
Cash from Ops.	1,028,700	421,200	410,900	575,600	686,100
Cash from Investing	(707,500)	(744,100)	(791,000)	(753,300)	(802,500)
Cash from Financing	(318,400)	294,100	383,800	173,300	123,000
Net Change in Cash	2,800	(28,800)	3,700	(4,400)	6,600
Capital Expenditure	(725,900)	(799,200)	(813,200)	(732,800)	(872,400)
Change in Net Working Capital	(158,200)	(47,500)	35,400	(23,400)	(135,900)
Unlevered Free Cash Flow	140,063	(207,625)	(310,313)	(156,225)	(169,825)
Levered Free Cash Flow	77,125	(274,000)	(383,563)	(233,975)	(244,575)
Cash from Ops. to Curr. Liab. (x)	0.76	0.33	0.22	0.46	0.42
Profitability (%)					
Return on Assets	3.70	3.36	3.12	2.78	2.83
Return on Capital	6.58	5.79	5.07	4.38	4.45
Return on Equity	14.13	12.36	10.44	9.16	9.70
Return on Common Equity	14.13	12.36	10.44	9.16	9.70
Gross Profit Margin	35.66	38.47	41.12	40.50	33.03
Net Income Margin	10.63	10.62	9.87	8.75	7.85
Earnings from Cont Ops Margin	10.63	10.62	9.87	8.75	7.85
EBITDA Margin	21.80	23.06	25.23	24.18	19.89
EBIT Margin	14.21	14.86	15.23	13.79	11.89
Per Share Information ($)					

Ohio Power Company | Financial Highlights

RECOMMENDED: S&P CAPITAL IQ - STANDARD	2018 FY	2019 FY	2020 FY	2021 FY	2022 FY
Basic EPS Excl. Extra Items	11.65	10.63	9.71	9.07	10.30
Basic EPS	11.65	10.63	9.71	9.07	10.30
Diluted EPS Excl. Extra Items	11.65	10.63	9.71	9.07	10.30
Diluted EPS Incl. Extra Items	11.65	10.63	9.71	9.07	10.30
Weighted Avg. Basic Shares Out. (actual)	27,952,473	27,952,473	27,952,473	27,952,473	27,952,473
Weighted Avg. Diluted Shares Out. (actual)	27,952,473	27,952,473	27,952,473	27,952,473	27,952,473