### UNITED STATES OF AMERICA BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

	)	
American Electric Power Service Corporation	)	Docket No. ER10000
on behalf of:	)	
AEP Appalachian Transmission Company, Inc.	)	
AEP Indiana Michigan Transmission Company, Inc.	)	
AEP Kentucky Transmission Company, Inc.	)	
AEP Ohio Transmission Company, Inc.	)	
AEP Oklahoma Transmission Company, Inc.	)	
AEP Southwestern Transmission Company, Inc.	)	
AEP West Virginia Transmission Company, Inc.	)	
	)	

### PREPARED DIRECT TESTIMONY OF WILLIAM E. AVERA

**December 1, 2009** 

### TABLE OF CONTENTS

### <u>Exhibit No</u>

### <u>Title</u>

### **Page**

### AEP-500 DIRECT TESTIMONY OF WILLIAM E. AVERA

I.	INT	'RODUCTION AND EXPERIENCE	
	A.	Qualifications	
	В.	Overview	5
	C.	Summary and Conclusions	7
	А.	AEP Transmission Company L.L.C.	9
	В.	Electric Power Industry	
	C.	Impact of Capital Market Conditions	
II.	CAF	PITAL MARKET ESTIMATES	
	A.	Cost of Equity Concept	
	В.	Proxy Group	
	C.	DCF Model	
	D.	Evaluation of DCF Results	
III.	REI	FURN ON EQUITY FOR AEPTCO	45
	A.	Implications for Financial Integrity	
	В.	Capital Structure	47
	C.	RTO Participation Adder	50
	D.	ROE Recommendation	52

### **Exhibits to Direct Testimony**

<u>Exhibit No.</u>	<b>Description</b>
AEP-501	Qualifications of William E. Avera
AEP-502	Risk Measures – PJM Proxy Group
AEP-503	Risk Measures – SPP Proxy Group
AEP-504	FERC DCF Model – PJM Proxy Group
AEP-505	"br + sv" Growth Rate – PJM Proxy Group
AEP-506	FERC DCF Model – SPP Proxy Group
AEP-507	"br + sv" Growth Rate – SPP Proxy Group
AEP-508	FERC DCF Model – "BBB" Rated PJM Proxy Group
AEP-509	FERC DCF Model – "BBB" Rated SPP Proxy Group
AEP-510	Capital Structure – PJM Proxy Group
AEP-511	Capital Structure – SPP Proxy Group
AEP-512	Evaluation of Proxy Group Criteria
AEP-513	Interpreting DCF Results

### I. INTRODUCTION AND EXPERIENCE

### 1 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

2 A. William E. Avera, 3907 Red River, Austin, Texas, 78751.

### 3 Q. IN WHAT CAPACITY ARE YOU EMPLOYED?

4 A. I am the President of FINCAP, Inc., a firm providing financial, economic, and
5 policy consulting services to business and government.

### A. **Qualifications**

### 6 Q. WHAT ARE YOUR QUALIFICATIONS?

7 A. I received a B.A. degree with a major in economics from Emory University. After 8 serving in the U.S. Navy, I entered the doctoral program in economics at the 9 University of North Carolina at Chapel Hill. Upon receiving my Ph.D., I joined 10 the faculty at the University of North Carolina and taught finance in the Graduate 11 School of Business. I subsequently accepted a position at the University of Texas 12 at Austin where I taught courses in financial management and investment 13 analysis. I then went to work for International Paper Company in New York City 14 as Manager of Financial Education, a position in which I had responsibility for all 15 corporate education programs in finance, accounting, and economics.

16 In 1977, I joined the staff of the Public Utility Commission of Texas 17 ("PUCT") as Director of the Economic Research Division. During my tenure at 18 the PUCT, I managed a division responsible for financial analysis, cost allocation 19 and rate design, economic and financial research, and data processing systems, 20 and I testified in cases on a variety of financial and economic issues. Since 21 leaving the PUCT in 1979, I have been engaged as a consultant. I have 22 participated in a wide range of assignments involving utility-related matters on 23 behalf of utilities, industrial customers, municipalities, and regulatory

commissions. I have previously testified before the Federal Energy Regulatory
 Commission ("FERC" or the "Commission"), as well as the Federal
 Communications Commission ("FCC"), the Surface Transportation Board (and its
 predecessor, the Interstate Commerce Commission), the Canadian Radio Television and Telecommunications Commission, and regulatory agencies,
 courts, and legislative committees in over 40 states.

In 1995, I was appointed by the PUCT, with the approval of the Governor,
to the Synchronous Interconnection Committee to advise the Texas legislature on
the costs and benefits of connecting Texas to the national electric transmission
grid. In addition, I served as an outside director of Georgia System Operations
Corporation, the system operator for electric cooperatives in Georgia.

12 I have served as Lecturer in the Finance Department at the University of 13 Texas at Austin and taught in the evening graduate program at St. Edward's 14 University for twenty years. In addition, I have lectured on economic and 15 regulatory topics in programs sponsored by universities and industry groups. I 16 have taught in hundreds of educational programs for financial analysts in 17 programs sponsored by the Association for Investment Management and 18 Research, the Financial Analysts Review, and local financial analysts societies. 19 These programs have been presented in Asia, Europe, and North America, 20 including the Financial Analysts Seminar at Northwestern University. I hold the Chartered Financial Analyst (CFA®) designation and have served as Vice 21 22 President for Membership of the Financial Management Association. I have also 23 served on the Board of Directors of the North Carolina Society of Financial 24 Analysts. I was elected Vice Chairman of the National Association of Regulatory 25 Commissioners ("NARUC") Subcommittee on Economics and appointed to

1 NARUC's Technical Subcommittee on the National Energy Act. I have also 2 served as an officer of various other professional organizations and societies. A 3 resume containing the details of my experience and qualifications is attached as 4 Exhibit AEP-501.

### B. Overview

5

### **O**. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

6 A. The purpose of my testimony is to present to the Federal Energy Regulatory 7 Commission ("FERC" or "Commission") my independent analysis of a fair rate 8 of Return on Equity (ROE) for the jurisdictional electric transmission operations 9 of AEP Transmission Company L.L.C. ("AEPTCo" or "the Company"). My 10 evaluation considered FERC's established precedent and policy objectives, 11 industry conditions and fundamentals, independent estimates of the ROE for 12 alternative benchmark groups of electric utilities, as well as the particular 13 exposures confronting the Company.

### 14 PLEASE SUMMARIZE THE BASIS OF YOUR KNOWLEDGE AND Q. 15 CONCLUSIONS CONCERNING THE ISSUES TO WHICH YOU ARE **TESTIFYING IN THIS CASE.** 16

17 A. To prepare my testimony, I used information from a variety of sources that would 18 normally be relied upon by a person in my capacity. In connection with the 19 present filing, I considered and relied upon corporate disclosures, publicly 20 available financial reports and filings, and other published information relating to 21 American Electric Power Company, Inc. ("AEP") and its subsidiaries, including 22 AEPTCo. In addition, I am familiar with FERC policy generally and have 23 submitted testimony in numerous proceedings at the Commission dealing with required rates of return for electric utilities.<sup>1</sup> I also reviewed information relating
 generally to capital markets and specifically to investor perceptions, requirements,
 and expectations for regulated utilities in a restructured wholesale electric power
 market. These sources, coupled with my experience in the fields of finance and
 utility regulation, have given me a working knowledge of ROE issues affecting
 AEPTCo and are the basis of my conclusions.

# 7 Q. WHAT IS THE ROLE OF THE RETURN ON EQUITY IN SETTING A 8 UTILITY'S RATES?

9 A. The rate of return on common equity compensates shareholders for the use of 10 their capital to finance the plant and equipment necessary to provide utility 11 service. Investors commit capital only if they expect to earn a return on their 12 investment commensurate with returns available from alternative investments with comparable risks. To be consistent with sound regulatory economics and the 13 standards set forth by the Supreme Court in the *Bluefield*<sup>2</sup> and *Hope*<sup>3</sup> cases, a 14 15 utility's allowed return on common equity should be sufficient to: (1) fairly 16 compensate capital invested in the utility, (2) enable the utility to offer a return 17 adequate to attract new capital on reasonable terms, and (3) maintain the utility's 18 financial integrity.

<sup>&</sup>lt;sup>1</sup> See, *e.g.*, Docket No. ER00-3316-000 on behalf of American Transmission Company, LLC, Docket No. ER02-485-000 involving the Midwest Independent Transmission System Operator, Inc. ("*Midwest ISO*"), Docket No. ER04-157-000 on behalf of the transmission-owning members of the ISO New England, Inc., Docket No. ER07-562-000 on behalf of Trans-Allegheny Interstate Line Company, Docket No. ER08-386-000 on behalf of Potomac-Appalachian Transmission Highline, LLC, Docket No. EL08-31-000 on behalf of Westar Energy, Inc., and Docket No. ER08-686-000 on behalf of Pepco Holdings, Inc.

<sup>&</sup>lt;sup>2</sup> Bluefield Water Works & Improvement Co. v. Pub. Serv. Comm'n, 262 U.S. 679 (1923).

<sup>&</sup>lt;sup>3</sup> Fed. Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944).

### 1 Q. HOW DID YOU GO ABOUT EVALUATING THE ROE FOR AEPTCO?

A. I first reviewed the operations and finances of AEPTCo, as well as the general
conditions in the electric utility industry. With this background, I examined
current capital market conditions and conducted quantitative analyses to estimate
the current cost of equity. Specifically, I relied on the Discounted Cash Flow
("DCF") methodology currently prescribed by this Commission and applied to
alternative proxy groups of electric utilities.

### C. Summary and Conclusions

# 8 Q. BASED ON YOUR EVALUATION, WHAT DID YOU CONCLUDE 9 REGARDING THE ROE REQUESTED BY AEPTCO?

10 A. I recommend a base ROE for AEPTCo of 13.1 percent, which is equal to the 11 midpoint of the 8.6 percent to 17.5 percent zone of reasonableness produced by 12 applying the Commission's DCF approach to two alternative regional proxy 13 groups of electric utilities.

# 14 Q. IS AEPTCO ENTITLED TO AN ROE ADJUSTMENT ATTRIBUTABLE 15 TO PARTICIPATION IN A REGIONAL TRANSMISSION 16 ORGANIZATION?

A. Yes. Under established Commission policy, as affirmed by *Order Nos.* 679 and
679-A,<sup>4</sup> electric utilities that join and remain in a FERC-approved Transmission
Organization, including a regional transmission organization ("RTO") or
independent system operator ("ISO"), may request an ROE incentive.
Specifically, the Commission has consistently authorized a 50 basis point adder to
encourage continued membership in a Transmission Organization, which is in

<sup>&</sup>lt;sup>4</sup> Promoting Transmission Investment through Pricing Reform, 116 FERC ¶ 61,057 (2006) ("*Order No. 679*"); 117 FERC ¶ 61,327 (2006) ("*Order No. 679-A*").

1 addition to the baseline ROE. Apart from established Commission policy, 2 consideration of an incentive for membership in a Transmission Organization is 3 confirmed by the consensus view of industry stakeholders and investors that 4 higher returns are necessary to facilitate timely investment and stimulate 5 expansion of the transmission infrastructure. AEPTCo's subsidiaries have applied 6 for membership in FERC-approved RTOs and are committed to ongoing support 7 for and participation in a regional planning process. Accordingly, I recommend 8 that the Commission incorporate an incentive adder for Transmission 9 Organization participation of 50 basis points.

10 In evaluating the ROE for jurisdictional transmission operations, it is 11 important to consider the uncertainties associated with AEPTCo and the 12 challenges the Company faces in raising capital for transmission investment – 13 including a renewed focus on regulatory uncertainties. In addition, the allowed 14 ROE for AEPTCo must reflect the need to provide returns that are sufficient to 15 meet the established policy goal of encouraging participation in approved 16 Transmission Organizations and promoting capital investment in transmission, 17 while recognizing investors' renewed focus on the associated risks. Moreover, 18 recent turmoil in the domestic and global financial markets and ongoing economic uncertainties have exacerbated the risks faced by utilities and their investors. 19 20 Taken together, these considerations confirm the reasonableness of my 21 recommended range and support a 13.6 percent ROE for AEPTCo, which falls 22 well within the upper end of the DCF zone of reasonableness for the proxy 23 groups.

### A. <u>AEP Transmission Company L.L.C.</u>

### 1 Q. BRIEFLY DESCRIBE THE OPERATIONS AND FINANCES OF AEPTCO.

2 A. As explained in detail in the testimony of Lisa M. Barton, AEPTCo is a subsidiary 3 of AEP formed for the purpose of planning, developing, constructing, owning, and 4 operating new electric transmission assets in the service territories of AEP's 5 operating utilities. Administratively, the AEP transmission system is divided into 6 two geographical zones, with AEPTCo and its seven subsidiaries being 7 established to provide wholesale electric transmission services under the 8 functional control of the PJM Interconnection, LLC ("PJM") and Southwest 9 Power Pool, Inc. ("SPP"), which are both FERC-approved RTOs.

10 AEP delivers electricity to more than 5 million customers across 11 states, 11 including Ohio, Indiana, West Virginia, Virginia, Kentucky, Michigan, 12 Tennessee, Oklahoma, Texas, Louisiana, and Arkansas. AEP is one of the largest 13 electric utilities in the U.S., with its combined utility system including nearly 14 38,000 MW of generating capacity and over 251,000 miles of transmission and 15 distribution lines. AEP's operating companies and the states in which they operate are: Appalachian Power Company ("APCO") in West Virginia and 16 Virginia, Columbus Southern Power Company ("CSP") and Ohio Power 17 18 Company ("OPCO") in Ohio, Indiana Michigan Power Company ("I&M") in 19 Indiana and Michigan, Kentucky Power Company ("KPCO") in Kentucky, 20 Kingsport Power Company ("KgPCO") in Tennessee, Wheeling Power Company 21 ("WPCO") in West Virginia, Southwestern Electric Power Company 22 ("SWEPCO") in Arkansas, Louisiana and Texas, Public Service Company of 23 Oklahoma ("PSO") in Oklahoma, and AEP Texas Central Company ("TCC") and 24 AEP Texas North Company ("TNC") in Texas. AEP's electric utility subsidiaries 25 rely primarily on coal-fired generation, which makes up approximately 65 percent of total system capacity. During 2008, AEP's revenues totaled approximately
 \$14.4 billion, with total assets at year-end of \$45.2 billion. AEP noted in its most
 recent Form 10-K Report that it plans to invest an additional \$2.6 billion in utility
 assets during 2009 alone,<sup>5</sup> while AEPTCo's capital expenditures are projected to
 total approximately \$118 million during 2010 alone.<sup>6</sup>

### 6 Q. BRIEFLY DESCRIBE PJM AND SPP.

7 A. Based in Valley Forge, Pennsylvania, PJM was the nation's first fully functioning 8 Independent System Operator ("ISO") and was subsequently designated an RTO 9 by FERC. Currently, PJM coordinates the movement of wholesale electricity in 10 all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New 11 Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia 12 and the District of Columbia. The PJM service area represents the largest 13 centrally dispatched control area in North America and has a population of over 51 million people and a peak demand of more than 144,000 megawatts ("MW"). 14

SPP, which is based in Little Rock, Arkansas, is one of eight regional
Reliability Councils and was granted RTO status by FERC in October 2004. SPP
monitors power flow throughout a footprint of over 255,000 square miles that
includes members in eight states – Arkansas, Kansas, Louisiana, Mississippi,
Missouri, New Mexico, Oklahoma, and Texas.

20 The primary objectives of PJM and SPP include ensuring open access to 21 bulk electric power lines and maintaining and enhancing transmission system

<sup>&</sup>lt;sup>5</sup> American Electric Power Company, Inc., *Form 10-K Report* (Dec. 31, 2008).

<sup>&</sup>lt;sup>6</sup> American Electric Power Company, Inc., "AEP Sets 2010 Ongoing Earnings Guidance, Capital Expeditures Budget, Formation of a transmission company planned as part of grid strategy," *News Release* (Nov. 1, 2009).

reliability. While PJM and SPP have authority for operational control of the transmission system, the transmission-owning members ("TOs") retain ownership and maintenance responsibility for their transmission assets and perform many operational functions under the RTO's direction. The RTO planning process seeks to identify future transmission needs for their respective regions, but the TO's continue to bear the obligation of financing the existing system, as well as providing funds for new construction.

# 8 Q. WHERE DOES AEPTCO OBTAIN THE CAPITAL USED TO FINANCE 9 ITS INVESTMENT IN ELECTRIC TRANSMISSION PLANT?

10 A. Through its intermediate holding company, AEP Transmission Holding Company, 11 L.L.C., the Company obtains common equity capital solely from its ultimate 12 parent, with AEP's common stock being publicly traded on the New York Stock 13 Exchange. As discussed in the testimony of Stephan T. Haynes, in addition to 14 equity contributions from AEP, AEPTCo will be capitalized with debt securities 15 issued under its own name. In addition to supporting new investment in AEPTCo. 16 AEP and its operating utilities will require capital investment to meet customer 17 growth, provide for necessary maintenance and replacements of utility 18 infrastructure, as well as fund new investment in electric utility infrastructure. Considering these capital requirements, support for AEP's financial integrity and 19 20 flexibility will be instrumental in attracting the capital necessary to fund AEPTCo 21 in an effective manner.

22

### Q. WHAT CREDIT RATINGS HAVE BEEN ASSIGNED TO AEPTCO?

A. While AEPTCo does not currently issue debt in its own name, the corporate credit
ratings currently assigned by Standard & Poor's Corporation ("S&P") to AEP and
each of its operating utilities participating in PJM and SPP are shown in Table

1 WEA-1.<sup>7</sup> Also included in the following table are the senior unsecured debt 2 ratings from Moody's Investors Service ("Moody's"),<sup>8</sup> and the issuer default 3 ratings assigned by Fitch Ratings Ltd. ("Fitch"):

### TABLE WEA-1CORPORATE CREDIT RATINGS

Company	S&P	Moody's	Fitch
APCO	BBB	Baa2	BBB-
CSP	BBB	A3	BBB+
I&M	BBB	Baa2	BBB-
KPCo	BBB	Baa2	BBB-
OPCO	BBB	Baa1	BBB
PSO	BBB	Baa1	BBB
SWEPCO	BBB	Baa1	BBB
AEP	BBB	Baa2	BBB

### B. <u>Electric Power Industry</u>

4

5

# 6 Q. WHAT GENERAL CONDITIONS HAVE CHARACTERIZED THE 7 ELECTRIC POWER INDUSTRY?

A. Since the 1990s, the industry has experienced significant structural change
resulting from market forces and regulatory initiatives. At least initially, this
process was largely driven by regulatory reforms at the federal level. The Energy
Policy Act of 1992 greatly increased prospective competition for the production
and sale of power at the wholesale level, with FERC being a proponent of actions
designed to foster greater competition in markets for wholesale power supply.

<sup>&</sup>lt;sup>7</sup> No published ratings are available for KgPCO or WPCO. Ratings for TCC and TNC were not included as these companies operate within the Electric Reliability Council of Texas ("ERCOT")

<sup>&</sup>lt;sup>8</sup> Because Moody's does not currently report Issuer Ratings for the AEP operating companies, the referenced values reflect the companies' senior unsecured debt ratings.

In April 1996, the Commission adopted Order No. 888,9 which mandated 1 2 open access to the wholesale transmission facilities of jurisdictional electric 3 utilities. The Commission later addressed improvements to the transmission 4 system, including the establishment of Transmission Organizations, such as RTOs 5 and ISOs, and has continued to pursue the goal of creating "seamless" wholesale 6 power markets that facilitate transactions across transmission grid boundaries, 7 among other objectives. In response to the passage of the Energy Policy Act of 2005 ("EPAct"), FERC also issued its Order Nos. 679 and 679-A, establishing 8 9 incentive-based rate treatments to promote participation in Transmission 10 Organizations and greater capital investment in electric utility infrastructure.

## 11 Q. HOW HAVE INVESTORS' RISK PERCEPTIONS FOR THE UTILITY 12 INDUSTRY EVOLVED?

A. Implementation of structural change and related events caused investors to rethink their assessment of the relative risks associated with the utility industry. The past decade witnessed steady erosion in credit quality throughout the electric power industry, both as a result of revised perceptions of the risks in the industry and the weakened finances of industry participants themselves. S&P recently reported that the majority of the companies in the utility sector now fall in the triple-B rating category.<sup>10</sup> Going forward, Fitch Ratings Ltd. ("Fitch") concluded that the

<sup>&</sup>lt;sup>9</sup> Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities, Order No. 888, 1991-1996 FERC Stats. & Regs., Regs. Preambles ¶ 31,036 (1996), order on reh'g, Order No. 888-A, 1996-2000 FERC Stats. & Regs., Regs. Preambles ¶ 31,048, order on reh'g, Order No. 888-B, 81 FERC ¶ 61,248 (1997), reh'g denied, Order No. 888-C, 82 FERC ¶ 61,046 (1998), aff'd in part and remanded in part sub nom. *Transmission Access Policy Study Group v. FERC*, 225 F.3d 667 (D.C. Cir. 2000), *aff'd sub nom. New York v. FERC*, 535 U.S. 1 (2002).

<sup>&</sup>lt;sup>10</sup> Standard & Poor's Corporation, "Industry Report Card: U.S. Electric Utility Sector's Liquidity Remains Adequate In Third Quarter 2009," (Sep. 21, 2009).

short- and long-term outlook for investor-owned electric utilities is negative,<sup>11</sup>
 while Moody's observed, "Material negative bias appears to be developing over
 the intermediate and longer term due to rapidly rising business and operating
 risks."<sup>12</sup> Similarly, S&P observed that:

5 Credit markets are tight. Liquidity is constrained. And 6 construction, labor, and material costs are soaring. As if that 7 weren't enough, the U.S. electric utility sector also faces aging 8 infrastructure, declining capacity margins, and increasing 9 environmental compliance requirements.<sup>13</sup>

### 10 Q. IS THE POTENTIAL FOR ENERGY MARKET VOLATILITY AN

11

### ONGOING CONCERN FOR INVESTORS?

A. Yes. In recent years, utilities and their customers have had to contend with
dramatic fluctuations in energy costs due to ongoing price volatility in the spot
markets and investors recognize the prospect of further turmoil in energy markets.
Moody's has warned investors of ongoing exposure to "extremely volatile"
energy commodity costs, including purchased power prices, which are heavily
influenced by fuel costs,<sup>14</sup> and Fitch noted that rapidly rising energy costs created
vulnerability in the utility industry.<sup>15</sup>

For example, utilities and customers have had to contend with dramaticfluctuations in gas costs due to ongoing price volatility in the spot markets.

<sup>&</sup>lt;sup>11</sup> Fitch Ratings, Ltd., "U.S. Utilities, Power and Gas 2009 Outlook," *Global Power North America Special Report* (Dec. 22, 2008).

<sup>&</sup>lt;sup>12</sup> Moody's Investors Service, "U.S. Electric Utility Sector," *Industry Outlook* (Jan. 2008).

<sup>&</sup>lt;sup>13</sup> Standard & Poor's Corporation, "Recovery Mechanisms Help Smooth Electric Utility Cash Flow And Support Ratings," *RatingsDirect* (Mar. 9, 2009).

<sup>&</sup>lt;sup>14</sup> Moody's Investors Service, "Storm Clouds Gathering on the Horizon for the North American Electric Utility Sector," *Special Comment* at 6 (Aug. 2007).

<sup>&</sup>lt;sup>15</sup> Fitch Ratings Ltd., "Staying Afloat: Downstream Liquidity in the Energy and Power Sectors," *Oil & Gas / Global Power Special Report* (June 16, 2008).

1 Moody's concluded that natural gas "remains highly volatile," and warned that 2 such price fluctuations "could have a significant impact on a utility's liquidity profile."<sup>16</sup> Similarly, while coal has historically provided relative stability with 3 4 respect to fuel costs, the Energy Information Administration ("EIA"), a statistical 5 agency of the U.S. Department of Energy ("DOE"), reported that prices for 6 Central and Northern Appalachia coal spiked from approximately \$45 per ton in 7 June 2007 to over \$140 per ton in September 2008, before falling back into the \$40 to \$50 range in September 2009.<sup>17</sup> 8

9 While expectations for significantly lower power prices reflect weaker 10 fundamentals affecting current load and fuel prices, investors recognize the 11 potential that such trends could quickly reverse. Indeed, Fitch highlighted the 12 challenges that such dramatic fluctuations in commodity prices can have for 13 utilities and their investors and recently noted that "uncertainty regarding fuel prices, in particular natural gas costs, has made planning for the future even more 14 problematic."<sup>18</sup> The rapid rise in electricity costs that can result from higher 15 16 wholesale energy prices has heightened investor concerns over the implications for regulatory uncertainty. S&P noted that, while timely cost recovery was 17 18 paramount to maintaining credit quality in the electric utility sector, an 19 "environment of rising customer tariffs, coupled with a sluggish economy,

<sup>&</sup>lt;sup>16</sup> Moody's Investors Service, "Carbon Risks Becoming More Imminent for U.S. Electric Utility Sector," *Special Comment* (March 2009).

<sup>&</sup>lt;sup>17</sup> Energy Information Administration, *Coal News and Markets* (Jun. 20 & Sep. 26, 2008, Oct. 13, 2009).

<sup>&</sup>lt;sup>18</sup> Fitch Ratings, Ltd., "Electric Utility Capital Spending: The Show Will Go On," *Global Power* U.S. and Canada Special Report (Oct. 14, 2009).

1 portend a difficult regulatory environment in coming years."<sup>19</sup>

# 2 Q. WHAT OTHER FINANCIAL PRESSURES IMPACT INVESTORS' RISK 3 ASSESSMENT OF ELECTRIC UTILITIES?

A. Investors are aware of the financial and regulatory pressures faced by utilities
associated with rising costs and the need to undertake significant capital
investments. As Moody's observed:

7 [P]ressures are building. Utilities are facing rising operating costs 8 and infrastructure investment needs that are prompting them to 9 seek more-frequent requests for rate relief. Meanwhile, as energy 10 (and other commodity) costs rise, so does the risk of a consumer 11 backlash over electric rates that could prompt legislative 12 intervention or a more contentious atmosphere between utilities 13 and their regulators.<sup>20</sup>

Similarly, S&P noted that "heavy construction programs", along with rising operating and maintenance costs and volatile fuel costs, were a significant challenge to the utility industry.<sup>21</sup> Fitch recently echoed this assessment, concluding:
Continued access to capital at reasonable rates in 2009 remains

uncertain at a time when many utility holding groups have
historically high capital investment programs and will require
ongoing access to reasonably priced capital in order to fund new
investment and refinance maturing debt.<sup>22</sup>

<sup>&</sup>lt;sup>19</sup> Standard & Poor's Corporation, "Top 10 U.S. Electric Utility Credit Issues For 2008 And Beyond," *RatingsDirect* (Jan. 28, 2008).

<sup>&</sup>lt;sup>20</sup> Moody's Investors Service, "U.S. Investor-Owned Electric Utilities: Six-Month Industry Update," *Industry Outlook* (July 2008).

<sup>&</sup>lt;sup>21</sup> Standard & Poor's Corporation, "Ratings Roundup: Utility Sector Experienced Equal Number Of Upgrades And Downgrades During Second Quarter Of 2008," *RatingsDirect* (Jul. 22, 2008).

<sup>&</sup>lt;sup>22</sup> Fitch Ratings Ltd., "U.S. Utilities, Power and Gas 2009 Outlook," *Global Power North America Special Report* (Dec. 22, 2008).

As noted earlier, investors anticipate that AEPTCo will undertake significant electric utility capital expenditures. While providing the infrastructure necessary meet the energy needs of customers is certainly desirable, it imposes additional financial responsibilities and risks on AEPTCo and its parent, AEP.

# 5 Q. ARE ENVIRONMENTAL CONSIDERATIONS ALSO AFFECTING 6 INVESTORS' EVALUATION OF ELECTRIC UTILITIES?

7 A. Utilities are confronting increased environmental pressures that have Yes. 8 imposed significant uncertainties and costs. In 2007 S&P cited environmental 9 mandates, including emissions, conservation, and renewable resources as one of the top ten credit issues facing U.S. utilities.<sup>23</sup> Similarly, Moody's noted that "the 10 11 prospect for new environmental emission legislation – particularly concerning carbon dioxide – represents the biggest emerging issue for electric utilities",<sup>24</sup> 12 while Fitch observed that "the structure, timing and implementation is still 13 uncertain."<sup>25</sup> S&P recently emphasized that because of uncertainty over the 14 15 details and timing of future limits on CO<sub>2</sub> emissions, existing ratings do not fully reflect the full impact of carbon risks.<sup>26</sup> 16

<sup>&</sup>lt;sup>23</sup> Standard & Poor's Corporation, "Top Ten Credit Issues Facing U.S. Utilities," *RatingsDirect* (Jan. 29, 2007).

<sup>&</sup>lt;sup>24</sup> Moody's Investors Service, "U.S. Investor-Owned Electric Utilities," *Industry Outlook* (Jan. 2009).

 <sup>&</sup>lt;sup>25</sup> Fitch Ratings, Ltd., "U.S. Utilities, Power and Gas 2009 Outlook," *Global Power North America Special Report* (Dec. 22, 2008).
 <sup>26</sup> Id.

# Q. HAVE INVESTORS RECOGNIZED THAT ELECTRIC UTILITIES FACE ADDITIONAL RISKS BECAUSE OF THE IMPACT OF INDUSTRY RESTRUCTURING ON TRANSMISSION OPERATIONS?

- 4 A. Yes. Transmission operations have become increasingly complex and investors
  5 have recognized that difficulties in obtaining permits and uncertainty over the
  adequacy of allowed rates of return have contributed to heightened risk and fueled
  concerns regarding the adequacy of investment in the transmission sector of the
  electric power industry.
- 9 At the same time, the development of competitive wholesale power 10 markets has resulted in increased demand for transmission resources. Concerns 11 regarding the need to encourage further investment in the transmission sector 12 were exemplified by the Commission's observations in *Order No. 679:*

13 [I]nvestment in transmission facilities in real dollar terms declined 14 significantly between 1975 and 1998. Although the amount of 15 investment has increased somewhat in the past few years, data for the most recent year available, 2003, shows investment levels still 16 17 below the 1975 level in real dollars. This decline in transmission 18 investment in real dollars has occurred while the electric load using 19 the nation's grid more than doubled. Further, the record shows that 20 the growth rate in transmission mileage since 1999 is not sufficient 21 to meet the expected 50 percent growth in consumer demand for electricity over the next two decades.<sup>27</sup> 22

The challenges posed by an increasingly complex marketplace heighten the uncertainties associated with transmission operations while requiring the commitment of significant new capital investment to maintain and enhance service capabilities. Early on, the DOE noted the importance of regulatory policies in supporting economic rewards that stimulate investment in new

<sup>&</sup>lt;sup>27</sup> Order No. 679 at P 10 (footnote omitted).

4 5 6 7 8 9		decreasing the system's ability to reliably support fair and efficient competitive wholesale marketsThe key to spurring new transmission investment lies in ensuring that the rewards offered by this system of regulation are commensurate with the risks of undertaking these investments and finding innovative approaches to align costs and benefits. <sup>28</sup>
10	Q.	CAN YOU DESCRIBE MORE FULLY THE REGULATORY RISKS THAT
11		INVESTORS ASSOCIATE WITH TRANSMISSION OPERATIONS?
12	A.	Yes. First, investors understand that there is always the potential that regulators
13		will prevent the recovery of the full costs associated with new investment in
14		transmission. They remember the amount of money that was disallowed by
15		regulators through after-the-fact reviews in connection with the construction of
16		generating projects in the 1980s and 1990s, and factor into their expectations the
17		possibility of future cost disallowances. There is no evidence that this exposure
18		has ended with restructuring, and investors have no reason to believe that
19		regulators and intervenors will be less vigorous in pursuing potential
20		disallowances with respect to transmission than they have been in the past with
21		respect to generation projects. As Moody's observed:
22 23 24 25		[T]here are concerns arising from the sector's sizeable infrastructure investment plans in the face of an environment of steadily rising operating costs. Combined, these costs and investments can create a continuous need for regulatory rate relief, which in turn can increase
26		the likelihood for political and/or regulatory intervention. <sup>29</sup>

The economic rewards from improving the transmission system

must be greater than the rewards from maintaining the status quo or

1

2

3

transmission:

<sup>&</sup>lt;sup>28</sup> United States Department of Energy, *National Transmission Grid Study* (May 2002) at 24-25, 30.

<sup>&</sup>lt;sup>29</sup> Moody's Investors Service, "Storm Clouds Gathering on the Horizon for the North American Electric Utility Sector," *Special Comment* (Aug. 2007).

Similarly, S&P concluded, "Any potential for after-the-fact prudence reviews and
 cost disallowances would stop transmission investment in its tracks by raising
 risks past the balance with the returns offered by such investments."<sup>30</sup>

4 Second, investors in transmission take into account the possibility that 5 future regulators might deem long-lived transmission assets to be obsolete 6 because of technological change or competition from alternatives. For example, 7 if distributed generation or retail solar photovoltaic were to become a major new 8 source of supply, it may reduce the need for existing transmission assets. Thus, 9 investors perceive a long-term risk in the potential for stranded costs associated 10 with transmission.

Third, investors recognize that there are federal-state jurisdictional issues 11 12 involving transmission, and that even if the Commission permits the costs of 13 transmission to be recovered through FERC rates, there is no assurance that 14 utilities will be able to obtain full and timely recovery of these costs from retail 15 customers, which is where the majority of the money must come from to repay 16 Investors believe that operating a capital intensive business in a AEPTCo. 17 regulatory "no-man's land" created by multiple jurisdictions means higher risk; a 18 consideration that is not lost on potential investors.

Finally, investors recognize that utilities incur substantial up front costs to design transmission projects and then obtain siting approvals for them, and that regulators or customer groups may try to deny recovery of the associated costs if the projects are unable to obtain the required approvals. The investment

<sup>&</sup>lt;sup>30</sup> Standard & Poor's Corporation, "Capital Spending On Electric Transmission Is On The Upswing Around The World," *RatingsDirect* (Aug. 7, 2007).

community understands that regulation can lead to a significant lag between the
 time an investment is made and when the costs are reflected in rates and these up
 front capital costs may be tied up without earning an actual return for several
 years before the outcome of siting issues are decided.

# 5 Q. HAVE THESE UNCERTAINTIES IMPACTED INVESTORS' 6 WILLINGNESS TO SUPPLY CAPITAL?

- A. Yes. As early as 2003, the *Wall Street Journal* cited the debilitating impact of an
  "unsteady regulatory environment" and the "chaotic combination of regulated and
  deregulated markets" in explaining inhibitions to increased investment in the
  electric utility system.<sup>31</sup>
- Similarly, S&P recognized continued concerns over the need to overcome
  obstacles to investment in transmission infrastructure and provide clarity in the
  regulatory framework:

### 14Like motherhood and apple pie, everybody favors pouring dollars15into the transmission grid to improve reliability and provide a

- 16stronger platform for developing the wholesale electricity market,17but there is considerably less consensus around how to encourage
- that investment (or least not discourage it) and how to provide
   reasonable certainty concerning recovery.<sup>32</sup>
- Even when capital is available, transmission facilities must compete with alternative uses and the additional funding necessary to meet the Commission's policy goals will only be allocated if investors anticipate an opportunity to earn a return that is sufficient to compensate for the associated risks. Continued

<sup>&</sup>lt;sup>31</sup> Smith, Rebecca, "<u>Overloaded Circuits</u> Blackout Signals Major Weakness in U.S. Power Grid," The Wall Street Journal (Aug. 18, 2003).

<sup>&</sup>lt;sup>32</sup> Standard & Poor's Corporation, "Capital Spending On Electric Transmission Is On The Upswing Around The World," *RatingsDirect* (Aug. 7, 2006).

concerns over the need to overcome these uncertainties and promote greater
 investment in transmission infrastructure led to the Commission's *Order No. 679*,
 which represents another evolution in the Commission's efforts to expand
 transmission capacity.

# 5 Q. HAS FERC RECOGNIZED THE NEED FOR NEW INCENTIVES FOR 6 INVESTMENT IN TRANSMISSION INFRASTRUCTURE?

7 Yes. To address the requirements of Section 219 of the EPAct, Order Nos. 679 A. 8 and 679-A establish incentive-based rate treatments to achieve greater grid 9 reliability and lower-cost electric power for customers by encouraging 10 membership in Transmission Organizations and increased infrastructure 11 The Commission's rulings recognize the legislative mandate to investment. 12 promote participation in Transmission Organizations as a platform for capital 13 investment, in light of the substantial challenges faced by utilities in constructing 14 new transmission projects. In response to this mandate, and after considering 15 stakeholder comments, FERC provides utilities with the opportunity to seek 16 various incentive rate treatments.

### 17 Q. WHAT INCENTIVES DID THE COMMISSION ESTABLISH?

- A. Order Nos. 679 and 679-A affirmed the Commission's policy of authorizing
  incentive-based rate treatment for utilities that join and/or continue to be a
  member of an RTO or other Commission-approved transmission organization.
  FERC concluded that providing incentives to each utility that joins a
  Transmission Organization is consistent with the mandate under the EPAct to
  ensure reliability and reduce the cost of delivered power:
- 24 We consider an inducement for utilities to join, and remain in,
- 25 Transmission Organizations to be entirely consistent with those
- 26 purposes. The consumer benefits, including reliability and cost
- 27 benefits, provided by Transmission Organizations are well

1documented, and the best way to ensure those benefits are spread to2as many consumers as possible is to provide an incentive that is3widely available to member utilities of Transmission Organizations4and is effective for the entire duration of a utility's membership in5the Transmission Organization.

6 In addition to authorizing incentives for utilities that participate in RTOs, 7 such as PJM and SPP, the Commission also established a number of incentives intended to directly encourage construction of new transmission infrastructure. 8 9 These include an incentive-based ROE for investments in new transmission 10 facilities, the ability to include 100 percent of transmission-related Construction Work in Progress ("CWIP") in rates, potential recovery of pre-commercial and 11 12 pre-construction costs and abandoned plant costs that are beyond the utility's 13 control, as well as the possibility of employing a hypothetical capital structure and 14 accelerated depreciation.

### C. Impact of Capital Market Conditions

# Q. WHAT ARE THE IMPLICATIONS OF RECENT CAPITAL MARKET CONDITIONS?

A. The financial and real estate crisis that accelerated during the third quarter of
2008 led to unprecedented price fluctuations in the capital markets as investors
dramatically revised their risk perceptions and required returns. As a result of
investors' trepidation to commit capital, stock prices declined sharply while the
yields on corporate bonds experienced a dramatic increase.

With respect to utilities specifically, as of September 30, 2009, the Dow
Jones Utility Average stock index remained almost 30 percent below the level in
June 2008. This sell-off in common stocks and sharp fluctuations in utility bond

<sup>&</sup>lt;sup>33</sup> Order No. 679-A at P 86 (footnotes omitted).

1	yields reflect the fact that the utility industry was not immune to the impact of
2	financial market turmoil and the ongoing economic downturn. As the Edison
3	Electric Institute ("EEI") noted in a letter to congressional representatives as the
4	financial crisis intensified, capital market uncertainties have serious implications
5	for utilities and their customers:
6 7 8 9 10 11	In the wake of the continuing upheaval on Wall Street, capital markets are all but immobilized, and short-term borrowing costs to utilities have already increased substantially. If the financial crisis is not resolved quickly, financial pressures on utilities will intensify sharply, resulting in higher costs to our customers and, ultimately, could compromise service reliability. <sup>34</sup>
12	Similarly, an October 1, 2008, Wall Street Journal report confirmed that utilities
13	had been forced to delay borrowing or pursue more costly alternatives to raise
14	funds. <sup>35</sup>
15	An October 2008 report on the implications of credit market upheaval for
16	utilities noted that even high-quality companies "now have to pay an unusually
17	high risk premium over Treasuries." <sup>36</sup> Meanwhile, a Managing Director with
18	Fitch Ratings, Ltd. ("Fitch") observed that, "significantly higher regulated returns
19	will be required to attract equity capital." <sup>37</sup> In December 2008, Fitch confirmed
20	"sharp repricing of and aversion to risk in the investment community," and noted
21	that the disruptions in financial markets and the fundamental shift in investors'
22	risk perceptions has increased the cost of capital for utilities:

 <sup>&</sup>lt;sup>34</sup> Letter to House of Representatives, Thomas R. Kuhn, President, Edison Electric Institute (Sep. 24, 2008).

<sup>&</sup>lt;sup>35</sup> Smith, Rebecca, "Corporate News: Utilities' Plans Hit by Credit Markets," *Wall Street Journal* at B4 (Oct. 1, 2008).

<sup>&</sup>lt;sup>36</sup> *Rudden's Energy Strategy Report* (Oct. 1, 2008).

<sup>&</sup>lt;sup>37</sup> Fitch Ratings Ltd., "EEI 2008 Wrap-Up: Cost of Capital Rising," *Global Power North America Special Report* (Nov. 17, 2008).

# While credit is available to investment-grade issuers in the utilities, power and gas sectors, it is more expensive, particularly when viewed against the easy money environment which prevailed for most of this decade.<sup>38</sup>

5 Fitch recently concluded, "While utilities maintained relatively good market 6 access during the credit crisis, the cost of capital is higher than prior to the credit 7 crisis, and bank credit remains relatively tight."<sup>39</sup>

# 8 Q. WHAT DO THESE EVENTS IMPLY WITH RESPECT TO THE ROE FOR 9 AEPTCO?

10 A. No one knows the future of our complex global economy. We know that the 11 financial crisis had been building for a long time and few predicted that the 12 economy would fall as rapidly as it has, or that corporate bond yields would fluctuate as dramatically as they did. While conditions in the economy and 13 14 capital markets appear to have stabilized, investors are apt to react swiftly and 15 negatively to any future signs of trouble in the financial system or economy. 16 Given the importance of reliable electric power for customers and the economy, it 17 would be unwise to ignore investors' increased sensitivity to risk in evaluating 18 AEPTCo's ROE.

### II. CAPITAL MARKET ESTIMATES

### 19 Q. WHAT IS THE PURPOSE OF THIS SECTION OF YOUR TESTIMONY?

A. In this section, I develop estimates of the cost of equity for two proxy groups of electric utilities. First, I address the concept of the cost of equity, along with the risk-return tradeoff principle fundamental to capital markets. Next, I describe the

<sup>&</sup>lt;sup>38</sup> Fitch Ratings Ltd., "U.S. Utilities, Power and Gas 2009 Outlook," *Global Power North America Special Report* (Dec. 22. 2008).

<sup>&</sup>lt;sup>39</sup> Fitch Ratings Ltd., "Electric Utility Capital Spending: The Show Will Go On," *Global Power* U.S. and Canada Special Report (Oct. 14, 2009).

specific DCF analyses I conducted to estimate the current cost of equity for the
 alternative proxy groups.

### A. Cost of Equity Concept

## 3 Q. WHAT ROLE DOES THE RETURN ON COMMON EQUITY PLAY IN A 4 UTILITY'S RATES?

A. The return on common equity is the cost of inducing and retaining investment in
the utility's physical plant and assets. This investment is necessary to finance the
asset base needed to provide utility service. Competition for investor funds is
intense and investors are free to invest their funds wherever they choose. They
will commit money to a particular investment only if they expect it to produce a
return commensurate with those from other investments with comparable risks.

# 11 Q. WHAT FUNDAMENTAL ECONOMIC PRINCIPLE UNDERLIES THIS 12 COST OF EQUITY CONCEPT?

- A. The fundamental economic principle underlying the cost of equity concept is the notion that investors are risk averse. In capital markets where relatively risk-free assets are available (*e.g.*, U.S. Treasury securities), investors can be induced to hold riskier assets only if they are offered a premium, or additional return, above the rate of return on a risk-free asset. Since all assets compete with each other for investor funds, riskier assets must yield a higher expected rate of return than safer assets to induce investors to hold them.
- 20 Given this risk-return tradeoff, the required rate of return (*k*) from an asset 21 (i) can generally be expressed as
- (i) call generally be expressed as
- $22 k_i = R_f + RP_i$
- 23where: $R_f$  = risk-free rate of return, and24 $RP_i$  = Risk premium required to hold riskier asset i.

1 Thus, the required rate of return for a particular asset is a function of: (1) the 2 yield on risk-free assets and (2) the asset's relative risk, with investors demanding 3 correspondingly larger risk premiums for bearing greater risk.

### 4

5

Q.

### IS THERE EVIDENCE THAT THE RISK-RETURN TRADEOFF PRINCIPLE ACTUALLY OPERATES IN THE CAPITAL MARKETS?

6 A. The risk-return tradeoff can be readily documented in segments of the Yes. 7 capital markets where required rates of return can be directly inferred from market 8 data and where generally accepted measures of risk exist. Bond yields, for 9 example, reflect investors' expected rates of return, and bond ratings measure the 10 risk of individual bond issues. The observed yields on government securities, 11 which are considered free of default risk, and bonds of various rating categories 12 demonstrate that the risk-return tradeoff does, in fact, exist in the capital markets.

# Q. DOES THE RISK-RETURN TRADEOFF OBSERVED WITH FIXED INCOME SECURITIES EXTEND TO COMMON STOCKS AND OTHER ASSETS?

16 A. It is generally accepted that the risk-return tradeoff evidenced with long-term debt 17 extends to all assets. Documenting the risk-return tradeoff for assets other than 18 fixed income securities, however, is complicated by two factors. First, there is no 19 standard measure of risk applicable to all assets. Second, for most assets – 20 including common stock – required rates of return cannot be directly observed. 21 Yet there is every reason to believe that investors exhibit risk aversion in deciding 22 whether or not to hold common stocks and other assets, just as when choosing 23 among fixed-income securities.

# Q. IS THIS RISK-RETURN TRADEOFF LIMITED TO DIFFERENCES BETWEEN FIRMS?

3 A. No. The risk-return tradeoff principle applies not only to investments in different 4 firms, but also to different securities issued by the same firm. The securities 5 issued by a utility vary considerably in risk because they have different 6 characteristics and priorities. Long-term debt secured by a mortgage on property 7 is senior among all capital in its claim on a utility's net revenues and is, therefore, 8 the least risky. Following first mortgage bonds are other debt instruments also 9 holding contractual claims on the utility's net revenues, such as subordinated 10 debentures. The last investors in line are common shareholders. They receive 11 only the net revenues, if any, that remain after all other claimants have been paid. 12 As a result, the rate of return that investors require from a utility's common stock, 13 the most junior and riskiest of its securities, must be considerably higher than the 14 yield offered by the utility's senior, long-term debt.

# Q. WHAT DOES THE ABOVE DISCUSSION IMPLY WITH RESPECT TO ESTIMATING THE COST OF EQUITY?

17 A. Although the cost of equity cannot be observed directly, it is a function of the 18 returns available from other investment alternatives and the risks to which the 19 equity capital is exposed. Because it is unobservable, the cost of equity for a 20 particular utility must be estimated by analyzing information about capital market 21 conditions generally, assessing the relative risks of the company specifically, and 22 employing various quantitative methods that focus on investors' required rates of 23 return. These various quantitative methods typically attempt to infer investors' 24 required rates of return from stock prices, interest rates, or other capital market 25 data.

# Q. WHAT METHOD DID YOU USE TO EVALUATE THE COST OF EQUITY FOR AEPTCO?

A. Consistent with FERC precedent, my recommendations are based on the results of
 the Commission's one-step DCF methodology for electric utilities.<sup>40</sup>

### B. Proxy Group

# 5 Q. HOW DID YOU IMPLEMENT THE DCF METHOD TO ESTIMATE THE 6 COST OF COMMON EQUITY FOR AEPTCO?

7 A. Application of the DCF model to estimate the cost of equity requires observable 8 capital market data, such as stock prices. AEPTCo does not have publicly traded 9 common stock, but even for a publicly traded firm, the cost of equity can only be 10 estimated. As a result, applying quantitative models using observable market data 11 only produces a result that inherently includes some degree of observation error. 12 Thus, the accepted approach to increase confidence in the results is to apply the 13 DCF model to a proxy group of publicly traded companies that investors regard as 14 risk comparable. The results of the analysis on the sample of companies are relied 15 upon to establish a range of reasonableness for the cost of equity for the specific 16 company at issue.

### 17 Q. WHAT SPECIFIC PROXY GROUPS DID YOU RELY ON FOR YOUR

### 18 ANALYSIS?

A. The electric transmission rates proposed for AEPTCo apply to transmission
facilities that will be operated within the scope of PJM and SPP. In order to

<sup>&</sup>lt;sup>40</sup> See, e.g., Bangor Hydro-Elec. Co., 117 FERC ¶ 61,129 (2006) ("Bangor Hydro"); Midwest Indep. Transmission Sys. Operator, Inc., 100 FERC ¶ 61,292 (2002) ("Midwest ISO"), reh'g denied, 102 FERC ¶ 61,143 (2003), modified on other grounds sub nom. Pub. Serv. Comm'n v. FERC, 397 F.3d 1004 (D.C. Cir. 2005); S. Calif. Edison Co., 92 FERC ¶ 61,070 (2000) ("Southern California Edison"), reh'g denied, 108 FERC 61,085 (2004).

1 reflect the risks and prospects associated with AEPTCo's jurisdictional utility 2 operations, my DCF analyses focused on two reference groups of transmission-3 owning utilities in adjacent RTOs, which I refer to as the "PJM Proxy Group" and 4 the "SPP Proxy Group". Following the approach approved by the Commission in Bangor Hydro, PATH, and VEPCo,<sup>41</sup> the PJM Proxy Group includes the 5 6 transmission-owning members of PJM, the New York Independent System Operator, Inc. ("NYISO"), and the ISO New England, Inc. RTO ("ISO-NE") with 7 publicly traded stock. Similarly, consistent with the Commission's decisions in 8 Westar and Tallgrass,<sup>42</sup> the SPP Proxy Group consists of the publicly traded 9 10 transmission-owning members of SPP, PJM, and Midwest Independent Transmission System Operator, Inc. ("MISO"). 11

12 Excluded from my analyses were firms that 1) do not pay common dividends or where Value Line indicates the potential that dividends will be cut, 13 2) have no Value Line or IBES data,<sup>43</sup> and 3) are involved in a major merger or 14 15 divestiture. In addition, consistent with the Commission's findings in Bangor 16 *Hydro*, UGI Corporation was also eliminated from the proxy groups. Finally, I also excluded four companies from the SPP Proxy Group that were not classified 17 predominantly as electric utilities by Value Line, S&P, and IBES.<sup>44</sup> As shown on 18 19 Exhibit AEP-502, these criteria resulted in a PJM Proxy Group of fourteen

<sup>&</sup>lt;sup>41</sup> Bangor Hydro at P 3; Potomac-Appalachian Transmission Highline, L.L.C., 122 FERC ¶ 61,188 at P 95 (2008) ("PATH"); Virginia Electric Power Co., 123 FERC ¶ 61,098 at P 60 (2008) ("VEPCo").

<sup>&</sup>lt;sup>42</sup> Westar Energy, Inc. 122 FERC ¶ 61,268 at P 94 (2008) ("Westar"); Tallgrass Transmission, LLC, 125 FERC ¶ 61,248 at P 75 (2008) ("Tallgrass").

<sup>&</sup>lt;sup>43</sup> Formerly I/B/E/S International, Inc., IBES growth rates are now compiled and published by Thomson Reuters.

<sup>&</sup>lt;sup>44</sup> See, *e.g. Tallgrass* at P 77.

companies. The SPP Proxy Group consisted of the twenty-one utilities identified
 in Exhibit AEP-503.

# 3 Q. DID YOUR ANALYSIS ALSO CONSIDER REPORTED RISK 4 MEASURES?

5 A. Yes. My evaluation of the PJM and SPP Proxy Groups also included a
6 comparison of three objective measures of the investment risks associated with
7 bonds and common stocks – S&P's corporate credit rating and Value Line's
8 Safety Rank and Financial Strength Rating.

9 Credit ratings are assigned by independent rating agencies to provide 10 investors with a broad assessment of the creditworthiness of a firm. Because the 11 rating agencies' evaluation includes virtually all of the factors normally 12 considered important in assessing a firm's relative credit standing, corporate 13 credit ratings provide a broad measure of overall investment risk that is readily 14 available to investors. Widely cited in the investment community and referenced by investors as an objective measure of risk, credit ratings are also frequently used 15 16 as a primary risk indicator in establishing proxy groups to estimate the cost of 17 equity.

18 Apart from the broad assessment of investment risk provided by credit 19 ratings, other quality rankings published by investment advisory services also 20 provide relative assessments of risk that are considered by investors in forming 21 their expectations. Given that Value Line is perhaps the most widely available 22 source of investment advisory information, its rankings provide useful guidance 23 regarding the risk perceptions of investors. The Safety Rank is Value Line's 24 primary risk indicator and ranges from "1" (Safest) to "5" (Riskiest). This overall 25 risk measure is intended to capture the total risk of a stock, and incorporates

elements of stock price stability and financial strength. The Financial Strength
 Rating is designed as a guide to overall financial strength and creditworthiness,
 with the key inputs including financial leverage, business volatility measures, and
 company size. Value Line's Financial Strength Ratings range from "A++"
 (strongest) down to "C" (weakest) in nine steps.

# 6 Q. DO THESE CRITERIA PROVIDE OBJECTIVE EVIDENCE THAT 7 INVESTORS WOULD VIEW THE PROXY GROUPS AS RISK8 COMPARABLE?

9 A. Yes. As discussed earlier, S&P has assigned a corporate credit rating of "BBB" to 10 AEP and its operating companies, while Value Line has assigned AEP a Safety Rank of "3".<sup>45</sup> As shown on Exhibits AEP-502 and AEP-503, this compares with 11 12 the average credit ratings and Safety Rank for the utilities in the PJM and SPP Proxy Groups of "BBB+" and "2", respectively, which indicates slightly lower 13 14 investment risks than AEP. Meanwhile, the average Value Line Financial Strength 15 Ratings for the PJM and SPP Proxy Groups are identical to the "B++" value 16 assigned to AEP.

Based on these criteria, which reflect objective, published indicators that incorporate consideration of a broad spectrum of risks, including financial and business position, relative size, and exposure to company-specific factors, investors are likely to regard the average investment risks of the two proxy groups as comparable to those of AEPTCo. Taken together, these objective measures provide additional support for using the PJM and SPP Proxy Groups as the basis for estimating the ROE range of reasonableness for the Company.

<sup>&</sup>lt;sup>45</sup> Because AEPTCo has no publicly traded common stock, I referenced the Value Line risk measures for its ultimate parent, AEP.

## Q. WHAT OTHER CONSIDERATIONS SUPPORT THE USE OF THE PJM AND SPP PROXY GROUPS IN EVALUATING THE ROE FOR AEPTCO?

3 A. Estimating the cost of equity using any method is a stochastic process and the 4 potential for misleading findings increases as the proxy group is narrowed. 5 Developing a broad-based proxy group of comparable-risk electric utilities 6 insulates against unreliable results. The cost of equity is inherently unobservable 7 and can only be inferred indirectly by reference to available capital market data. 8 Any form of analysis that depends on estimates, such as the growth parameter of 9 the DCF model, is subject to measurement error. This potential for error is magnified when the analysis is restricted to a single method, such as the DCF.<sup>46</sup> 10 11 To the extent that the data used to apply the DCF model does not capture the 12 expectations that investors have incorporated into current stock prices, the 13 resulting cost of equity estimates will be biased and unreliable.

Although the Commission has on occasion accepted proxy groups as small as four companies, FERC has generally recognized that a constrained proxy group "may not be representative of industry conditions."<sup>47</sup> The PJM and SPP Proxy Groups addresses the problems associated with a limited sample by providing a greater number of data points for the comparable-risk utilities. These alternative proxy groups will provide a large enough sample that the Commission can be assured that it is representative of industry conditions and investor expectations

<sup>&</sup>lt;sup>46</sup> In contrast to FERC's practice of focusing on DCF results, regulators have customarily considered alternative approaches in determining allowed returns, which can increase confidence that range of reasonableness is reliable and does not include implied costs of equity that are the result of spurious observations included in the data.

<sup>&</sup>lt;sup>47</sup> Enbridge Pipelines (KPC), 100 FERC ¶ 61,260 at P 237 (2002) (citing Transcontinental Gas Pipe Line Corp., 60 FERC ¶ 63,001, at 65,041, aff'd in part, rev'd in part, 60 FERC ¶ 61,246, at 61,826 (1992), rev'd and remanded, North Carolina Utilities v. FERC, 42 F.3d 659 (1994), Order on Rehearing, Transco, 71 FERC ¶ 61,305, at 62,195 (1995)).

and requirements for AEPTCo. The Company will compete with utilities
 throughout the country for the same limited pool of capital in order to finance
 infrastructure investment. AEPTCo should be permitted to offer comparable
 returns to potential investors of equity capital as are available elsewhere in the
 country.

# 6 Q. DID YOU ALSO EVALUATE DCF RESULTS AFTER NARROWING 7 YOUR PROXY GROUPS BASED ON CREDIT RATINGS?

8 A. In several recent orders, the Commission has eliminated firms from regional proxy groups based on reference to corporate credit ratings. As explained in 9 10 Exhibit AEP-512, it is not necessary or desirable to apply additional screening 11 criteria based on credit ratings. Nevertheless, as discussed subsequently I also 12 examined the results of the Commission's DCF model after screening the PJM 13 and SPP Proxy Groups to eliminate utilities with corporate credit ratings outside a 14 "comparable risk band", which the Commission has interpreted as one "notch" higher or lower than the corporate ratings of the utility at issue. 15

C. DCF Model

# 16 Q. HOW IS THE DCF MODEL USED TO ESTIMATE THE COST OF 17 EQUITY?

A. DCF models attempt to replicate the market valuation process that sets the price investors are willing to pay for a share of a company's stock. The model rests on the assumption that investors evaluate the risks and expected rates of return from all securities in the capital markets. Given these expectations, the price of each stock is adjusted by the market until investors are adequately compensated for the risks they bear. Therefore, we can look to the market to determine what investors believe a share of common stock is worth. By estimating the cash flows investors expect to receive from the stock in the way of future dividends and capital gains,
 we can calculate their required rate of return. Thus, the cash flows that investors
 expect from a stock are estimated, and given its current market price, we can
 "back-into" the discount rate, or cost of equity, that investors implicitly used in
 bidding the stock to that price.

### 6 Q. WHAT MARKET VALUATION PROCESS UNDERLIES DCF MODELS?

A. DCF models assume that the price of a share of common stock is equal to the
present value of the expected cash flows (*i.e.*, future dividends and stock price)
that will be received while holding the stock, discounted at investors' required rate
of return. Thus, the cost of equity is the discount rate that equates the current
price of a share of stock with the present value of all expected cash flows from the
stock.

# 13 Q. WHAT FORM OF THE DCF MODEL IS CUSTOMARILY USED TO 14 ESTIMATE THE COST OF EQUITY IN RATE CASES?

A. Rather than developing annual estimates of cash flows into perpetuity, after
making certain assumptions, the DCF model can be simplified to a "constant
growth" form:

$$P_0 = \frac{D_1}{k_e - g}$$

19 where:  $P_0 = Current price per share;$ 20  $D_1 = Expected dividend per share$ 

 $D_1$  = Expected dividend per share in the coming year;

g

- 21  $k_e = \text{Cost of equity};$ 22 g = Investors' long
  - g = Investors' long-term growth expectations.
- 23 The cost of equity (K<sub>e</sub>) can be isolated by rearranging terms:

$$k_e = \frac{D_1}{P_0} + \frac{D_2}{P_0} + \frac{D_2}{P$$

24

This constant growth form of the DCF model recognizes that the rate of return to
stockholders consists of two parts: 1) dividend yield (D<sub>1</sub>/P<sub>0</sub>), and 2) growth (g).
In other words, investors expect to receive a portion of their total return in the
form of current dividends and the remainder through price appreciation.

### 5 Q. HOW DID YOU CALCULATE THE DIVIDEND YIELD COMPONENT OF

### 6 THE DCF MODEL FOR THE PJM AND SPP UTILITY PROXY GROUPS?

7 A. Following Commission policy, average low and high indicated dividend yields 8 were calculated for each electric utility during the six months April through 9 September 2009. As indicated on Exhibits AEP-504 and AEP-506, these six-10 month average low and high historical dividend yields were also increased by 11 one-half of the low and high growth rates discussed subsequently (1 + 0.5g) to 12 convert them to adjusted dividend yields.

# Q. WHAT GROWTH RATES ARE USED IN THE COMMISSION'S ONESTEP DCF METHOD FOR ELECTRIC UTILITIES?

- A. The one-step DCF method for electric utilities adopted by the Commission
  employs two growth rates for each firm. The first growth rate is a "sustainable"
  growth rate calculated by the following formula:
- 18 g = br + sv

19 where: 20 21 22	<ul> <li>b = expected retention ratio;</li> <li>r = expected earned rate of return;</li> <li>s = percent of common equity expected to be issued annually as new common stock;</li> </ul>
23	v = equity accretion ratio.

The second growth rate is the IBES consensus 5-year earnings growth forecast. These two growth rates are combined with the adjusted dividend yields to develop a cost of equity range for each company.
# Q. HOW DID YOU CALCULATE THE SUSTAINABLE GROWTH RATE FOR THE FIRMS IN YOUR PROXY GROUPS?

3 A. For each electric utility, the expected retention ratio (b) was calculated based on 4 projected dividends and earnings per share from Value Line for 2009, 2010, and 5 Consistent with the Commission's DCF their 2012-2014 forecast horizon. method, each firm's expected earned rate of return (r) was based on Value Line's 6 end-of-year forecasts.<sup>48</sup> In Southern California Edison, the Commission correctly 7 recognized that if the rate of return, or "r" component of the br+sv growth rate, is 8 9 based on end-of-year book values, such as those reported by Value Line, it will understate actual returns because of growth in common equity over the year.<sup>49</sup> 10 11 Accordingly, consistent with the Commission's findings and the theory underlying 12 this approach to estimating investors' growth expectations, an adjustment was incorporated to compute an average rate of return.<sup>50</sup> Finally, the percent of 13 14 common equity expected to be issued annually as new common stock (s) was equal to the product of the projected market-to-book ratio and growth in common 15 16 shares outstanding over Value Line's forecast horizon, while the equity accretion 17 rate (v) was computed as 1 minus the inverse of the projected market-to-book ratio. The calculation of the sustainable growth rate for each electric utility in the 18 19 PJM Proxy Group is shown on Exhibit AEP-505, with identical calculations for 20 the SPP Proxy Group presented on Exhibit AEP-507.

<sup>&</sup>lt;sup>48</sup> Bangor Hydro Order on Rehearing, 122 FERC ¶ 61,265 at P 22 (2008).

<sup>&</sup>lt;sup>49</sup> Southern California Edison at 61,263 and fn. 38.

<sup>&</sup>lt;sup>50</sup> Use of an average return in developing the sustainable growth rate is well supported. See, *e.g.*, Morin, Roger A., "Regulatory Finance: Utilities' Cost of Capital," Public Utilities Reports, Inc. (1994), which discusses the need to adjust Value Line's end-of-year data, consistent with the Commission's findings in *Southern California Edison*. The Commission affirmed the need for this adjustment to "r" in *Bangor Hydro Order on Rehearing*, 122 FERC ¶ 61,265 (2008).

# 1 Q. WHAT ARE INVESTMENT ANALYSTS' PROJECTED GROWTH RATES

# 2 FOR THE COMPANIES IN THE PJM AND SPP PROXY GROUPS?

A. The five-year IBES earnings growth forecasts for each electric utility in the proxy
group are shown in column (d) on Exhibits AEP-504 and AEP-506.

# 5 Q. WHAT WERE THE RESULTS OF APPLYING THE COMMISSION'S 6 ONE-STEP DCF APPROACH TO THE TWO PROXY GROUPS?

A. As shown on Exhibit AEP-504, application of the Commission's DCF model to
the PJM Proxy Group resulted in current cost of equity estimates ranging from 8.6
percent to 22.9 percent. With respect to the SPP Proxy Group, as presented on
Exhibit AEP-506, the results of the Commission's DCF model ranged from 6.2
percent to 22.9 percent.

## D. Evaluation of DCF Results

# Q. IN EVALUATING THE RESULTS OF THE CONSTANT GROWTH DCF MODEL, IS IT APPROPRIATE TO ELIMINATE COST OF EQUITY ESTIMATES THAT ARE EXTREME OUTLIERS?

A. Yes. In applying quantitative methods to estimate the cost of equity, it is essential
that the resulting values pass fundamental tests of reasonableness and economic
logic. Accordingly, DCF estimates that are implausibly low or high should be
eliminated when evaluating the results of this method.

# 19 Q. HOW DID YOU EVALUATE DCF ESTIMATES AT THE LOW END OF 20 THE RANGE?

A. It is a basic economic principle that investors can be induced to hold more risky
assets only if they expect to earn a return to compensate them for their risk
bearing. As a result, the rate of return that investors require from a utility's
common stock, the most junior and riskiest of its securities, must be considerably

higher than the yield offered by senior, long-term debt. Consistent with this
 principle, the DCF range must be adjusted to eliminate cost of equity estimates
 that are determined to be extreme low outliers when compared against the yields
 available to investors from less risky utility bonds.

# Q. HAS THE COMMISSION RECOGNIZED THAT IT IS APPROPRIATE TO ELIMINATE COST OF EQUITY ESTIMATES THAT FAIL TO MEET THRESHOLD TESTS OF ECONOMIC LOGIC?

8 A. Yes. In *Southern California Edison* the Commission noted that adjustments to the
9 zone of reasonableness are justified where applications of its preferred DCF
10 approach produce illogical results:

11An adjustment to this data is appropriate in the case of PG&E's12low-end return of 8.42 percent, which is comparable to the average13Moody's "A" grade public utility bond yield of 8.06 percent, for14October 1999. Because investors cannot be expected to purchase15stock if debt, which has less risk than stock, yields essentially the16same return, this low-end return cannot be considered reliable in17this case.<sup>51</sup>

18 Similarly, the practice of eliminating low-end outliers was affirmed in *PATH* and 19 *VEPCo*,<sup>52</sup> and in its February 2008 decision in *Atlantic Path 15*, the Commission 20 disregarded a low-end cost of equity estimate of 7.29 percent.<sup>53</sup> More recently, in 21 its March 27, 2009 decision in *Pioneer*, FERC concluded that it would exclude 22 low-end ROEs "within about 100 basis points above the cost of debt."<sup>54</sup>

<sup>&</sup>lt;sup>51</sup> Southern California Edison at 61,266 (footnote omitted).

<sup>&</sup>lt;sup>52</sup> *PATH* at P 98; *VEPCo* at P 64.

<sup>&</sup>lt;sup>53</sup> Atlantic Path 15, 122 FERC ¶ 61,135 at P 20 (2008); Prepared Direct Testimony of James M. Coyne, Exhibit No. ATL-7.

<sup>&</sup>lt;sup>54</sup> *Pioneer Transmission, LLC*, 126 FERC ¶ 61,281 at P 94 (2009) ("*Pioneer*").

# 1Q.WHAT IS THE APPROPRIATE BOND YIELD BENCHMARK TO2EVALUATE LOW-END DCF RESULTS?

3 A. As noted earlier, the average S&P corporate credit rating associated with the firms 4 in the PJM and SPP Proxy Groups is "BBB+", with AEP and its operating 5 companies being rated "BBB". Companies rated "BBB-", "BBB", and "BBB+" 6 are all considered part of the triple-B rating category, with Moody's monthly 7 yields on triple-B utility bonds averaging approximately 7.1 percent over the sixmonth period ending September 2009.<sup>55</sup> As highlighted on Exhibit AEP-506, four 8 9 cost of equity estimates for the firms in the SPP Proxy Group exceeded this 10 threshold by 100 basis points or less. In light of the risk-return tradeoff principle 11 and the test applied in *Pioneer*, it is inconceivable that investors are not requiring 12 substantially higher rates of return for holding common stock, which is the 13 riskiest of a utility's securities. As a result, these values provide little guidance as 14 to the returns investors require from the common stock of an electric utility.

#### 15 Q. DO YOU BELIEVE THAT THE CURRENT YIELD TO MATURITY FOR **OUTSTANDING BOND ISSUES SPECIFIC TO EACH UTILITY SHOULD** 16 17 **SERVE** AS THE BASIS FOR **APPLYING** THIS TEST OF 18 **REASONABLENESS?**

A. No. As in *Pioneer*, the Commission has not customarily referenced company specific debt issues but instead employs an average yield on long-term utility
 bonds of corresponding risk – and for good reason. As explained earlier, because
 common equity is a perpetual asset, investors are concerned with expectations for
 the firm's long-term risks and prospects. This does not mean that every investor

<sup>&</sup>lt;sup>55</sup> Moody's Investors Service, www.credittrends.com.

will buy and hold a particular common stock forever. Rather, it recognizes that
even an investor with a relatively short holding period will consider the long-term
because of its influence on the price that he or she ultimately receives from the
stock when it is sold. In order to mirror this long-term horizon in evaluating the
reasonableness of DCF cost of equity estimates, the appropriate comparison is
with long-term debt instruments.

7 Meanwhile, the yield for the embedded debt issues of a specific utility will 8 typically reflect a ladder of shorter-term maturities, which does not match the 9 long-term horizon relevant to an evaluation of common equity returns. In 10 addition to different terms to maturity, using yields on company-specific bonds as 11 a benchmark is fraught with other problems. The yield to maturity on any 12 particular bond is influenced by specific attributes of the securities, such as 13 coupon rate, call provisions or convertibility, and size of the issue. Indeed, the 14 Financial Analysis Branch of the Commission previously noted some of these 15 problems in a 1992 study:

16Determining the bond cost has proven more difficult, however.17Ideally, all utilities would have a bond: with identical terms and18conditions; maturing in 30 years ... and bear a coupon similar to19the market rate, thus accurately reflecting the debt cost of the20company. For most companies bonds with identical terms were21not available.

Because of these attributes, the yields for company-specific debt issues do not provide a reliable basis on which to evaluate the results of the Commission's DCF model. These measurement problems are avoided by using average yields for risk-comparable long-term utility bonds, such as the Moody's yield averages

<sup>&</sup>lt;sup>56</sup> Financial Analysis Branch, *Risk Premium Study* (Aug. 4, 1992) at 3.

routinely referenced by the Commission Staff.<sup>57</sup>

# 2 Q. DO YOU ALSO RECOMMEND EXCLUDING COST OF EQUITY 3 ESTIMATES AT THE HIGH END OF THE RANGE OF 4 REASONABLENESS?

5 A. Yes. In a November 2004 Order in Bangor Hydro, the Commission determined 6 that a cost of equity estimate at the high end of the range of reasonableness might also be excluded if it is determined to be an extreme outlier.<sup>58</sup> Specifically, the 7 Commission found that a 17.7 percent cost of equity estimate for PPL was 8 "extreme" and that including this result would "skew the results."<sup>59</sup> 9 While 10 expressing concern regarding the sustainability of the underlying 13.3 percent 11 growth estimate for PPL, the Commission retained other cost of equity estimates based on even higher growth rates.<sup>60</sup> 12

As noted earlier, the upper end of the cost of equity range produced by the DCF analysis presented in Exhibits AEP-504 and AEP-506 was based on a cost of equity estimate of 22.9 percent for FirstEnergy Corporation. Accordingly, this high-end cost of equity estimate is clearly an extreme outlier and is properly excluded under the rationale adopted by the Commission in *Bangor Hydro*, along with cost of equity estimates of 18.1 percent for DPL, Inc. and 19.6 percent for

1

<sup>&</sup>lt;sup>57</sup> See, e.g., Idaho Power Co., Docket No. ER06-787-002, Prepared Answering Testimony of Commission Staff Witness Edward Alvarez III, Exhibit No. S-11, at 15 (filed Jan. 24, 2007).

<sup>&</sup>lt;sup>58</sup> Order Accepting Partial Settlement, Subject to Conditions; Accepting in Part, Compliance Filings; and Granting in Part, and Denying, in Part, Requests for Rehearing, 109 FERC ¶ 61,147 (2004) ("RTO Rehearing Order") at P 205.

<sup>&</sup>lt;sup>59</sup> *Id*.

<sup>&</sup>lt;sup>60</sup> The DCF analysis that served as the basis for the *RTO Rehearing Order* contained a br+sv growth rate for Exelon Corporation ("Exelon") of 13.6 percent. Nevertheless, the Commission elected to retain Exelon in the proxy group and made no mention of this growth rate figure in its findings.

### 1 ITC Holdings Corp.

# 2 Q. WOULD THESE CRITERIA JUSTIFY ELIMINATING OTHER HIGH3 END DCF VALUES FROM YOUR DCF RANGE?

4 A. No. As shown on Exhibits AEP-504 and AEP-506, the high-end DCF estimate for 5 PPL was 17.5 percent, which falls below the threshold adopted by the 6 Commission in Bangor Hydro. Similarly, the 12.5 percent growth rate underlying 7 this cost of equity estimate is also less than the 13.3 percent benchmark that has 8 been used by the Commission to evaluate values at the high end of the DCF range.<sup>61</sup> A 17.5 percent cost of equity estimate may exceed expectations for most 9 10 electric utilities, just as the 8.6 percent low-end estimate is assuredly far below 11 investors' required rate of return. Taken together, however, these values provide a 12 reasonable basis on which to frame the DCF range under the guidelines of the 13 Commission's DCF approach. Accordingly, this high-end cost of equity estimate 14 is properly included under the rationale adopted by the Commission.

# Q. WHAT ROE RANGE DO YOUR DCF RESULTS IMPLY FOR THE TWO PROXY GROUPS?

A. Eliminating the individual low- and high-end outliers shaded on Exhibit AEP-504
resulted in an adjusted range of reasonableness for the PJM Proxy Group ranging
from 8.6 percent to 17.5 percent, with a midpoint of 13.1 percent. As discussed in
Exhibit AEP-513, I do not support or recommend reliance on the median to
evaluate the ROE for AEPTCo. Nevertheless, as indicated on Exhibit AEP-504, if
the median is based on the average of the high and low estimates for those proxy

<sup>61</sup> See, *e.g.*, *PATH* at P 100.

group firms with no extreme outliers, as was the case in *VEPCo*, the result is 12.0
 percent.

As shown on Exhibit AEP-506, the range of reasonableness for the SPP Proxy Group was identical to that of the PJM Proxy Group, with the midpoint again being 13.1 percent. Meanwhile, the median of the average cost of equity estimates for each proxy company with two valid DCF estimates is 10.8 percent.

# 7 Q. WHAT DCF RESULTS WOULD BE IMPLIED IF THE PROXY GROUPS 8 WERE NARROWED?

9 A. As discussed in Exhibit AEP-512, there are compelling reasons supporting the use 10 of the PJM and SPP Proxy Groups to estimate the cost of equity for AEPTCo. 11 Nevertheless, Exhibit AEP-508 presents the results of the Commission's model 12 after narrowing the PJM Proxy Group to 1) exclude companies with corporate credit ratings outside the "BBB-" to "BBB+" range, and 2) exclude companies 13 14 from the proxy group if either of the DCF estimates is determined to be illogical. Similar analyses for the SPP Proxy Group are shown in Exhibit AEP-509. As 15 16 indicated on these exhibits, these analyses resulted in the same 8.6 percent to 17.5 percent ROE zone of reasonableness, with the midpoint again being 13.1 percent. 17 Using the methodology employed in *Golden Spread* and *VEPCO*,<sup>62</sup> the median 18 19 would be 12.0 percent for the PJM Proxy Group and 10.9 percent for the SPP 20 Proxy Group.

 $<sup>^{62}</sup>$  *VEPCO* at fn. 58. The Commission determines the median after averaging the low and high DCF estimates for each of the firms in the proxy group.

### III. RETURN ON EQUITY FOR AEPTCO

### 1 Q. WHAT IS THE PURPOSE OF THIS SECTION?

A. This section presents my conclusions regarding a reasonable ROE for AEPTCo.
It examines other factors properly considered in determining a fair rate of return,
including the relationship between ROE and preservation of a utility's financial
integrity and the ability to attract capital.

### A. Implications for Financial Integrity

### 6 Q. WHY IS IT IMPORTANT TO ALLOW AEPTCO AN ADEQUATE ROE?

A. Given the social and economic importance of the utility industry, it is essential to
maintain reliable and economical service to all consumers. While AEPTCo
remains committed to ensure that customers realize the benefits of increased
investment in transmission infrastructure, a utility's ability to fulfill its mandate
can be compromised if it lacks the necessary financial wherewithal or is unable to
earn a return sufficient to attract capital.

13 As documented earlier, the major rating agencies have warned of exposure 14 to uncertainties associated with political and regulatory developments, especially 15 in view of current financial and operating pressures in the utility industry. 16 Investors understand just how swiftly unforeseen circumstances can lead to 17 deterioration in a utility's financial condition, and stakeholders have discovered 18 first hand how difficult and complex it can be to remedy the situation after the 19 fact. Investors' increased reticence to supply additional capital during times of 20 crisis highlights the need to preserve financial flexibility and the importance of 21 allowing an adequate ROE.

# Q. WHAT ROLE DOES REGULATION PLAY IN ENSURING ACCESS TO CAPITAL FOR AEPTCO?

A. Considering investors' heightened awareness of the risks associated with the
utility industry and the damage that results when a utility's financial flexibility is
compromised, supportive regulation remains crucial to the Company's access to
capital. Investors recognize that regulation has its own risks, and that constructive
regulation is a key ingredient in supporting utility credit ratings and financial
integrity, particularly during times of adverse conditions. Fitch noted that:

Regulatory risk remains a recurring theme for this year's outlook, as the pressure of a weak economic backdrop could result in political push-back to rate increase requests.<sup>63</sup>

12 The report went on to conclude, "Fitch is concerned that the recent rapid 13 escalation in the cost of capital will not be reflected on a timely basis in utility 14 rates."<sup>64</sup>

Moody's has also emphasized the need for regulatory support "in an era of broadly rising costs," noting that as cost pressures have escalated for electric utilities, so too has the importance of timely recovery through the regulatory process and the risks associated with regulatory lag.<sup>65</sup> S&P concluded "the quality of regulation is at the forefront of our analysis of utility creditworthiness."<sup>66</sup>

9

10

11

<sup>&</sup>lt;sup>63</sup> Fitch Ratings Ltd., "U.S. Utilities, Power and Gas 2009 Outlook," *Global Power North America Special Report* (Dec. 22, 2008).

<sup>&</sup>lt;sup>64</sup> Id.

<sup>&</sup>lt;sup>65</sup> Moody's Investors Service, "Regulatory Pressures Increase For U.S. Electric Utilities," *Special Comment* (March 2007).

<sup>&</sup>lt;sup>66</sup> Standard & Poor's Corporation, "Assessing U.S. Utility Regulatory Environments," *RatingsDirect* (Nov. 7, 2008).

# Q. DO CUSTOMERS BENEFIT BY ENHANCING THE UTILITY'S FINANCIAL FLEXIBILITY?

3 A. Yes. Providing an ROE that is sufficient to compensate investors and maintain 4 AEPTCo's ability to attract capital, even under duress, is consistent with the 5 economic requirements embodied in the Supreme Court's Hope and Bluefield 6 decisions, but it is also in customers' best interests. Ultimately, it is customers 7 and the service area economy that enjoy the benefits that come from ensuring that 8 regional utilities have the financial wherewithal to take whatever actions are 9 required to ensure a reliable energy supply. By the same token, customers also 10 bear a significant burden when the ability to attract capital for system 11 enhancements is impaired and service quality is compromised.

### B. Capital Structure

# 12 Q. IS AN EVALUATION OF THE CAPITAL STRUCTURE MAINTAINED BY 13 A UTILITY RELEVANT IN ASSESSING ITS ROE?

14 A. Yes. Other things equal, a higher debt ratio, or lower common equity ratio, 15 translates into increased financial risk for all investors. A greater amount of debt 16 means more investors have a senior claim on available cash flow, thereby 17 reducing the certainty that each will receive his contractual payments. This 18 increases the risks to which lenders are exposed, and they require correspondingly 19 higher rates of interest. From common shareholders' standpoint, a higher debt 20 ratio means that there are proportionately more investors ahead of them, thereby 21 increasing the uncertainty as to the amount of cash flow, if any, that will remain.

# Q. WHAT COMMON EQUITY RATIO WILL BE USED TO ESTABLISH THE COMPANY'S OVERALL RATE OF RETURN?

A. AEPTCo's capitalization reflects a common equity ratio of 50 percent in this
filing, which is based on the Company's targeted capital structure.

# 5 Q. HOW DOES THIS COMPARE WITH COMMON EQUITY RATIOS 6 MAINTAINED BY THE PROXY GROUPS OF OTHER ELECTRIC 7 UTILITIES?

A. As shown on Exhibit AEP-510, common equity ratios for the individual firms in
the PJM Proxy Group ranged from a low of 38.3 percent to a high of 50.1 percent
at year-end 2008, with the average being 43.4 percent. Meanwhile, as illustrated
in Exhibit AEP-511, common equity ratios for the SPP Proxy Group fell in a
broader range of 29.2 percent to 63.7 percent and averaged 47.1 percent.

# 13 Q. WHAT CAPITALIZATION IS REPRESENTATIVE FOR THESE PROXY 14 GROUPS GOING FORWARD?

A. As shown on Exhibits AEP-510 and AEP-511, Value Line expects average
common equity ratios for the PJM and SPP Proxy Groups of 49.4 percent and
50.5 percent, respectively, for its three-to-five year forecast horizon.

# 18 Q. WHAT IMPLICATION DOES THE INCREASING RISK OF THE 19 UTILITY INDUSTRY HAVE FOR THE CAPITAL STRUCTURES 20 MAINTAINED BY UTILITIES?

A. As discussed earlier, utilities are facing energy market volatility, rising cost
 structures, the need to finance significant capital investment plans, uncertainties
 over accommodating future environmental mandates, and ongoing regulatory
 risks. Coupled with the potential for turmoil in capital markets, these
 considerations warrant a stronger balance sheet to deal with an increasingly

uncertain environment. A more conservative financial profile, in the form of a
 higher common equity ratio, is consistent with increasing uncertainties and the
 need to maintain the continuous access to capital that is required to fund
 operations and necessary system investment, even during times of adverse capital
 market conditions.

6 Moody's has warned investors of the risks associated with debt leverage 7 and fixed obligations and advised utilities not to squander the opportunity to 8 strengthen the balance sheet as a buffer against future uncertainties.<sup>67</sup> Moody's 9 noted that, "maintaining unfettered access to capital markets will be crucial," and 10 cited the importance of forestalling future downgrades by bolstering utility 11 balance sheets.<sup>68</sup> As Moody's concluded:

12 Our concerns are clearly growing, but we believe utilities have 13 adequate time to adjust and revise their corporate finance polices 14 and strengthen balance sheets, thereby improving their ability to 15 manage volatility and address uncertainty.<sup>69</sup>

Moody's affirmed that because of its significant investment plans, the utility industry "will need to attract a significant amount of new equity capital in order to maintain existing ratings."<sup>70</sup>

<sup>&</sup>lt;sup>67</sup> Moody's Investors Service, "Storm Clouds Gathering on the Horizon for the North American Electric Utility Sector," *Special Comment* (Aug. 2007); "U.S. Electric Utility Sector," *Industry Outlook* (Jan. 2008).

<sup>&</sup>lt;sup>68</sup> Moody's Investors Service, "U.S. Investor-Owned Electric Utilities," *Industry Outlook* (Jan. 2009).

<sup>&</sup>lt;sup>69</sup> Id.

<sup>&</sup>lt;sup>70</sup> Moody's Investors Service, "U.S. Investor-Owned Electric Utilities: Six-Month Industry Update," *Industry Outlook* (July 2008).

# 1Q.WHAT DOES THIS EVIDENCE SUGGEST WITH RESPECT TO2AEPTCO'S PROPOSED CAPITAL STRUCTURE?

A. Based on my evaluation, I concluded that AEPTCo's proposed capital structure
represents a reasonable mix of capital sources from which to calculate AEPTCo's
overall rate of return. A capital structure consisting of 50 percent common equity
is within the range of capitalizations maintained by the proxy groups of electric
utilities and is entirely consistent with the average equity ratio expected over
Value Line's forecast horizon.

9 Moreover, while industry averages provide one benchmark for 10 comparison, each firm must select its capitalization based on the risks and 11 prospects it faces, as well as its specific needs to access the capital markets. 12 Financial flexibility plays a crucial role in ensuring the wherewithal to meet the 13 needs of customers, and utilities with higher leverage may be foreclosed from 14 additional borrowing, especially during times of stress. A public utility with an 15 obligation to serve must maintain ready access to capital under reasonable terms 16 so that it can meet the service requirements of its customers. The need for access 17 becomes even more important when the company has capital requirements over a 18 period of years, and financing must be continuously available, even during 19 unfavorable capital market conditions.

C. RTO Participation Adder

### 20 Q. HAS THE COMMISSION RECOGNIZED THAT AN ROE ADDER FOR

# 21PARTICIPATIONINATRANSMISSIONORGANIZATIONIS22APPROPRIATE?

A. Yes. The EPAct specifically required the Commission to "provide for incentives
to each transmitting utility or electric utility that joins a Transmission

1	Organization." <sup>71</sup> The decision to provide this incentive is well supported, both
2	from policy and capital attraction reasons, and the Commission has consistently
3	affirmed its support for an ROE incentive for participation in a Transmission
4	Organization. <sup>72</sup> The Commission has determined that the public interest is better
5	served if functional control of the grid is performed by an independent entity like
6	an RTO and if new transmission investment is undertaken with the wider focus
7	and enhanced stakeholder participation provided through an independently-driven
8	process, rather than under isolated, utility-by-utility planning.
9	In Order No. 679, the Commission stated that it will authorize, when
10	justified, an incentive-based rate treatment, in the form of a higher ROE, for
11	public utilities that join and/or continue to be a member of a Commission-
12	approved Transmission Organization. <sup>73</sup> As the Commission noted:
13	A regional planning process is very important to meeting regional
14 15	transmission needs, and, we believe it will produce benefits for customers. <sup>74</sup>
16	While FERC elected to consider the incentive request on a case-by-case basis,
17	rather than creating a generic adder, the Commission concluded that:
18 19 20	[E]ntities that have already joined, and that remain members of, an RTO, ISO, or other Commission-approved Transmission Organization, are eligible to receive this incentive. The basis for the
21	incentive is a recognition of the benefits that flow from membership

 <sup>&</sup>lt;sup>71</sup> *EPAct* at Sect. 219 (c), 119 STAT. 962.
 <sup>72</sup> See, *e.g.*, *VEPCO* at P 67; *Bangor Hydro* at P 2; *Allegheny Power Sys. Operating Cos.*, 106 FERC ¶ 61,003 (2004); *PJM Interconnection*, *L.L.C.*, 104 FERC ¶ 61,124 at P 74 (2003).

<sup>&</sup>lt;sup>73</sup> Order No. 679 at P 326.
<sup>74</sup> Order No. 679 at P 332.

1in such an organization and the fact that continuing membership is2generally voluntary.

In *Pepco Holdings, Inc.*,<sup>76</sup> the Commission affirmed its policy of allowing an ROE adder to recognize the consumer benefits provided through membership in a Transmission Organization, and noted that a 50 basis point incentive was consistent with the level approved in recent proceedings.<sup>77</sup>

7 Comprehensive operations, planning and decision making under the 8 framework of a Transmission Organization should be encouraged, fostered, and 9 rewarded in order to achieve the public policy goals mandated by Congress. 10 Moreover, given past precedent authorizing incentive returns for Transmission 11 Organization participants, investors have come to expect such added returns when 12 they fund projects for which the utility is no longer the sole operational or 13 planning entity. Incentive rate treatment to recognize that AEPTCo's subsidiaries 14 are expected to become ongoing members in PJM and SPP is consistent with past precedent, the Commission's guidelines, and investors' expectations and should 15 16 be approved.

### D. <u>ROE Recommendation</u>

# 17 Q. WHAT IS YOUR CONCLUSION REGARDING A REASONABLE ROE 18 FOR AEPTCO?

A. I recommend a base ROE of 13.1 percent for AEPTCo, which corresponds to the
 midpoint of the 8.6 percent to 17.5 percent adjusted range of reasonableness

<sup>&</sup>lt;sup>75</sup> Order No. 679 at P 331. Similarly, the Commission concluded in Order No. 679-A, "We affirm the finding in the Final Rule that the incentive applies to all utilities joining Transmission Organizations, irrespective of the date they join, based on a reading of section 219 in its entirety." [Order No. 679-A at P 86.]

<sup>&</sup>lt;sup>76</sup> Pepco Holdings, Inc., 121 FERC ¶ 61,169 (2007).

<sup>&</sup>lt;sup>77</sup> *Id.* at PP 15-16.

produced by applying the Commission's DCF approach to the PJM and SPP Proxy Groups. In light of the fact that AEPTCo's subsidiaries will relinquish functional control of their transmission operations to PJM and SPP, an incentive adder of 50 basis points for participation in an RTO should be added to this base. The resulting 13.6 percent ROE falls well within the range of reasonableness, as required by established Commission policy.

7 Given the importance of supporting the financial capability of AEPTCo as 8 it seeks to undertake the capital investment necessary to develop and enhance 9 transmission infrastructure, I conclude that an ROE of 13.6 percent is reasonable 10 and should be approved. Moreover, in evaluating a reasonable ROE for AEPTCo, 11 it is also important to consider investors' continued focus on the unsettled 12 conditions in restructured power markets, as well as heightened uncertainties in 13 the economy and capital markets. The investment risks faced by utilities and their 14 investors have only been exacerbated in this uncertain environment. In turn, the 15 need for supportive regulation and an adequate ROE may never have been 16 greater.

### 17 Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY IN THIS CASE?

18 A. Yes, it does.

# WILLIAM E. AVERA

FINCAP, INC. Financial Concepts and Applications *Economic and Financial Counsel*  3907 Red River Austin, Texas 78751 (512) 458–4644 FAX (512) 458–4768 fincap@texas.net

#### Summary of Qualifications

Ph.D. in economics and finance; Chartered Financial Analyst (CFA<sup>®</sup>) designation; extensive expert witness testimony before courts, alternative dispute resolution panels, regulatory agencies and legislative committees; lectured in executive education programs around the world on ethics, investment analysis, and regulation; undergraduate and graduate teaching in business and economics; appointed to leadership positions in government, industry, academia, and the military.

#### **Employment**

Principal, Financial, economic and policy consulting to business FINCAP, Inc. and government. Perform business and public policy research, cost/benefit analyses and financial modeling, (Sep. 1979 to present) valuation of businesses (over 150 entities valued), estimation of damages, statistical and industry studies. Provide strategy advice and educational services in public and private sectors, and serve as expert witness before regulatory agencies, legislative committees, arbitration panels, and courts. Responsible for research and testimony preparation on Director, Economic Research rate of return, rate structure, and econometric analysis Division. Public Utility Commission of Texas dealing with energy, telecommunications, water and (Dec. 1977 to Aug. 1979) Testified in major rate cases and sewer utilities. appeared before legislative committees and served as Chief Economist for agency. Administered state and federal grant funds. Communicated frequently with political leaders and representatives from consumer groups, media, and investment community. Manager, Financial Education, Directed corporate education programs in accounting, International Paper Company finance, and economics. Developed course materials, New York City recruited and trained instructors, liaison within the (Feb. 1977 to Nov. 1977) company and with academic institutions. Prepared operating budget and designed financial controls for

corporate professional development program.

The University of Texas at Austin (Sep. 1979 to May 1981) Assistant Professor of Finance, (Sep. 1975 to May 1977)	Taught graduate and undergraduate courses in financial management and investment theory. Conducted research in business and public policy. Named Outstanding Graduate Business Professor and received various administrative appointments.
Assistant Professor of Business, University of North Carolina at Chapel Hill (Sep. 1972 to Jul. 1975)	Taught in BBA, MBA, and Ph.D. programs. Created project course in finance, Financial Management for Women, and participated in developing Small Business Management sequence. Organized the North Carolina Institute for Investment Research, a group of financial institutions that supported academic research. Faculty advisor to the Media Board, which funds student publications and broadcast stations.
Education	
<ul><li><i>Ph.D., Economics and Finance,</i></li><li>University of North Carolina at Chapel Hill</li><li>(Jan. 1969 to Aug. 1972)</li></ul>	Elective courses included financial management, public finance, monetary theory, and econometrics. Awarded the Stonier Fellowship by the American Bankers' Association and University Teaching Fellowship. Taught statistics, macroeconomics, and microeconomics. Dissertation: <i>The Geometric Mean Strategy as a</i>
	Theory of Multiperiod Portfolio Choice
<i>B.A., Economics</i> , Emory University, Atlanta, Georgia (Sep. 1961 to Jun. 1965)	Active in extracurricular activities, president of the Barkley Forum (debate team), Emory Religious Association, and Delta Tau Delta chapter. Individual awards and team championships at national collegiate debate tournaments.

# **Professional Associations**

Lecturer in Finance,

Received Chartered Financial Analyst (CFA) designation in 1977; Vice President for Membership, Financial Management Association; President, Austin Chapter of Planning Executives Institute; Board of Directors, North Carolina Society of Financial Analysts; Candidate Curriculum Committee, Association for Investment Management and Research; Executive Committee of Southern Finance Association; Vice Chair, Staff Subcommittee on Economics and National Association of Regulatory Utility Commissioners (NARUC); Appointed to NARUC Technical Subcommittee on the National Energy Act.

### **Teaching in Executive Education Programs**

<u>University-Sponsored Programs</u>: Central Michigan University, Duke University, Louisiana State University, National Defense University, National University of Singapore, Texas A&M University, University of Kansas, University of North Carolina, University of Texas.

<u>Business and Government-Sponsored Programs:</u> Advanced Seminar on Earnings Regulation, American Public Welfare Association, Association for Investment Management and Research, Congressional Fellows Program, Cost of Capital Workshop, Electricity Consumers Resource Council, Financial Analysts Association of Indonesia, Financial Analysts Review, Financial Analysts Seminar at Northwestern University, Governor's Executive Development Program of Texas, Louisiana Association of Business and Industry, National Association of Purchasing Management, National Association of Tire Dealers, Planning Executives Institute, School of Banking of the South, State of Wisconsin Investment Board, Stock Exchange of Thailand, Texas Association of State Sponsored Computer Centers, Texas Bankers' Association, Texas Bar Association, Texas Savings and Loan League, Texas Society of CPAs, Tokyo Association of Foreign Banks, Union Bank of Switzerland, U.S. Department of State, U.S. Navy, U.S. Veterans Administration, in addition to Texas state agencies and major corporations.

Presented papers for Mills B. Lane Lecture Series at the University of Georgia and Heubner Lectures at the University of Pennsylvania. Taught graduate courses in finance and economics for evening program at St. Edward's University in Austin from January 1979 through 1998.

## **Expert Witness Testimony**

Testified in almost 300 cases before regulatory agencies addressing cost of capital, regulatory policy, rate design, and other economic and financial issues.

*<u>Federal Agencies</u>*: Federal Communications Commission, Federal Energy Regulatory Commission, Surface Transportation Board, Interstate Commerce Commission, and the Canadian Radio-Television and Telecommunications Commission.

<u>State Regulatory Agencies:</u> Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Michigan, Missouri, Nevada, New Mexico, Montana, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Texas, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

Testified in 42 cases before federal and state courts, arbitration panels, and alternative dispute tribunals (88 depositions given) regarding damages, valuation, antitrust liability, fiduciary duties, and other economic and financial issues.

# **Board Positions and Other Professional Activities**

Audit Committee and Outside Director, Georgia System Operations Corporation (electric system operator for member-owned electric cooperatives in Georgia); Chairman, Board of Print Depot, Inc. and FINCAP, Inc.; Co-chair, Synchronous Interconnection Committee, appointed by Public Utility Commission of Texas and approved by governor; Appointed by Hays County Commission to Citizens Advisory Committee of Habitat Conservation Plan, Operator of AAA Ranch, a certified organic producer of agricultural products; Appointed to Organic Livestock Advisory Committee by Texas Agricultural Commissioner Susan Combs; Appointed by Texas Railroad Commissioners to study group for *The UP/SP Merger: An Assessment of the Impacts on the State of Texas; Appointed* by Hawaii Public Utilities Commission to team reviewing affiliate relationships of Hawaiian Electric Industries; Chairman, Energy Task Force, Greater Austin-San Antonio Corridor Council; Consultant to Public Utility Commission of Texas on cogeneration policy and other matters; Consultant to

Public Service Commission of New Mexico on cogeneration policy; Evaluator of Energy Research Grant Proposals for Texas Higher Education Coordinating Board.

## **Community Activities**

Board of Directors, Sustainable Food Center; Chair, Board of Deacons, Finance Committee, and Elder, Central Presbyterian Church of Austin; Founding Member, Orange-Chatham County (N.C.) Legal Aid Screening Committee.

## **Military**

Captain, U.S. Naval Reserve (retired after 28 years service); Commanding Officer, Naval Special Warfare Engineering (SEAL) Support Unit; Officer-in-Charge of SWIFT patrol boat in Vietnam; Enlisted service as weather analyst (advanced to second class petty officer).

# **Bibliography**

## Monographs

- *Ethics and the Investment Professional* (video, workbook, and instructor's guide) and *Ethics Challenge Today* (video), Association for Investment Management and Research (1995)
- "Definition of Industry Ethics and Development of a Code" and "Applying Ethics in the Real World," in *Good Ethics: The Essential Element of a Firm's Success*, Association for Investment Management and Research (1994)
- "On the Use of Security Analysts' Growth Projections in the DCF Model," with Bruce H. Fairchild in *Earnings Regulation Under Inflation*, J. R. Foster and S. R. Holmberg, eds. Institute for Study of Regulation (1982)
- An Examination of the Concept of Using Relative Customer Class Risk to Set Target Rates of Return in Electric Cost-of-Service Studies, with Bruce H. Fairchild, Electricity Consumers Resource Council (ELCON) (1981); portions reprinted in Public Utilities Fortnightly (Nov. 11, 1982)
- "Usefulness of Current Values to Investors and Creditors," *Research Study on Current-Value Accounting Measurements and Utility*, George M. Scott, ed., Touche Ross Foundation (1978)
- "The Geometric Mean Strategy and Common Stock Investment Management," with Henry A. Latané in *Life Insurance Investment Policies*, David Cummins, ed. (1977)
- Investment Companies: Analysis of Current Operations and Future Prospects, with J. Finley Lee and Glenn L. Wood, American College of Life Underwriters (1975)

### Articles

- "Should Analysts Own the Stocks they Cover?" The Financial Journalist, (March 2002)
- "Liquidity, Exchange Listing, and Common Stock Performance," with John C. Groth and Kerry Cooper, *Journal of Economics and Business* (Spring 1985); reprinted by National Association of Security Dealers
- "The Energy Crisis and the Homeowner: The Grief Process," *Texas Business Review* (Jan.–Feb. 1980); reprinted in *The Energy Picture: Problems and Prospects*, J. E. Pluta, ed., Bureau of Business Research (1980)
- "Use of IFPS at the Public Utility Commission of Texas," *Proceedings of the IFPS Users Group* Annual Meeting (1979)

- "Production Capacity Allocation: Conversion, CWIP, and One-Armed Economics," *Proceedings of the NARUC Biennial Regulatory Information Conference* (1978)
- "Some Thoughts on the Rate of Return to Public Utility Companies," with Bruce H. Fairchild in *Proceedings of the NARUC Biennial Regulatory Information Conference* (1978)
- "A New Capital Budgeting Measure: The Integration of Time, Liquidity, and Uncertainty," with David Cordell in *Proceedings of the Southwestern Finance Association* (1977)
- "Usefulness of Current Values to Investors and Creditors," in *Inflation Accounting/Indexing and Stock Behavior* (1977)
- "Consumer Expectations and the Economy," Texas Business Review (Nov. 1976)
- "Portfolio Performance Evaluation and Long-run Capital Growth," with Henry A. Latané in *Proceedings of the Eastern Finance Association* (1973)
- Book reviews in *Journal of Finance* and *Financial Review*. Abstracts for *CFA Digest*. Articles in *Carolina Financial Times*.

#### **Selected Papers and Presentations**

- "Estimating Utility Cost of Equity in Financial Turmoil", SNL EXNET 15<sup>th</sup> Annual FERC Briefing, Washington, D.C. (Mar. 5, 2009)
- "The Who, What, When, How, and Why of Ethics", San Antonio Financial Analysts Society (Jan. 16, 2002). Similar presentation given to the Austin Society of Financial Analysts (Jan. 17, 2002)
- "Ethics for Financial Analysts," Sponsored by Canadian Council of Financial Analysts: delivered in Calgary, Edmonton, Regina, and Winnipeg, June 1997. Similar presentations given to Austin Society of Financial Analysts (Mar. 1994), San Antonio Society of Financial Analysts (Nov. 1985), and St. Louis Society of Financial Analysts (Feb. 1986)
- "Cost of Capital for Multi-Divisional Corporations," Financial Management Association, New Orleans, Louisiana (Oct. 1996)
- "Ethics and the Treasury Function," Government Treasurers Organization of Texas, Corpus Christi, Texas (Jun. 1996)
- "A Cooperative Future," Iowa Association of Electric Cooperatives, Des Moines (December 1995). Similar presentations given to National G & T Conference, Irving, Texas (June 1995), Kentucky Association of Electric Cooperatives Annual Meeting, Louisville (Nov. 1994), Virginia, Maryland, and Delaware Association of Electric Cooperatives Annual Meeting, Richmond (July 1994), and Carolina Electric Cooperatives Annual Meeting, Raleigh (Mar. 1994)
- "Information Superhighway Warnings: Speed Bumps on Wall Street and Detours from the Economy," Texas Society of Certified Public Accountants Natural Gas, Telecommunications and Electric Industries Conference, Austin (Apr. 1995)
- "Economic/Wall Street Outlook," Carolinas Council of the Institute of Management Accountants, Myrtle Beach, South Carolina (May 1994). Similar presentation given to Bell Operating Company Accounting Witness Conference, Santa Fe, New Mexico (Apr. 1993)
- "Regulatory Developments in Telecommunications," Regional Holding Company Financial and Accounting Conference, San Antonio (Sep. 1993)
- "Estimating the Cost of Capital During the 1990s: Issues and Directions," The National Society of Rate of Return Analysts, Washington, D.C. (May 1992)

- "Making Utility Regulation Work at the Public Utility Commission of Texas," Center for Legal and Regulatory Studies, University of Texas, Austin (June 1991)
- "Can Regulation Compete for the Hearts and Minds of Industrial Customers," Emerging Issues of Competition in the Electric Utility Industry Conference, Austin (May 1988)
- "The Role of Utilities in Fostering New Energy Technologies," Emerging Energy Technologies in Texas Conference, Austin (Mar. 1988)
- "The Regulators' Perspective," Bellcore Economic Analysis Conference, San Antonio (Nov. 1987)
- "Public Utility Commissions and the Nuclear Plant Contractor," Construction Litigation Superconference, Laguna Beach, California (Dec. 1986)
- "Development of Cogeneration Policies in Texas," University of Georgia Fifth Annual Public Utilities Conference, Atlanta (Sep. 1985)
- "Wheeling for Power Sales," Energy Bureau Cogeneration Conference, Houston (Nov. 1985).
- "Asymmetric Discounting of Information and Relative Liquidity: Some Empirical Evidence for Common Stocks" (with John Groth and Kerry Cooper), Southern Finance Association, New Orleans (Nov. 1982)
- "Used and Useful Planning Models," Planning Executive Institute, 27th Corporate Planning Conference, Los Angeles (Nov. 1979)
- "Staff Input to Commission Rate of Return Decisions," The National Society of Rate of Return Analysts, New York (Oct. 1979)
- ""Discounted Cash Life: A New Measure of the Time Dimension in Capital Budgeting," with David Cordell, Southern Finance Association, New Orleans (Nov. 1978)
- "The Relative Value of Statistics of Ex Post Common Stock Distributions to Explain Variance," with Charles G. Martin, Southern Finance Association, Atlanta (Nov. 1977)
- "An ANOVA Representation of Common Stock Returns as a Framework for the Allocation of Portfolio Management Effort," with Charles G. Martin, Financial Management Association, Montreal (Oct. 1976)
- "A Growth-Optimal Portfolio Selection Model with Finite Horizon," with Henry A. Latané, American Finance Association, San Francisco (Dec. 1974)
- "An Optimal Approach to the Finance Decision," with Henry A. Latané, Southern Finance Association, Atlanta (Nov. 1974)
- "A Pragmatic Approach to the Capital Structure Decision Based on Long-Run Growth," with Henry A. Latané, Financial Management Association, San Diego (Oct. 1974)
- "Growth Rates, Expected Returns, and Variance in Portfolio Selection and Performance Evaluation," with Henry A. Latané, Econometric Society, Oslo, Norway (Aug. 1973)

#### **RISK MEASURES**

				(a)		(b)						
				S&P	Val	ue Line			Industry	Classification		
				Credit	Safety	Financial	Value I	L <b>ine</b> (b)		S&P (c)		IBES (d)
	Company	SYM	RTO	Rating	Rank	Strength	Sector	Sub-Industry	Sector	Sub-Industry	Sector	Sub-Industry
1	Allegheny Energy	AYE	PJM	BBB-	3	B++	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
2	American Elec Pwr	AEP	PJM/SPP	BBB	3	B++	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
3	Consolidated Edison	ED	PJM/NYISO	A-	1	A+	Electric Utility	East	Utilities	Multi-Utilities	Utilities	Electricity
4	Dominion Resources	D	PJM	A-	2	B++	Electric Utility	East	Utilities	Multi-Utilities	Utilities	Electricity
5	DPL, Inc.	DPL	PJM	A-	3	B++	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
6	Exelon Corp.	EXC	PJM	BBB	1	A+	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
7	FirstEnergy Corp.	FE	MISO/PJM	BBB	2	А	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
8	FPL Group	FPL	ISO-NE	А	1	A+	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
9	Northeast Utilities	NU	ISO-NE	BBB	3	B+	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
10	NSTAR	NST	ISO-NE	A+	1	А	Electric Utility	Central	Utilities	Multi-Utilities	Utilities	Electricity
11	Pepco Holdings	POM	PJM	BBB	3	В	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
12	PPL Corp.	PPL	PJM	BBB	3	B++	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
13	P S Enterprise Group	PEG	PJM	BBB	3	B++	Electric Utility	East	Utilities	Multi-Utilities	Utilities	Electricity
14	UIL Holdings	UIL	ISO-NE	BBB-	2	B++	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
				BBB+	2	B++						

(a) www.standardandpoors.com (retrieved Oct. 14, 2009).

(b) The Value Line Investment Survey (Aug. 28 & Sep. 25, 2009).

(c) Standard and Poor's Corporation, Stock Report (retrieved from www.fidelity.com Oct. 14, 2009).

(d) Thompson Reuters Company Report (Oct. 14, 2009).

#### **RISK MEASURES**

(b)

(a)

				S&P	Val	ue Line		ication				
				Credit	Safety	Financial	Value	L <b>ine</b> (b)		<b>S&amp;P</b> (c)		IBES (d)
	Company	SYM	RTO	Rating	Rank	Strength	Sector	Sub-Industry	Sector	Sub-Industry	Sector	Sub-Industry
1	Allegheny Energy	AYE	PJM	BBB-	3	B++	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
2	ALLETE	ALE	MISO	BBB+	2	А	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
3	Alliant Energy	LNT	MISO	BBB+	2	А	Electric Utility	Central	Utilities	Multi-Utilities	Utilities	Electricity
4	Ameren Corp.	AEE	MISO	BBB-	3	B++	Electric Utility	Central	Utilities	Multi-Utilities	Utilities	Multiutilities
5	American Elec Pwr	AEP	PJM/SPP	BBB	3	B++	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
6	Consolidated Edison	ED	PJM	A-	1	A+	Electric Utility	East	Utilities	Multi-Utilities	Utilities	Electricity
7	Dominion Resources	D	PJM	A-	2	B++	Electric Utility	East	Utilities	Multi-Utilities	Utilities	Electricity
8	DPL, Inc.	DPL	PJM	A-	3	B++	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
9	Duke Energy Corp.	DUK	MISO	A-	2	А	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Multiutilities
10	Exelon Corp.	EXC	PJM	BBB	1	A+	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
11	FirstEnergy Corp.	FE	MISO/PJM	BBB	2	А	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
12	Great Plains Energy	GXP	SPP	BBB	3	B+	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
13	ITC Holdings	ITC	MISO	BBB	3	В	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
14	MGE Energy	MGEE	MISO	AA-	1	А	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
15	Pepco Holdings	POM	PJM	BBB	3	В	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
16	PPL Corp.	PPL	PJM	BBB	3	B++	Electric Utility	East	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
17	P S Enterprise Group	PEG	PJM	BBB	3	B++	Electric Utility	East	Utilities	Multi-Utilities	Utilities	Electricity
18	Vectren Corp.	VVC	MISO	A-	2	А	Electric Utility	Central	Utilities	Multi-Utilities	Utilities	Multiutilities
19	Westar Energy	WR	SPP	BBB-	2	B++	Electric Utility	Central	Utilities	<b>Electric Utilities</b>	Utilities	Electricity
20	Wisconsin Energy	WEC	MISO	BBB+	2	B++	Electric Utility	Central	Utilities	Multi-Utilities	Utilities	Multiutilities
21	Xcel Energy, Inc.	XEL	MISO/SPP	BBB+	2	B++	Electric Utility	West	Utilities	Multi-Utilities	Utilities	Electricity
				BBB+	2	B++	-					-

(a) www.standardandpoors.com (retrieved Oct. 14, 2009).

(b) The Value Line Investment Survey (Aug. 7, Aug. 28, & Sep. 25, 2009).

(c) Standard and Poor's Corporation, *Stock Report* (retrieved from www.fidelity.com Oct. 14, 2009).

(d) Thompson Reuters Company Report (Oct. 14, 2009).

#### FERC DCF MODEL

### Exhibit AEP-504 Page 1 of 1

		()	a)	(ł	<b>)</b> )	(c)	(d)	(e)		(f)
		<u>6 Mo.D</u>	iv. Yield	Adjusted	Div. Yield	Growtl	n Rates	Implied (	<u>Cost</u>	<u>of Equity</u>
	Company	Low	High	Low	High	br + sv	IBES	Low		High
1	Allegheny Energy	2.2%	2.5%	2.3%	2.7%	10.2%	9.0%	11.3%		12.9%
2	American Elec Pwr	5.5%	6.0%	5.6%	6.2%	5.9%	3.8%	9.4%		12.1%
3	Consolidated Edison	6.0%	6.4%	6.1%	6.6%	4.5%	3.4%	9.5%		11.1%
4	Dominion Resources	5.2%	5.6%	5.4%	5.8%	7.7%	6.5%	11.9%		13.6%
5	DPL, Inc.	4.7%	5.1%	4.9%	5.4%	12.7%	10.0%	14.9%		18.1%
6	Exelon Corp.	4.1%	4.5%	4.1%	4.8%	10.7%	4.5%	8.6%		15.4%
7	FirstEnergy Corp.	5.0%	5.7%	5.2%	6.2%	16.7%	5.0%	10.2%		22.9%
8	FPL Group	3.3%	3.6%	3.4%	3.7%	8.9%	9.3%	12.3%		13.0%
9	Northeast Utilities	4.1%	4.5%	4.2%	4.7%	6.5%	8.5%	10.7%		13.2%
10	NSTAR	4.6%	5.0%	4.7%	5.1%	5.3%	5.5%	10.0%		10.6%
11	Pepco Holdings	7.7%	8.6%	7.8%	8.8%	1.9%	5.5%	9.7%		14.3%
12	PPL Corp.	4.2%	4.7%	4.3%	5.0%	6.1%	12.5%	10.5%		17.5%
13	P S Enterprise Group	4.0%	4.4%	4.1%	4.6%	9.3%	5.3%	9.4%		14.0%
14	UIL Holdings	6.9%	7.7%	7.0%	7.9%	3.2%	4.4%	10.2%		12.3%
	Range of Reasonableness							8.6%		22.9%
	Adjusted Range of Reasona	bleness (g	)					8.6%		17.5%
	Midpoint							1	13.1%	<b>o</b>
	Median (h)							1	1 <b>2.0</b> %	6

(a) Six-month average dividend yield for April - September 2009.

(b) Six-month dividend yield adjusted for one-half years' growth.

(c) Exhibit AEP-505.

(d) Long-term IBES growth forecast from *Thompson Reuters Company Report* (Oct. 14, 2009).

(e) Sum of low growth rate and corresponding adjusted dividend yield.

(f) Sum of high growth rate and corresponding adjusted dividend yield.

(g) Excludes highlighted values.

(h) Based on the average of the low and high values for each proxy firm with two valid DCF estimates.

		(a)	(a)	(b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
		2012-1	4 Market F	rice	Earnir	igs Per S	hare	Divide	nds Per :	Share	Return	on Equi	ty ("r")
	Company	<u>High</u>	Low	Avg.	<u>2009</u>	<u>2010</u>	<u>2012-14</u>	<u>2009</u>	<u>2010</u>	<u>2012-14</u>	<u>2009</u>	<u>2010</u>	<u>2012-14</u>
1	Allegheny Energy	\$70.00	\$45.00	\$57.50	\$2.40	\$2.55	\$3.40	\$0.60	\$0.80	\$1.20	13.0%	13.0%	13.0%
2	American Elec Pwr	\$50.00	\$35.00	\$42.50	\$2.90	\$3.00	\$3.50	\$1.64	\$1.66	\$1.90	10.0%	10.5%	11.0%
3	Consolidated Edison	\$55.00	\$45.00	\$50.00	\$3.00	\$3.20	\$3.85	\$2.36	\$2.38	\$2.44	8.5%	8.5%	9.5%
4	Dominion Resources	\$65.00	\$45.00	\$55.00	\$3.25	\$3.35	\$4.00	\$1.75	\$1.87	\$2.20	16.0%	15.5%	14.5%
5	DPL, Inc.	\$40.00	\$30.00	\$35.00	\$2.10	\$2.45	\$2.70	\$1.14	\$1.18	\$1.30	23.0%	26.0%	26.5%
6	Exelon Corp.	\$80.00	\$65.00	\$72.50	\$4.20	\$4.20	\$5.50	\$2.10	\$2.10	\$2.40	22.5%	20.0%	20.0%
7	FirstEnergy Corp.	\$80.00	\$60.00	\$70.00	\$3.65	\$3.50	\$5.25	\$2.20	\$2.20	\$2.65	13.0%	11.5%	14.5%
8	FPL Group	\$85.00	\$70.00	\$77.50	\$4.15	\$4.80	\$5.50	\$1.89	\$2.00	\$2.30	13.5%	14.0%	13.0%
9	Northeast Utilities	\$40.00	\$25.00	\$32.50	\$1.85	\$1.95	\$2.25	\$0.95	\$1.00	\$1.15	9.0%	9.5%	8.5%
10	NSTAR	\$50.00	\$40.00	\$45.00	\$2.35	\$2.55	\$3.25	\$1.53	\$1.63	\$1.95	13.5%	14.0%	14.5%
11	Pepco Holdings	\$25.00	\$17.00	\$21.00	\$1.20	\$1.50	\$1.80	\$1.08	\$1.08	\$1.08	6.5%	8.0%	8.0%
12	PPL Corp.	\$55.00	\$35.00	\$45.00	\$1.50	\$3.20	\$3.75	\$1.38	\$1.60	\$1.90	11.0%	21.5%	19.5%
13	P S Enterprise Group	\$55.00	\$35.00	\$45.00	\$3.00	\$3.25	\$3.75	\$1.33	\$1.40	\$1.70	17.5%	17.5%	16.0%
14	UIL Holdings	\$35.00	\$25.00	\$30.00	\$1.90	\$2.00	\$2.25	\$1.73	\$1.73	\$1.73	10.0%	10.0%	10.5%

		(c)	(c)	(c)	(d)	(d)	(a)	(a)	(e)	(a)	(a)	(e)	(f)	(g)	(h)
								2008			2012-14		Α	djusted "r	,**
		Reten	tion Rat	io "b"	Aver	age	Total	Equity	Common	Total	Equity	Common	Chg in	Adj.	Adj.
	Company	<u>2008</u>	<u>2009</u>	<u>2011-13</u>	<u>b</u>	<u>r</u>	<u>Capital</u>	<u>Ratio</u>	<u>Equity</u>	<u>Capital</u>	<u>Ratio</u>	<u>Equity</u>	<u>Equity</u>	<b>Factor</b>	<u>r</u>
1	Allegheny Energy	75.0%	68.6%	64.7%	69.4%	13.0%	\$6,967	40.9%	\$2,849	\$9,300	49.5%	\$4,604	10.1%	1.0479	13.6%
2	American Elec Pwr	43.4%	44.7%	45.7%	44.6%	10.5%	\$26,290	40.7%	\$10,700	\$34,300	48.0%	\$16,464	9.0%	1.0431	11.0%
3	Consolidated Edison	21.3%	25.6%	36.6%	27.9%	8.8%	\$18,930	51.2%	\$9,692	\$23,600	50.5%	\$11,918	4.2%	1.0207	9.0%
4	Dominion Resources	46.2%	44.2%	45.0%	45.1%	15.3%	\$25,290	39.8%	\$10,065	\$36,300	47.0%	\$17,061	11.1%	1.0527	16.1%
5	DPL, Inc.	45.7%	51.8%	51.9%	49.8%	25.2%	\$2,375	41.1%	\$976	\$2,650	47.0%	\$1,246	5.0%	1.0244	25.8%
6	Exelon Corp.	50.0%	50.0%	56.4%	52.1%	20.8%	\$23,726	46.6%	\$11,056	\$31,400	57.0%	\$17,898	10.1%	1.0481	21.8%
7	FirstEnergy Corp.	39.7%	37.1%	49.5%	42.1%	13.0%	\$17,383	47.7%	\$8,292	\$23,200	48.5%	\$11,252	6.3%	1.0305	13.4%
8	FPL Group	54.5%	58.3%	58.2%	57.0%	13.5%	\$25,514	45.8%	\$11,685	\$41,400	45.5%	\$18,837	10.0%	1.0477	14.1%
9	Northeast Utilities	48.6%	48.7%	48.9%	48.8%	9.0%	\$7,926	38.1%	\$3,020	\$11,925	44.0%	\$5,247	11.7%	1.0552	9.5%
10	NSTAR	34.9%	36.1%	40.0%	37.0%	14.0%	\$4,175	42.8%	\$1,787	\$4,375	54.0%	\$2,363	5.7%	1.0279	14.4%
11	Pepco Holdings	10.0%	28.0%	40.0%	26.0%	7.5%	\$9,568	43.8%	\$4,191	\$11,700	48.5%	\$5,675	6.2%	1.0303	7.7%
12	PPL Corp.	8.0%	50.0%	49.3%	35.8%	17.3%	\$12,529	40.5%	\$5,074	\$15,900	46.0%	\$7,314	7.6%	1.0365	18.0%
13	P S Enterprise Group	55.7%	56.9%	54.7%	55.8%	17.0%	\$15,856	49.0%	\$7,769	\$20,900	57.5%	\$12,018	9.1%	1.0436	17.7%
14	UIL Holdings	8.9%	13.5%	23.1%	15.2%	10.2%	\$1,024	46.4%	\$475	\$1,400	48.0%	\$672	7.2%	1.0347	10.5%

#### **Exhibit AEP-505** Page 3 of 3

#### **BR + SV GROWTH RATE**

		(a)	(a)	(f)	(a)	(i)	(j)	(k)	(1)	(m)
		Co	mmon Sha	ares						
		(	Dutstandir	ıg	2012-14	M/B	"s	v" Factor		Average
	Company	<u>2008</u>	<u>2012-14</u>	<u>Change</u>	<b>BVPS</b>	<u>Ratio</u>	<u>s</u>	<u>v</u>	sv	<u>br + sv</u>
1	Allegheny Energy	169.36	175.00	0.66%	\$26.30	2.19	0.0144	0.5426	0.78%	10.2%
2	American Elec Pwr	406.07	490.00	3.83%	\$33.50	1.27	0.0486	0.2118	1.03%	5.9%
3	Consolidated Edison	273.72	285.00	0.81%	\$14.50	3.45	0.0280	0.7100	1.99%	4.5%
4	Dominion Resources	583.20	623.00	1.33%	\$41.25	1.33	0.0177	0.2500	0.44%	7.7%
5	DPL, Inc.	115.96	124.00	1.35%	\$38.50	0.91	0.0123	(0.1000)	-0.12%	12.7%
6	Exelon Corp.	658.00	635.00	-0.71%	\$36.00	2.01	(0.0143)	0.5034	-0.72%	10.7%
7	FirstEnergy Corp.	155.83	210.00	6.15%	\$25.00	2.80	0.1722	0.6429	11.07%	16.7%
8	FPL Group	408.92	432.00	1.10%	\$43.25	1.79	0.0198	0.4419	0.87%	8.9%
9	Northeast Utilities	155.83	210.00	6.15%	\$25.00	1.30	0.0799	0.2308	1.84%	6.5%
10	NSTAR	106.81	106.81	0.00%	\$22.00	2.05	-	0.5111	0.00%	5.3%
11	Pepco Holdings	218.91	265.00	3.90%	\$21.50	0.98	0.0380	(0.0238)	-0.09%	1.9%
12	PPL Corp.	374.58	370.00	-0.25%	\$19.75	2.28	(0.0056)	0.5611	-0.31%	6.1%
13	P S Enterprise Group	506.02	490.00	-0.64%	\$24.25	1.86	(0.0119)	0.4611	-0.55%	9.3%
14	UIL Holdings	25.17	30.80	4.12%	\$21.75	1.38	0.0568	0.2750	1.56%	3.2%

(a) The Value Line Investment Survey (Aug. 7, Aug. 28, & Sep. 25, 2009).

- (b) Average of High and Low expected market prices.
- (c) Computed at (EPS DPS) / EPS.
- (d) Average of values for 2009, 2010, and 2012-14.
- (e) Product of total capital and equity ratio.
- (f) Five-year rate of change.
- (g) Computed using the formula 2\*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
- (h) Product of average year-end "r" for 2009, 2010, and 2012-14 and Adjustment Factor.
- Average of High and Low expected market prices divided by 2012-14 BVPS. (i)
- Product of change in common shares outstanding and M/B Ratio. (j)
- (k) Computed as 1 B/M Ratio.
- Product of "s" and "v". (1)
- (m) Product of average "b" and adjusted "r", plus "sv".

#### Exhibit AEP-506 Page 1 of 1

#### FERC DCF MODEL

		(	a)	(1	b)	(c)	(d)	(e)	(f)
		<u>6 Mo.D</u>	iv. Yield	Adjusted	Div. Yield	Growtl	n Rates	Implied Cos	t of Equity
	Company	Low	High	Low	High	br + sv	IBES	Low	High
1	Allegheny Energy	2.2%	2.5%	2.3%	2.7%	10.2%	9.0%	11.3%	12.9%
2	ALLETE	5.7%	6.3%	5.8%	6.5%	2.1%	6.0%	7.8%	12.5%
3	Alliant Energy	5.6%	6.3%	5.7%	6.4%	3.0%	4.4%	8.7%	10.8%
4	Ameren Corp.	6.0%	6.6%	6.1%	6.7%	3.5%	3.0%	9.1%	10.2%
5	American Elec Pwr	5.5%	6.0%	5.6%	6.2%	5.9%	3.8%	9.4%	12.1%
6	Consolidated Edison	6.0%	6.4%	6.1%	6.6%	4.5%	3.4%	9.5%	11.1%
7	Dominion Resources	5.2%	5.6%	5.4%	5.8%	7.7%	6.5%	11.9%	13.6%
8	DPL, Inc.	4.7%	5.1%	4.9%	5.4%	12.7%	10.0%	14.9%	18.1%
9	Duke Energy Corp.	6.1%	6.6%	6.2%	6.7%	1.3%	3.2%	7.5%	9.9%
10	Exelon Corp.	4.1%	4.5%	4.1%	4.8%	10.7%	4.5%	8.6%	15.4%
11	FirstEnergy Corp.	5.0%	5.7%	5.2%	6.2%	16.7%	5.0%	10.2%	22.9%
12	Great Plains Energy	5.0%	5.7%	5.1%	5.7%	1.1%	2.0%	6.2%	7.7%
13	ITC Holdings	2.6%	2.9%	2.7%	3.1%	7.3%	16.5%	10.0%	19.6%
14	MGEE Energy	4.2%	4.5%	4.3%	4.7%	5.2%	5.0%	9.3%	9.9%
15	Pepco Holdings	7.7%	8.6%	7.8%	8.8%	1.9%	5.5%	9.7%	14.3%
16	PPL Corp.	4.2%	4.7%	4.3%	5.0%	6.1%	12.5%	10.5%	17.5%
17	P S Enterprise Group	4.0%	4.4%	4.1%	4.6%	9.3%	5.3%	9.4%	14.0%
18	Vectren Corp.	5.6%	6.1%	5.7%	6.3%	3.1%	5.0%	8.8%	11.3%
19	Westar Energy	6.1%	6.7%	6.2%	6.8%	2.8%	3.3%	9.0%	10.1%
20	Wisconsin Energy	3.1%	3.4%	3.2%	3.5%	6.4%	8.7%	9.6%	12.2%
21	Xcel Energy, Inc.	5.0%	5.4%	5.1%	5.6%	4.0%	6.7%	9.1%	12.3%
	Range of Reasonableness							6.2%	22.9%
	Adjusted Range of Reasona	bleness (g	g)					8.6%	17.5%
	Midpoint							13.1	%
	Median (h)							10.8	%

(a) Six-month average dividend yield for April - September 2009.

(b) Six-month dividend yield adjusted for one-half years' growth.

(c) Exhibit AEP-507.

(d) Long-term IBES growth forecast from Thompson Reuters Company Report (Oct. 14, 2009).

(e) Sum of low growth rate and corresponding adjusted dividend yield.

(f) Sum of high growth rate and corresponding adjusted dividend yield.

(g) Excludes highlighted values.

(h) Based on the average of the low and high values for each proxy firm with two valid DCF estimates.

#### Exhibit AEP-507 Page 1 of 3

		(a)	(a)	(b)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
		2012-1	4 Market I	Price	Earnii	ngs Per S	hare	Divide	nds Per	Share	Return	on Equi	ty ("r")
	Company	<u>High</u>	Low	Avg.	2009	<u>2010</u>	<u>2012-14</u>	2009	<u>2010</u>	2012-14	2009	<u>2010</u>	2012-14
1	Allegheny Energy	\$70.00	\$45.00	\$57.50	\$2.40	\$2.55	\$3.40	\$0.60	\$0.80	\$1.20	13.0%	13.0%	13.0%
2	ALLETE	\$45.00	\$35.00	\$40.00	\$1.95	\$2.30	\$2.75	\$1.76	\$1.80	\$1.92	7.0%	8.0%	9.0%
3	Alliant Energy	\$50.00	\$35.00	\$42.50	\$1.90	\$2.30	\$3.20	\$1.50	\$1.60	\$1.92	7.0%	8.5%	10.5%
4	Ameren Corp.	\$45.00	\$30.00	\$37.50	\$2.85	\$2.55	\$3.00	\$1.54	\$1.54	\$1.70	8.0%	7.5%	8.0%
5	American Elec Pwr	\$50.00	\$35.00	\$42.50	\$2.90	\$3.00	\$3.50	\$1.64	\$1.66	\$1.90	10.0%	10.5%	11.0%
6	Consolidated Edison	\$55.00	\$45.00	\$50.00	\$3.00	\$3.20	\$3.85	\$2.36	\$2.38	\$2.44	8.5%	8.5%	9.5%
7	Dominion Resources	\$65.00	\$45.00	\$55.00	\$3.25	\$3.35	\$4.00	\$1.75	\$1.87	\$2.20	16.0%	15.5%	14.5%
8	DPL, Inc.	\$40.00	\$30.00	\$35.00	\$2.10	\$2.45	\$2.70	\$1.14	\$1.18	\$1.30	23.0%	26.0%	26.5%
9	Duke Energy Corp.	\$25.00	\$18.00	\$21.50	\$1.10	\$1.20	\$1.40	\$0.94	\$0.98	\$1.10	6.5%	7.0%	8.0%
10	Exelon Corp.	\$80.00	\$65.00	\$72.50	\$4.20	\$4.20	\$5.50	\$2.10	\$2.10	\$2.40	22.5%	20.0%	20.0%
11	FirstEnergy Corp.	\$80.00	\$60.00	\$70.00	\$3.65	\$3.50	\$5.25	\$2.20	\$2.20	\$2.65	13.0%	11.5%	14.5%
12	Great Plains Energy	\$25.00	\$15.00	\$20.00	\$1.20	\$1.40	\$1.60	\$0.83	\$0.83	\$1.10	5.5%	6.5%	7.0%
13	ITC Holdings	\$80.00	\$55.00	\$67.50	\$2.40	\$2.50	\$3.25	\$1.25	\$1.31	\$1.50	12.5%	12.0%	13.0%
14	MGE Energy	\$45.00	\$40.00	\$42.50	\$2.40	\$2.50	\$2.80	\$1.45	\$1.47	\$1.54	11.5%	11.0%	12.0%
15	Pepco Holdings	\$25.00	\$17.00	\$21.00	\$1.20	\$1.50	\$1.80	\$1.08	\$1.08	\$1.08	6.5%	8.0%	8.0%
16	PPL Corp.	\$55.00	\$35.00	\$45.00	\$1.50	\$3.20	\$3.75	\$1.38	\$1.60	\$1.90	11.0%	21.5%	19.5%
17	P S Enterprise Group	\$55.00	\$35.00	\$45.00	\$3.00	\$3.25	\$3.75	\$1.33	\$1.40	\$1.70	17.5%	17.5%	16.0%
18	Vectren Corp.	\$35.00	\$25.00	\$30.00	\$1.70	\$1.95	\$2.20	\$1.35	\$1.39	\$1.51	10.0%	11.0%	11.0%
19	Westar Energy	\$30.00	\$25.00	\$27.50	\$1.70	\$1.85	\$2.20	\$1.19	\$1.24	\$1.40	8.0%	8.5%	8.0%
20	Wisconsin Energy	\$75.00	\$55.00	\$65.00	\$3.05	\$3.70	\$4.50	\$1.35	\$1.55	\$2.15	10.0%	11.5%	12.0%
21	Xcel Energy, Inc.	\$25.00	\$19.00	\$22.00	\$1.50	\$1.60	\$2.00	\$0.97	\$1.00	\$1.10	9.5%	9.5%	10.5%

		(c)	(c)	(c)	(d)	(d)	(a)	(a)	(e)	(a)	(a)	(e)	(f)	(g)	(h)
								2008			2012-14		A	djusted "r	
		Retent	tion Rat	io "b"	Aver	age	Total	Equity	Common	Total	Equity	Common	Chg in	Adj.	Adj.
	Company	<u>2008</u>	<u>2009</u>	<u>2011-13</u>	<u>b</u>	<u>r</u>	<u>Capital</u>	<u>Ratio</u>	<u>Equity</u>	<u>Capital</u>	<u>Ratio</u>	<u>Equity</u>	<u>Equity</u>	<u>Factor</u>	r
1	Allegheny Energy	75.0%	68.6%	64.7%	69.4%	13.0%	\$6,967	40.9%	\$2,849	\$9,300	49.5%	\$4,604	10.1%	1.0479	13.6%
2	ALLETE	9.7%	21.7%	30.2%	20.6%	8.0%	\$1,415	58.4%	\$827	\$2,325	51.5%	\$1,197	7.7%	1.0370	8.3%
3	Alliant Energy	21.1%	30.4%	40.0%	30.5%	8.7%	\$4,816	58.6%	\$2,822	\$5,950	60.5%	\$3,600	5.0%	1.0243	8.9%
4	Ameren Corp.	46.0%	39.6%	43.3%	43.0%	7.8%	\$13,712	50.8%	\$6,966	\$17,300	54.0%	\$9,342	6.0%	1.0293	8.1%
5	American Elec Pwr	43.4%	44.7%	45.7%	44.6%	10.5%	\$26,290	40.7%	\$10,700	\$34,300	48.0%	\$16,464	9.0%	1.0431	11.0%
6	Consolidated Edison	21.3%	25.6%	36.6%	27.9%	8.8%	\$18,930	51.2%	\$9,692	\$23,600	50.5%	\$11,918	4.2%	1.0207	9.0%
7	Dominion Resources	46.2%	44.2%	45.0%	45.1%	15.3%	\$25,290	39.8%	\$10,065	\$36,300	47.0%	\$17,061	11.1%	1.0527	16.1%
8	DPL, Inc.	45.7%	51.8%	51.9%	49.8%	25.2%	\$2,375	41.1%	\$976	\$2,650	47.0%	\$1,246	5.0%	1.0244	25.8%
9	Duke Energy Corp.	14.5%	18.3%	21.4%	18.1%	7.2%	\$34,238	61.3%	\$20,988	\$44,300	52.0%	\$23,036	1.9%	1.0093	7.2%
10	Exelon Corp.	50.0%	50.0%	56.4%	52.1%	20.8%	\$23,726	46.6%	\$11,056	\$31,400	57.0%	\$17,898	10.1%	1.0481	21.8%
11	FirstEnergy Corp.	39.7%	37.1%	49.5%	42.1%	13.0%	\$17,383	47.7%	\$8,292	\$23,200	48.5%	\$11,252	6.3%	1.0305	13.4%
12	Great Plains Energy	30.8%	40.7%	31.3%	34.3%	6.3%	\$5,146	49.6%	\$2,553	\$7,225	48.0%	\$3,468	6.3%	1.0306	6.5%
13	ITC Holdings	47.9%	47.6%	53.8%	49.8%	12.5%	\$3,177	29.2%	\$928	\$4,050	33.0%	\$1,337	7.6%	1.0365	13.0%
14	MGE Energy	39.6%	41.2%	45.0%	41.9%	11.5%	\$751	63.7%	\$478	\$940	65.0%	\$611	5.0%	1.0245	11.8%
15	Pepco Holdings	10.0%	28.0%	40.0%	26.0%	7.5%	\$9,568	43.8%	\$4,191	\$11,700	48.5%	\$5,675	6.2%	1.0303	7.7%
16	PPL Corp.	8.0%	50.0%	49.3%	35.8%	17.3%	\$12,529	40.5%	\$5,074	\$15,900	46.0%	\$7,314	7.6%	1.0365	18.0%
17	P S Enterprise Group	55.7%	56.9%	54.7%	55.8%	17.0%	\$15,856	49.0%	\$7,769	\$20,900	57.5%	\$12,018	9.1%	1.0436	17.7%
18	Vectren Corp.	20.6%	28.7%	31.4%	26.9%	10.7%	\$2,600	52.0%	\$1,352	\$3,400	50.0%	\$1,700	4.7%	1.0229	10.9%
19	Westar Energy	30.0%	33.0%	36.4%	33.1%	8.2%	\$4,400	49.7%	\$2,187	\$5,920	52.5%	\$3,108	7.3%	1.0351	8.5%
20	Wisconsin Energy	55.7%	58.1%	52.2%	55.4%	11.2%	\$7,442	44.8%	\$3,334	\$9,825	45.5%	\$4,470	6.0%	1.0293	11.5%
21	Xcel Energy, Inc.	35.3%	37.5%	45.0%	39.3%	9.8%	\$14,800	47.1%	\$6,971	\$18,300	48.5%	\$8,876	4.9%	1.0242	10.1%

		(a)	(a)	(f)	(a)	(i)	(j)	(k)	(1)	(m)
		Co	mmon Sha	ares						
		C	Outstandir	ıg	2012-14	M/B	"s	v" Factor		Average
	Company	<u>2008</u>	<u>2012-14</u>	<u>Change</u>	<b>BVPS</b>	<u>Ratio</u>	<u>s</u>	<u>v</u>	<u>sv</u>	<u>br + sv</u>
1	Allegheny Energy	169.36	175.00	0.66%	\$26.30	2.19	0.0144	0.5426	0.78%	10.2%
2	ALLETE	32.60	41.00	4.69%	\$37.25	1.07	0.0504	0.0688	0.35%	2.1%
3	Alliant Energy	110.45	116.00	0.99%	\$33.50	1.27	0.0125	0.2118	0.26%	3.0%
4	Ameren Corp.	212.30	252.00	3.49%	\$37.25	1.01	0.0351	0.0067	0.02%	3.5%
5	American Elec Pwr	406.07	490.00	3.83%	\$33.50	1.27	0.0486	0.2118	1.03%	5.9%
6	Consolidated Edison	273.72	285.00	0.81%	\$14.50	3.45	0.0280	0.7100	1.99%	4.5%
7	Dominion Resources	583.20	623.00	1.33%	\$41.25	1.33	0.0177	0.2500	0.44%	7.7%
8	DPL, Inc.	115.96	124.00	1.35%	\$38.50	0.91	0.0123	(0.1000)	-0.12%	12.7%
9	Duke Energy Corp.	1272.00	1310.00	0.59%	\$22.25	0.97	0.0057	(0.0349)	-0.02%	1.3%
10	Exelon Corp.	658.00	635.00	-0.71%	\$36.00	2.01	(0.0143)	0.5034	-0.72%	10.7%
11	FirstEnergy Corp.	155.83	210.00	6.15%	\$25.00	2.80	0.1722	0.6429	11.07%	16.7%
12	Great Plains Energy	119.26	157.00	5.65%	\$25.00	0.80	0.0452	(0.2500)	-1.13%	1.1%
13	ITC Holdings	49.65	52.00	0.93%	\$36.25	1.86	0.0173	0.4630	0.80%	7.3%
14	MGE Energy	22.90	25.00	1.77%	\$36.25	1.17	0.0208	0.1471	0.31%	5.2%
15	Pepco Holdings	218.91	265.00	3.90%	\$21.50	0.98	0.0380	(0.0238)	-0.09%	1.9%
16	PPL Corp.	374.58	370.00	-0.25%	\$19.75	2.28	(0.0056)	0.5611	-0.31%	6.1%
17	P S Enterprise Group	506.02	490.00	-0.64%	\$24.25	1.86	(0.0119)	0.4611	-0.55%	9.3%
18	Vectren Corp.	81.03	83.00	0.48%	\$21.75	1.38	0.0066	0.2750	0.18%	3.1%
19	Westar Energy	108.31	114.00	1.03%	\$27.20	1.01	0.0104	0.0109	0.01%	2.8%
20	Wisconsin Energy	116.92	117.00	0.01%	\$38.00	1.71	0.0002	0.4154	0.01%	6.4%
21	Xcel Energy, Inc.	453.79	464.00	0.45%	\$19.00	1.16	0.0052	0.1364	0.07%	4.0%

- (a) The Value Line Investment Survey (Aug. 7, Aug. 28, & Sep. 25, 2009).
- (b) Average of High and Low expected market prices.
- (c) Computed at (EPS DPS) / EPS.
- (d) Average of values for 2009, 2010, and 2012-14.
- (e) Product of total capital and equity ratio.
- (f) Five-year rate of change.
- (g) Computed using the formula 2\*(1+5-Yr. Change in Equity)/(2+5 Yr. Change in Equity).
- (h) Product of average year-end "r" for 2009, 2010, and 2012-14 and Adjustment Factor.
- (i) Average of High and Low expected market prices divided by 2012-14 BVPS.
- (j) Product of change in common shares outstanding and M/B Ratio.
- (k) Computed as 1 B/M Ratio.
- (l) Product of "s" and "v".
- (m) Product of average "b" and adjusted "r", plus "sv".

#### **BBB RATED PJM PROXY GROUP**

#### FERC DCF MODEL

	(a)		(b) <u>Adjusted Div. Yield</u>		(c)	(d)	(e)	(f)	
	<u>6 Mo.Div. Yield</u>				Growth Rates		Implied Cost of Equity		
Company	Low	High	Low	High	br + sv	IBES	Low	High	
Allegheny Energy	2.2%	2.5%	2.3%	2.7%	10.2%	9.0%	11.3% -	- 12.9%	
American Elec Pwr	5.5%	6.0%	5.6%	6.2%	5.9%	3.8%	9.4% -	- 12.1%	
Exelon Corp.	4.1%	4.5%	4.1%	4.8%	10.7%	4.5%	8.6% -	- 15.4%	
Northeast Utilities	4.1%	4.5%	4.2%	4.7%	6.5%	8.5%	10.7%	13.2%	
Pepco Holdings	7.7%	8.6%	7.8%	8.8%	1.9%	5.5%	9.7% -	- 14.3%	
PPL Corp.	4.2%	4.7%	4.3%	5.0%	6.1%	12.5%	10.5% -	- 17.5%	
P S Enterprise Group	4.0%	4.4%	4.1%	4.6%	9.3%	5.3%	9.4% -	- 14.0%	
UIL Holdings	6.9%	7.7%	7.0%	7.9%	3.2%	4.4%	10.2% -	- 12.3%	
Range of Reasonableness							8.6% -	- 17.5%	
Adjusted Range of Reasonableness (g)							8.6% -	- 17.5%	
Midpoint					13.1%				
Median (h)							12.0%		
	Company Allegheny Energy American Elec Pwr Exelon Corp. Northeast Utilities Pepco Holdings PPL Corp. P S Enterprise Group UIL Holdings Range of Reasonableness Adjusted Range of Reasona Midpoint Median (h)	CompanyLowAllegheny Energy2.2%American Elec Pwr5.5%Exelon Corp.4.1%Northeast Utilities4.1%Pepco Holdings7.7%PPL Corp.4.2%P S Enterprise Group4.0%UIL Holdings6.9%Range of ReasonablenessAdjusted Range of ReasonablenessMidpointMedian (h)	(a) <u>6 Mo.Div. Yield</u> <u>Company</u> Low High Allegheny Energy 2.2% 2.5% American Elec Pwr 5.5% 6.0% Exelon Corp. 4.1% 4.5% Pepco Holdings 7.7% 8.6% PPL Corp. 4.2% 4.7% PS Enterprise Group 4.0% 4.4% UIL Holdings 6.9% 7.7% Range of Reasonableness Midpoint Median (h)	(a) (d) Adjusted Adjusted Company Low High Low Adjusted Allegheny Energy 2.2% 2.5% 2.3% American Elec Pwr 5.5% 6.0% 5.6% Exelon Corp. 4.1% 4.5% 4.1% Northeast Utilities 4.1% 4.5% 4.2% Pepco Holdings 7.7% 8.6% 7.8% PPL Corp. 4.2% 4.7% 4.3% PS Enterprise Group 4.0% 4.4% 4.1% UIL Holdings 6.9% 7.7% 7.0% Range of Reasonableness (g) Midpoint Median (h)	(a)       (b)         6 Mo.Div. Yield       Adjusted Div. Yield         Company       Low       High       Low       High         Allegheny Energy       2.2%       2.5%       2.3%       2.7%         American Elec Pwr       5.5%       6.0%       5.6%       6.2%         Exelon Corp.       4.1%       4.5%       4.1%       4.8%         Northeast Utilities       4.1%       4.5%       4.2%       4.7%         Pepco Holdings       7.7%       8.6%       7.8%       8.8%         PPL Corp.       4.2%       4.7%       4.3%       5.0%         P S Enterprise Group       4.0%       4.4%       4.1%       4.6%         UIL Holdings       6.9%       7.7%       7.0%       7.9%         Range of Reasonableness       (g)       Midpoint       Median (h)       Ketian (h)	(a)       (b)       (c)         6 Mo.Div. Yield       Adjusted Div. Yield       Growth         Company       Low       High       Low       High       br + sv         Allegheny Energy       2.2%       2.5%       2.3%       2.7%       10.2%         American Elec Pwr       5.5%       6.0%       5.6%       6.2%       5.9%         Exelon Corp.       4.1%       4.5%       4.1%       4.8%       10.7%         Northeast Utilities       4.1%       4.5%       4.2%       4.7%       6.5%         Pepco Holdings       7.7%       8.6%       7.8%       8.8%       1.9%         PPL Corp.       4.2%       4.7%       4.3%       5.0%       6.1%         P S Enterprise Group       4.0%       4.4%       4.1%       4.6%       9.3%         UIL Holdings       6.9%       7.7%       7.0%       7.9%       3.2%         Midpoint         Midpoint       Median (h)       Ketian (h)       Ketian (h)       Ketian (h)	(a)(b)(c)(d)6 Mo.Div. YieldAdjusted Div. YieldGrowth RatesCompanyLowHighLowHighbr + svIBESAllegheny Energy2.2%2.5%2.3%2.7%10.2%9.0%American Elec Pwr5.5%6.0%5.6%6.2%5.9%3.8%Exelon Corp.4.1%4.5%4.1%4.8%10.7%4.5%Northeast Utilities4.1%4.5%4.2%4.7%6.5%8.5%Pepco Holdings7.7%8.6%7.8%8.8%1.9%5.5%PPL Corp.4.2%4.7%4.3%5.0%6.1%12.5%PS Enterprise Group4.0%4.4%4.1%4.6%9.3%5.3%UIL Holdings6.9%7.7%7.0%7.9%3.2%4.4%MidpointMidpointMidpointImage of Reasonableness (g)	(a)       (b)       (c)       (d)       (e)         6 Mo.Div. Yield       Adjusted Div. Yield       Growth Rates       Implied Corr         Company       Low       High       Low       High       br + sv       IBES       Low         Allegheny Energy       2.2%       2.5%       2.3%       2.7%       10.2%       9.0%       11.3%       -         American Elec Pwr       5.5%       6.0%       5.6%       6.2%       5.9%       3.8%       9.4%       -         Exelon Corp.       4.1%       4.5%       4.1%       4.8%       10.7%       4.5%       8.6%       -         Northeast Utilities       4.1%       4.5%       4.2%       4.7%       6.5%       8.5%       10.7%       -         Pepco Holdings       7.7%       8.6%       7.8%       8.8%       1.9%       5.3%       9.7%       -         PPL Corp.       4.2%       4.7%       4.3%       5.0%       6.1%       12.5%       10.5%       -         PS Enterprise Group       4.0%       4.4%       4.1%       4.6%       9.3%       5.3%       9.4%       -         UIL Holdings       6.9%       7.7%       7.0%       7.9%       3.2%	

(a) Six-month average dividend yield for April - September 2009.

(b) Six-month dividend yield adjusted for one-half years' growth.

(c) Exhibit AEP-505.

(d) Long-term IBES growth forecast from *Thompson Reuters Company Report* (Sep. 25, 2009).

(e) Sum of low growth rate and corresponding adjusted dividend yield.

(f) Sum of high growth rate and corresponding adjusted dividend yield.

(g) Excludes highlighted values.

(h) Based on the average of the low and high values for each proxy firm with two valid DCF estimates.

#### **BBB RATED SPP PROXY GROUP**

#### FERC DCF MODEL

		(a) <u>6 Mo.Div. Yield</u>		(b) <u>Adjusted Div. Yield</u>		(c)	(d)	(e)		(f)	
						Growth Rates		Implied Cost of Equity			
	Company	Low	High	Low	High	br + sv	IBES	Low		High	
1	Allegheny Energy	2.2%	2.5%	2.3%	2.7%	10.2%	9.0%	11.3%		12.9%	
2	Alliant Energy	5.6%	6.3%	5.7%	6.4%	3.0%	4.4%	8.7%		10.8%	
3	Ameren Corp.	6.0%	6.6%	6.1%	6.7%	3.5%	3.0%	9.1%		10.2%	
4	American Elec Pwr	5.5%	6.0%	5.6%	6.2%	5.9%	3.8%	9.4%		12.1%	
5	Exelon Corp.	4.1%	4.5%	4.1%	4.8%	10.7%	4.5%	8.6%		15.4%	
6	Pepco Holdings	7.7%	8.6%	7.8%	8.8%	1.9%	5.5%	9.7%		14.3%	
7	PPL Corp.	4.2%	4.7%	4.3%	5.0%	6.1%	12.5%	10.5%		17.5%	
8	P S Enterprise Group	4.0%	4.4%	4.1%	4.6%	9.3%	5.3%	9.4%		14.0%	
9	Westar Energy	6.1%	6.7%	6.2%	6.8%	2.8%	3.3%	9.0%		10.1%	
10	Wisconsin Energy	3.1%	3.4%	3.2%	3.5%	6.4%	8.7%	9.6%		12.2%	
11	Xcel Energy, Inc.	5.0%	5.4%	5.1%	5.6%	4.0%	6.7%	9.1%		12.3%	
	Range of Reasonableness							8.6%		17.5%	
	Adjusted Range of Reasonableness (g)						8.6%		17.5%		
	Midpoint							13.1%			
	Median (h)							10.9%		%	

(a) Six-month average dividend yield for April - September 2009.

(b) Six-month dividend yield adjusted for one-half years' growth.

(c) Exhibit AEP-507.

(d) Long-term IBES growth forecast from Thompson Reuters Company Report (Sep. 25, 2009).

(e) Sum of low growth rate and corresponding adjusted dividend yield.

(f) Sum of high growth rate and corresponding adjusted dividend yield.

(g) Excludes highlighted values.

(h) Based on the average of the low and high values for each proxy firm with two valid DCF estimates.

### **CAPITAL STRUCTURE**

# Exhibit AEP-510 Page 1 of 1

		At De	cember 31, 20	08 (a)	Value Line Projected 2012-14 (b)				
	Company	Long-term Debt	Preferred	Common Equity	Long-term Debt	Other	Common Equity		
1	Allegheny Energy	59.6%	0.0%	40.4%	50.5%	0.0%	49.5%		
2	American Elec Pwr	59.8%	0.2%	40.0%	52.0%	0.0%	48.0%		
3	Consolidated Edison	49.5%	1.1%	49.4%	49.5%	0.0%	50.5%		
4	Dominion Resources	59.8%	1.0%	39.2%	52.5%	0.5%	47.0%		
5	DPL, Inc.	60.8%	0.9%	38.3%	53.0%	0.0%	47.0%		
6	Exelon Corp.	49.8%	2.1%	48.1%	43.0%	0.0%	57.0%		
7	FirstEnergy Corp.	58.3%	0.0%	41.7%	51.5%	0.0%	48.5%		
8	FPL Group	56.6%	0.0%	43.4%	54.5%	0.0%	45.5%		
9	Northeast Utilities	57.0%	1.6%	41.4%	55.0%	1.0%	44.0%		
10	NSTAR	52.4%	1.1%	46.5%	45.0%	1.0%	54.0%		
11	Pepco Holdings	54.1%	0.0%	45.9%	51.5%	0.0%	48.5%		
12	PPL Corp.	51.8%	8.8%	39.4%	52.0%	2.0%	46.0%		
13	P S Enterprise Group	49.4%	0.5%	50.1%	42.5%	0.0%	57.5%		
14	UIL Holdings	56.0%	0.0%	44.0%	52.0%	0.0%	48.0%		
	Average	55.4%	1.2%	43.4%	50.3%	0.3%	<b>49.4%</b>		

(a) Company 2008 Form 10-K Reports available at http://www.sec.gov/edgar/searchedgar/companysearch.html.

(b) The Value Line Investment Survey (Aug. 28 & Sep. 25, 2009).
#### SPP PROXY GROUP

1

3

4

5

6 7

8

9

#### CAPITAL STRUCTURE

#### At December 31, 2008 (a) Value Line Projected 2012-14 (b) Long-term Common Long-term Common Debt Preferred Other Company Equity Debt Equity Allegheny Energy 59.6% 0.0% 40.4% 50.5% 0.0% 49.5% ALLETE 41.7% 0.0% 58.3% 48.5% 0.0% 51.5% 2 Alliant Energy 38.0% 4.9% 57.0% 35.5% 4.0% 60.5% Ameren Corp. 49.1% 1.4% 49.5% 44.5% 1.5% 54.0% American Elec Pwr 59.8% 0.2% 40.0% 52.0% 0.0% 48.0% Consolidated Edison 49.5% 1.1% 49.4% 49.5% 0.0% 50.5% **Dominion Resources** 59.8% 1.0% 39.2% 52.5% 0.5% 47.0% DPL, Inc. 60.8% 0.9% 38.3% 53.0% 0.0% 47.0% Duke Energy Corp. 0.0% 48.0% 0.0% 52.0% 39.6% 60.4% Exelon Corp. 57.0% 49.8% 2.1% 48.1% 43.0% 0.0% 10 FirstEnergy Corp. 0.0% 48.5% 58.3% 41.7% 51.5% 0.0% 11 0.5% 48.0% Great Plains Energy 50.4% 0.7% 48.9% 51.5% 12 ITC Holdings 70.8% 0.0% 29.2% 67.0% 0.0% 33.0% 13 65.0% 14 MGEE Energy 36.3% 0.0% 63.7% 35.0% 0.0% Pepco Holdings 0.0% 45.9% 0.0% 48.5% 15 54.1% 51.5% PPL Corp. 52.0% 2.0% 46.0% 16 51.8% 8.8% 39.4% 17 P S Enterprise Group 49.4% 0.5% 50.1% 42.5% 0.0% 57.5% 18 Vectren Corp. 48.0% 0.0% 52.0% 50.0% 0.0% 50.0% Westar Energy 51.4% 0.5% 48.1% 47.5% 0.0% 52.5% 19 Wisconsin Energy 20 55.1% 0.4% 44.5% 54.5% 0.0% 45.5% Xcel Energy, Inc. 54.0% 0.7% 0.5% 48.5% 21 45.3% 51.0% Average 51.8% 1.1% 47.1% 49.1% 0.4% 50.5%

(a) Company 2008 Form 10-K Reports available at http://www.sec.gov/edgar/searchedgar/companysearch.html.

(b) The Value Line Investment Survey (Aug. 7, Aug. 28, & Sep. 25, 2009).

### Exhibit AEP-511 Page 1 of 1

### EXHIBIT AEP-512

### **EVALUATION OF PROXY GROUP CRITERIA**

### 1 Q. WHAT IS THE PURPOSE OF THIS EXHIBIT?

A. The exhibit explains why it is not necessary or desirable to apply additional screening
criteria based on credit ratings or revenues to the electric utilities included in my PJM and
SPP Proxy Groups.

## 5 Q. DO YOU BELIEVE THAT IT IS NECESSARY TO IMPOSE ANY ADDITIONAL 6 CREDIT RATINGS SCREEN IN DEFINING YOUR PROXY GROUP 7 COMPANIES?

A. No. In several recent orders, the Commission has applied an additional screening criteria
based on corporate credit ratings to a proxy group of regional utilities. After identifying
transmission-owning utilities within interrelated RTO markets, FERC has eliminated
those firms with corporate credit ratings outside a "comparable risk band", which the
Commission has interpreted as one "notch" higher or lower than the corporate ratings of
the utility at issue and within the investment grade ratings scale.<sup>1</sup>

14 However, the ultimate goal of assembling a proxy group for purposes of 15 performing the DCF analysis is to calculate a return for the utility in question that is 16 analogous to returns on comparable investments with a similar risk profile. In cases 17 involving services provided under Open Access Transmission Tariffs within the context of well-integrated and coordinated market operations conducted by Transmission 18 19 Organizations, the Commission has recognized that geography can serve as a proxy for 20 comparable risk. In other words, in geographic markets where participating utilities face 21 comparable risks due to similar market circumstances, including operating within the

<sup>&</sup>lt;sup>1</sup> See, *e.g.*, *PATH* at PP 98 & 99.

scope of a FERC-approved transmission organization, membership in adjacent RTOs has
 been accepted as a valid proxy for risks in the context of establishing rates for
 transmission services.<sup>2</sup>

4 I agree that credit ratings are a meaningful measure of investment risks and that 5 the overall risk profile of the PJM and SPP Proxy Groups should be considered, as I have 6 done; but narrowing a geographically-based proxy group based on additional criteria runs 7 counter to the fundamental notion underlying this approach. Namely, that participation in 8 integrated, adjacent wholesale transmission markets with similar regulatory and operating 9 environments is a valid proxy for risk. In the case of the PJM and SPP Proxy Groups, the 10 Commission has determined that members of well-integrated RTOs face similar risks in 11 providing wholesale transmission service because of common characteristics that are 12 related to geographical location and membership in adjacent Transmission Organizations. 13 Moreover, as I demonstrated earlier, the average investment risks attributable to the PJM 14 and SPP Proxy Groups is directly analogous to those that investors associate with 15 AEPTCo. Under these circumstances, there is no need for additional screening criteria.

## Q. WHAT POTENTIAL PROBLEMS ARE ASSOCIATED WITH EMPLOYING CREDIT RATINGS TO FURTHER NARROW THE REGIONAL PROXY GROUPS?

A. If RTO membership and geographic proximity are accepted as the primary risk factors in
 determining whether a utility should be included in a proxy group, imposing additional
 screens can weaken the ability of the proxy group to serve its intended purpose of most
 closely approximating the risks entailed in providing jurisdictional transmission service.
 Narrowing the regional proxy groups using additional risk screens, such as corporate

<sup>&</sup>lt;sup>2</sup> See, *e.g.*, *Bangor Hydro*, 117 FERC ¶ 61,129 (2006), *Midwest Independent System Operator*, 100 FERC ¶ 61,292 (2002).

credit ratings, increases the potential that the resulting subset will be insufficient to reflect
 industry conditions and investor expectations and ROE requirements. As noted earlier,
 the cost of equity is inherently unobservable and because the DCF model depends on
 estimates it is subject to measurement error, with FERC having acknowledged the pitfalls
 of a constrained proxy group.

6 Even though corporate credit ratings provide a widely accepted, objective 7 benchmark for investment risks, the inherent limitations of the DCF approach mean that the potential to misjudge investors' required return increases as the size of the proxy 8 9 group shrinks. In a perfect world, bond ratings and DCF results would always be 10 inversely correlated, with DCF estimates for higher rated companies being lower than for utilities with inferior ratings. But because the true cost of equity is unobservable and our 11 12 estimating tools (e.g, applications of the DCF model based on observable data) provide 13 imperfect readings, this is not always the case. Consider the Commission's decision in 14 VEPCo, for example. There, the Commission excluded FPL Group, Inc. ("FPL") from 15 the proxy group because it's credit rating indicated lower risk than the top threshold of its "BBB" to "A-" range, while the average DCF estimate implied for FPL exceeded the 16 10.9 percent ROE determined based on the remaining proxy companies.<sup>3</sup> Conversely, 17 18 while Central Vermont Public Service Corporation was eliminated because its lower 19 bond rating was indicative of greater risk, its implied average DCF estimate of 9.6 20 percent fell 130 basis points below the 10.9 percent estimate for the proxy group. 21 Because the application of quantitative methods to estimate the cost of equity is 22 inherently imprecise, the potential for anomalous conclusions rises as the proxy group is

<sup>&</sup>lt;sup>3</sup> *VEPCo* at P 63; Supplemental Protest of Central Virginia Electric Cooperative, Craig-Botetourt Electric Cooperative, North Carolina Electric Membership Corporation, and Old Dominion Electric Cooperative, Exhibit INC-1.

1 2 narrowed. As a result, while imposing an additional risk screen may impart a patina of refinement, it is more likely to increase, rather than ameliorate, the potential for error.

The breadth of the PJM and SPP Proxy Groups helps to ensure that the resulting DCF range reflects the risks and requirements of investors. Moreover, as explained earlier, the average risk profiles of these two proxy groups are comparable to AEPTCo. As a result, the zone of reasonableness for these groups of comparable-risk electric utilities provides a reasonable basis to establish the allowed ROE for AEPTCo. Finally, as I demonstrate subsequently, narrowing the proxy group based on credit ratings has no impact on my ultimate conclusion regarding a fair ROE for AEPTCo.

## 10 Q. ARE YOU SUGGESTING ANY LIMITATION ON THE COMMISSION'S ABILITY TO REFERENCE CORPORATE CREDIT RATINGS IN EVALUATING 12 A PROXY GROUP?

13 A. No. For example, my evaluation included a review of corporate credit ratings and other 14 risk measures in order to demonstrate that the average investment risks of the proxy 15 groups are comparable to AEPTCo. Alternatively, corporate credit ratings can be used as 16 the primary risk indicator in lieu of regional location. Noting that a utility should not be 17 eliminated from a proxy group "solely because of geographic or climatic differences,"<sup>4</sup> 18 the Commission has for decades assembled proxy groups by measuring and assessing 19 various utilities against objective screening criteria, such as credit ratings, without regard 20 to geographic location.

21 In fact, while membership in adjacent regional Transmission Organizations facing 22 similar market circumstances can be a valid proxy for risks in the context of establishing 23 rates for transmission services, it is not a panacea. Geographic proximity or participation

<sup>&</sup>lt;sup>4</sup> Consumers Energy Co., 98 FERC ¶ 61,333 at 62,412 (2002).

in a common regional reliability network does not demonstrate comparable risk in all
 instances, since there can be significant disparities in regulation, market circumstances,
 and other important characteristics. In those instances, regional location may not provide
 the most meaningful benchmark to assess investors' overall risk perceptions. By
 expanding the pool of potential proxy group companies to include utilities across the
 nation, application of screening criteria based on corporate credit ratings is more apt to
 yield a group that is large enough to instill confidence in the veracity of the DCF results.

## 8 Q. WHEN DEFINING A PROXY GROUP, DO YOU BELIEVE THAT THE 9 COMPOSITION OF A UTILITY'S REVENUES SERVES AS A MEANINGFUL 10 BASIS TO ASSESS RELATIVE INVESTMENT RISK?

11 A. Under the regulatory standards established by *Hope* and *Bluefield*, the salient No. 12 criterion in establishing a meaningful proxy group to estimate investors' required return is 13 relative risk, not the source of the revenue stream. Due to differences in business 14 segment definition and reporting between utilities, it is often impossible to accurately 15 apportion financial measures, such as total revenues, between utility segments (e.g.,16 distribution, transmission, or generation) or regulated and non-regulated sources. As a 17 result, even if one were to ignore the fact that there is no clear link between the source of 18 a utility's revenues and investors' risk perceptions, it is generally not possible to 19 accurately apply revenue-based criteria.

Moreover, the Commission on multiple occasions has rejected the notion that relative participation in non-transmission operations is a meaningful criterion in identifying a proxy group. In adopting my recommended proxy group in *Midwest ISO*, for example, the Commission concluded, "[w]e are unpersuaded...that transmission investments are less risky than the other investments of the Midwest ISO TO proxy

1 companies."<sup>5</sup> Similarly, in Bangor Hydro, the Commission specifically rejected 2 arguments that PPL "should be excluded from the proxy group given the risk factors associated with its unregulated, non-utility business operations."<sup>6</sup> More recently, in 3 4 response to attempts to restrict a proxy group to companies based on sources of revenue, 5 the Commission concluded that: This is inconsistent with Commission precedent in which we have rejected 6 7 proposals to restrict proxy groups based on narrow company attributes.<sup>7</sup> 8 Indeed, as discussed above, reference to objective indicators of investment risk 9 demonstrates that the investment risks of the companies included in the Electric Utility

10 Proxy Group are comparable.

<sup>&</sup>lt;sup>5</sup> *Midwest ISO*, 100 FERC ¶ 61,292 at P 12 (2002).

<sup>&</sup>lt;sup>6</sup> Bangor Hydro. at PP 17, 26.

<sup>&</sup>lt;sup>7</sup> Pepco Holdings, Inc., 124 FERC ¶ 61,176 (2008) ("Pepco") at P 118 (footnote omitted).

#### EXHIBIT AEP-513

### **INTERPRETING DCF RESULTS**

### 1 Q. WHAT IS THE PURPOSE OF THIS EXHIBIT?

A. This exhibit supports maintaining proxy companies where one DCF estimate is
determined to be an outlier and discusses the merits of relying on the midpoint in
establishing an ROE from within the reasonable range for electric utilities. In addition,
this exhibit also examines the need to consider flotation costs associated with raising
equity capital, which provides additional support for my conclusions regarding the
reasonableness of AEPTCo's requested ROE.

### 8 Q. DO YOU BELIEVE IT IS APPROPRIATE TO EXCLUDE A COMPANY FROM 9 THE PROXY GROUP IF ONE DCF ESTIMATE IS ILLOGICAL?

10 A. No. I do not believe that it is necessary or appropriate to remove a company from the 11 proxy group altogether when just one of its DCF values fails the test of logic. Because 12 there is no infallible method for assessing what the growth rate is precisely, it is 13 customary to consider alternative growth estimates, with the IBES and sustainable, 14 "br+sv" growth rates being two widely referenced proxies for investors' expectations. Reliance on these alternative growth sources is analogous to the logic underlying the use 15 of a proxy group to estimate the cost of equity – the cost of equity is inherently 16 17 unobservable and cannot be precisely estimated. Evaluating both IBES and sustainable 18 growth rates recognizes the importance of examining alternative sources and approaches 19 to estimate investors' growth expectations in order to reduce error and enhance 20 confidence in the reliability of the DCF results. An illogical cost of equity estimate does 21 not imply that the underlying company is not of comparable risk or otherwise unsuitable. 22 The problem is not with the company, but with the particular DCF estimate. In other 23 words, the particular application of the model to a specific set of data produces an 24 illogical and therefore unreliable result.

1 The two estimated growth rates relied on by the Commission – IBES and Value 2 Line "br+sv" – are entirely distinct sources and employ alternative approaches to measure 3 investors' growth expectations. The fact that one growth rate estimate may produce a 4 cost of equity that fails tests of economic logic says nothing about the veracity of the 5 second, independent value. As the Commission noted in *Pepco*:

[I]t is unclear how the Maryland Commission is aggrieved by the exclusion of one low-end result of a single proxy company, but retaining the high end result of that same company, and how, in this case, that would result in a skewed ROE.<sup>1</sup>

10 In fact, it was the recognition that estimates can and do vary prompted the Commission to 11 consider alternative growth measures in applying the DCF model. Each cost of equity 12 estimate is evaluated for reasonableness on a stand-alone basis and there is no requirement for a symmetrical elimination of equal numbers of estimates at the high and 13 14 low end. For example, the simple fact that a 5.0 percent cost of equity estimate is 15 patently illogical when evaluated against observable yields on long-term utility debt says nothing whatsoever with respect to a high-end value of 10.9 percent for the same 16 17 company derived using different input data. Similarly, there would be no reason to eliminate a low-end DCF estimate of 9.0 percent simply because the high-end estimate 18 19 for the same utility is considered to be an extreme outlier. While considering alternative 20 growth rates helps to reduce the potential for skewed results by providing additional 21 information regarding investors' expectations, once illogical values are eliminated there 22 is no evidence to suggest that retaining all valid DCF estimates would somehow impose 23 bias on the results. Indeed, the canons of statistical reasoning dictate that no data should 24 be discarded unless it is found to be suspect on objective grounds.

6

7

8

9

<sup>&</sup>lt;sup>1</sup> *Pepco* at P 126.

1 Moreover, the fact that a single growth estimate may produce an illogical cost of 2 equity estimate does not indicate some "flaw" associated with the specific utility that 3 would justify excluding it from the proxy group. Rather, it only serves to illustrate that 4 growth rates and the resulting cost of equity values are imperfect estimates of investors' 5 required return. In fact, there is no clear precedent for excluding a company from the proxy group if either its high- or low-end value is found to be illogical. In Southern 6 7 California Edison, which established the Commission's DCF approach for electric 8 utilities, the Commission eliminated the low-end return for one of the firms in the proxy group, while retaining the high-end value.<sup>2</sup> More recently, in Atlantic Path 15, the 9 10 Commission determined an ROE range of reasonableness where the upper-end boundary 11 was established using a high-end value for a utility whose low-end DCF estimate had been excluded.<sup>3</sup> Similarly, in Startrans IO, L.L.C., issued one month after the PATH 12 13 decision, the Commission once again determined the ROE using a proxy group in which the low-end result for a utility was excluded but the high-end result was included.<sup>4</sup> 14

## Q. DOES THE COMMISSION'S DECISION IN *BANGOR HYDRO* SUPPORT THE ELIMINATION OF COMPANIES FROM THE PROXY GROUP IF ONE DCF ESTIMATE IS FOUND TO BE ILLOGICAL?

A. No. While a similar issue was raised in *Bangor Hydro*, in that proceeding the
 Connecticut Department of Public Utility Control and other parties to the case argued that
 UIL Corporation's high-end estimate should be <u>substituted</u> for a low-end value that had
 been rejected as illogical, in order to establish the bottom of the zone of reasonableness.

<sup>3</sup> Atlantic Path 15, 122 FERC ¶ 61,135 P 20 (2008); Prepared Direct Testimony of James M. Coyne, Exhibit No. ATL-7 at 2.

<sup>&</sup>lt;sup>2</sup> Southern California Edison at 61,266

<sup>&</sup>lt;sup>4</sup> 122 FERC ¶ 61,306 at P 26 (2008).

- The Presiding Judge and the Commission both rejected this approach as counter to the
   Commission's accepted DCF method. As the Commission concluded:
- We agree with the presiding judge that having excluded UIL's low-end ROE, it would have been improper to then use UIL's high-end ROE to establish the low-end ROE for the proxy group.<sup>5</sup>
- 6 This logic does not require that both the low- and high-end estimates must be excluded if 7 one is found to be illogical, only that they cannot be substituted for one another. 8 Moreover, as the Presiding Judge noted, "Commission precedent, as established in *SCE*, 9 allows the exclusion of the low-end ROE result itself while retaining the other results for 10 the relevant company from the proxy group."<sup>6</sup>

### 11 Q. WHY DID YOU REFERENCE THE MIDPOINT OF THE DCF RANGE IN 12 EVALUATING YOUR DCF RESULTS?

A. The Commission has been consistent in using the midpoint of the zone of reasonableness as the basis for allowed ROEs for electric utilities. This long-held policy is reflected in *Bangor Hydro, Midwest ISO, Southern California Edison,* and in a plethora of previous electric cases. For example, in *Consumers Energy* the Commission reversed an initial decision in which the Presiding Judge had relied on the median of the zone of reasonableness, rather than the midpoint. The Commission concluded that:

19The precedent on which the judge and Staff rely in this instance was20developed in the context of setting the rata of return for gas pipelines. In21this case, there has been no reason provided to depart from our precedent in22Opinion Nos. 445 and 446, setting the return at the midpoint of the zone of23reasonableness.<sup>7</sup>

<sup>&</sup>lt;sup>5</sup> Bangor Hydro at P 54.

<sup>&</sup>lt;sup>6</sup> Bangor Hydro Electric Co., et al., 111 FERC ¶ 63,048 at P 24 (2005).

<sup>&</sup>lt;sup>7</sup> *Consumers Energy Co.*, 98 FERC ¶ 61,333 at 62,416 (2002).

1 The Commission followed the same approach in *Consumers Energy* Co.<sup>8</sup> and *Utah* 2 *Power & Light* Co.,<sup>9</sup> finding the midpoint to be the appropriate return for an electric 3 utility. In certain recent decisions, however, the Commission relied on the median rather 4 than the midpoint.<sup>10</sup>

### 5 Q. WHAT RATIONAL DID THE VEPCO AND GOLDEN SPREAD CASES USE IN 6 ADOPTING THE MEDIAN?

A. The only reasoning proffered in these cases for reliance on the median was 1) using the
median "lessens the impact of any single proxy company whose ROE is atypically high
or low," and 2) the median has the advantage of "taking into account more of the
companies in the proxy group."<sup>11</sup>

# Q. IN YOUR OPINION, DO THESE ARGUMENTS REPRESENT A REASONED BASIS FOR ABANDONING THE COMMISSION'S LONG-STANDING RELIANCE ON THE MIDPOINT IN DETERMINING THE ROE FOR ELECTRIC UTILITIES IN THE PRESENT CASE?

A. No. The median is simply a single number with the characteristic that it divides a set of
observed values in two equal halves, so that half of the values are below it, and half are
above. While it is true that the median is not affected by the magnitude of extreme
outliers, the value of this property is eroded by the fact that such outlying values have
been expressly excluded from my analysis in arriving at the zone of reasonableness under
the DCF approach. In others words, eliminating illogical low- and high-end DCF
estimates when evaluating the results of the Commission's DCF approach also negates

<sup>10</sup> See, e.g., Virginia Electric Power Co. ("VEPCo"), 123 FERC  $\P$  61,098 (2008); Golden Spread Elec. Cooperative, Inc., et al., 123 FERC  $\P$  61,047 (2008) ("Golden Spread").

<sup>&</sup>lt;sup>8</sup> 85 FERC ¶ 61,100 (1998).

<sup>&</sup>lt;sup>9</sup> 44 FERC ¶ 61,166 (1988).

<sup>&</sup>lt;sup>11</sup> Golden Spread at P 64.

the primary rationale advanced for reliance on the median. Indeed, considering the refinements in the Commission's practice of evaluating extreme DCF results since *Southern California Edison*, there is even less to support reference to the median in my analysis than there may have been in previous cases, when the Commission's practice of relying on the midpoint was established.

6 The median actually considers less information about the distribution of 7 reasonable DCF results for the proxy group than does the midpoint. The median is simply the observation with an equal number of data values above and below. For odd-8 9 numbered samples, the median relies on only a **single number**, *e.g.*, the sixth number in 10 an eleven-number set. If the number of estimates is an even number, then the median is 11 the arithmetic average of the two numbers falling in the middle. Thus, if there were 12 twelve estimates, then the median would in fact be the average of the sixth and seventh 13 estimates arrayed from highest to lowest. As such, the median doesn't expressly "take 14 into account" any information regarding the individual DCF estimates for the proxy 15 companies that are above or below the single number (or average of two single numbers) that fall in the middle of the distribution. 16

17 While arguments against the midpoint frequently hinge on the contention that this 18 value relies on only the top and bottom numbers in the range and ignores the rest, this 19 argument is incorrect. As the D.C. Circuit has held, "[t]he midpoint doesn't 'completely 20 disregard the middle three numbers'; the highest and lowest numbers achieve their status by reference to all five numbers."<sup>12</sup> In fact, the median could be more readily criticized 21 for under-weighting the results of the proxy group analysis, since it ignores the range of 22 23 reasonable returns entirely. As the D.C. Circuit observed in approving the use of the 24 midpoint for setting the ROE for the Midwest ISO:

<sup>12</sup> 254 F.3d 289, 298 (D.C. Cir. 2001).

[P]etitioners [arguing in support of the median] are correct in noting that all measures of central tendency 'consider' the entire proxy group range, in the sense that all are influenced – at least indirectly – by each data point in the range. But only the midpoint *emphasizes* that range, as it is equally placed between the top and bottom values.<sup>13</sup>

6 The purpose of the Commission's DCF analysis is to produce a zone of reasonableness 7 and the midpoint provides a better representation of a single ROE applicable to this range 8 than does the median, which ignores the boundaries of the range entirely. Consider this 9 example of a five-estimate sample to illustrate the point made by the D.C. Circuit. The 10 estimates are 8.0, 8.1, 8.2, 15.0, and 15.1 percent. The median is 8.2 percent, while the range is 8.0 percent to 15.1 percent, with a midpoint of 11.55 percent. The median of 8.2 11 12 percent does not reflect the range of values nor does it include information about the 15.0 13 and 15.1 percent values that define the upper end of the range.

14 Moreover, it is important to recognize that the paramount consideration that must 15 be reflected in the choice of a point estimate is the need to ensure that the end result meets the capital attraction standards mandated by the Supreme Court and that the 16 requirements of the EPAct are fulfilled. This determination is not a quest to define a 17 18 statistical representation of central tendency; rather, it challenges the Commission with a 19 determination of a single measure that produces the most just and reasonable ROE. In 20 past decisions, the Commission has consistently determined that the midpoint of the 21 range of reasonableness for the proxy group provides the best starting point for this just 22 and reasonable value, both for stand-alone utilities and for members of a Transmission 23 Organization. The ROE zone of reasonableness for the Electric Utility Proxy Group 24 excludes extreme outliers and is adequately balanced and there is no new evidence that 25 would justify a departure from the Commission's long-standing precedent to rely on the 26 midpoint of the range in this proceeding.

13

1 2

3

4

5

397 F.3d 1004, 1010 (D.C. Cir. 2005) (emphasis in original, citation omitted).

## Q. DOES IT MAKE SENSE TO DISTIGUISH BETWEEN FILINGS INVOLVING INDIVIDUAL UTILITIES AND MULTIPLE TRANSMISSION OWNERS WHEN EVALUATING CENTRAL TENDENCY?

4 A. No. As noted above, the outcome of the Commission's DCF approach is a zone of 5 reasonableness that reflects investors' required rate of return for a proxy group that is 6 comparable in risk to the applicant, irrespective of whether the filing concerns a stand-7 alone utility or multiple transmission-owning members of an RTO. In each case the 8 object of the analysis is to obtain a reasonable and reliable range of the unobservable cost 9 of equity based on objective estimates that contain unknown errors. Given the 10 importance of the zone of reasonableness in framing the ROE under the Commission's 11 precedent for electric utilities, the midpoint is more relevant in establishing a central 12 point estimate that expressly considers this range. By relying on the midpoint of the DCF 13 range, which best reflects the zone of reasonableness, the resulting ROE will better 14 reflect required returns for similarly situated utilities of comparable risk.

15 Moreover, establishing different measures of central tendency based on whether 16 the party is a single utility or a joint filing made up of multiple transmission owners 17 creates the potential different ROEs for the same utility, depending on the nature of the 18 filing. Such a perverse economic outcome has no logical relationship to changes in 19 underlying capital market conditions or investors' risk perceptions or requirements. 20 Moreover, such an outcome directly contradicts the Commission's well-articulated policy 21 goals of reducing regulatory impediments to investment in utility infrastructure and 22 encouraging new capital investment. The instability of the proxy group median inserts 23 regulatory uncertainty into the determination of the ROE that makes it more difficult to 24 negotiate settlements and increases risk for investors.

### Q. WHAT OTHER CONSIDERATIONS ARE RELEVANT IN EVALUATING THE ROE FOR A UTILITY?

3 A. The common equity used to finance the investment in utility assets is provided from 4 either the sale of stock in the capital markets or from retained earnings not paid out as dividends. When equity is raised through the sale of common stock, there are costs 5 associated with "floating" the new equity securities. 6 These flotation costs include 7 services such as legal, accounting, and printing, as well as the fees and discounts paid to 8 compensate brokers for selling the stock to the public. Also, some argue that the "market 9 pressure" from the additional supply of common stock and other market factors may 10 further reduce the amount of funds a utility nets when it issues common equity.

Equity flotation costs are not included in a utility's rate base because neither that portion of the gross proceeds from the sale of common stock used to pay flotation costs is available to invest in plant and equipment, nor are flotation costs capitalized as an intangible asset. Unless some provision is made to recognize these issuance costs, a utility's revenue requirements will not fully reflect all of the costs incurred for the use of investors' funds, with the need for a flotation cost adjustment having been documented in the financial literature.<sup>14</sup>

18

Q.

### WHAT IS THE MAGNITUDE OF THE ADJUSTMENT TO THE "BARE BONES"

19

### COST OF COMMON EQUITY TO ACCOUNT FOR ISSUANCE COSTS?

20 21

22

While there are a number of ways in which a flotation cost adjustment can be calculated, one of the most common methods used to account for flotation costs in regulatory proceedings is to apply an average flotation-cost percentage to a utility's

<sup>&</sup>lt;sup>14</sup> See, *e.g.*, Brigham, E.F., Aberwald, D.A., and Gapenski, L.C., "Common Equity Flotation Costs and Rate Making," *Public Utilities Fortnightly* (May, 2, 1985); Morin, Roger A., "Regulatory Finance: Utilities' Cost of Capital," Public Utilities Reports (1994) at 175.

dividend yield. A review of the finance literature and other studies of issuance costs prepared by the investment community suggest an average flotation cost percentage in the range of 3.6 percent to 10 percent.<sup>15</sup> Applying these expense percentages to a representative dividend yield for a utility of 5.4 percent implies a flotation cost adjustment on the order of 19 to 54 basis points. While my DCF zone of recommendation does not include an adjustment for flotation costs, this is a legitimate factor that supports the reasonableness of the ROE requested by AEPTCo in this case.

<sup>&</sup>lt;sup>15</sup> See, *e.g.*, Morin, Roger A., "Regulatory Finance: Utilities' Cost of Capital," Public Utilities Reports (1994) at 166; *Application of Yankee Gas Services Company for a Rate Increase*, DPUC Docket No. 04-06-01, Direct Testimony of George J. Eckenroth (Jul. 2, 2004) at Exhibit GJE-11.1.

### UNITED STATES OF AMERICA

### **BEFORE THE**

### FEDERAL ENERGY REGULATORY COMMISSION

American Electric Power Service Corporation)on behalf of:)AEP Appalachian Transmission Company, Inc.)AEP Indiana Michigan Transmission Company, Inc.)AEP Kentucky Transmission Company, Inc.)AEP Ohio Transmission Company, Inc.)AEP Oklahoma Transmission Company, Inc.)AEP Southwestern Transmission Company, Inc.)AEP West Virginia Transmission Company, Inc.)

### AFFIDAVIT OF WITNESS

I, the undersigned, being duly sworn, depose and say, under penalty of perjury, that the Prepared Direct Testimony of William E. Avera is the testimony of the undersigned, and that the exhibits sponsored by me to the best of my knowledge, information and belief, are true, correct, accurate and complete, and I hereby adopt said testimony as if given by me in formal hearing, under oath

Will El

Docket No ER10- -000

William E. Avera

Subscribed and sworn to before me this  $\sqrt{2}^{4}$  day of November, 2009

My commission expires: 0)/10/2001 Notary Public

