

**BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION**

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In re: Petition for increase in rates by  
Progress Energy Florida, Inc.

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DOCKET NO. 090079-EI

Submitted for filing: August 31, 2009

**REBUTTAL TESTIMONY OF**

**MICHAEL J. VILBERT**

**ON BEHALF OF**

**PROGRESS ENERGY FLORIDA, INC.**

**AUGUST 26, 2009**

DOCUMENT NUMBER-DATE

09022 AUG31 09

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**I. INTRODUCTION AND SUMMARY**

1 **Q1. Please state your name and address for the record.**

2 A1. My name is Michael J. Vilbert. My business address is The Brattle Group, 353  
3 Sacramento Street, Suite 1140, San Francisco, CA 94111, USA.

4 **Q2. Please describe your job and your educational experience.**

5 A2. I am a Principal of The Brattle Group, ("Brattle"), an economic, environmental and  
6 management consulting firm with offices in Cambridge, Washington, London, San  
7 Francisco and Brussels. My work concentrates on financial and regulatory economics. I  
8 hold a B.S. from the U.S. Air Force Academy and a Ph.D. in finance from the Wharton  
9 School of Business at the University of Pennsylvania.

10 **Q3. What is the purpose of your testimony in this proceeding?**

11 A3. I have been asked by Progress Energy Florida, Inc. ("PEF" or "the Company") to respond  
12 to the testimonies of Mr. Daniel J. Lawton ("Lawton Testimony") on behalf of the  
13 Florida Office of Public Counsel ("OPC"), Mr. Jacob Pous ("Pous Testimony") on behalf  
14 of OPC and Mr. Jeffry Pollock ("Pollock Testimony") on behalf of The Florida Industrial  
15 Power Users Group ("FIPUG") regarding the appropriate regulatory treatment of the  
16 Company's estimated depreciation reserve variance. As a group, I refer to the  
17 testimonies of these individuals as the intervenors.

18 My focus is on whether there is any precedent either by other regulators or by the  
19 accounting profession to support the intervenors' proposal and whether the proposal  
20 represents good regulatory policy. In addition, I discuss the effect of the proposal on the  
21 Company's financial integrity and cost of capital. I am not reviewing or critiquing the  
22 depreciation studies of either the Company or the intervenors, and I accept as given the  
23 estimate from the Company's depreciation study of an amount of depreciation reserve  
24 variance. In particular, I am not disputing or estimating the useful lives of the

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1 Company's assets. I am not evaluating the return on equity ("ROE") estimates by either  
2 the Company or any other intervenors in this proceeding, but I do have some comments  
3 on the likely effect on the cost of capital of adoption of the intervenors' proposal to  
4 reverse the depreciation reserve.

5 **Q4. Please summarize the parts of your background and experience that are**  
6 **particularly relevant to your testimony on these matters.**

7 A4. Brattle's specialties include financial and regulatory economics as well as the gas and  
8 electric industries. I have worked in the areas of cost of capital, investment risk and  
9 related matters for many industries, regulated and unregulated alike, in many forums. I  
10 have testified or filed testimony on regulatory issues and on the cost of capital before the  
11 Federal Energy Regulatory Commission, the Arizona Corporation Commission, the  
12 Pennsylvania Public Utility Commission, the Public Service Commission of West  
13 Virginia, the Tennessee Regulatory Authority, the Public Utilities Commission of Ohio,  
14 the Montana Public Service Commission, the South Dakota Utilities Board, the  
15 California Public Utilities Commission, the Public Utilities Commission of the State of  
16 Colorado, the Public Service Commission of Wisconsin, the New Jersey Board of Public  
17 Utilities, the Canadian National Energy Board, Alberta Energy and Utilities Board, the  
18 Ontario Energy Board, the Régie de l'Énergie and the Labrador & Newfoundland Board  
19 of Commissioners of Public Utilities. I have not previously testified before the Florida  
20 Public Service Commission. Appendix A contains more information on my professional  
21 qualifications.

22 **Q5. What have the intervenors proposed in this proceeding with regard to the estimated**  
23 **depreciation reserve variance?**

24 A5. The Company's depreciation study estimates the depreciation reserve variance to be  
25 \$645,805,342, and the intervenors' estimates are even higher. The intervenors' proposal  
26 is designed to eliminate the \$645,805,342 estimated depreciation reserve variance over a  
27 four year period. The intervenors propose to reverse an amount of depreciation equal to  
28 the amount of estimated depreciation imbalance that has already been recovered from

1 customers in Commission approved rates and add it back to the rate base. Specifically,  
2 they propose to reduce the amount of depreciation currently in the Company's revenue  
3 requirement by \$161,451,336 per year offset by \$12,147,032 of additional return on rate  
4 base over each of the next four years. This latter amount includes return on equity,  
5 interest expense and income taxes. The ROE inherent in the recommended return is that  
6 of Dr. Randall Woolridge.<sup>1</sup>

7 **Q6. What is the Company's proposal with regard to the depreciation reserve variance?**

8 A6. The Company's depreciation study shows that the depreciation reserve variance is caused  
9 by changes in depreciation estimates (e.g., service lives, average remaining life, net  
10 salvage) such as the increase in the estimated economic life of several coal generating  
11 plants and the Crystal River nuclear generating plant. As is standard in regulatory  
12 jurisdictions, the Company proposes to adjust the depreciation rate going forward to  
13 correspond to the increased estimated lives of the assets and other changes in  
14 depreciation estimates. The remaining amount of investment to be recovered from  
15 customers would be spread over the remaining estimated life of the assets. As a result,  
16 the depreciation charge in the revenue requirement would be reduced, but the reduction  
17 would be spread over a longer period than four years.

18 **Q7. What is your conclusion on the appropriateness of the intervenors' proposal to**  
19 **reverse the level of depreciation recorded by the Company?**

20 A7. The intervenors' proposal to reverse the depreciation reserve is counter to Generally  
21 Accepted Accounting Principles ("GAAP") and is poor regulatory policy. When there  
22 are changes in depreciation estimates, for example, a change in an asset's expected useful  
23 life, GAAP recommends adjusting the depreciation rate going forward to correspond to  
24 the new life and recommends against any adjustment in the current balances of  
25 depreciation. I have found no regulatory precedent in other jurisdictions to reverse  
26 accrued depreciation, in part, probably because such a procedure is poor regulatory policy.

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<sup>1</sup> On page 4 of his direct testimony, Dr. Woolridge recommends an allowed ROE of 9.75 percent for the Company. On page 6 of Dr. Vander Weide's testimony, he recommends an ROE of 12.54 percent.

1 It is poor regulatory policy because it increases regulatory uncertainty in that past  
2 decisions can be altered based upon information not available at the time of the decision.  
3 Such a policy opens the door to endless debates about whether cash flows in previous  
4 periods should be adjusted because actual costs or revenues varied from forecasts.  
5 Increased regulatory uncertainty is likely to increase investors' required return. It is also  
6 poor regulatory policy because it will increase the level and variability of rates to  
7 customers over the long term at the expense of a temporary reduction in the revenue  
8 requirement thereby creating a class of "winners" versus a much larger class of "losers"  
9 among customers. It is also a particularly bad time to increase regulatory uncertainty,  
10 because the capital markets are only now beginning to emerge from a period of turmoil  
11 and increased investor risk aversion. Although the economy is showing signs of  
12 stabilizing, investors' risk aversion remains higher than it was prior to the current  
13 economic crisis. If adopted, the intervenors' proposal would weaken the Company's  
14 credit metrics at a time when it must access the capital markets to acquire the funds  
15 necessary to finance its forecasted capital investment program.

16 **Q8. How does the current turmoil in the financial markets affect the cost of capital for a**  
17 **regulated utility?**

18 A8. I discuss the effect of the credit crisis on the cost of capital in detail in *Section III* below,  
19 but in general, the cost of capital is higher for all companies today than it was before the  
20 crisis. The intervenors' proposal will substantially affect the Company's cash flow and  
21 its perceived risk. Because of the unusual conditions still prevailing today, it is a  
22 particularly poor time to increase investor uncertainty regarding recovery of their  
23 investment in the Company's assets.

24 **Q9. How is your testimony organized?**

25 A9. *Section II* on the theory and application of the concept of depreciation is divided into five  
26 subsections. The first describes the role of depreciation in the revenue requirement.  
27 Depreciation increases the revenue requirement but reduces the rate base so that under  
28 fair regulation both investors and customers are protected if depreciation rates turn out to

1 be higher or lower than necessary to recover the investment over the expected useful life  
2 of the asset. I next discuss the lack of regulatory precedent for the intervenors' proposal.  
3 The third subsection describes why the Company would be inadequately compensated  
4 under the intervenors' proposal and shows how much the return would have to increase to  
5 provide adequate compensation. The fourth subsection shows that adoption of the  
6 intervenors' proposal is likely to increase the cost of capital for the Company because of  
7 increased regulatory uncertainty as well as due to the weakening of the Company's credit  
8 ratios. The final subsection explains why the intervenors' proposal is poor regulatory  
9 policy, in part, because it relies upon imposing 20-20 hindsight on previous regulatory  
10 decisions. *Section III* discusses current market conditions and the likely effect on the cost  
11 of capital. In particular, the recent turmoil in the financial markets has increased the cost  
12 of capital for all companies including utilities so this is a particularly inopportune time to  
13 adopt a proposal that increases regulatory uncertainty. *Section IV* provides my  
14 conclusions. *Appendix A* contains my resume.

## 15 II. DEPRECIATION THEORY AND APPLICATION

### 16 A. DEPRECIATION IN THE REVENUE REQUIREMENT

17 **Q10. Please briefly review the role of depreciation in setting the revenue requirement for**  
18 **a regulated utility?**

19 A10. In a regulated setting, depreciation is designed to recover the cost of an asset over its  
20 expected useful life as opposed to adding the full cost of the asset to the revenue  
21 requirement in the year of investment. The concept is to match the cost of the asset to the  
22 period of service.

23 **Q11. How is the amount of depreciation for an asset determined?**

24 A11. For regulatory purposes, assets are generally depreciated on a straight-line basis over  
25 their expected life. An estimate of salvage value, either positive or negative, is added to  
26 the total cost of the asset to be depreciated. There are a few points to note about

1 depreciation. First, no matter what method is chosen or how long the estimated life,  
2 depreciation will never be greater than the amount of investment minus the estimated  
3 salvage value. If the estimated life is longer, the annual rate of depreciation is lower, but  
4 the total still adds to 100 percent. Second, it is not unusual for the useful life of assets to  
5 vary from expectations. For example, some assets will not last as long as expected and  
6 some will last much longer. Nor is it unusual for assets to be fully depreciated and  
7 remain used and useful. As a result, when companies perform depreciation studies, it is  
8 common that the expected lives of some assets will be modified. Third, depreciation  
9 reduces the rate base upon which a rate of return is earned.

10 **Q12. How is a change in the expected life of an asset usually handled in regulatory**  
11 **settings?**

12 A12. Usually, the rate of depreciation is adjusted so that the percentage of the asset remaining  
13 to be recovered is spread over the remaining estimated life of the asset. For example, an  
14 asset with an initial expected life of 10 years would have a straight-line depreciation rate  
15 of 10 percent per year. If its expected life were extended at the end of 5 years to a  
16 revised expected life of 15 years, a new, lower rate of depreciation would be appropriate.  
17 Specifically, at the 5 year point, half of the depreciation would have been recovered  
18 leaving half to be recovered in the remaining 10 years, or 5 percent per year.  
19 Alternatively if the revised life were shortened to 7 years, the depreciation rate would  
20 have to be increased to 25 percent to recover the full remaining amount of the investment.

21 **Q13. Are customers harmed if the life of the asset is revised, particularly if the expected**  
22 **life of the asset is increased?**

23 A13. No. Recovery of depreciation automatically has an offset for customers. The regulated  
24 company not only recovers its investment in assets that provide service to customers, it  
25 also earns a rate of return on the investment not yet recovered. Depreciation is the return  
26 of the investment. The rate of return on the investment is the weighted-average cost of  
27 debt and equity in the capital structure plus an allowance for income tax. Under fair  
28 regulation, the present value of the depreciation and return on the investment will equal



1 the amount of investment. If the initial rate of depreciation turns out to be higher than  
2 required because the expected life is increased, customers save the return *on* the  
3 depreciation recovered. However, the present value of recovery is unchanged.<sup>2</sup> Only the  
4 timing of the cash flows is different.

5 **Q14. How do regulators ensure that differences in the timing of the recovery of an**  
6 **investment do not raise the issue of intergenerational fairness?**

7 A14. To begin with, there is no existing level of complete intergenerational fairness within the  
8 process of setting rates because the composition of the customers' group always changes  
9 over time. However, the primary reason offered by the intervenors for their proposal in  
10 this proceeding to reverse the depreciation already recovered is an appeal to  
11 intergenerational fairness, but their proposal actually creates a set of intergenerational  
12 winners and losers. Specifically, reversing the depreciation allowance over the next four  
13 years creates a group of customers that unfairly receive a rate reduction at the expense of  
14 customers who paid rates earlier or who will pay rates after the four year period. There is  
15 no reason that the depreciation reserve should be reversed over a four year period. That  
16 period is completely arbitrary. In fact, the only logical and completely fair way to deal  
17 with the issue is to adopt the Company's proposal to reset the depreciation rate based  
18 upon the remaining useful life of the assets whose expected useful lives and other  
19 depreciation parameters have changed. This again matches the remaining investment to  
20 be recovered to the expected life of the asset. This is, in fact, the way that changes in  
21 expected lives of depreciable assets are usually handled.

22 **Q15. Do you agree that the existence of a depreciation reserve imbalance means that**  
23 **intergenerational unfairness has already occurred?**

24 A15. No. The depreciation rates that were in place for the Company's assets were approved by  
25 the Commission based upon the best information available at the time. In other words,  
26 the depreciation rates were appropriately set and recovered in rates. The Company is not

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<sup>2</sup> This assumes that the allowed rate of return is set equal to the cost of capital.

1 accused of making an error in the calculation of the amount of depreciation, nor did the  
2 Company change its method of calculating depreciation. The primary reason for the  
3 depreciation reserve imbalance is that the depreciation estimates have changed over time,  
4 for example, estimated lives of some assets have been increased. It is only in retrospect  
5 that we forecast today that the depreciation rate was higher than necessary in the past, but  
6 that is fundamentally different than purposely creating a set of "winners" by reducing  
7 depreciation over the next four years at the expense of all future and past customers as  
8 would result from adoption of the intervenors' proposal.

9 **Q16. Please summarize this section of your rebuttal.**

10 A16. It is effectively impossible to forecast exactly the depreciation parameters, such as the  
11 useful life of depreciable assets, so revisions to the expected lives of some assets and net  
12 salvage parameters will be necessary each time a depreciation study is performed.  
13 Fortunately, depreciation automatically provides a benefit to customers in the form of a  
14 reduction in the return *on* the investment because depreciation reduces the rate base. This  
15 means that the fact that the depreciation rates were not perfectly matched to the actual  
16 useful life of the assets does not result in harm to rate payers because the present value of  
17 the amounts paid by customers will equal the amount of investment.

18 **B. THERE IS NO ACCOUNTING OR REGULATORY PRECEDENT FOR THE**  
19 **INTERVENORS' PROPOSAL**

20 **Q17. Have you found any precedent for the depreciation recapture or reversal proposed**  
21 **by the intervenors in this proceeding?**

22 A17. No. I have searched for decisions by other regulators in the U.S. that address the issue of  
23 how to treat depreciation on an asset whose estimated life changes at some point in its  
24 regulatory life. I am not aware of any jurisdiction that has implemented a policy of  
25 refunding a portion of the depreciation already collected in rates from customers. To my  
26 knowledge, all jurisdictions revise the depreciation rate to match the new estimated life of  
27 the assets. I also reviewed the accounting profession's treatment of changes to the useful

1 life of assets and found that under Generally Accepted Accounting Principles (“GAAP”)  
2 it is clear that such a change needs to be handled prospectively not retroactively.

3 **Q18. What evidence do you have that there is no regulatory precedent for the proposal?**

4 A18. While I have been unable to find any precedence for the proposal, both the Federal  
5 Energy Regulatory Commission (“FERC”) and regulators in several states clearly rely on  
6 the methodology proposed by the Company and depreciate the remaining assets over the  
7 remaining useful life.<sup>3</sup>

8 **Q19. Please summarize FERC’s methodology.**

9 A19. Broadly speaking, the FERC requires that

10 Utilities must use a method of depreciation that allocates in a systematic  
11 and rational manner the service value of depreciable property over the  
12 service life of the property.<sup>4</sup>

13 Like most regulatory entities, the FERC requires entities to file periodical depreciation  
14 studies, and while the determination of depreciation rates frequently is subject to dispute,  
15 the FERC consistently has relied on prospective changes to rates when accounting  
16 estimates of service lives change. Indeed, the FERC in a recent decision stated that

17 Because of estimates inherent in depreciation accounting, Commission  
18 policy generally requires that over-or under-accrued provisions for  
19 depreciation be corrected prospectively by an upward or downward  
20 adjustment in the depreciation rate.<sup>5</sup>

21 Another FERC decision goes on to state that the FERC will consider adjusting the  
22 balance if the entity can establish that, in addition to there being a variance in the accrued  
23 and theoretical depreciation reserve, the variance was caused by an accounting error

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<sup>3</sup> Regulatory accounting usually refers to “service life” which is the useful life to a specific entity.

<sup>4</sup> FERC, “*Uniform Systems of Accounts*,” Section 22, paragraph A.

<sup>5</sup> FERC, “Order Authorizing the Acquisition of Jurisdictional Facilities,” Docket Nos. EC08-33-000 and EC08-33-001, Issued March 31, 2008, p. 21-22, paragraph 62.

1 rather than the use of estimates. This is consistent with financial accounting principles  
2 and with prior FERC decisions. For example, the FERC has rejected an agreement  
3 between parties to restate a utility's depreciation reserve stating:

4 Changes in depreciation estimates resulting from new information or  
5 subsequent developments or from better insight or improved judgment  
6 should be accounted for in the period of change and future periods, but not  
7 through retroactive restatement of prior period's depreciation amounts.<sup>6</sup>

8 Thus, FERC's position is clear and I have not found instances in which FERC reversed  
9 the depreciation or depreciation reserve because the service life of an asset was extended  
10 or any other depreciation estimate changed.

11 **Q20. Please summarize the evidence you have that other state commissions do not reverse**  
12 **past depreciation.**

13 A20. It is common for utilities to file depreciation studies and consequently depreciation rates  
14 for approval with regulatory commissions. As a result of such studies, the useful life or  
15 service life of major assets (or classes of assets) is updated to reflect up-to-date  
16 information. Therefore, depreciation rates are modified, so that the time horizon over  
17 which the remaining asset (or asset minus salvage value) is depreciated reflects the  
18 remaining service life. While such updates change the depreciation rates going forward,  
19 no attempt is made to reverse past depreciation. For example, in connection with Kansas  
20 City Power & Light's ("KCPL") expected expansion of the Wolf Creek nuclear power  
21 plant's useful life from 40 to 60 years, the Missouri Public Service Commission allowed  
22 KCPL to modify its depreciation rate going forward.<sup>7</sup> Similarly, the Minnesota Public  
23 Service Commission recently approved Xcel Energy to recover the remaining net asset

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<sup>6</sup> FERC, "Order Affirming Initial Decision", Carnegie Natural Gas Company, Docket No. FA89-16-000, Issued August 7, 1992, p. 6-7.

<sup>7</sup> Public Service Commission of the State of Missouri, Report and Order, Case No. EO-2005-0329, Issue date, July 28, 2005, p. 30.

1 value of its Prairie Island and Monticello nuclear plants over the extended service life of  
2 these assets.<sup>8</sup>

3 **Q21. Do you have any comments on the Commission decisions cited by the intervenors as**  
4 **relevant?**

5 A21. Yes. While I leave the detailed comments to those more familiar with Florida regulatory  
6 precedent, I observe that the decisions cited by intervenors tend to involve either a  
7 transfer between accounts rather than a reversal of the accumulated depreciation reserve  
8 and/or they involve unique circumstances that are not present in the current situation.  
9 Looking at the decisions cited by the Pous Testimony, I have the following observations.  
10 The Gulf Power Company, Marianna Electric Division and Tampa Electric Company  
11 decisions cited on p. 32 all pertain to a “reserve transfer” between accounts rather than a  
12 reversal of account balances. In addition, the Gulf Power decision, Order No. 19901,  
13 involves a change in methodology rather than estimates, and it is noteworthy that the  
14 decision ensured that the “Restated Reserve” equals the “Book Reserve” for plant sites,  
15 so no change was made to the total accumulated depreciation reserve. The General  
16 Telephone Co. decision specifically discusses the fast paced development in technology  
17 for telecommunications and the risk of stranded cost in its decision to shorten the time  
18 over which General Telephone’s assets’ are amortized.<sup>9</sup> To summarize, these decisions  
19 from the Pous Testimony pertain to unique or different circumstances than what is being  
20 proposed by interveners.

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<sup>8</sup> Minnesota Public Utilities Commission, “Order Amending Remaining Life of the Prairie Island Nuclear Plant,” Docket No. E,G-002/D-03-230, January 5, 2004. See also Xcel Energy’s Q2, 2009 10-Q and Minnesota Public Utilities Commission, Staff Briefing Papers, June 25, 2009.

<sup>9</sup> The decisions cited by the Pous Testimony are discussed in more detail in the Rebuttal Testimony of Mr. Will Garrett (“Garrett Rebuttal”).

1 **Q22. Do you have comments on the Pollock Testimony's reliance on a settlement?**

2 A22. Yes. On page 50, the Pollock Testimony references a settlement that grants FPL "the  
3 option to amortize" an amount annually over the settlement period.<sup>10</sup> First, a settlement  
4 is inherently different from a Commission order, and second, an option to amortize is  
5 different from requiring a company to reverse its accumulated depreciation. Without  
6 knowing the full details of the settlement, it is difficult to determine the comparability to  
7 the current matter.

8 **Q23. How is a change in expected useful life or service life of a depreciable asset treated  
9 by the accounting profession?**

10 A23. The accounting profession also alters the depreciation rates to reflect the revised estimate  
11 of the remaining useful life. Generally Accepted Accounting Principles ("GAAP") are  
12 clear on this issue. As noted in the *Miller GAAP Guide*, "Estimates are necessary in  
13 determining depreciation and amortization of long-lived assets, ..." and "[a] change in an  
14 accounting estimate is not accounted for by restating prior year's financial statements  
15 ..."<sup>11</sup> To quote one of the most commonly used intermediate accounting textbooks in the  
16 U.S.:

17 [The company] should report this change in [useful life] estimate in the  
18 current and prospective periods. It should not make any changes in  
19 previously reported results. And it does not adjust opening balances nor  
20 attempt to "catch up" for prior periods.<sup>12</sup>

21 Thus, the Financial Accounting Standard Board ("FASB") has made clear that GAAP  
22 distinguishes between a change in accounting estimates such as a depreciation rate *and* a  
23 change in accounting principles or accounting errors. In the case of a change in  
24 accounting estimates (e.g., depreciation rates), the change is reflected prospectively

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<sup>10</sup> Florida Public Service Commission, "Order Approving Stipulation and Settlement," Order No. PSC-05-0902-S-EI, Issued September 14, 2005, p. 3.

<sup>11</sup> Quoted from Jan R. Williams and Joseph V. Carcello, "*Miller GAAP Guide*," Aspen 2004, Chapter 1.

<sup>12</sup> Donald E. Kieso, Jerry J. Weygandt, and Terry D. Warfield, *Intermediate Accounting*, 12<sup>th</sup> Edition, Wiley 2008, p. 533.

1 whereas a change in accounting principles or accounting errors are reflected  
2 retrospectively.<sup>13</sup> To my knowledge, the accounting profession never suggests that  
3 accumulated depreciation should be reversed (other than in cases of restatements or a  
4 change of accounting principle).

5 **Q24. Do you have other comments on the regulatory precedent of adopting the**  
6 **intervenors' proposal?**

7 A24. Yes. Effectively, the intervenors' proposal amounts to a request to the Commission to  
8 reverse the previous decisions of the Commission. The depreciation expense recovered  
9 by the Company leading to the current depreciation reserve variance was approved by  
10 previous Commission decisions, and those decisions were based upon the best  
11 information available at the time. To reverse those decisions based upon information not  
12 available at the time of the previous decisions is a form of ex-post rate making. Worse, it  
13 sets a precedent that says no past regulatory decision is final even for the period of the  
14 decision. For example, a commission could decide that the allowance for O&M expense  
15 was too high (or too low) in a previous period because the actual expenses were less than  
16 (greater than) forecast and require a refund or surcharge. Such a policy would increase  
17 regulatory uncertainty from the investors' and the customers' points of view. Investors  
18 dislike uncertainty, and increased uncertainty would likely lead to an increase in the  
19 required cost of capital for the company. Customers seem to dislike uncertainty and  
20 volatility in rates as well.

21 **C. THE INTERVENORS' PROPOSAL DOES NOT PROVIDE ADEQUATE**  
22 **COMPENSATION TO THE COMPANY**

23 **Q25. Please review the intervenors' proposal to reverse the depreciation "surplus."**

24 A25. The intervenors propose to reduce the amount of depreciation in the Company's revenue  
25 requirement by \$161,451,336 per year and to add that amount to the rate base, and the  
26 reduction is to be offset by \$12,147,032 for an increase in return on rate base over each of

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<sup>13</sup> See Jan R. Williams and Joseph V. Carcello, Miller GAAP Guide, Chapter 1.

1 the next four years.<sup>14</sup> This latter amount includes return on equity, interest expense and  
2 income taxes which is sometimes called the before-tax weighted-average cost of capital,  
3 the BTWACC. The proposal is designed to reverse the \$645,805,342 of depreciation  
4 reserve variance estimated in the Company's depreciation study.

5 **Q26. If adopted, does this proposal adequately compensate the Company?**

6 A26. No. Under the intervenors' proposal, the Company's rate base will increase by the \$646  
7 million amount of the estimated depreciation reserve, but the proposed allowed return of  
8 \$12 million is based upon ½ of the first year's depreciation offset alone. At the end of  
9 the first year of the proposal, the Company's gross rate base will be \$161 million larger  
10 than at the start of the process which would require an increase in the return for interest,  
11 ROE and income taxes of more than \$24 million plus the additional \$12 million for the  
12 \$161 million of depreciation returned in the second year. At the end of the second year,  
13 the Company's rate base will be \$322 million larger requiring a return of \$48 million plus  
14 \$12 million for the \$161 million of depreciation return in the 3<sup>rd</sup> year and so forth. The  
15 result is that the company should be awarded an annual return of four times the initial  
16 proposal of \$12,147,032 or \$48,588,128 in each of the next four years to be adequately  
17 compensated for the increase in rate base. In other words, the return should be based  
18 upon approximately ½ of the estimated depreciation reserve. The actual situation is  
19 slightly more complicated than this because of deferred income taxes ("DIT").<sup>15</sup> Table 1  
20 below demonstrates how rates should be reflected considering the change in the rate base  
21 and DIT resulting from adding back book depreciation already taken.

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<sup>14</sup> The ROE in the calculations is the 9.75 percent as recommended by Dr. Woolridge not the Company's requested ROE of 12.54 percent as recommended by Dr. Vander Weide. I do not endorse Dr. Woolridge's recommendation.

<sup>15</sup> DIT is calculated as (tax depreciation minus book depreciation) times the marginal income tax rate. In Florida, accumulated DIT is used to adjust the weighted-average cost of capital as a source of capital that has no cost. The intervenors' proposal would increase DIT which would also reduce the weighted-average cost of capital instead of the rate base as illustrated in the example.



**Table 1**

	Depreciation [1]	Beginning Rate Base [2]	Unadjusted End of Year Rate Base [3]	Deferred Income Tax ("DIT") [4]	Average Rate Base [5]	Return on Rate Base [6]	Net Cashflow [7]	End of Year Rate Base with DIT [8]
Year 1	161.5	0.0	161.5	62.3	80.7	12.1	(149.3)	99.2
Year 2	161.5	99.2	260.6	62.3	179.9	27.1	(134.4)	198.3
Year 3	161.5	198.3	359.8	62.3	279.1	42.0	(119.5)	297.5
Year 4	161.5	297.5	459.0	62.3	378.2	56.9	(104.5)	396.7
Total	<b>645.8</b>			<b>249.1</b>				
Average						<b>34.5</b>	<b>(126.9)</b>	

Sources and Notes:  
Values are in millions.

[1]: Direct Testimony of Daniel J. Lawton. [5]: Average of [2] and [3].  
[2]: [8] from previous year, except Year 1 which is 0. [6]: [5] x 15.05%. Where 15.05% is implied BTWACC.  
[3]: [1] + [2]. [7]: [1] - [6].  
[4]: [1] x 38.575%; where 38.575% is the tax rate. [8]: [3] - [4].

**Q27. Please describe the calculations in Table 1.**

A27. Column [1] shows the proposed reversal of depreciation of about \$161 million over each of the next four years, which generates an increase in DIT because book depreciation is effectively less than it was in the past. The reduction in the Company's revenue requirement is shown in column [7]. It is equal to the reduction in depreciation expense (\$161 million) minus the increase in return on rate base from column [6]. For ease of demonstration, I have used DIT to reduce rate base rather to adjust the weighted-average cost of capital as is the procedure in Florida, but effectively the result is the same. Note that the reduction in rates (i.e., the reduction in net cash flow in column [7]) declines over time as the amount of annual reversed depreciation accumulates in the rate base. However, this is not the end of the story because the gross rate base is now about \$646 million greater than it would have been, and this increase must now be recovered over the remaining life of the assets. The Pous Testimony notes that the remaining life is about 21 years<sup>16</sup> which leaves about 17 years following the four years of the intervenors' proposal. Table 2 below demonstrates the recovery.

<sup>16</sup> Pous Testimony, p. 34.

Table 2

	Depreciation [1]	Beginning Rate Base [2]	Unadjusted End of Year Rate Base [3]	Deferred Income Tax ("DIT") [4]	Average Rate Base [5]	Return on Rate Base [6]	Net Cashflow [7]	End of Year Rate Base with DIT [8]
Year 5	38.0	396.7	358.7	14.7	377.7	56.8	94.8	373.4
Year 6	38.0	373.4	335.4	14.7	354.4	53.3	91.3	350.0
Year 7	38.0	350.0	312.0	14.7	331.0	49.8	87.8	326.7
Year 8	38.0	326.7	288.7	14.7	307.7	46.3	84.3	303.3
Year 9	38.0	303.3	265.4	14.7	284.4	42.8	80.8	280.0
Year 10	38.0	280.0	242.0	14.7	261.0	39.3	77.3	256.7
Year 11	38.0	256.7	218.7	14.7	237.7	35.8	73.8	233.3
Year 12	38.0	233.3	195.4	14.7	214.4	32.3	70.2	210.0
Year 13	38.0	210.0	172.0	14.7	191.0	28.7	66.7	186.7
Year 14	38.0	186.7	148.7	14.7	167.7	25.2	63.2	163.3
Year 15	38.0	163.3	125.4	14.7	144.3	21.7	59.7	140.0
Year 16	38.0	140.0	102.0	14.7	121.0	18.2	56.2	116.7
Year 17	38.0	116.7	78.7	14.7	97.7	14.7	52.7	93.3
Year 18	38.0	93.3	55.3	14.7	74.3	11.2	49.2	70.0
Year 19	38.0	70.0	32.0	14.7	51.0	7.7	45.7	46.7
Year 20	38.0	46.7	8.7	14.7	27.7	4.2	42.2	23.3
Year 21	38.0	23.3	(14.7)	14.7	4.3	0.7	38.6	0.0
Total	<b>645.8</b>			<b>249.1</b>				
Average						<b>28.7</b>	<b>66.7</b>	

Sources and Notes:  
Values are in millions.  
[1]: 645.81 / 17 years. [5]: Average of [2] and [3].  
[2]: [8] from previous year. Year 5 from Table 1 Year 4. [6]: [5] x 15.05%. Where 15.05% is implied BTWACC.  
[3]: [2] - [1]. [7]: [6] + [1].  
[4]: [1] x 38.575%; where 38.575% is the tax rate. [8]: [2] - [1] + [4].

1 **Q28. Please describe the calculations in Table 2.**

2 A28. The recaptured depreciation must once again be charged to customers, but it is done over  
3 a 17 year period which is an estimate of the average remaining life of the assets.<sup>17</sup> The  
4 depreciation expense in column [1] recovers the \$646 million of depreciation and column  
5 [6] displays the return on rate base. Column [7] shows the net cash flow in each of the  
6 next 17 years required to amortize the recaptured depreciation from the intervenors'  
7 proposal. In exchange for saving an average of about \$127 million for four years  
8 (average of column [7] in Table 1), the trade off is rates that are about \$67 million higher  
9 for 17 years (average of column [7] in Table 2). A graph of the change in rates due to the

<sup>17</sup> The 17 year period is for illustration purposes and is not intended to be an independent estimate of the average remaining life.

1 intervenors' proposal is displayed in Figure 1 below, which shows how much more  
 2 variable rates would be if the intervenors' proposal is adopted. Note that between year 4  
 3 and year 5, the revenue requirement would jump by about \$200 million.

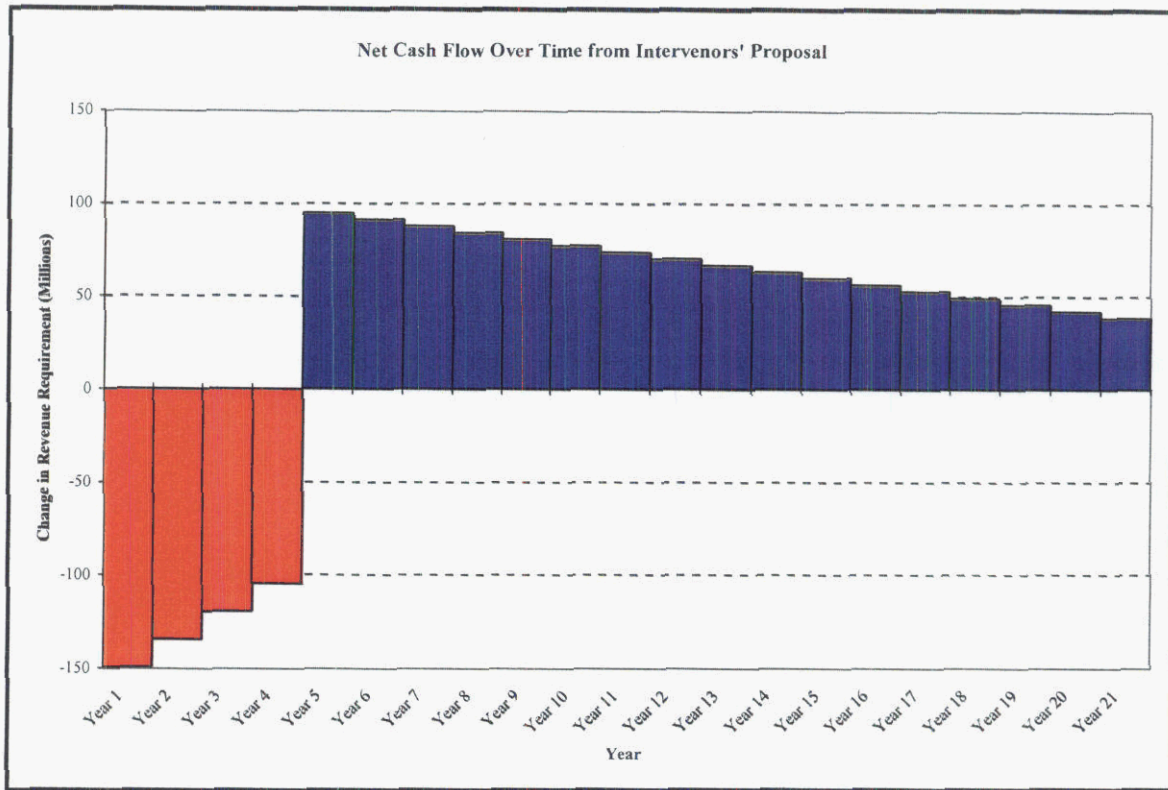


Figure 1

4 **Q29. Is there an alternative to the additional rate of return you have estimated?**

5 A29. There are two alternatives: 1) the Commission could deny the intervenors' proposal to  
 6 reverse the depreciation reserve, or 2) the Company would be forced to file a rate case in  
 7 each of the next four years to be adequately compensated. Clearly, denying the proposal  
 8 is preferable.

1 **Q30. If the Company must be fairly compensated for the reversal of the depreciation**  
2 **reserve in the form of a higher return and increase in rates, how will customers be**  
3 **treated?**

4 A30. If the Company is fairly compensated through higher future rates, the customers will also  
5 be treated fairly because the present value of the return on investment and the future  
6 depreciation allowance will equal the \$646 million reversal of the depreciation reserve.  
7 However, it is worth noting that in exchange for a temporary reduction in the average  
8 revenue requirement of about \$127 million over the next four years, future customers will  
9 pay a higher cost of service including the return of the \$646 million in depreciation that is  
10 the source of the temporary reduction in the revenue requirement. In addition, customers  
11 will have to pay a rate of return on that \$646 million so that rates will average about \$67  
12 million higher at the beginning of the fifth year. Moreover, the cost of capital requested  
13 by the Company is higher than recommended by the intervenors. If the Company's  
14 requested cost of capital had been used in the analysis, the benefit to customers will be  
15 even lower, because customers receive a return on the depreciation already recovered  
16 equal to the cost of capital. The higher the allowed return, the greater the benefit in terms  
17 of cash flow from depreciation. If the Company is fairly compensated, the intervenors'  
18 proposal does not seem as beneficial to customers.

19 **D. THE COST OF CAPITAL IS LIKELY TO INCREASE IF THE INTERVENORS'**  
20 **PROPOSAL IS ADOPTED**

21 **Q31. Please explain briefly why you believe that the Company's cost of capital would**  
22 **increase if the intervenors' proposal were adopted.**

23 A31. There are two reasons why the cost of capital is likely to increase. First, investor  
24 uncertainty will increase because this proposal opens the door to reversing or revising  
25 previous Commission decisions for periods already past. No Commission decision will  
26 be seen as final. Second, the Company has plans for substantial capital investment going  
27 forward, in particular its planned new nuclear generation. The reduction of cash flow  
28 over the next four years means that the Company will have to go to the capital markets to

1 acquire the funds necessary for its capital investment program to replace the lost cash  
2 flow from the intervenors' proposal as well as the additional funds necessary. This will  
3 result in higher transactions costs to acquire capital, because it will be necessary to  
4 acquire \$646 million more capital in the short term if the intervenors' proposal is adopted.  
5 Even more costly is likely to be the increase in the cost of capital for these new funds  
6 because the Company's credit metrics will be weakened compared to what they would  
7 have been without the depreciation reversal.

8 **Q32. If the Company's debt rating were not downgraded, will its cost of debt still**  
9 **increase?**

10 A32. Yes. Even if the Company's debt rating were not downgraded, its cost of debt is highly  
11 likely to increase because the reduction in cash flow will affect its credit ratios as Mr.  
12 Lawton acknowledges. All debt with a similar rating does not have the same yield.  
13 There are variances in the cost of debt based upon the underlying strength of the  
14 company even for companies with identical credit ratings. All else equal, a reduction in  
15 the strength of the Company's credit ratios will result in an increase in the cost of debt.

16 **Q33. Do you have other comments on the effect on the Company's financial integrity?**

17 A33. Yes. As acknowledged by Mr. Lawton,<sup>18</sup> Progress Energy's financial ratios will decline  
18 if the proposal were implemented. According to Mr. Lawton's calculations, which I have  
19 not verified, the cash flow from operations to debt ratio drops substantially and is near the  
20 bottom of the range for a BBB-rated entity even if none of the other suggested changes to  
21 PEF's requested revenue requirement were made. If any other of the intervenors'  
22 suggested reductions were implemented, the effect could easily be a ratio outside the  
23 BBB-range. Using Mr. Lawton's figures, the cash flow from operations-to-debt (before  
24 and after tax) as well as the cash flow from operations-to-interest ratio will be below the  
25 BBB-range if the Company's request with the OPC's rate of return adjustments is  
26 implemented. It is important to note that the ratios that are below the BBB-range, by Mr.

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<sup>18</sup> Lawton Exhibit DJL-5 p. 1 of 2.

1 Lawton's calculations, are the cash flow ratios which are the most important ratios for  
2 rating purposes. As Standard & Poor's ("S&P") has said "Cash is King."<sup>19</sup> Solid cash  
3 flows are more important today than just a few years ago.

4 **Q34. Why is an impact on cash flow ratios especially important in today's environment?**

5 A34. There are at least two reasons why cash flows have become extremely important. First,  
6 the current economic environment increases the uncertainty of utilities' cash flows  
7 because the revenue stream may be more uncertain than usual and access to capital  
8 markets is more challenging. Second, Progress Energy, like many other utilities, has  
9 committed to investing in its infrastructure and will therefore need solid financial metrics  
10 to attract capital on reasonable terms.

11 **Q35. What is the importance of PEF's credit metric?**

12 A35. PEF needs to maintain its access to capital market under reasonable terms, and as S&P  
13 points out, cash flow is vital to ensure access. For example, many of the key ratios used  
14 by S&P in its evaluation of utilities are linked to cash flow,<sup>20</sup> and S&P recently opined  
15 that in times of financial turmoil,

16 ... a financial position, featuring strong debt service coverage and  
17 liquidity, can temporarily insulate utilities from each of these financial  
18 challenges.<sup>21</sup>

19 Debt costs have increased more for lower rated utilities than for higher rated utilities, so  
20 the costs associated with a weaker credit metric could be substantial. For example, recent  
21 yield data indicate that the cost of BBB- rated utility debt has increased substantially  
22 more than the cost of BBB+ utility debt. However, the most important reason to maintain  
23 solid debt coverage and cash flow is to ensure PEF's ability to maintain its access to

---

<sup>19</sup> Standard & Poor's, "Corporate Ratings Criteria," 2008 p. 46.

<sup>20</sup> See, for example, Standard & Poor's, "Corporate Ratings Criteria," 2008 p. 52.

<sup>21</sup> Standard & Poor's RatingsDirect, "U.S. Public Power Outlook: 2009 Could Provide Some Shocks," January 20, 2009, p. 5.

1 capital markets in times when liquidity and market access remain fragile.<sup>22</sup> In Moody's  
2 view, "the biggest near-term challenge [for utilities] is the need to maintain adequate  
3 sources of liquidity."<sup>23</sup>

4 The Lawton Testimony acknowledges the importance of credit ratios. He calculates and  
5 provides four cash-based ratios in his exhibit DJL-5 but fails to acknowledge that the  
6 intervenors' proposal regarding the depreciation reserve variance in combination with  
7 any of a number of other intervenor proposals would result in PEF's credit metrics being  
8 below those required for an investment grade credit rating.

9 **Q36. Please elaborate on the impact of the challenging economic environment.**

10 A36. During times of financial crisis access to capital markets becomes more restrictive  
11 because investors require a higher return for any given level of risk. This happened in the  
12 U.S. in the summer and early fall of 2007 and also in the fall of 2008 as the amount of  
13 funds available to companies was reduced. Investors expect a return that is equal to the  
14 return on comparable risk investments. As the financial metrics of a company weaken,  
15 the required return increases because the company is perceived to be riskier. Cash flow is  
16 of utmost importance for bond holders, so stable and adequate cash flows are crucial for a  
17 company that seeks to raise debt capital on reasonable terms. In the current environment,  
18 the difference between the cost of debt for A-rated and BBB-rated utilities has increased.  
19 As the BBB-range is broad and lower rated utilities face a higher cost of debt, a decline in  
20 cash flow credit ratios could easily impact the cost of debt for the Company. An equally  
21 important consideration is the access to capital. In times of crisis, financial markets are  
22 more volatile, and access to credit is more limited. When the access to credit becomes  
23 limited, companies with weaker credit metrics are more affected than those with stronger  
24 credit metrics. It is therefore imperative that the Company maintains sufficiently strong  
25 credit ratios such that the Company can attract debt capital on reasonable terms. If

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<sup>22</sup> See, for example, FitchRatings, "U.S. Utilities, Power and Gas 2009 Outlook," December 22, 2008, p. 2.

<sup>23</sup> EUCI, "Utility Credit Risk," presented by Moody's, February 25, 2009. Quote from brochure.

1 adopted, the intervenors' proposals would dangerously weaken the Company's credit  
2 metrics.

3 **Q37. Please summarize this section.**

4 A37. The Company's cost of debt and equity will both likely increase if the intervenors'  
5 proposal is adopted. The cost of debt will increase somewhat because the Company's  
6 credit ratios will be weakened, and the cost of equity will increase because of the  
7 heightened uncertainty regarding the possibility that previous Commission decisions  
8 could be reversed for historical periods. Finally, the Company will experience additional  
9 transaction costs to acquire additional capital to replace the cash flow lost if the proposal  
10 is adopted.

11 **E. THE INTERVENORS' PROPOSAL IS NOT SOUND REGULATORY POLICY**

12 **Q38. Please explain why you believe that the adoption of the intervenors' proposal is not**  
13 **sound regulatory policy.**

14 A38. There are at least four reasons why the intervenors' proposal is not sound regulatory  
15 policy. First, there is no other regulatory precedent supporting the proposal to reverse  
16 depreciation expense already recovered from customers. Second, the proposal is counter  
17 to GAAP. Third, the policy creates a small set of winners (i.e., customers over the next  
18 four years) at the expense of all past and future customers, and fourth, the intervenors'  
19 proposal is an application of 20-20 hindsight which will create unnecessary regulatory  
20 uncertainty.

21 **Q39. Please discuss the fourth objection, the application of 20-20 hindsight.**

22 A39. All regulatory decisions are made in the context of the information available at the time  
23 of the decision. The estimated lives and net salvage parameters and depreciation rates  
24 that have subsequently resulted in the estimated depreciation reserve variance were  
25 approved by the Commission based upon the best information available at the time. In  
26 the Company's current depreciation study, the estimated lives of some generating assets



1 have been increased and other depreciation estimates (e.g., average remaining life, net  
2 salvage) have changed with additional experience and information over the four years  
3 since the last depreciation study, but that information was not available to the  
4 Commission when it made its previous decisions. Obviously, forecasts almost never  
5 exactly match actual outcomes, so a policy that recommends reviewing the outcome of  
6 past decisions and modifying them to match actual outcomes will result in endless debate  
7 about past decisions.

8 Moreover, there is no guarantee that the increase in the estimated lives of the assets that,  
9 in part, generated the depreciation reserve variance, will actually come to pass. It is not  
10 hard to imagine new regulations on the emission of carbon dioxide that could limit the  
11 useful lives of coal plants. Likewise, a similar reduction in life of older nuclear plants  
12 could occur.<sup>24</sup> If the lives were shortened, the excess depreciation reserve would quickly  
13 be reduced or disappear. Of course, regulators today have no way to know whether  
14 shortened lives will occur just as past regulators had no way to know that the current  
15 estimates of the useful lives of the assets would be increased. Any proposal that relies  
16 upon 20-20 hindsight is ill advised.

17 **Q40. Do you agree with Mr. Pous' claim that the risk that the estimated lives of the**  
18 **generating plants will be shorter than current forecast is small?**

19 **A40.** As I noted at the outset, I am not critiquing the depreciation studies of either the  
20 Company or the intervenors; however, as a matter of logic, the fact that there may be a  
21 low probability of a shorter life does not mean that there is a zero probability. Moreover,  
22 it is precisely because the future is unknown today that the depreciation reserve variance  
23 arose in the first place. Events unexpected today could result in the estimated lives of the  
24 generating plants being further revised, either longer or shorter, in future depreciation  
25 studies.

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<sup>24</sup> In fact the testimony of Mr. Jacob Pous, on p. 37, cites an example from the testimony of Mr. Earl Robinson of AUS Consultants who performed the depreciation study for the Company. If approval for the life extension for the Crystal River nuclear generating plant is not received from the Nuclear Regulatory Commission, the reserve variance will largely disappear overnight.

1 **III. IMPACT OF CURRENT ECONOMIC TURMOIL ON THE COST OF CAPITAL**

2 **Q41. What is the topic of this section of your testimony?**

3 A41. This section addresses the effect of the current economic situation on the cost of capital.  
4 Any proposal that weakens the Company's credit metrics during a time of market  
5 uncertainty and an increase in investor risk aversion should be carefully considered for its  
6 likely effect on the Company's cost of capital.

7 **Q42. Please summarize the effect of current economic conditions on the cost of capital.**

8 A42. The current economic situation in the U.S., as well as most of the rest of the world, is  
9 very uncertain for investors. Economic growth has slowed, and it is now negative in  
10 many countries. Stock markets worldwide have lost substantial value. In the U.S., for  
11 example, the S&P 500 fell more than 50 percent from its peak at the end of 2007, and the  
12 volatility of the index increased dramatically. (See Figures 2 and 3 below.) The likely  
13 result of the increased uncertainty is that investors' risk aversion has increased, which, in  
14 turn, means that the cost of capital is higher today than in the recent past.

15 **Q43. What do you mean by the term investor "risk aversion"?**

16 A43. Risk aversion is simply the recognition that investors dislike risk. A fundamental tenet of  
17 investing is that investors face a risk-return tradeoff in selecting from among the various  
18 investment options. Risk-averse investors can only be induced to accept more risk if the  
19 expected return is higher. When investors' risk aversion increases, the expected return  
20 (sometimes called the required return) increases for any level of risk.<sup>25</sup> In other words,  
21 the market risk premium ("MRP"), the premium required for an average risk stock, is  
22 higher today than it was in the recent past.

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<sup>25</sup> Academic articles frequently use the term "coefficient of risk aversion" in conjunction with an assumption regarding investors' utility functions. In this testimony, I am using the term in a more generic sense.

1 **Q44. What evidence do you have that investors' risk aversion has increased?**

2 A44. A number of readily observable factors indicate an increase in investors' risk aversion.  
 3 Unprecedented defaults in debt instruments that had previously been highly rated (AA or  
 4 A), such as collateralized debt obligations and mortgage-backed securities, and the fall in  
 5 value of most securities caused investors to seek investments that would preserve the  
 6 value of their investments. As a result, there has been a "flight to safety" by investors  
 7 seeking to maintain the value of their investments. In general, investors perceive bonds  
 8 as less risky (safer) than equity and government bonds as safer than corporate bonds. As  
 9 a result, the demand for bonds, particularly government debt, has increased substantially.  
 10 In fact, at what *may* have been the height of the crisis, the yield on U.S. Treasury bills  
 11 actually fell below zero!<sup>26</sup> The flight to safety had two other results. First, the yield  
 12 spread between corporate bonds and government bonds has increased dramatically.  
 13 Although the yield spreads have declined somewhat from their highest levels, they  
 14 remain high by historical standards as can be seen in Table 3 below.

**Table 3**

Spreads between US Utility Bonds (20 year maturity) and US Government Bonds (20 year maturity) (in percentage)			
Periods	A-Rated Utility and Government Bonds	BBB-Rated Utility and Government Bonds	Notes
Period 1 - Average Mar-2002 - Dec-2007	1.05	1.43	[1]
Period 2 - Average Aug-2008 - Aug-2009	2.38	3.26	[2]
Period 3 - Average Aug-2009	1.37	1.88	[3]
Period 4 - Average 15-Day (Jul. 31, 2009 to Aug. 24, 2009)	1.33	2.05	[4]
Spread Increase between Period 2 and Period 1	1.33	1.83	[5] = [2] - [1].
Spread Increase between Period 3 and Period 1	0.32	0.45	[6] = [3] - [1].
Spread Increase between Period 4 and Period 1	0.28	0.62	[7] = [4] - [1].

Source:  
 Spreads for the periods are calculated from Bloomberg's yield data.  
 Average monthly yields for the indices were retrieved from Bloomberg as of August 25, 2009.

15 Second, the stock market plummeted in value as investors attempted to move out of  
 16 investments considered risky and into those of lower risk. Increased risk aversion

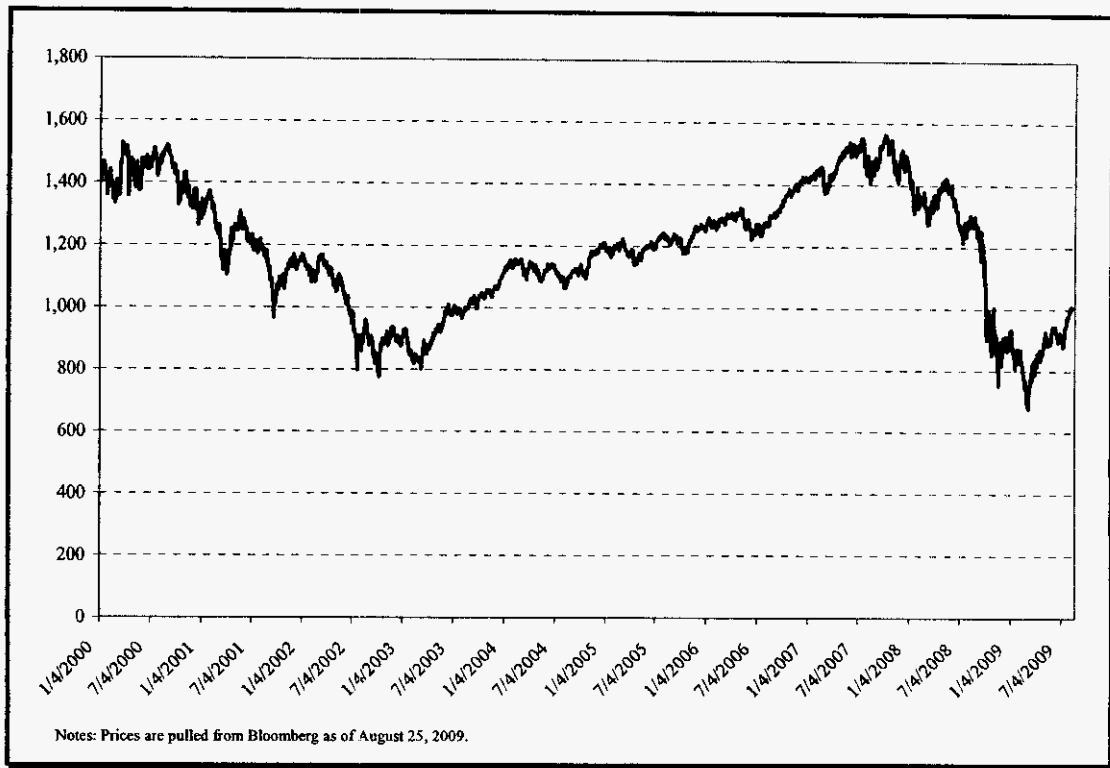
<sup>26</sup> "Treasury Bills Trade at Negative Rates as Haven Demand Surges", by Daniel Kruger and Cordell Eddings, *Bloomberg*, December 9, 2008.

1 translates into a requirement for an investment to provide a higher expected return for a  
2 given level of risk. Under such circumstances, prices of investments fall until investors  
3 can again expect to earn their (now higher) required rate of return. Of course, part of the  
4 fall in prices is the result of a fall in expected cash flows, but it is also the result of  
5 increased risk aversion as indicated by the differential decrease in investments of  
6 different risk. It is only recently that the market has begun to recover some of its lost  
7 value.

8 **Q45. How different is the overall economic environment now compared to other time**  
9 **periods in which you have testified?**

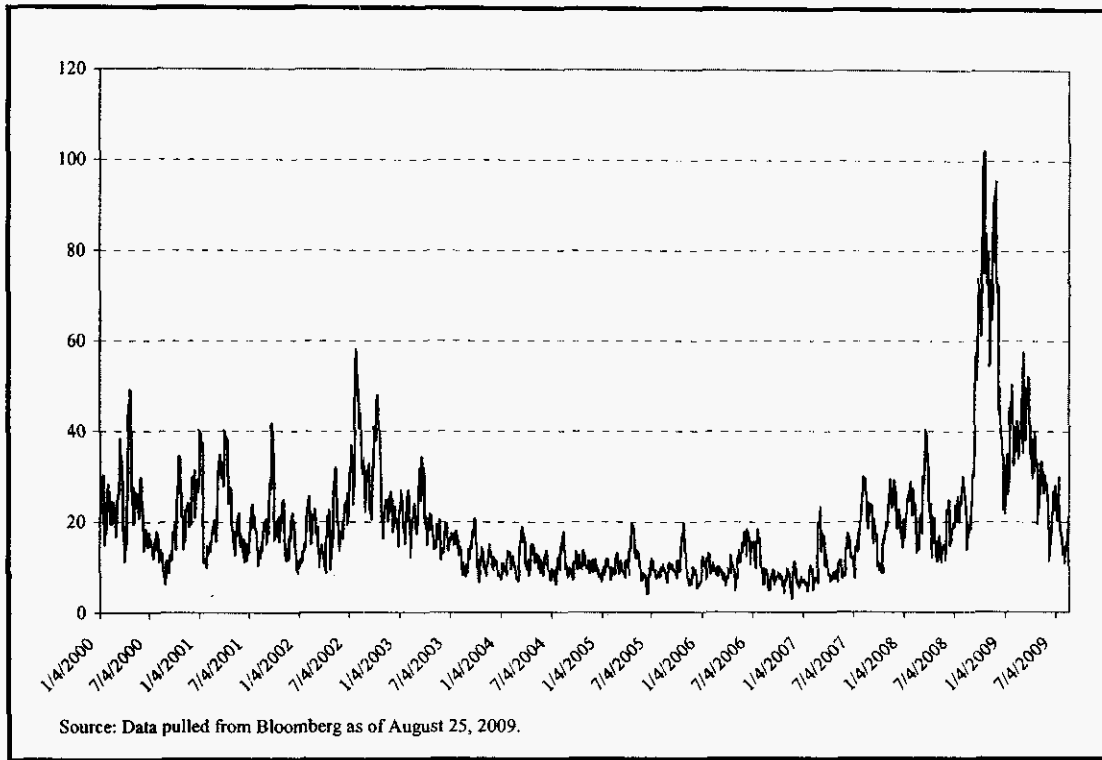
10 A45. We now live in a very different economic environment compared to one or two years  
11 ago. The U.S. and world economies are in a state of recession triggered by the deep  
12 financial crisis that emerged from the housing bubble and from financial institutions' use  
13 of sophisticated structures that concealed the true risk faced by the investors. Stock  
14 markets are down, market volatility and the spread on corporate debt is high, and for  
15 most firms it has become extremely hard to gain access to external financing on  
16 reasonable terms.

17 More specifically, as Figure 2 below indicates, the S&P 500 index is down by  
18 approximately 27 percent compared to mid-2008 which is a recovery from its lowest  
19 point.



**Figure 2 Daily S&P 500 Index Prices from January 2000 to August 2009.**

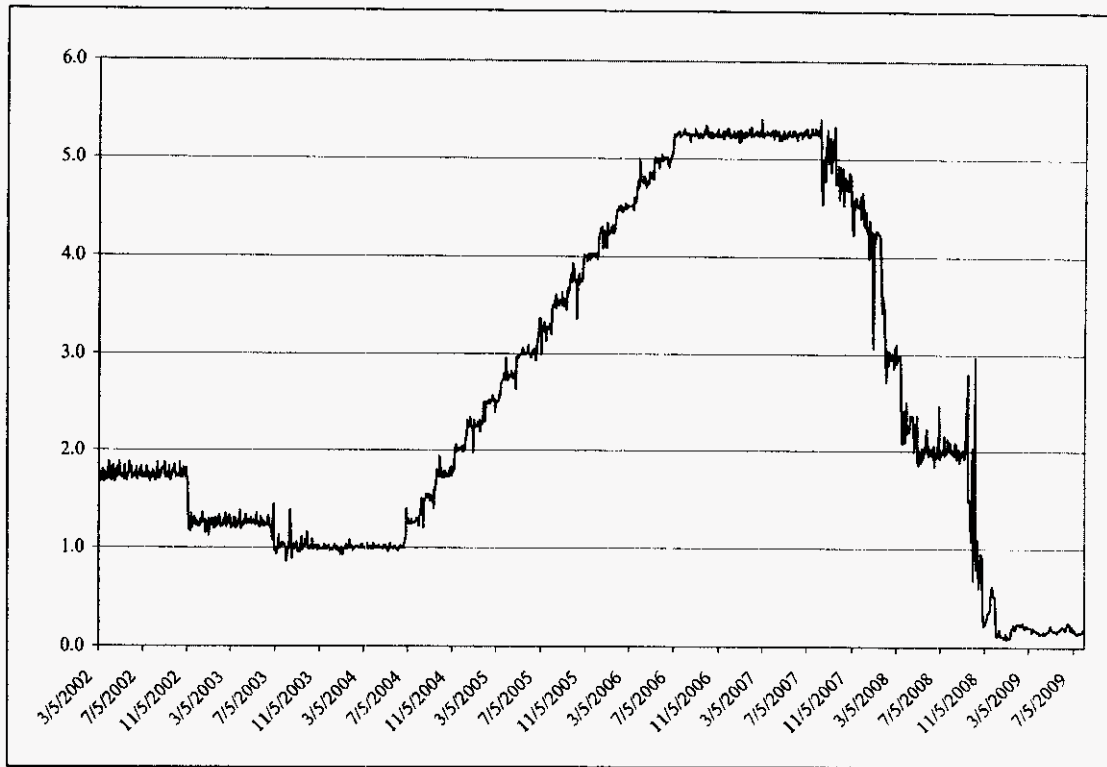
1 Figure 3 below displays the market volatility, measured by the 10-day rolling volatility  
2 on the S&P 500 index, over the period beginning in 2000 through August, 2009.



**Figure 3 S&P 500 Index's Annualized 10-Day Rolling Volatility from January 2000 to August 2009**

1       Until relatively recently, average volatility was in the 20 percent range, but it spiked to  
2       over 100 percent in late 2008. Although volatility has decreased somewhat over the last  
3       several months, it is still somewhat higher than the average value for the 2003 to 2007  
4       period.

5       The Federal Reserve's efforts to stimulate spending via interest rate cuts have resulted in  
6       the drop of the federal funds rate as indicated in Figure 4 below. The yield on Treasury  
7       bills is also at extraordinarily low levels with yields close to zero.



**Figure 4 Federal Funds Effective Rate – January 2000 to August 2009**

1 The lower yields on government debt, however, have not translated into lower yields on  
2 corporate debt (including the yields on investment grade utility bonds). As Figure 5  
3 shows, the spreads over Treasury bonds for long-term A and BBB utility debt have  
4 declined but remain somewhat higher than before the credit crisis. Figure 6 displays the  
5 yields on A and BBB-rated utility debt relative to government bond yields.

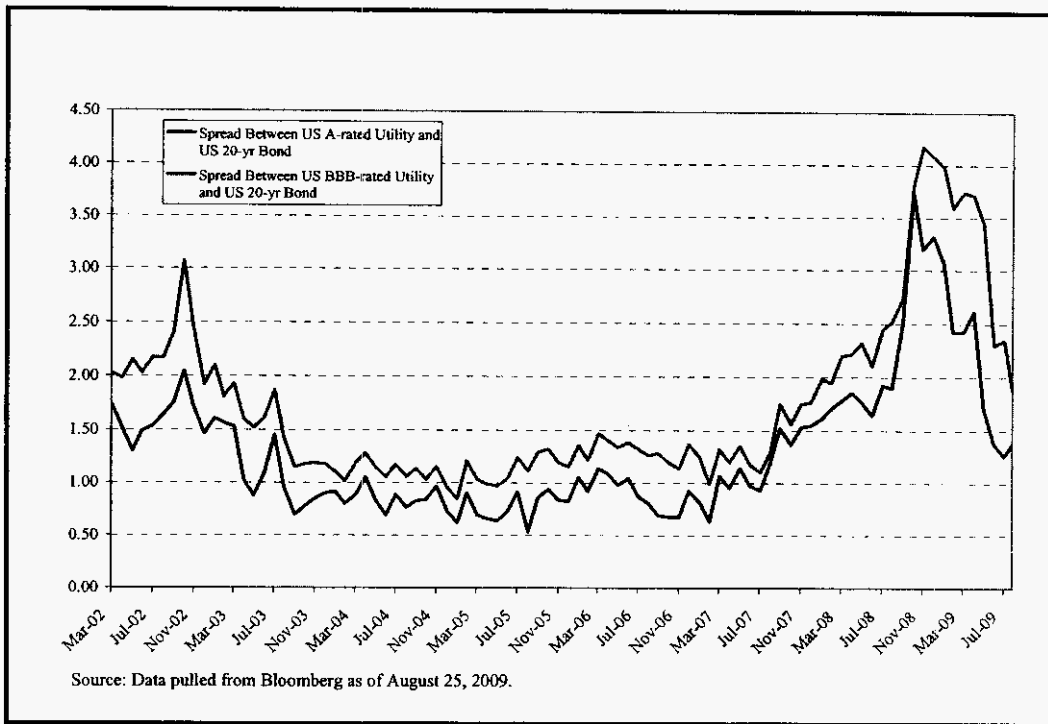


Figure 5 Spread between US 20-Year Treasury Bond Yields and US 20-Year Utility Bond Yields

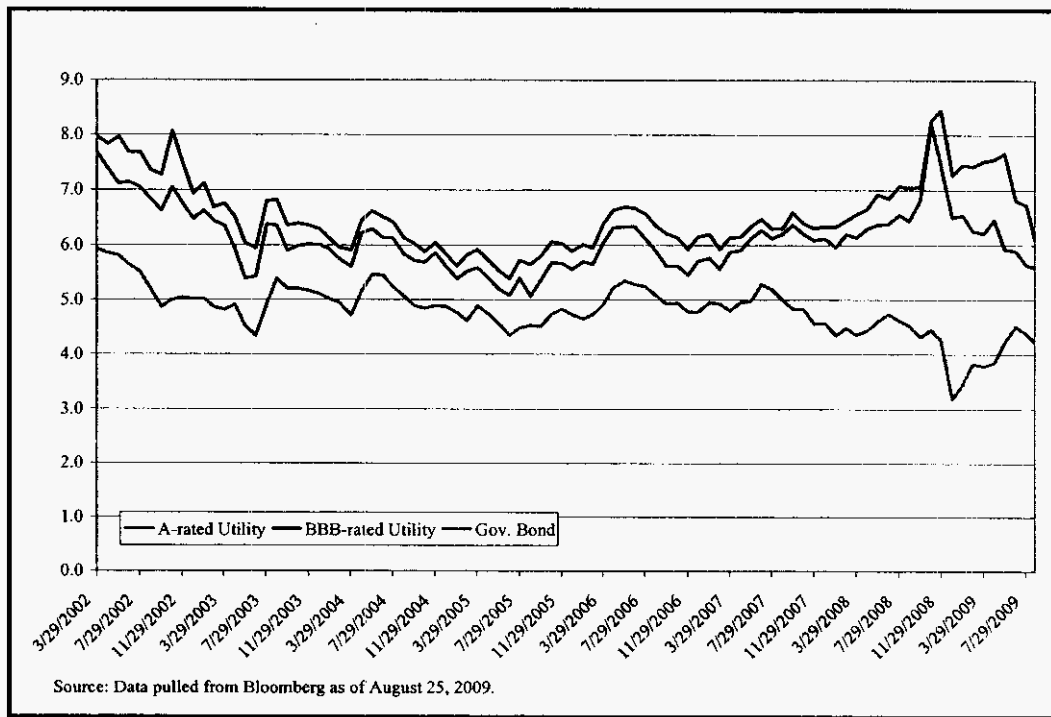


Figure 6 US Bond Yields from January 2002 to August 2009



1 **Q46. Is the increase in investors' risk aversion from current economic conditions likely to**  
2 **be a temporary or permanent change?**

3 A46. It is likely that some of the increase in risk aversion stems from the chaotic market  
4 conditions and will, I hope, be transitory in nature. There is, however, a strong  
5 possibility that there will also be a longer-term and perhaps permanent effect as market  
6 participants draw conclusions from the crisis on the fundamental risk-return  
7 characteristics of investment alternatives.

8 **Q47. If some of the increase in the cost of capital is likely to be temporary, why should the**  
9 **Commission still take the increased cost of capital into consideration when judging**  
10 **the appropriateness of the intervenors' proposal?**

11 A47. Although I believe that some of the increase in the MRP is likely to be temporary, it is  
12 very difficult to predict when the capital markets will return to more normal conditions,  
13 so it is difficult to predict when the market cost of risk will return to more normal levels.  
14 Even when market conditions are more normal, investors' risk aversion may remain  
15 higher well into the recovery period until their confidence fully returns. The federal  
16 government seems to recognize investors' fears, and it has signaled that it intends to  
17 overhaul the financial regulatory environment in order to restrict the behavior by  
18 financial institutions that led to the current crisis. While the success or failure of those  
19 actions are unlikely to be observed in the short- to medium-term, in the long run these  
20 measures may help alleviate investors concerns. However, it could easily be years before  
21 investors regain the confidence prevailing prior to the current crisis. In fact, there may be  
22 a "permanent" adjustment in risk tolerance now that investors realize that severe  
23 economic conditions are still possible even with the increased tools to manage the  
24 economy available to government. Therefore, I recommend that the Commission  
25 recognize the increased cost of capital stemming from the current market conditions  
26 makes adoption of the intervenors' proposal particularly risky at the current time.

1 **Q48. Aren't the recent low realized returns on the market index a clear indication that**  
2 **market participants are willing to accept a lower expected return on their**  
3 **investments?**

4 A48. Absolutely not. To the contrary – market values have been falling in order to allow an  
5 increase in the expected returns on investment. As risk aversion increases, *expected*  
6 *returns* must increase in order to induce investors to buy, so prices must fall. In other  
7 words, realized returns over the last few months are not indicative of investors' required  
8 rate of return. Investors have undoubtedly been disappointed recently. Bond investors  
9 are familiar with this process. As the general level of interest rates in the economy  
10 increases, the market price of a bond will decrease so that the yield-to-maturity will  
11 increase to the level required by the market. The same phenomenon occurs with equities  
12 as well. When the required return on investment increases, market prices must fall.

13 **Q49. What do you conclude from the evidence on current economic conditions?**

14 A49. The cost of capital is much higher today than in the relatively recent past. Although  
15 some of the increase in the MRP will, I hope, reverse when stable economic conditions  
16 return, it may be many years before investors' regain the level of confidence that will  
17 result in an MRP as low as immediately before the crisis. The intervenors'  
18 recommendation on depreciation will increase investor uncertainty and will increase the  
19 Company's cost of capital. The current conditions in the capital markets potentially  
20 make such a policy particularly costly.

#### 21 IV. CONCLUSIONS

22 **Q50. Please summarize your conclusions with regard to the intervenors' proposal to**  
23 **reverse the estimated amount of the Company's depreciation reserve variance.**

24 A50. The intervenors' proposal to reverse the depreciation expense already recovered from  
25 customers should be rejected by the Commission. Under fair regulation, the present  
26 value of the cash flows from a faster or slower rate of depreciation is offset by a lower or

1 higher return on rate base so that customers are automatically protected against changes  
2 in the estimation of the useful life of assets purchased to provide them service and other  
3 depreciation parameters. There is a timing difference in the cash flows from depreciation  
4 rates that turn out to be higher or lower than required. So some customers may turn out  
5 to have paid more or less than required during some period of time, but customers as a  
6 group are fully protected.

7 In this case, rate payers are likely to be worse off if the Commission were to adopt the  
8 intervenors' proposal because at a minimum transaction costs associated with acquiring  
9 new capital to finance planned capital investments will be higher. In addition, the  
10 proposal increases investor uncertainty and weakens the Company's credit metrics both  
11 of which are likely to increase its cost of capital. Debt costs will increase due to weaker  
12 credit ratios, and equity costs will increase due to heightened investor uncertainty  
13 regarding the permanence of previous regulatory decisions. If adopted, customers would  
14 also trade a temporarily lower rate for a higher long term rate and more variability in  
15 rates. In addition, although the proposal is justified on the basis of intergenerational  
16 fairness, the proposal itself creates intergenerational unfairness in that customers over the  
17 next four years receive a benefit at the expense of future customers and those historical  
18 customers no longer on the system.

19 **Q51. Does this conclude your testimony?**

20 A51. Yes.

21

Rebuttal Testimony of  
Michael J. Vilbert

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**Appendix A**

Michael Vilbert is an expert in cost of capital, financial planning and valuation who has advised clients on these matters in the context of a wide variety of investment and regulatory decisions. He has testified or submitted testimony on cost of capital, economic damages, the business purpose and economic substance of tax related transactions, valuation of assets in arbitration and the effect of regulatory policy changes on the cost of capital.

He received his Ph.D. in Financial Economics from the Wharton School of the University of Pennsylvania, an MBA from the University of Utah, an M.S. from the Fletcher School of Law and Diplomacy, Tufts University, and a B.S. degree from the United States Air Force Academy. He joined The Brattle Group in 1994 after a career as an Air Force officer, where he served as a fighter pilot, intelligence officer, and professor of finance at the Air Force Academy.

**REPRESENTATIVE CONSULTING EXPERIENCE**

- § Dr. Vilbert served as the consulting expert in several cases for the U.S. Department of Justice and the Internal Revenue Service regarding the business purpose and economic substance of a series of tax related transactions. These projects required the analysis of a complex series of financial transactions including the review of voluminous documentary evidence and required expertise in financial theory, financial market as well as accounting and financial statement analysis.
- § In a securities fraud case, Dr. Vilbert designed and created a model to value the private placement stock of a drug store chain as if there had been full disclosure of the actual financial condition of the firm. He analyzed key financial data and security analysts' reports regarding the future of the industry in order to recreate pro forma balance sheet and income statements under a variety of scenarios designed to establish the value of the firm.
- § For pharmaceutical companies rebutting price-fixing claims in antitrust litigation, Dr. Vilbert was a member of a team that prepared a comprehensive analysis of industry profitability. The analysis replicated, tested and critiqued the major recent analyses of drug costs, risks and returns. The analyses helped develop expert witness testimony to rebut allegations of excess profits.
- § For an independent electric power producer, Dr. Vilbert created a model that analyzed the reasonableness of rates and costs filed by a natural gas pipeline. The model not only duplicated the pipeline's rates, but it also allowed simulation of a

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variety of “what if” scenarios associated with cost recovery under alternative time patterns and joint cost allocations. Results of the analysis were adopted by the intervenor group for negotiation with the pipeline.

- § For the CFO of an electric utility, Dr. Vilbert developed the valuation model used to support a stranded cost estimation filing. The case involved a conflict between two utilities over the responsibility for out-of-market costs associated with a power purchase contract between them. In addition, he advised and analyzed cost recovery mechanisms that would allow full recovery of the stranded costs while providing a rate reduction for the company’s rate payers.
  
- § Dr. Vilbert has testified as well as assisted in the preparation of testimony and the development of estimation models in numerous cost of capital cases for natural gas pipeline, water utility and electric utility clients before the Federal Energy Regulatory Commission (“FERC”) and state regulatory commissions. These have spanned standard estimation techniques (e.g., Discounted Cash Flow and Risk Positioning models). He has also developed and applied more advanced models specific to the industries or lines of business in question, e.g., based on the structure and risk characteristics of cash flows, or based on multi-factor models that better characterize regulated industries.
  
- § Dr. Vilbert has valued several large, residual oil-fired generating stations to evaluate the possible conversion to natural gas or other fuels. In these analyses, the expected pre- and post-conversion station values were computed using a range of market electricity and fuel cost conditions.
  
- § For a major western electric utility, Dr. Vilbert helped prepare testimony that analyzed the prudence of QF contract enforcement. The testimony demonstrated that the utility had not been compensated in its allowed cost of capital for major disallowances stemming from QF contract management.
  
- § Dr. Vilbert analyzed the economic need for a major natural gas pipeline expansion to the Midwest. This involved evaluating forecasts of natural gas use in various regions of the United States and the effect of additional supplies on the pattern of natural gas pipeline use. The analysis was used to justify the expansion before the FERC and the National Energy Board of Canada.
  
- § For a Public Utility Commission in the Northeast, Dr. Vilbert analyzed the auction of an electric utility’s purchase power agreements to determine whether the outcome of the auction was in the ratepayers’ interest. The work involved the analysis of the auction procedures as well as the benefits to ratepayers of transferring risk of the PPA

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payments to the buyer.

- § Dr. Vilbert led a team tasked to determine whether bridge tolls were "just and reasonable" for a non-profit port authority. Determination of the cost of service for the authority required estimation of the value of the authority's assets using the trended original cost methodology as well as evaluation of the operations and maintenance budgets. Investment costs, bridge traffic information and inflation indices covering a 75 year period were utilized to estimate the value of four bridges and a passenger transit line valued in excess of \$1 billion.
- § Dr. Vilbert helped a recently privatized railroad in Brazil develop an estimate of its revenue requirements, including a determination of the railroad's cost of capital. He also helped evaluate alternative rate structures designed to provide economic incentives to shippers as well as to the railroad for improved service. This involved the explanation and analysis of the contribution margin of numerous shipper products, improved cost analysis and evaluation of bottlenecks in the system.
- § For a utility in the Southeast, Dr. Vilbert quantified the company's stranded costs under several legislative electric restructuring scenarios. This involved the evaluation of all of the company's fossil and nuclear generating units, its contracts with Qualifying Facilities and the prudence of those QF contracts. He provided analysis concerning the impact of securitizing the company's stranded costs as a means of reducing the cost to the ratepayers and several alternative designs for recovering stranded costs.
- § For a recently privatized electric utility in Australia, Dr. Vilbert evaluated the proposed regulatory scheme of the Australian Competition and Consumer Commission for the company's electric transmission system. The evaluation highlighted the elements of the proposed regulation which would impose uncompensated asymmetric risks on the company and the need to either eliminate the asymmetry in risk or provide additional compensation so that the company could expect to earn its cost of capital.
- § For an electric utility in the Southwest, Dr. Vilbert helped design and create a model to estimate the stranded costs of the company's portfolio of Qualifying Facilities and Power Purchase contracts. This exercise was complicated by the many variations in the provisions of the contracts that required modeling in order to capture the effect of changes in either the performance of the plants or in the estimated market price of electricity.
- § Dr. Vilbert helped prepare the testimony responding to a FERC request for further

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comments on the appropriate return on equity for electric transmission facilities. In addition, Dr. Vilbert was a member of the team that made a presentation to the FERC staff on the expected risks of the unbundled electric transmission line of business.

- § Dr. Vilbert and Mr. Frank C. Graves, also of The Brattle Group, prepared testimony evaluating an innovative Canadian stranded cost recovery procedure involving the auctioning of the output of the province's electric generation plants instead of the plants themselves. The evaluation required the analysis of the terms and conditions of the long-term contracts specifying the revenue requirements of the plants for their entire forecasted remaining economic life and required an estimate of the cost of capital for the plant owners under this new stranded cost recovery concept.
- § Dr. Vilbert served as the neutral arbitrator for the valuation of a petroleum products tanker. The valuation required analysis of the Jones Act tanker market and the supply and demand balance of the available U.S. constructed tanker fleet.
- § Dr. Vilbert evaluated the appropriate "bareboat" charter rate for an oil drilling platform for the renewal period following the end of a long-term lease. The evaluation required analysis of the market for oil drilling platforms around the world including trends in construction and labor costs and the demand for platforms in varying geographical environments.

## PRESENTATIONS

"Utility Distribution Cost of Capital," *EEI Electric Rates Advanced Course*, Bloomington, IN, 2002, 2003.

"Issues for Cost of Capital Estimation," with Bente Villadsen, *Edison Electric Institute Cost of Capital Conference*, Chicago, IL, February 2004.

"Not Your Father's Rate of Return Methodology," *Utility Commissioners/Wall Street Dialogue*, NY, May 2004.

"Utility Distribution Cost of Capital," *EEI Electric Rates Advanced Course*, Madison, WI, July 2004.

"Cost of Capital Estimation: Issues and Answers," *MidAmerican Regulatory Finance Conference*, Des Moines, IA, April 7, 2005.

"Cost of Capital - Explaining to the Commission - Different ROEs for Different Parts of the

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Business," *EEI Economic Regulation & Competition Analysts Meeting*, May 2, 2005.

"Current Issues in Cost of Capital," with Bente Villadsen, *EEI Electric Rates Advanced Course*, Madison, WI, 2005.

"Current Issues in Estimating the Cost of Capital," *EEI Electric Rates Advanced Course*, Madison, WI, 2006, 2007, 2008.

"Revisiting the Development of Proxy Groups and Relative Risk Analysis," Society of Utility and Regulatory Financial Analysts: 39<sup>th</sup> Financial Forum, April 2007.

"Current Issues in Explaining the Cost of Capital to Utility Commissions" Cost of Capital Seminar, Philadelphia, PA, 2008.

"Impact of the Ongoing Economic Crisis on the Cost of Capital of the U.S. Utility Sector", New York Public Service Commission, Albany, NY, April 20, 2009.

"Impact of the Ongoing Economic Crisis on the Cost of Capital of the U.S. Utility Sector", National Association of Water Companies: New York Chapter, Albany, NY, May 21, 2009

## ARTICLES

"Flaws in the Proposed IRS Rule to Reinstate Amortization of Deferred Tax Balances Associated with Generation Assets Reorganized in Industry Restructuring," by Frank C. Graves and Michael J. Vilbert, white paper for *Edison Electric Institute* (EEI) to the IRS, July 25, 2003.

"The Effect of Debt on the Cost of Equity in a Regulatory Setting," by A. Lawrence Kolbe, Michael J. Vilbert, Bente Villadsen and The Brattle Group, *Edison Electric Institute*, April 2005.

"Measuring Return on Equity Correctly: Why current estimation models set allowed ROE too low," by A. Lawrence Kolbe, Michael J. Vilbert and Bente Villadsen, *Public Utilities Fortnightly*, August 2005.

"Understanding Debt Imputation Issues," by Michael J. Vilbert, Bente Villadsen and Joseph B. Wharton, *Edison Electric Institute*, August 2008.



Rebuttal Testimony of  
Michael J. Vilbert

**TESTIMONY**

Direct and rebuttal testimony before the Alberta Energy and Utilities Board on behalf of TransAlta Utilities Corporation in the matter of an application for approval of its 1999 and 2000 generation tariff, transmission tariff, and distribution revenue requirement, October 1998.

Direct testimony before the Federal Energy Regulatory Commission on behalf of Central Maine Power in Docket No. ER00-982-000, December 1999.

Direct testimony before the Alberta Energy and Utilities Board on behalf of TransAlta Utilities Corporation for approval of its 2001 transmission tariff, May 2000.

Direct testimony before the Federal Energy Regulatory Commission on behalf of Mississippi River Transmission Corporation in Docket No. RP01-292-000, March 2001.

Written evidence, rebuttal, reply and further reply before the National Energy Board in the matter of an application by TransCanada PipeLines Limited for orders pursuant to Part I and Part IV of the *National Energy Board Act*, Order AO-1-RH-4-2001, May 2001, Nov. 2001, Feb. 2002.

Written evidence before the Public Utility Board on behalf of Newfoundland & Labrador Hydro - Rate Hearings, October 2001.

Direct testimony (with William Lindsay) before the Federal Energy Regulatory Commission on behalf of DTE East China, LLC in Docket No. ER02-1599-000, April 2002.

Direct and rebuttal reports before the Arbitration Panel in the arbitration of stranded costs for the City of Casselberry, FL, Case No. 00-CA-1107-16-L, July 2002.

Direct reports before the Arbitration Board for Petroleum products trade in the Arbitration of the Military Sealift Command vs. Household Commercial Financial Services, fair value of sale of the Darnell, October 2002.

Direct testimony and hearing before the Arbitration Panel in the arbitration of stranded costs for the City of Winter Park, FL, In the Circuit Court of the Ninth Judicial Circuit in and for Orange County, FL, Case No. C1-01-4558-39, December 2002.

Direct testimony before the Federal Energy Regulatory Commission on behalf of Florida Power Corporation, dba Progress Energy Florida, Inc. in Docket No. SC03-1-000, March 2003.

Direct report before the Arbitration Panel in the arbitration of stranded costs for the Town of Belleair, FL, Case No. 000-6487-C1-007, April 2003.

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Direct and rebuttal reports before the Alberta Energy and Utilities Board in the matter of the Alberta Energy and Utilities Board Act, R.S.A. 2000, c. A-17, and the Regulations under it; in the matter of the Gas Utilities Act, R.S.A. 2000, c. G-5, and the Regulations under it; in the matter of the Public utilities Board Act, R.S.A. 2000, c. P-45, as amended, and the Regulations under it; and in the matter of Alberta Energy and Utilities Generic Cost of Capital Hearing, Proceeding No. 1271597, July 2003, November 2003.

Written evidence before the National Energy Board in the matter of the National Energy Board Act, R.S.C. 1985, c. NB7, as amended, (Act) and the Regulations made under it; and in the matter of an application by TransCanada PipeLines Limited for orders pursuant to Part IV of the *National Energy Board Act*, for approval of Mainline Tolls for 2004, RH-2-2004, January 2004.

Direct and rebuttal testimony before the Public Service Commission of West Virginia, on Cost of Capital for West Virginia-American Water Company, Case No 04-0373-W-42T, May 2004.

Direct and rebuttal testimony before the Federal Energy Regulatory Commission on Energy Allocation of Debt Cost for Incremental Shipping Rates for Edison Mission Energy, Docket No. RP04-274-000, December 2004 and March 2005.

Direct testimony before the Arizona Corporation Commission, Cost of Capital for Paradise Valley Water Company, a subsidiary of Arizona-American Water Company, Docket No. WS-01303A-05, May 2005.

Written evidence before the Ontario Energy Board, Cost of Capital for Union Gas Limited, Inc., Docket No. EB-2005-0520, January 2006.

Direct and rebuttal testimony before the Pennsylvania Public Utility Commission, Return on Equity for Metropolitan Edison Company, Docket No. R-00061366 and Pennsylvania Electric Company, Docket No. R-00061367, April 2006 and August 2006.

Expert report in the United States Tax Court, Docket No. 21309-05, 34th Street Partners, DH Petersburg Investment, LLC and Mid-Atlantic Finance, Partners Other than the Tax Matters Partner, Petitioner, v. Commissioner of Internal Revenue, Respondent, July 28, 2006.

Direct and supplemental testimony before the Federal Energy Regulatory Commission, Docket No. ER06-427-003, on behalf of Mystic Development, LLC on the Cost of Capital for Mystic 8 and 9 Generating Plants Operating Under Reliability Must Run Contract, August 2006 and September 2006.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER07-46-000, on behalf of Northwestern Corporation on the Cost of Capital for Transmission Assets, October 2006.

Rebuttal Testimony of  
Michael J. Vilbert

Direct and rebuttal testimony before the Tennessee Regulatory Authority, Case No. 06-00290, on behalf of Tennessee American Water Company, on the Cost of Capital, November, 2006 and April 2007.

Direct and rebuttal testimony before the Public Service Commission of Wisconsin, Docket No. 5-UR-103, on behalf of Wisconsin Energy Corporation, on the Cost of Capital for Wisconsin Electric Power Company and Wisconsin Gas LLC, May 2007 and October 2007.

Rebuttal testimony before the California Public Utilities Commission, Docket No. A. 07-01-036-39, on behalf of California-American Water Company, on the Cost of Capital, May 2007.

Direct testimony before the Public Utilities Commission of the State of South Dakota, Docket No. NG-07-013, on behalf of NorthWestern Corporation, on the Cost of Capital for NorthWestern Energy Company's natural gas operations in South Dakota, June 2007.

Direct, supplemental and rebuttal testimony before the Public Utilities Commission of Ohio, Case No. 07-551-EL-AIR, Case No. 07-552-EL-ATA, Case No. 07-553-EL-AAM, and Case No. 07-554-EL-UNC, on behalf of Ohio Edison Company, The Toledo Edison Company, and The Cleveland Electric Illuminating Company, on the cost of capital for the FirstEnergy Company's Ohio electric distribution utilities, June 2007, January 2008 and February 2008.

Direct testimony before the Public Service Commission of West Virginia, Case No. 07-0998-W-42T, on behalf of West Virginia American Water Company on cost of capital, July 2007.

Direct and rebuttal testimony before the State Corporation Commission of Virginia, Case No. PUE-2007-00066, on behalf of Virginia Electric and Power Company on the cost of capital for its southwest Virginia coal plant, July 2007 and December 2007.

Direct and Supplemental testimony before the Public Utilities Commission of Ohio, Case No. 07-829-GA-AIR, Case No. 07-830-GA-ALT, and Case No. 07-831-GA-AAM, on behalf of Dominion East Ohio Company, on the rate of return for Dominion East Ohio's natural gas distribution operations, September 2007 and June 2008.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER08-92-000 to Docket No. ER08-92-003, on behalf of Virginia Electric and Power Company, on the Cost of Capital for Transmission Assets, October 2007.

Direct and rebuttal testimony before the California Public Utilities Commission, Docket No. A. 07-01-022, on behalf of California-American Water Company, on the Effect of a Water Revenue Adjustment Mechanism on the Cost of Capital, October 2007 and November 2007.

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Michael J. Vilbert

Written direct and reply evidence before the National Energy Board in the matter of the National Energy Board Act, R.S.C. 1985, c. NB7, as amended, and the Regulations made thereunder; and in the matter of an application by Trans Québec & Maritimes PipeLines Inc. for orders pursuant to Part I and Part IV of the *National Energy Board Act*, for determining the overall fair return on capital for tolls charged by TQM, December 2007 and September 2008.

Comments in support of The Interstate Natural Gas Association of America's Additional Initial Comments on the FERC's Proposed Policy Statement with regard to the Composition of Proxy Companies for Determining Gas and Oil Pipeline Return on Equity, Docket No. PL07-2-000, December, 2007.

Direct and rebuttal testimony on the Cost of Capital before the Tennessee Regulatory Authority, Case No. 08-00039, on behalf of Tennessee American Water Company, March and August 2008.

Post-Technical Conference Affidavit on behalf of The Interstate Natural Gas Association of America in response to the Reply Comments of the State of Alaska with regard the FERC's Proposed Policy Statement on to the Composition of Proxy Companies for Determining Gas and Oil Pipeline Return on Equity, Docket No. PL07-2-000, March, 2008

Direct and rebuttal testimony before the California Public Utilities Commission, Docket No. A.08-05-003, on behalf of California-American Water Company, concerning Cost of Capital, May 2008 and August 2008.

Rebuttal testimony on the financial risk of Purchased Power Agreements, before the Public Utilities Commission of the State of Colorado, Docket No. 07A-447E, in the matter of the application of Public Service Company of Colorado for approval of its 2007 Colorado Resource Plan, June 2008.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. RP08-426-000, on behalf of El Paso Natural Gas Company, on the Cost of Capital for Natural Gas Transmission Assets, June 2008.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER08-1207-000, on behalf of Virginia Electric and Power Company, on the incentive Cost of Capital for investment in New Electric Transmission Assets, June 2008

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER08-1233-000, on behalf of Public Service Electric and Gas Company, on the Cost of Capital for Electric Transmission Assets, July 2008.

Direct and rebuttal testimony before the Public Service Commission of West Virginia, Case No. 08-0900-W-42t, on behalf of West Virginia-American Water Company concerning the Cost of Capital

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for Water Utility assets, July 2008 and November 2008.

Direct and rebuttal testimony before the Public Utilities Commission of Ohio, Case No. 08-935-EL-SSO, on behalf of Ohio Edison Company, The Toledo Edison Company, and The Cleveland Electric Illuminating Company, with regard to the test to determine Significantly Excessive Earnings within the context of Senate Bill No. 221, September 2008 and October 2008.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER09-249-000, on behalf of Public Service Electric and Gas Company, on the incentive Cost of Capital for Mid-Atlantic Power Pathway Electric Transmission Assets, November 2008.

Direct and rebuttal testimony before the Public Service Commission of West Virginia, Case No. 08-1783-G-PC, on behalf of Dominion Hope Gas Company concerning the Cost of Capital for Gas Local Distribution Company assets, November 2008 and May 2009.

Written Evidence before the Alberta Utilities Commission in the matter of the Alberta Utilities Commission Act, S.A. 2007, c. A-37.2, as amended, and the regulations made thereunder; and IN THE MATTER OF the Gas Utilities Act, R.S.A. 2000, c. G-5, as amended, and the regulations made thereunder; and IN THE MATTER OF the Public Utilities Act, R.S.A. 2000, c. P-45, as amended, and the regulations made thereunder; and IN THE MATTER OF Alberta Utilities Commission 2009 Generic Cost of Capital Hearing, Application No. 1578571/Proceeding No. 85. 2009 Generic Cost of Capital Proceeding on behalf of NGTL, November 2008.

Written and Reply Evidence before the Alberta Utilities Commission in the matter of the Alberta Utilities Commission Act, S.A. 2007, c. A-37.2, as amended, and the regulations made thereunder; and IN THE MATTER OF the Gas Utilities Act, R.S.A. 2000, c. G-5, as amended, and the regulations made thereunder; and IN THE MATTER OF the Public Utilities Act, R.S.A. 2000, c. P-45, as amended, and the regulations made thereunder; and IN THE MATTER OF Alberta Utilities Commission 2009 Generic Cost of Capital Hearing, Application No. 1578571/Proceeding No. 85. 2009 Generic Cost of Capital Proceeding for AltaGas Utilities Inc., November 2008 and May 2009.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER09-548-000, on behalf of ITC Great Plains, LLC, on the Cost of Capital for Electric Transmission Assets, January 2009.

Direct testimony before the Federal Energy Regulatory Commission, Docket No. ER09-681-000, on behalf of Green Power Express, LLP, on the Cost of Capital for Electric Transmission Assets, February 2009.

Written evidence before the Régie de l'Énergie on behalf of Gaz Métro Limited Partnership, Cause Tarifaire 2010, R-3690-2009, on the Cost of Capital for natural gas transmission assets, May 2009.

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Direct testimony before the Public Service Commission of Wisconsin, Docket No. 6680-UR-117, on behalf of Wisconsin Power and Light Company, on the cost of capital for electric and natural gas distribution assets, May 8, 2009.

Direct testimony before State of New Jersey Board of Public Utilities in the Matter of the Petition of Public Service Electric and Gas Company for Approval of an Increase in Electric and Gas Rates and for Changes in the Tariffs for Electric and Gas Service, B.P.U.N.J. No. 14 Electric and B.P.U.N.J No. 14 Gas Pursuant to N.J.S.A. 48:2-21 and N.J.S.A. 48:2-21.1 and for Approval of a Gas Weather Normalization Clause; a Pension Expense Tracker and for other Appropriate Relief BPU Docket No. \_\_\_\_, June 2009.