

I&E Statement No. 1
Witness: Rachel Maurer

PENNSYLVANIA PUBLIC UTILITY COMMISSION

v.

METROPOLITAN EDISON COMPANY
Docket No. R-2016-2537349

PENNSYLVANIA ELECTRIC COMPANY
Docket No. R-2016-2537352

PENNSYLVANIA POWER COMPANY
Docket No. R-2016-2537355

WEST PENN POWER COMPANY
Docket No. R-2016-2537359

Direct Testimony

of

Rachel Maurer

Bureau of Investigation & Enforcement

Concerning:

Rate of Return

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1 **INTRODUCTION OF WITNESS**

2 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

3 A. My name is Rachel Maurer. My business address is Pennsylvania Public Utility
4 Commission, P.O. Box 3265, Harrisburg, PA 17105-3265.

5
6 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?**

7 A. I am employed by the Pennsylvania Public Utility Commission (Commission) in
8 the Bureau of Investigation & Enforcement (I&E) as a Fixed Utility Financial
9 Analyst.

10
11 **Q. WHAT IS YOUR EDUCATIONAL AND EMPLOYMENT EXPERIENCE?**

12 A. My educational and professional background is set forth in Appendix A, which is
13 attached.

14
15 **Q. PLEASE DESCRIBE THE ROLE OF I&E IN RATE PROCEEDINGS.**

16 A. I&E is responsible for protecting the public interest in proceedings before the
17 Commission. The I&E analysis in the proceeding is based on its responsibility to
18 represent the public interest. This responsibility requires balancing the interests of
19 the ratepayers and the regulated utilities who provide public utility services.

1 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

2 A. The purpose of my direct testimony is to address rate of return, including capital
3 structure, the cost of common equity, and the overall fair rate of return for
4 Metropolitan Edison Company (Met-Ed), Pennsylvania Electric Company
5 (Penelec), Pennsylvania Power Company (Penn Power), and West Penn Power
6 Company (West Penn), collectively referred to in this testimony as “the
7 Companies.”

8
9 **BACKGROUND**

10 **Q. WHAT IS THE GENERAL DEFINITION OF RATE OF RETURN IN THE**
11 **CONTEXT OF A RATE CASE?**

12 A. Rate of return is the amount of revenue an investment generates in the form of net
13 income and is usually expressed as a percentage of the amount of capital invested
14 over a given period of time. Rate of return is one of the components of the
15 revenue requirement formula.

16
17 **Q. WHAT IS THE REVENUE REQUIREMENT FORMULA?**

18 A. The revenue requirement formula used in base rate cases is as follows:

1 $RR = E + D + T + (RB \times ROR)$

2 Where:

3 RR = Revenue Requirement

4 E = Operating Expenses

5 D = Depreciation Expense

6 T = Taxes

7 RB = Rate Base

8 ROR = Overall Rate of Return

9 In the above formula the rate of return is expressed as a percentage. The
10 calculation of that rate is independent of the determination of the appropriate rate
11 base value for ratemaking purposes. As such, the appropriate total dollar return is
12 dependent upon the proper computation of the rate of return and the proper
13 valuation of each Company's rate base.

14
15 **Q. WHAT CONSTITUTES A FAIR AND REASONABLE OVERALL RATE**
16 **OF RETURN?**

17 A. A fair and reasonable overall rate of return is one that will allow the utility the
18 opportunity to recover those costs prudently incurred by all classes of capital used
19 to finance the rate base during the prospective period in which its rates will be in
20 effect.

1 The Bluefield Water Works & Improvements Co. v. Public Service Comm.
2 of West Virginia, 262 U.S. 679, 692-93 (1923), and the FPC v. Hope Natural Gas
3 Co., 320 U.S. 591, 603 (1944) cases set forth the principles that are generally
4 accepted by regulators throughout the country as the appropriate criteria for
5 measuring a fair rate of return:

- 6 1. A utility is entitled to a return similar to that being earned by other enterprises
7 with corresponding risks and uncertainties, but not as high as those earned by
8 highly profitable or speculative ventures;
- 9 2. A utility is entitled to a return level reasonably sufficient to assure financial
10 soundness;
- 11 3. A utility is entitled to a return sufficient to maintain and support its credit and
12 raise necessary capital;
- 13 4. A fair return can change (increase or decrease) along with economic conditions
14 and capital markets.

15
16 **Q. EXPLAIN HOW THE OVERALL RATE OF RETURN IS**
17 **TRADITIONALLY CALCULATED IN BASE RATE PROCEEDINGS.**

- 18 A. In base rate proceedings, the overall rate of return is traditionally calculated using
19 the weighted average cost of capital method. To calculate the weighted average
20 cost of capital, a company's capital structure must first be determined by
21 comparing the percentage of each capitalization component, which has financed
22 rate base, to total capital. In the Met-Ed, Penelec, Penn Power, and West Penn

1 cases, the capital components consist of long-term debt and common equity.
2 Next, the effective cost rate of each capital structure component must be
3 determined. The historical component of the cost rate of debt is able to be
4 computed accurately, and any future debt issuances are based on estimates. The
5 cost rate of common equity is not fixed and is more difficult to measure. Because
6 of this difficulty, a proxy group is used as discussed later in this testimony. Next,
7 each capital structure component percentage is multiplied by its corresponding
8 effective cost rate to determine the weighted capital component cost rate. The
9 I&E table below demonstrates the interaction of each capital structure component
10 and its corresponding effective cost rate. Finally, the sum of the weighted cost
11 rates produces the overall rate of return. This overall rate of return is multiplied
12 by the rate base to determine the return portion of a company's revenue
13 requirement.

14
15 **I&E POSITION**

16 **Q. PLEASE SUMMARIZE YOUR RATE OF RETURN**

17 **RECOMMENDATIONS FOR MET-ED, PENELEC, PENN POWER, AND**
18 **WEST PENN.**

19 **A.** I recommend the following rates of return for the Companies:¹

¹ I&E Exhibit No. 1, Schedule 1.

1

Type of Capital	Ratio	Cost Rate	Weighted Cost
Metropolitan Edison Company			
Long-term Debt	48.83%	5.25%	2.56%
Common Equity	51.17%	8.46%	4.33%
Total	100.00%		6.89%
Pennsylvania Electric Company			
Long-term Debt	47.44%	5.56%	2.64%
Common Equity	52.56%	8.46%	4.45%
Total	100.00%		7.09%
Pennsylvania Power Company			
Long-term Debt	49.93%	5.88%	2.94%
Common Equity	50.07%	8.46%	4.24%
Total	100.00%		7.18%
West Penn Power			
Long-term Debt	49.68%	4.87%	2.42%
Common Equity	50.32%	8.46%	4.26%
Total	100.00%		6.68%

2

3

4 **COMPANIES' RATE OF RETURN CLAIMS**

5 **Q. PLEASE SUMMARIZE THE COMPANIES' RATE OF RETURN CLAIMS.**

6 A. Based on the return on equity range recommended by Pauline M. Ahern,² Joseph
7 Dipre recommends the following rates of return for the Companies:³

² Met-Ed/Penelec/Penn Power/West Penn Statement No. 8.

³ Met-Ed/Penelec/Penn Power/West Penn Exhibit JD-24.

1

Type of Capital	Ratio	Cost Rate	Weighted Cost
Metropolitan Edison Company			
Long-term Debt	48.83%	5.25%	2.56%
Common Equity	51.17%	10.90%	5.58%
Total	100.00%		8.14%
Pennsylvania Electric Company			
Long-term Debt	47.44%	5.56%	2.64%
Common Equity	52.56%	11.30%	5.94%
Total	100.00%		8.58%
Pennsylvania Power Company			
Long-term Debt	49.93%	5.88%	2.94%
Common Equity	50.07%	11.50%	5.76%
Total	100.00%		8.70%
West Penn Power			
Long-term Debt	49.68%	4.87%	2.42%
Common Equity	50.32%	10.90%	5.48%
Total	100.00%		7.90%

2

PROXY (BAROMETER) GROUP

Q. WHAT IS A PROXY GROUP AS USED IN BASE RATE CASES?

A. A proxy group, also called a barometer group, is a group of companies that acts as a benchmark for determining the subject utility's rate of return in a base rate case.

7

Q. WHAT ARE THE REASONS FOR USING A BAROMETER GROUP?

A. A barometer group's cost of equity is used as a benchmark to satisfy the long established guideline of utility regulation that seeks to provide the subject utility

1 with the opportunity to earn a return similar to that of enterprises with
2 corresponding risks and uncertainties.

3 A barometer group is typically utilized since the use of data exclusively from one
4 company may be less reliable than using a barometer group. The lower reliability
5 occurs because the data for one company may be subject to events that can cause
6 short-term anomalies in the marketplace. The rate of return on common equity for
7 a single company could become distorted in these particular circumstances and
8 would therefore not be representative of similarly situated companies. Therefore,
9 a barometer group has the effect of smoothing out potential anomalies associated
10 with a single company.

11
12 **Q. WHAT CRITERIA DID YOU USE IN SELECTING YOUR ELECTRIC**
13 **INDUSTRY BAROMETER GROUP COMPANIES?**

14 A. I chose the criteria for my barometer to select companies who are most like the
15 electric distribution companies subject in this proceeding. When selecting a
16 barometer group, I began with Value Line's electric utilities and applied the
17 following criteria:

- 18 1. 50% or more of the company's revenues must be generated from the
19 regulated electric utility industry;
- 20 2. The company's stock must be publicly traded;
- 21 3. Investment information for the company must be available from more than
22 one source;

1 4. The company must not be currently involved/targeted in an announced
2 merger or acquisition;

3 5. The company must have six consecutive years of historic earnings data; and

4 6. The company must be operating in a state that has a deregulated electric
5 utility market.

6
7 **Q. WHAT IS A DEREGULATED ELECTRIC UTILITY MARKET?**

8 A. A deregulated electric market is a market in which the utility owns the
9 infrastructure and is responsible only for the distribution of electricity.

10 Deregulation permits electric suppliers to compete and sell electricity directly to
11 consumers and allows consumers the ability to seek competitive rates.

12
13 **Q. WHY DID YOU INCLUDE THE CRITERION THAT A COMPANY MUST**
14 **BE OPERATING IN A STATE THAT HAS A DEREGULATED**
15 **ELECTRIC UTILITY MARKET?**

16 A. I included the criterion that a company must be operating in a deregulated state,
17 like Pennsylvania, so that the companies included in my barometer group would
18 all be of similar risk to the subject Companies in this proceeding. Unlike
19 regulated markets, deregulated markets permit electricity providers to compete and
20 sell electricity directly to the consumers. This criterion ensures that each company
21 in the barometer group is operating in a similar market and under similar
22 circumstances as the First Energy Companies included in this filing.

1 **Q. DESCRIBE MS. AHERN'S BAROMETER GROUPS.**

2 A. Ms. Ahern created two barometer groups: regulated and unregulated. Her
3 regulated barometer group contains companies in the electric utility industry. Ms.
4 Ahern selected a second group containing companies that are not price-regulated.
5

6 **Q. WHAT IS THE BASIS FOR MS. AHERN'S USE OF THE UNREGULATED**
7 **BAROMETER GROUP?**

8 A. Ms. Ahern states that the application of the cost of common equity models to non-
9 price regulated companies is based on the *Hope* and *Bluefield* standard of
10 comparable risk. Ms. Ahern bases her use of a barometer group consisting of
11 unregulated companies on the assumption that a group of unregulated companies
12 can be comparable in risk to regulated public utilities.⁴
13

14 **Q. WHAT CRITERIA DID MS. AHERN USE IN SELECTING HER**
15 **ELECTRIC BAROMETER GROUP COMPANIES?**

16 A. Ms. Ahern's criteria for the barometer group are as follows:

- 17 1. The company must be included in the Electric Utility Group of *Value Line*
18 *Investment Survey's* Standard Edition;

⁴ Met-Ed Statement No. 8, page 52; Penelec Statement No. 8, page 51; Penn Power Statement No. 8, page 53; West Penn Statement No. 8, page 52.

2. The company must have 70% or greater of its total operating income derived from, and 70% or greater of its 2014 assets, devoted to regulated electric operations;
3. The company must not have publicly announced involvement in any major merger and acquisition;
4. The company must have had no dividend cuts during the past five years;
5. The company must have Value Line and Bloomberg adjusted betas;
6. The company must have positive Value Line five-year dividends per share growth rate projections; and
7. The company must have Value Line, Reuters, Zacks, or Yahoo! Finance consensus five-year earnings per share growth rate projections.⁵

Q. WHAT BAROMETER GROUP DID YOU USE IN YOUR ANALYSIS?

A. I included Ameren Corp., American Electric Power Company, Inc., Consolidated Edison, Inc., Eversource Energy, and FirstEnergy Corp. in my barometer group.

Q. WHAT ELECTRIC BAROMETER GROUP DID MS. AHERN USE IN HER ANALYSIS?

A. Ms. Ahern's 18-company electric barometer group can be found in Met-Ed/Penelec/Penn Power/West Penn Exhibit PMA-1, Schedule 4.

⁵ Met-Ed Statement No. 8, pages 25-26; Penelec Statement No. 8, pages 24-25; Penn Power Statement No. 8, page 26; West Penn Statement No. 8, pages 25-26.

1 **Q. DO YOU AGREE WITH MS. AHERN’S ELECTRIC BAROMETER**
2 **GROUP?**

3 A. No. I disagree with Ms. Ahern’s barometer group because apart from Ameren
4 Corp., American Electric Power Co., Inc., and Consolidated Edison, Inc., her
5 companies operate in states that are not fully deregulated.⁶ As previously stated, if
6 a company does not operate in a state that is deregulated, it is not comparable to a
7 company operating a distribution-only system in Pennsylvania’s deregulated
8 market.

9
10 **Q. HOW DID MS. AHERN SELECT HER UNREGULATED BAROMETER**
11 **GROUP COMPANIES?**

12 A. Ms. Ahern chose companies with a Value Line beta and standard error of
13 regression similar to those of the companies in her regulated barometer group, and
14 that are domestic, non-price regulated companies.⁷

⁶ “The Status of Electric Industry Restructuring In the U.S.” RRA Topical Special Report, Regulatory Research Associates, December 1, 2014. Power prices are competitively determined for all retail customers in Connecticut, Delaware, D.C., Illinois, Maine, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, and parts of Texas. Texas was excluded from my barometer group as it is not fully deregulated.

⁷ Met-Ed Statement No. 8, pages 52-53; Penelec Statement No. 8, pages 51-52; Penn Power Statement No. 8, pages 53-54; West Penn Statement No. 8, pages 52-53.

1 **Q. WHAT NON-PRICE REGULATED BAROMETER GROUP DID MS.**
2 **AHERN USE IN HER ANALYSIS?**

3 A. Ms. Ahern selected 17 companies in industries ranging from medical services to
4 beverages.⁸

5
6 **Q. DO YOU AGREE WITH MS. AHERN'S USE OF A NON-PRICE**
7 **REGULATED BAROMETER GROUP?**

8 A. No. Although Ms. Ahern's unregulated barometer group may have betas and
9 standard errors of regression that are similar to her electric group, the unregulated
10 barometer group is not an acceptable proxy for Met-Ed, Penelec, Penn Power, or
11 West Penn as the companies in her non-price regulated group are from different
12 industries, not electric distribution. Different industries face different risks and
13 can be significantly more profitable, defying the principles of the Hope and
14 Bluefield cases.

15
16 **Q. WHY SHOULD THE COMPANIES OF A BAROMETER GROUP BE OF**
17 **THE SAME INDUSTRY AS THE FIRST ENERGY COMPANIES?**

18 A. The purpose of a barometer group is to provide market data for a company that is
19 not publicly traded. Each industry faces different types of risk. A barometer
20 group must contain companies in the same industry as the company for which it is
21 a substitute if the return being estimated is to be accurate. Ms. Ahern has chosen

⁸ I&E Exhibit No. 1, Schedule 2.

1 companies for her unregulated barometer group from industries such as the
2 medical supplies, beverage, retail store, chemical, drug, tobacco, and the
3 environmental industry. For the eastern Electric Utility companies, the May 20,
4 2016 issue of Value Line concludes that, “This has been an excellent year for
5 electric utility equities. The group’s high valuation is a cause for concern,
6 however.”⁹ The Value Line report for the Financial Services Industry states,
7 “Given the current economic climate, the Financial Services (Diversified) Industry
8 is light on stocks with near-term appeal.”¹⁰ Value Line comments about the Retail
9 Store industry that, “Near term prospects are not too enticing for the group as a
10 whole at present, in our view.” Although the betas and standard errors of
11 regression may be similar, for the purposes of this analysis, the companies in
12 Ms. Ahern’s non-price regulated group are not comparable to the electric utility
13 industry. The vastly different industries included in Ms. Ahern’s group have faced
14 different economic and regulatory challenges and are expected to face different
15 challenges in the future.

16
17 **Q. DOES MS. AHERN’S INCLUSION OF A CRITERION THAT THE**
18 **UNREGULATED GROUP COMPANIES’ BETAS MUST BE WITHIN**
19 **TWO STANDARD DEVIATIONS OF THE MEAN REGULATED UTILITY**

⁹ I&E Exhibit No. 1, Schedule 11, page 1.

¹⁰ I&E Exhibit No. 1, Schedule 11, page 2.

1 **PROXY GROUP BETA ALLEVIATE YOUR CONCERN OF INDUSTRY**
2 **SPECIFICITY?**

3 A. No. Each different industry faces different risks which dramatically affect the
4 growth or decline of the companies within that industry. Although beta indicates
5 risk, two companies with similar betas do not always face the same type or level of
6 risk. Beta is an indicator of volatility or how each company responds when
7 compared with the market as a whole. A beta of less than one indicates that the
8 price movement of the stock is less than that of the market as a whole. The fact
9 that Ms. Ahern's unregulated barometer group has a beta similar to that of her
10 electric group does not mean that the companies face the same risks.

11
12 **CAPITAL STRUCTURE**

13 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE**
14 **COMPANIES' CAPITAL STRUCTURES?**

15 A. I recommend using the Companies' claimed capital structures for the fully
16 projected future test year (FPFTY) ending December 31, 2017.¹¹

¹¹ Met-Ed/Penelec/Penn Power/West Penn Exhibit JD-24.

1

Metropolitan Edison Company	
Long-term Debt	48.83%
Common Equity	51.17%
Total	100.00%

Pennsylvania Electric Company	
Long-term Debt	47.44%
Common Equity	52.56%
Total	100.00%

Pennsylvania Power Company	
Long-term Debt	49.93%
Common Equity	50.07%
Total	100.00%

West Penn Power	
Long-term Debt	49.68%
Common Equity	50.32%
Total	100.00%

2

3

4 **Q. WHAT IS THE BASIS FOR THE COMPANIES' CLAIMED CAPITAL**
5 **STRUCTURES?**

6 A. Mr. Dipre states that the capital structure for each Company is based on the
7 expected capital structure at the end of the FPFTY.¹²

8

9 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO USE THE**
10 **COMPANIES' CLAIMED CAPITAL STRUCTURES?**

¹² Met-Ed/Penelec/Penn Power/West Penn Statement No. 10, page 4.

1 A. The companies in my barometer group have debt ratios ranging from 40.55% to
2 60.71% and equity that ranges from 59.45% to 39.29%, resulting in a five-year
3 average of 49.36% debt and 50.64% common equity.¹³ As the estimated capital
4 structures claimed by the Companies are within the range of my barometer group,
5 they are representative of the industry; therefore, I recommend the claimed capital
6 structures be used.

7
8 **COST RATE OF LONG-TERM DEBT**

9 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE**
10 **COMPANIES' COST RATES OF LONG-TERM DEBT?**

11 A. I recommend using the Companies' claimed cost rates which represent the
12 Companies' expected cost of long-term debt for the FPFTY ending December 31,
13 2017.¹⁴

14
15 **Q. WHAT IS THE BASIS FOR THE COMPANIES' CLAIMED COST RATES**
16 **OF LONG-TERM DEBT?**

17 A. Mr. Dipre calculates the Companies' claimed cost rates of long-term debt by
18 "taking the Net Proceeds at the time of issuance and calculating the Internal Rate
19 of Return based on the interest rate and the years to maturity."¹⁵ He then finds the

¹³ I&E Exhibit No. 1, Schedule 3.

¹⁴ Met-Ed/Penelec/Penn Power/West Penn Exhibit JD-24.

¹⁵ Met-Ed/Penelec/Penn Power/West Penn Statement No. 9, page 5.

1 weighted cost rate of each effective cost rate to determine the cost of long-term
2 debt. Additionally, Penn Power, Penelec, and West Penn's long-term debt include
3 bonds expected to be issued in 2016 and 2017.¹⁶
4

5 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION TO USE THE**
6 **COMPANIES' CLAIMED COST RATES OF LONG-TERM DEBT?**

7 A. The Companies' claimed cost rates of long-term debt are reasonable as they
8 represent the Companies' long-term debt issues expected to be outstanding at
9 December 31, 2017. Additionally, the claimed cost rates of long-term debt of
10 5.25% (Met-Ed), 5.56% (Penelec), 5.88% (Penn Power) and 4.87% (West Penn)¹⁷
11 are representative of the electric industry as they are within the implied debt cost
12 rates for my barometer group, averaging 5.21% with a high of 5.90% and a low of
13 4.31%.¹⁸ Therefore, I recommend the claimed cost rates of long-term debt be
14 used.

¹⁶ Met-Ed/Penelec/Penn Power/West Penn Exhibit JD-23.

¹⁷ Met-Ed/Penelec/Penn Power/West Penn Exhibit JD-24.

¹⁸ I&E Exhibit No. 1, Schedule 4.

COST OF COMMON EQUITY

COMMON METHODS

Q. WHAT METHODS ARE COMMONLY PRESENTED BY UTILITIES IN ESTIMATING THE COST OF COMMON EQUITY?

A. Three of the methods commonly presented to estimate the cost of common equity are the Discounted Cash Flow (DCF), the Capital Asset Pricing Model (CAPM), and the Risk Premium (RP).

Q. WHAT IS THE THEORETICAL BASIS FOR THE DCF METHOD?

A. The DCF method is the “dividend discount model” of financial theory which maintains that the value (price) of any security or commodity is the discounted present value of all future cash flows. The DCF method assumes that investors evaluate stocks in the classical economic framework, which maintains that the value of a financial asset is determined by its earning power, or its ability to generate future cash flows.

Q. WHAT IS THE THEORETICAL BASIS FOR THE CAPM?

A. The Capital Asset Pricing Model describes the relationship of a stock’s investment risk and its market rate of return. The CAPM identifies the rate of return investors expect so that the return is comparable with returns of other stocks of similar risk. The method hypothesizes that the investor-required return on a company’s stock is equal to the return on a “risk free” asset plus an equity premium reflecting the

1 company's investment risk. In the CAPM, two types of risk are associated with a
2 stock: firm-specific risk (unsystematic risk) and market risk (systematic risk)
3 which is measured by a firm's beta. The CAPM only allows for investors to
4 receive a return for bearing systematic risk. Unsystematic risk is assumed to be
5 diversified away and does not earn a return.

6
7 **Q. HOW HAS THE CAPM BEEN EVALUATED IN THE PAST?**

8 A. Professors Eugene F. Fama and Kenneth R. French examined the importance of
9 beta, CAPM's systematic risk factor, in explaining returns on common stock in the
10 article *The Capital Asset Pricing Model: Theory and Evidence*.¹⁹ In CAPM
11 theory, the higher a stock's beta, the higher the expected return on that stock.
12 They found that the model did not do well in predicting actual returns, and
13 suggested the use of more elaborate multi-factor models. In the CAPM, the actual
14 risk-return relationship is flatter than what is predicted; the CAPM tends to
15 overstate the sensitivity of the risk-return relationship. One adaptation of the
16 CAPM that attempts to correct for the difference between the CAPM predictions
17 and historic results is the Empirical CAPM (ECAPM) which assumes that the
18 actual risk-return relationship is flatter than what is predicted by the CAPM.

¹⁹ Fama, Eugene F. and French, Kenneth R., "The Capital Asset Pricing Model: Theory and Evidence." *Journal of Economic Perspectives* (2004): Volume 18, Number 3, pages 25-46.

1 **Q. WHAT IS THE THEORETICAL BASIS OF THE ECAPM?**

2 A. The ECAPM describes the relationship of a stock's investment risk and its market
3 rate of return, like the CAPM. The ECAPM attempts to account for the difference
4 between CAPM predictions and results by the use of an additional factor which
5 has the effect of decreasing the slope of the Security Market Line. The ECAPM
6 has a flatter risk-return relationship than the CAPM because of the additional
7 factor.

8
9 **Q. WHAT IS THE THEORETICAL BASIS FOR THE RP METHOD?**

10 A. The theoretical basis for the RP method is a simplified version of the CAPM. The
11 RP method's theory is that common stock is riskier than debt and as a result,
12 investors require a higher expected return on stocks than bonds. In the risk
13 premium approach, the cost of equity is made up of the cost of debt and a risk
14 premium. While the CAPM uses the market risk premium, it also directly
15 measures the systematic risk of the company group through the use of beta. The
16 RP method does not measure the specific risk of the company.

17
18 **Q. WHAT METHODS DO YOU RECOMMEND USING IN THESE CASES**
19 **TO DETERMINE THE COST OF COMMON EQUITY?**

20 A. I recommend using the DCF method as the primary method to determine the cost
21 of common equity and using the results of the CAPM as a comparison to the DCF
22 results.

1 **Q. PLEASE EXPLAIN WHY YOU CHOSE TO USE THE DCF AND CAPM IN**
2 **YOUR ANALYSIS.**

3 A. I have used the DCF as the primary method for a variety of reasons. The DCF is
4 intuitively appealing to investors since it is based upon the concept that the receipt
5 of dividends in addition to expected appreciation is the total return requirement
6 determined by the market. The use of a growth rate and expected dividend yield
7 are also strengths of the DCF as they allow it to recognize the time value of money
8 and be forward-looking. The use of the barometer group companies' stock prices
9 and growth rates directly in the calculation also cause the DCF to be company-
10 specific. The DCF method is the superior method for determining the rate of
11 return for the current economic market because it measures the cost of equity
12 directly.

13 I have included a CAPM analysis as a comparison because of the
14 Commission's interest in confirming the DCF results submitted in base rate cases
15 by the use of a second method. Both the CAPM and the DCF include inputs that
16 allow the results to be specific to the utility industry, although the CAPM is far
17 less responsive to changes in the industry than the DCF. The CAPM is based on
18 the performance of U.S. Treasury bonds and the performance of the market as
19 measured through the S&P 500 and is company-specific only through the use of
20 beta. Beta reflects a stock's volatility relative to the overall market thereby
21 incorporating an industry-specific aspect to the CAPM but only as a measure of
22 how reactive the industry is compared to the market as a whole. Although

1 changes in the utility industry are more likely to be accurately reflected in the DCF
2 as it uses the companies' actual prices, dividends, and growth rates, I have
3 included the results of my CAPM analysis because changes in the market, whether
4 as a whole or specific to the utility industry, affect the outcome of each method in
5 different ways.

6 Out of the three commonly proposed methods identified earlier, other than
7 the DCF, the CAPM should be used as the second method. Like the DCF, the
8 CAPM is based on the concept of risk and return, the betas of the companies being
9 analyzed allow the CAPM to be company-specific, it has widespread use in the
10 financial investment community, and it is forward-looking. Unlike the DCF,
11 however, there are several disadvantages to using the CAPM which is why it
12 should not be used as a primary method.

13
14 **Q. EXPLAIN THE CAPM'S DISADVANTAGES.**

15 A. The relevancy of the CAPM (and therefore, the RP method) does not carry over
16 from the investment decision-making process into the regulatory process. The
17 CAPM and RP method give results that indicate to an investor what the equity cost
18 rate should be if current economic and regulatory conditions are the same as those
19 present during the historical period in which the risk premiums were determined.
20 In addition, the CAPM and the RP method do not measure the current rate of
21 return on common equity directly but rather they determine the rate of return on
22 common equity indirectly by observing the cost of debt.

1 An implicit assumption when using the CAPM and the RP method is that
2 the variables determining the equity cost rate and debt cost rate are the same,
3 allowing the analyst to apply a constant risk premium (the difference between the
4 risk-free rate and the return on the market). However, the variables determining
5 the cost rates in the two markets can affect the cost rates differently, leading to a
6 changing risk premium. The use of a constant risk premium fails to capture the
7 effect of changing economic conditions on risk premiums over time.

8 While a historic risk premium is the result of the comparison of two cost
9 rates over time, the DCF's constant growth rate is derived directly from the stock
10 and is not a comparative factor.

11
12 **Q. IS THERE ANY ACADEMIC EVIDENCE THAT QUESTIONS THE**
13 **CREDIBILITY OF THE CAPM MODEL?**

14 A. Yes. An article, which appeared in the *New York Times* on February 18, 1992,
15 summarizes a CAPM study conducted by professors Eugene F. Fama and
16 Kenneth R. French.²⁰ Their study examined the importance of beta, CAPM's
17 systematic risk factor, in explaining returns on common stock. In CAPM theory,
18 the higher a stock's beta, the higher the expected return on that stock. They found
19 that the model did not do well in predicting actual returns, and suggested the use
20 of more elaborate multi-factor models.

²⁰ Berg, Eric N. "Market Place; A Study Shakes Confidence In the Volatile-Stock Theory" *The New York Times*, Feb. 1992; nytimes.com Web. 23 Mar 2016.

1 A more recent article in the *Journal of Economic Perspectives*(2004) states
2 that “the attraction of the CAPM is that it offers powerful and intuitively pleasing
3 predictions about how to measure risk and the relation between expected return
4 and risk. Unfortunately, the empirical record of the model is poor – poor enough
5 to invalidate the way it is used in applications.”²¹ As a result, I conclude that the
6 CAPM’s relevance to the investment decision making process does not carry over
7 well into the regulatory rate setting process.

8 9 **SUMMARY OF THE COMPANIES’ RESULTS**

10 **Q. WHAT ARE THE RESULTS OF THE COMPANIES’ COST OF EQUITY** 11 **ANALYSES?**

12 A. Ms. Ahern testifies that in analyzing the Companies’ cost of equity, she relied on
13 three methods: the DCF, the RP analysis, and the CAPM.²² Ms. Ahern applies
14 these methods using a barometer group of electric utilities and a barometer group
15 of non-price regulated companies. She then lists the results for each measure
16 based on both of her barometer groups:

²¹ Fama, Eugene F. and French, Kenneth R., “The Capital Asset Pricing Model: Theory and Evidence.” *Journal of Economic Perspectives* (2004): Volume 18, Number 3, pages 25-46.

²² Met-Ed/Penelec/Penn Power/West Penn Statement No. 8, page 4.

1

	Penn Power	West Penn	Penelec	Met-Ed
DCF	8.80%	8.80%	8.80%	8.80%
RP/PRPM	10.51%	10.51%	10.51%	10.51%
CAPM/ECAPM	9.89%	9.89%	9.89%	9.89%
Non-Price Regulated Group	11.13%	11.13%	11.13%	11.13%
Pre-Adjustment Cost of Equity	10.15%	10.15%	10.15%	10.15%
Flotation Cost Adjustment	0.27%	0.27%	0.27%	0.27%
Business/Size Risk Adjustment	0.70%	0.10%	0.10%	0.10%
Credit Risk Adjustment	0.40%	0.40%	0.80%	0.40%
Company Recommendation	11.50%	10.90%	11.30%	10.90%

2 Ms. Ahern then chooses 10.15% as her common equity cost rate. She also

3 recommends that the cost of equity be adjusted up 0.27% for flotation costs.

4 Ms. Ahern further suggests adjustments due to size or business risk and perceived

5 credit risk.²³

6

7 **I&E RECOMMENDATION**

8 **Q. WHAT IS YOUR RECOMMENDATION FOR THE APPROPRIATE COST**

9 **OF COMMON EQUITY IN THIS PROCEEDING?**

10 A. Based upon my analysis, I recommend a cost of common equity of 8.46%.

²³ Met-Ed/Penelec/Penn Power/West Penn Statement No. 8, pages 5-6.

1 **Q. WHAT IS THE BASIS FOR YOUR RECOMMENDATION?**

2 A. I arrived at this equity return using the DCF method. As explained below, I used
3 my CAPM results of 8.30% (forecasted) and 8.17% (historic) only to present to
4 the Commission a comparison to my DCF results. My DCF analysis employed a
5 spot dividend yield, a 52-week dividend yield, and earnings growth forecasts.

6
7 **DISCOUNTED CASH FLOW**

8 **Q. PLEASE EXPLAIN YOUR DCF ANALYSIS.**

9 A. My analysis employs the constant growth DCF model as portrayed in the
10 following formula:

11
$$K = D_1/P_0 + g$$

12 Where:

13 K = Cost of equity

14 D_1 = Dividend expected during the year

15 P_0 = Current price of the stock

16 g = Expected growth rate

17 When a forecast of D_1 is not available, D_0 (the current dividend) must be adjusted
18 by one half of the expected growth rate in order to account for changes in the
19 dividend paid in period one.²⁴ As forecasts for each company in my barometer

²⁴ The adjustment of ½ the growth rate is used when the timing of the dividend increase is not known for certain. It could occur next month, or in the twelfth month. On average, it is safe to assume that the increase will occur half way through the prospective year. Therefore, an adjustment by ½ the expected growth rate is appropriate.

group were available from Value Line, no dividends were adjusted for the purpose of my analysis.

Q. PLEASE EXPLAIN HOW YOU DEVELOPED THE DIVIDEND YIELDS USED IN YOUR DCF ANALYSIS.

A. A representative dividend yield must be calculated over a time frame that avoids the problems of both short-term anomalies and “stale” data series. For the purpose of my DCF analysis, the dividend yield calculation places equal emphasis on the most recent spot and the 52-week average dividend yields. The following table summarizes my dividend yield computations for the barometer group:

Five-Company Barometer Group	Dividend Yield²⁵
Spot	4.10%
52-week average	4.47%
Average	4.29%

Q. WHAT INFORMATION DID YOU RELY UPON TO DETERMINE YOUR EXPECTED GROWTH RATE?

A. I have examined the earnings growth forecasts and have used five-year projected growth rate estimates from Value Line, Yahoo! Finance, Zacks, and Morningstar.

²⁵ I&E Exhibit No. 1, Schedule 5, page 2.

1 **Q. WHAT WERE THE RESULTS OF YOUR FORECASTED EARNINGS**
2 **GROWTH RATES?**

3 A. The following table presents the expected growth rates for the five-company
4 barometer group:

Company	Average Growth Rate ²⁶
Ameren Corp.	6.05%
American Electric Power Company Inc.	4.00%
Consolidated Edison Inc.	2.02%
Eversource Energy	6.45%
FirstEnergy Corp.	2.35%
Average	4.17%

5
6 **Q. DO YOU HAVE ANY ADDITIONAL COMMENTS ON THE RESULTS**
7 **FOR THE FIVE-YEAR PROJECTED GROWTH RATES?**

8 A. Yes. While these five-year projected growth rates can be used in analyses, one
9 must be aware that analysts' estimates may be biased. This bias has been
10 observed in literature.

11
12 **Q. PLEASE EXPLAIN.**

13 A. An article authored by Professors Ciciretti, Dwyer, and Hasan in 2009 observed
14 strong evidence of earnings forecasts being higher than actual earnings.²⁷ In the
15 spring of 2010, *McKinsey on Finance* presented an article reporting that after a

²⁶ I&E Exhibit No. 1, Schedule 5, page 3.

²⁷ Ciciretti, Rocco; Dwyer, Gerald R; and Iftekhan Hasan. "Investment Analysts' Forecasts of Earnings" Federal Reserve Bank of St. Louis Review, September/October 2009, 91 (5, part 2) pp. 545-67.

decade of stricter regulation, analysts' forecasts are still overly optimistic. The article demonstrates that at twelve months out, earnings estimates exceed actual earnings while a one-month forecast is closer to the actual result.²⁸ My return on equity recommendation is more than adequate as it is based upon upwardly biased growth rates.

Q. WHAT IS THE RESULT OF YOUR DISCOUNTED CASH FLOW ANALYSIS BASED ON YOUR RECOMMENDED DIVIDEND YIELDS AND GROWTH RATES?

A. The result of my DCF analysis is 8.46%²⁹ and is calculated as follows:

$$\begin{array}{rccccccc} K & = & D_1/P_0 & + & g \\ 8.46\% & = & 4.29\% & + & 4.17\% \end{array}$$

CAPITAL ASSET PRICING MODEL (CAPM)

Q. PLEASE EXPLAIN YOUR CAPM ANALYSIS.

A. My analysis employs the standard CAPM as portrayed in the following formula:

$$K = R_f + \beta(R_m - R_f)$$

Where:

$$K = \text{Cost of equity}$$

$$R_f = \text{Risk-free rate of return}$$

²⁸ Goedhart, Marc J; Raj, Rishi; and Abhishek Saxena. "Equity analyst: Still too bullish" McKinsey On Finance Number 35 Spring 2010, pages 14-17.

²⁹ I&E Exhibit No. 1, Schedule 5, page 1.

1 R_m = Expected rate of return on the overall stock

2 β = Beta measures the systematic risk of an asset

3 The CAPM formula above is a form of the more general risk premium approach
4 and is based on modern portfolio theory.

5

6 **Q. WHAT IS BETA AS EMPLOYED IN YOUR CAPM ANALYSIS?**

7 A. Beta is a measure of the systematic risk of a stock in relation to the rest of the
8 stock market. A stock's beta is estimated by calculating the linear regression of a
9 stock's return against the return on the overall stock market. The beta of a stock
10 with a price pattern identical to that of the overall stock market will have a beta of
11 one. A stock with a price movement that is greater than the overall stock market
12 will have a beta that is greater than one and would be described as having more
13 investment risk than the market. Conversely, a stock with a price movement that
14 is less than the overall stock market will have a beta of less than one and would be
15 described as having less investment risk than the market.

16

17 **Q. WHAT BETA DID YOU CHOOSE FOR YOUR CAPM ANALYSIS?**

18 A. In estimating an equity cost rate for my barometer group of five electric
19 distribution companies, I used the average of the betas for the companies as

provided in the Value Line Investment Survey. The average beta for the five-company barometer group is 0.69.³⁰

Q. WHAT TIME PERIODS HAVE YOU CHOSEN FOR YOUR HISTORIC CAPM ANALYSIS?

A. My historic CAPM uses a risk-free rate and a market risk premium calculated over 5, 10, 20, 40, and 63 years.

Q. WHY HAVE YOU SELECTED THESE TIME PERIODS FOR YOUR HISTORIC CAPM?

A. I have selected the above time periods to represent a variety of investor experiences and time horizons. The 63-year time period represents the longest time period available from the U.S. Treasury for the 10-year Treasury Bond yield. The 40 and 20-year time periods coincide with the average useful lives of a utility's assets. The 10-year time period corresponds with the 10-year Treasury Bond I have employed. The five-year time period corresponds with the projected growth rate used in the DCF.

³⁰ I&E Exhibit No. 1, Schedule 6.

Q. WHAT RISK-FREE RATE OF RETURN HAVE YOU CHOSEN FOR YOUR HISTORIC CAPM ANALYSIS?

A. For my historic CAPM analysis, I have chosen to use the yield on 10-year Treasury Bonds as the risk-free rate of return (R_f). While the yield on the short-term T-Bill is a more theoretically correct parameter to represent a risk-free yield, this yield can be extremely volatile. At the other extreme, the 30-year Treasury Bond yield exhibits more stability but is not risk-free. Long-term Treasury Bonds have substantial maturity risk associated with the market risk and the risk of unexpected inflation. Long-term treasuries normally offer higher yields to compensate investors for these risks. As a result, I chose to use the yield on the 10-year Treasury Bond because it balances the shortcomings of the other two alternatives. Historically the geometric average for the yield on the 10-year Treasury Bond has been as follows:

<u>Time period</u>	<u>Yield³¹</u>
5 years	2.30%
10 years	2.98%
20 years	3.90%
40 years	5.88%
63 years	5.37%
Average	4.08%

³¹ I&E Exhibit No. 1, Schedule 7, page 2.

1 **Q. HOW DID YOU DETERMINE THE RETURN ON THE OVERALL**
2 **STOCK MARKET EMPLOYED IN YOUR HISTORIC CAPM ANALYSIS?**

3 A. I have used a historical return for the S&P Composite Index as a benchmark for
4 the return on the overall stock market. This historical component can vary widely
5 depending on the historic period used. Using the geometric mean of historic
6 returns, I calculated the following results:

<u>Time period</u>	<u>Return³²</u>
5 years	12.57%
10 years	7.30%
20 years	8.19%
40 years	11.34%
63 years	10.62%
Average	10.00%

7
8 **Q. WHAT RISK-FREE RATE OF RETURN HAVE YOU CHOSEN FOR**
9 **YOUR FORECASTED CAPM ANALYSIS?**

10 A. From the first quarter of 2016 to 2022, the forecasted yield on the 10-year
11 Treasury Bond is expected to range between 1.90% and 3.80%.³³ For my
12 forecasted CAPM analysis, I chose 2.45%, which is the average of the yields.
13

14 **Q. HOW DID YOU DETERMINE THE RETURN ON THE OVERALL**
15 **STOCK MARKET EMPLOYED IN YOUR FORECASTED CAPM**
16 **ANALYSIS?**

³² I&E Exhibit No. 1, Schedule 7, page 3.

³³ I&E Exhibit No. 1, Schedule 8, page 2.

A. To arrive at a representative expected return on the overall stock market, I observed Value Line's 1700 stocks and the S&P 500. Value Line expects its universe of 1700 stocks to have an average yearly return of 12.03% over the next three to five years, based on a forecasted dividend yield of 2.30% and a yearly index appreciation of 45%. Yahoo! Finance expects the S&P 500 index to have an average yearly return of 9.82% over the next five years, based upon Barron's forecasted dividend yield of 2.25% and Yahoo!'s expected increase in the S&P 500 index of 7.57%. The average of the Value Line expected return of 12.03% and the S&P return of 9.82% result in a forecasted return on the market of 10.93%.³⁴

Q. WHAT ARE THE COST OF EQUITY RESULTS FROM YOUR FORECASTED AND HISTORIC CAPM ANALYSES?

A. The results of these two analyses are as follows:

<u>CAPM Cost of Equity</u>	
Historic	8.17% ³⁵
Forecasted	8.30% ³⁶

³⁴ I&E Exhibit No. 1, Schedule 8, page 3.

³⁵ I&E Exhibit No. 1, Schedule 7, page 1.

³⁶ I&E Exhibit No. 1, Schedule 8, page 1.

1 **Q. HOW DID YOU INCORPORATE THESE RESULTS INTO YOUR**
2 **OVERALL COST OF EQUITY?**

3 A. I have included the results of my CAPM analysis in my overall cost of equity
4 calculation only as a comparison to my DCF result. The DCF model measures the
5 cost of equity directly by measuring the discounted present value of future cash
6 flows of a company and it is these cash flows that actually pay dividends to
7 shareholders. The Commission has expressed interest in seeing the results of other
8 models to confirm the results of the DCF. The CAPM is a commonplace cost of
9 equity measure and I have used its results as a point of comparison to the results of
10 the DCF.

11
12 **Q. WHY DID YOU NOT GIVE THESE RESULTS A SPECIFIC WEIGHT IN**
13 **DETERMINING YOUR COST OF COMMON EQUITY?**

14 A. I have not given these results a specific weight in determining my cost of common
15 equity because of the flaws in the CAPM model that I have expounded upon
16 earlier in my testimony. The CAPM model is flawed, first, theoretically because it
17 measures the cost of equity indirectly through the cost of a risk-free asset, and
18 second, in practice because it can be manipulated by the time period used to
19 calculate the overall market return.

1 **CRITIQUE OF COMPANY RECOMMENDATION**

2 **Q. DO YOU AGREE WITH MS. AHERN'S PROPOSED COST OF EQUITY?**

3 A. No. Ms. Ahern's cost of equity recommendation is biased for several reasons.
4 Ms. Ahern claims that the Federal Reserve Bank's (Fed) intervention in the market
5 has caused the DCF, RP, and CAPM to understate the cost of equity. She has also
6 incorrectly claimed that differences in market and book values cause the DCF to
7 misspecify the cost of equity. Ms. Ahern has given undue weight to the Capital
8 Asset Pricing Model and Risk Premium method. She has used her own version of
9 the Risk Premium method and has used a barometer group comprised of
10 companies not in the electric industry and therefore not comparable to the
11 Companies or to her electric group. Finally, Ms. Ahern has made unnecessary
12 flotation cost, risk, and size adjustments to her resulting cost of equity.

13
14 **Q. BASED ON THE COMPANIES FILED RATE BASE AND CLAIMED**
15 **CAPITAL STRUCTURE, WHAT ARE THE VALUES OF MS. AHERN'S**
16 **RISK ADJUSTMENTS?**

17 A. Based on the Companies' claimed rate base amounts Ms. Ahern's flotation cost,
18 business risk (size), and credit risk adjustments result in rate of return additions of
19 \$5,395,454 for Met-Ed; \$9,859,547 for Penelec; \$2,795,161 for Penn Power; and
20 \$5,148,547 for West Penn.³⁷

³⁷ I&E Exhibit No. 1, Schedule 9.

1 **RELIABILITY OF TRADITIONAL METHODS**

2 **Q. WHAT DOES MS. AHERN CLAIM IS THE RESULT OF THE FED’S**
3 **INTERVENTION IN THE MARKET?**

4 A. Ms. Ahern claims that the extent to which Fed policy actions have put downward
5 pressure on long-term interest rates has caused a significant effect on the market
6 prices of bonds and stocks and therefore the traditional methods of estimating the
7 cost of equity “are currently and prospectively particularly conservative
8 estimates.” Ms. Ahern claims that the Fed’s actions have exerted such influence
9 upon the markets as to cause the traditional models to understate the cost of
10 equity. Ms. Ahern further claims that the Fed’s interactions in the market make it
11 a single trader with the power to influence prices which, she asserts, runs counter
12 to the hypothesis of Perfectly Competitive Capital Markets.³⁸

13
14 **Q. WHAT IS THE PERFECTLY COMPETITIVE CAPITAL MARKET**
15 **HYPOTHESIS?**

16 A. A Perfectly Competitive Capital Market is a hypothetical market in which
17 competition is at its greatest possible level and among other characteristics, no
18 single firm can influence the market price and there are no barriers to entry.

³⁸ Met-Ed Statement No. 8, pages 7-14; Penelec Statement No. 8, pages 6-13; Penn Power Statement No. 8, pages 7-15; West Penn Statement No. 8, pages 6-14.

1 **Q. DOES THE ELECTRIC UTILITY INDUSTRY FIT THE PERFECTLY**
2 **COMPETITIVE CAPITAL MARKET HYPOTHESIS?**

3 A. No. Utilities are natural monopolies and although regulation provides a
4 substitution for competition, it does so imperfectly. The cost of infrastructure
5 provides a great barrier to entry into any utility industry and is a barrier that has
6 existed since the creation of the first utility company. Ms. Ahern's asserts that the
7 Perfectly Competitive Capital Market hypothesis is invalidated by Fed policy and
8 she makes an unmerited conclusion that the traditional cost of equity models
9 should be viewed with even greater scrutiny. The traditional cost of equity models
10 may be based on economic theories that do not always hold perfectly true, but
11 Ms. Ahern's conclusion that deviation from the Perfectly Competitive Capital
12 Market hypothesis should cause one to question the validity of the traditional cost
13 of equity models is incorrect as the barriers of entry into utility industries have
14 always run counter to the Perfectly Competitive Capital Market hypothesis and yet
15 the traditional cost of equity models remain the most commonly proposed methods
16 of estimating the cost of equity.

17 In addition, when analysts make estimates, whether earnings per share
18 growth or long-term bond yields, they take into account market conditions, both
19 historic and what is expected in the future. The Fed policies and actions in the
20 market are widely known and should be reflected in analyst estimates.

1 **WEIGHTS GIVEN TO METHODS**

2 **Q. WHY IS MS. AHERN’S RETURN ON EQUITY RECOMMENDATION**
3 **BASED ON MULTIPLE MODELS?**

4 A. Ms. Ahern claims that the use of multiple models “mitigate[s] the effects of
5 limiting assumptions and inputs associated with any single approach.”³⁹

6
7 **Q. DO YOU AGREE WITH THE COMPANY’S RELIANCE ON THE CAPM**
8 **AND RP?**

9 A. No. While I am not opposed to using the CAPM results as a comparison to the
10 results of the DCF calculation, it is inappropriate to give the CAPM and RP
11 models comparable weight as I have discussed previously. Furthermore, I have
12 chosen not to use the ECAPM because it only weights the results of the CAPM in
13 order to flatten the Security Market Line, but it does not correct the previously
14 discussed problems with the CAPM. In addition, I have not used Ms. Ahern’s
15 Predicative Risk Premium Model (PRPM) because is not a widely accepted
16 method and investors must have a statistical software package to use the PRPM.

³⁹ Met-Ed Statement No. 8, page 18; Penelec Statement No. 8, page 17; Penn Power Statement No. 8, page 19; West Penn Statement No. 8, page 18.

1 **APPLICABILITY OF THE DCF**

2 **Q. WHAT IS MS. AHERN’S CLAIM REGARDING DIFFERENCES**
3 **BETWEEN THE MARKET AND BOOK VALUE OF A COMPANY?**

4 A. Ms. Ahern claims that the difference between the market and the book value of a
5 company causes the DCF to misspecify the cost of equity. She claims that the
6 long-range market price growth potential is not fully reflected in analysts’
7 earnings per share forecasts.⁴⁰

8
9 **Q. DOES MS. AHERN’S CLAIM RAISE A VALID CONCERN?**

10 Q. No. The market capitalization of a company is widely available and therefore can
11 be assumed to be taken into account and included in analysts’ estimates. In
12 addition, the market value of a company measures the current value of a company
13 while the book value is a measure of the accounting value of the company. As
14 such, market and book values are not an accurate basis for comparison.

⁴⁰ Met-Ed Statement No. 8, pages 30-34; Penelec Statement No. 8, pages 29-33; Penn Power Statement No. 8, pages 31-35; West Penn Statement No. 8, pages 31-34.

1 **BUSINESS RISK ADJUSTMENT**

2 **Q. WHAT IS MS. AHERN’S BUSINESS RISK ADJUSTMENT?**

3 A. Ms. Ahern makes a 70 basis point adjustment for Penn Power and a 10 basis point
4 adjustment for Met-Ed, Penelec, and West Penn because she claims that the
5 Companies have a greater relative risk than the average company in her barometer
6 group due to their smaller market capitalizations compared with her group.
7 Ms. Ahern claims that smaller companies are less able to cope with significant
8 events which affect sales, revenues, and earnings and she states that the loss of
9 revenues from a few larger customers would have a greater effect on a small
10 company than on a much larger, more diverse, customer base.⁴¹

11
12 **Q. WHY ARE MS. AHERN’S RISK ADJUSTMENTS UNNECESSARY?**

13 A. Ms. Ahern’s risk adjustment is made based solely on the size of the Companies.
14 Although there is technical literature supporting adjustments relating to the size of
15 a company, this literature is not specific to the utility industry. Additionally,
16 Ms. Ahern has not shown that her barometer group is better able to absorb
17 customer loss, or that the Companies have been significantly impacted by
18 customer loss in the past. Furthermore, she ignores the Companies’ ability to file
19 for a future rate increase *if* the Companies do experience customer loss at some
20 unknown date in the future.

⁴¹ Met-Ed Statement No. 8, page 59; Penelec Statement No. 8, page 58; Penn Power Statement No. 8, page 60; West Penn Statement No. 8, page 59.

1 **Q. IS THERE ANY ACADEMIC EVIDENCE THAT SUPPORTS THE LACK**
2 **OF VALIDITY OF THE SIZE OR RISK ADJUSTMENT FOR UTILITY**
3 **COMPANIES?**

4 A. Yes. An article by Dr. Annie Wong, "Utility Stocks and the Size Effect: An
5 Empirical Analysis," from the Journal of Midwest Finance Association in 1993,
6 pp. 95-101, concludes:

7 The objective of this study is to examine if the size effect
8 exists in the utility industry. After controlling for equity
9 values, there is some weak evidence that firm size is a
10 missing factor from the CAPM for the industrial but not for
11 utility stocks. This implies that although the size
12 phenomenon has been strongly documented for the
13 industrials [sic], the findings suggest that there is no need to
14 adjust for the firm size in utility rate regulations.

15
16 While this article is older, until a credible study is conducted to refute these
17 findings, the adjustment based on size should be rejected.

18
19 **Q. WHAT IS YOUR RECOMMENDATION REGARDING THE BUSINESS**
20 **RISK ADJUSTMENT?**

21 A. Given the lack of evidence related to the utility industry to adjust the cost of equity
22 to account for the size of each Company, Ms. Ahern's business risk adjustment
23 should be rejected.

1 **CREDIT RISK ADJUSTMENT**

2 **Q. WHAT IS MS. AHERN’S CREDIT RISK ADJUSTMENT?**

3 A. Ms. Ahern makes a 40 basis point adjustment for Met-Ed and Penn Power and an
4 80 basis point adjustment for Penelec and West Penn to account for differences in
5 each Company’s bond rating and her average rating for the electric group.⁴²

6
7 **Q. DO YOU AGREE WITH MS. AHERN’S CREDIT RISK ADJUSTMENT?**

8 A. No. The Moody’s ratings represent the agency’s opinion on the ability of a
9 company to fulfill its financial obligations and apply to debt securities, such as
10 bonds, but not to equity securities. Credit ratings represent the likelihood that a
11 company will default on their bond obligations but do not necessarily translate to
12 the cost of equity. Any difference between the bond rating of each Company and
13 the bond rating of the electric group should be accounted for in the cost of debt
14 since the bond rating for each company would be taken into account when a bond
15 is issued and interest rates are set. When the credit ratings are already taken into
16 account in the cost of debt, there is no reason to also adjust the cost of equity.

⁴² Met-Ed Statement No. 8, page 61; Penelec Statement No. 8, page 60; Penn Power Statement No. 8, page 62; West Penn Statement No. 8, page 61.

1 **FLOTATION COST ADJUSTMENT**

2 **Q. WHAT IS MS. AHERN'S FLOTATION COST ADJUSTMENT?**

3 A. Ms. Ahern makes a 27 basis point adjustment for the Companies to recognize
4 market pressure and issuance costs for FirstEnergy Corporation's cost of issuing
5 equity in August of 2003.⁴³

6
7 **Q. DO YOU AGREE WITH MS. AHERN'S FLOTATION COST**
8 **ADJUSTMENT?**

9 A. No. FirstEnergy has not issued any stock since 2003, and it does not have
10 definitive plans to issue equity in 2016 or 2017.⁴⁴ An adjustment for flotation
11 costs incurred in 2003 when no additional issuances of stock are expected to occur
12 is inappropriate. One issuance of stock in the past 13 years, not by the Companies,
13 but by their parent, is not sufficient to merit an addition to the cost of equity for
14 the fully projected future test year.

15
16 **OVERALL RATE OF RETURN**

17 **Q. WHAT ARE THE COMPANIES' PROPOSED OVERALL RATES OF**
18 **RETURN?**

19 A. The Companies' proposed overall rates of return are as follows:

⁴³ Met-Ed Statement No. 8, page 55-58; Penelec Statement No. 8, page 54-57; Penn Power Statement No. 8, page 56-59; West Penn Statement No. 8, pages 55-58.

⁴⁴ I&E Exhibit No. 1, Schedule 10; Met-Ed, Penelec, Penn Power, and West Penn Response to I&E-RR-1.

1

Metropolitan Edison Company	8.14%
Pennsylvania Electric Company	8.58%
Pennsylvania Power Company	8.70%
West Penn Power	7.90%

2

3 **Q. WHAT ARE I&E'S RECOMMENDED OVERALL RATES OF RETURN?**

4 A. I&E Exhibit No. 1, Schedule 1, shows the calculation of appropriate overall rates of
5 return for the Companies to be as follows:

Metropolitan Edison Company	6.89%
Pennsylvania Electric Company	7.09%
Pennsylvania Power Company	7.18%
West Penn Power	6.68%

6

7 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

8 A. Yes.

RACHEL A. MAURER
PROFESSIONAL EXPERIENCE AND EDUCATION

EMPLOYMENT:

Fixed Utility Financial Analyst 2011 – Present	PA Public Utility Commission Bureau of Investigation & Enforcement
Tax Technician 2008 – 2011	PA Department of Labor & Industry Unemployment Compensation Tax Services
Accounts Payable Representative 2007 – 2008	Select Medical Corporation

EDUCATION/CERTIFICATION:

Lebanon Valley College, B.S. Accounting – 2007

Society of Utility and Regulatory and Financial Analysts
Certified Rate of Return Analyst (CRRRA) – May 2015

Advanced Regulatory Studies Program
Michigan State University – 2013

National Association of Regulatory Utility Commissioners Utility Rate School
Michigan State University – 2012

TESTIMONY SUBMITTED:

Docket No. R-2015-2518438 – UGI Utilities, Inc. – Gas Division
Docket No. P-2015-2501500 – Philadelphia Gas Works
Docket No. R-2015-2468056 – Columbia Gas of PA
Docket No. R-2015-2462723 – United Water Pennsylvania Inc.
Docket No. P-2014-2459362 – Philadelphia Gas Works
Docket No. R-2014-2428745 – Metropolitan Edison Company
Docket No. R-2014-2428744 – Pennsylvania Power Company
Docket No. R-2014-2428743 – Pennsylvania Electric Company
Docket No. R-2014-2428742 – West Penn Power Company
Docket No. R-2014-2438304 – Borough of Hanover – Hanover Municipal Water Works
Docket No. R-2014-2406274 – Columbia Gas of PA
Docket No. R-2014-2370455 – Penn Estates Utilities, Inc.
Docket No. R-2013-2390244 – City of Bethlehem
Docket No. R-2013-2360798 – Columbia Water Company
Docket No. R-2013-2355886 – Peoples TWP
Docket No. R-2013-2341534 – National Fuel Gas Distribution Corp. 1307(f)

RACHEL A. MAURER
PROFESSIONAL EXPERIENCE AND EDUCATION

TESTIMONY SUBMITTED (CONTINUED):

Docket No. R-2012-2336379 – York Water Company
Docket No. R-2012-2321748 – Columbia Gas of PA