

**FILE**

**BEFORE  
THE PUBLIC UTILITIES COMMISSION OF OHIO**

In The Matter of the Application of Duke Energy Ohio, Inc. for an Increase in Electric Distribution Rates	) ) )	Case No. 08-709-EL-AIR
In the Matter of the Application of Duke Energy Ohio, Inc. for Tariff Approval	) ) )	Case No. 08-710-EL-ALT
In the Matter of the Application of Duke Energy Ohio, Inc. for Approval to Change Accounting Methods	) ) )	Case No. 08-711-EL-AAM

**SUPPLEMENTAL DIRECT TESTIMONY OF**

**ROGER A. MORIN**

**ON BEHALF OF**

**DUKE ENERGY OHIO, INC.**

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_____	Management policies, practices, and organization
_____	Operating income
_____	Rate Base
_____	Allocations
<u>  x  </u>	Rate of return
_____	Rates and tariffs
_____	Other

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**INDEX**

Supplemental testimony addressing rate of return on common equity recommendations in the Staff Report.

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**I. INTRODUCTION AND PURPOSE**

1 **Q. PLEASE STATE YOUR NAME, ADDRESS, AND OCCUPATION.**

2 A. My name is Dr. Roger A. Morin. My business address is Georgia State University,  
3 Robinson College of Business, University Plaza, Atlanta, Georgia, 30303. I am Emeritus  
4 Professor of Finance at the College of Business, Georgia State University and Professor of  
5 Finance for Regulated Industry at the Center for the Study of Regulated Industry at Georgia  
6 State University. I am also a principal in Utility Research International, an enterprise  
7 engaged in regulatory finance and economics consulting to business and government.

8 **Q. DID YOU FILE DIRECT TESTIMONY IN THIS PROCEEDING ON BEHALF OF**  
9 **DUKE ENERGY OHIO INC. (“DE-OHIO” OR THE “COMPANY”)?**

10 A. Yes, I did.

11 **Q. WHAT IS THE PURPOSE OF YOUR SUPPLEMENTARY TESTIMONY?**

12 A. The purpose of my supplementary testimony is to discuss the Company’s Objection No. 3  
13 and respond to the rate of return on common equity recommendation contained in Staff’s  
14 Report of Investigation and Summary of Major Issues (“Report”), filed on January 27,  
15 2009.

16 **II. DISCUSSION OF ISSUES AND OBJECTIONS TO THE STAFF REPORT**

17 **Q. PLEASE SUMMARIZE STAFF’ RATE OF RETURN RECOMMENDATION.**

18 A. Staff recommends that the Public Utility Commission of Ohio (“Commission”) grant DE-  
19 Ohio a Return on Equity (“ROE”) allowance in the range of 10.12% - 11.14%. In  
20 determining DE-Ohio’s cost of common equity capital, Staff applies a multi-stage  
21 Discounted Cash Flow (“DCF”) analysis to a group of seven electric utilities. For the  
22 growth component of the DCF analysis, Staff relies on a growth rate derived from analysts’

1 growth forecasts. As shown on page 16, the comparable group DCF estimates average  
2 12.56%, exclusive of flotation costs.

3 Staff also applies a Capital Asset Pricing Model ("CAPM") to the same group of  
4 companies, using an average of 10-year and 30-year Treasury bond yields as proxies for the  
5 risk-free rate. For the beta component, Staff relies on beta estimates provided by Value  
6 Line. Staff's estimate of the market risk premium ("MRP") component of the CAPM is  
7 based on the historical MRP estimate over the 1930-2007 period published by Morningstar  
8 (formerly Ibbotson Associates). A CAPM cost of equity estimate of only 8.30% results  
9 from this procedure.

10 Applying equal weight to the DCF result of 12.56% and the CAPM result of 8.30%,  
11 the average result is 10.43%, as shown on page 16 of the Report. Using a 100 basis points  
12 range of uncertainty, the cost of equity estimates becomes 9.93% to 10.93%. Applying a  
13 factor for flotation costs, the cost of common equity range results in a recommendation of  
14 10.12% to 11.14%.

15 **Q. PLEASE SUMMARIZE YOUR GENERAL REACTION TO STAFF'S REPORT.**

16 A. I stress from the start that I agree with several of Staff's views and procedures. I agree  
17 broadly with: (i) the use of several methodologies in estimating a fair ROE, (ii) Staff's  
18 proxy group of companies in the DCF and CAPM analyses, although I have some concern  
19 with the very small size of the sample group, (iii) the inputs to the non-constant growth  
20 DCF analysis, and (iv) the magnitude of the risk-free rate in the CAPM analysis. I disagree  
21 with the weight accorded to the CAPM results during this time of financial crisis and with  
22 one of Staff's inputs in the CAPM analysis, namely the MRP estimate. I also disagree with  
23 the magnitude of Staff's flotation cost adjustment.

1 Applying the proper weight to the CAPM result and allowing for the proper MRP  
2 input in the CAPM analysis, Staff's recommended ROE range is quite consistent with my  
3 own recommendation of 11.25%. At the very least, Staff should recommend the upper end  
4 of its range.

5 I have the following specific comments on Staff's analysis:

6 **1. CAPM and the Financial Crisis.** I believe much less weight should be accorded to the  
7 CAPM results under the present financial circumstances of extreme volatility and  
8 uncertainty.

9 **2. CAPM Market Risk Premium (MRP).** Staff's MRP is understated because it relies  
10 on total bond returns rather than on the income component of bond returns.

11 **3. CAPM and the Empirical CAPM (ECAPM).** The plain vanilla version of the CAPM  
12 is known to understate return requirements for companies with beta estimates less than 1.0,  
13 such as utility companies.

14 **4. Flotation Costs.** Staff's estimates of equity costs are understated by approximately 10  
15 basis points to the extent that the market pressure component of flotation costs is ignored.

16 **A. CAPM AND THE CURRENT FINANCIAL CRISIS**

17 **Q. WHAT IS THE IMPACT OF THE ONGOING FINANCIAL CRISIS ON**  
18 **UTILITIES' COST OF CAPITAL?**

19 **A.** In a nutshell, it has increased markedly. During the past six months, capital markets in the  
20 U.S. have been more volatile than at any time since the 1930s. Investors have witnessed  
21 unprecedented large swings in the stock market and unprecedented corporate interest rate  
22 spreads in the debt markets. Many large financial institutions were unable to survive as  
23 independent institutions and others have required multibillion dollar capital infusions.

1           The spreads between the yields on utility debt and U.S. Treasury securities have  
2 increased markedly. Not only have single-A utility interest rates increased significantly  
3 since the commencement of the financial crisis, but also single-A spreads for utility  
4 companies have increased to above 300 basis points, which is some three times higher than  
5 the spreads that existed little more than a year ago. In short, increased risk aversion and  
6 market illiquidity have resulted in significantly higher borrowing costs for corporations,  
7 including DE-Ohio. In the current environment, investors' return expectations and  
8 requirements for providing capital to the utility industry remain high relative to the longer-  
9 term traditional view of the utility industry.

10 **Q. HOW IMPORTANT IS IT THAT DE-OHIO MAINTAIN A STRONG CAPITAL**  
11 **STRUCTURE DURING THE CURRENT MARKET CRISIS?**

12 A. It is extremely important that utilities maintain a strong equity ratio in their capital structure  
13 in order to access capital in this time of market volatility and financial uncertainty for the  
14 reasons I just discussed. This risk in turn supports a greater equity to debt ratio to attract  
15 investors, than the hypothetical capital structure proposed in the Staff's Report. A greater  
16 equity percentage will help to mitigate the risks perceived by potential investors due to the  
17 current market instability.

18 **Q. HOW HAVE REGULATORY COMMISSIONS REACTED TO CHANGING**  
19 **MARKET AND INDUSTRY CONDITIONS?**

20 A. Over the past five years, allowed equity returns have generally followed interest rate  
21 changes. During 2008, allowed rates did increase from the lowest levels of 2006 and 2007.  
22 Of course, these historical averages cannot reflect the recent extreme market volatility. The  
23 table below summarizes the overall average ROEs allowed for electric utilities since 2004:

1 **Electric Utility Allowed Returns 2004-2008**

	<u>2004</u>	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Average Allowed Return	10.75%	10.54%	10.36%	10.36%	10.46%
Average Utility Debt Cost	6.20%	5.67%	6.07%	6.12%	6.65%
Average Risk Premium	4.55%	4.87%	4.29%	4.24%	3.81%

Source: *Regulatory Focus*, SNL Energy (formerly Regulatory Research Associates, Inc.)  
Major Rate Case Decisions, January 2009.

2 Since 2004, the allowed equity risk premiums have ranged from 3.81% to 4.87%. At the  
3 low end of this range, based on average single-A utility interest rates for the three months  
4 ended January 2009 of approximately 7%, the indicated cost of equity is 10.81% (7.00% +  
5 3.81% = 10.81%). At the upper end of this range, the indicated cost of equity is 11.87%  
6 (7.00% + 4.87% = 11.87%). One would think that the upper end of the range is applicable  
7 under the current financial crisis conditions. These estimates based on myriad regulatory  
8 awards do not reflect current market turbulence.

9 **Q. HOW MUCH WEIGHT SHOULD BE ACCORDED TO THE CAPM RESULTS**  
10 **UNDER CURRENT MARKET CIRCUMSTANCES?**

11 A. Staff accords equal weight to the CAPM and DCF results. I believe much less weight  
12 should be accorded to the CAPM results under present economic circumstances for four  
13 reasons. First, the CAPM estimates in the single-digit are barely above the corporate cost  
14 of debt (7% - 8%) and are therefore suspect. Second, because the betas employed in the  
15 CAPM analysis are estimated over five-year historical periods, the impact of the ongoing  
16 financial crisis is not yet fully captured in the five-year historical betas. Third, government  
17 interest rates have decreased substantially following the Federal Reserve's expansionary  
18 policies designed to jumpstart the stalled economy, thus lowering the CAPM results. At  
19 the same time, the cost of corporate debt and the cost of equity for electric utilities have

1 increased significantly, as evidenced by the record high corporate yield spreads discussed  
2 earlier, and by the DCF results for utilities that have increased by some 150-200 basis  
3 points in response to lower stock prices (higher dividend yields) following the financial  
4 crisis.

5 This anomaly between actual market costs and the estimation techniques used in  
6 this proceeding puts the Company at significant financing risk. As such, much less weight  
7 should be accorded to this method at present. As I mentioned above, there is a fundamental  
8 structural upward shift in risk aversion as capital markets are re-pricing risk, and capital has  
9 become, and will continue to be, more expensive for all market participants, including DE-  
10 Ohio, over the next 18-24 months at least.

11 Fourth, as discussed in my direct testimony, it is well known that the plain vanilla  
12 version of the CAPM is known to understate return requirements for companies with beta  
13 estimates less than 1.0, such as utility companies.

14 For all these reasons, much less weight should be placed on Staff's CAPM results.

#### 15 **B. CAPM MARKET RISK PREMIUM**

16 **Q. DO YOU AGREE WITH STAFF'S HISTORICAL MRP ESTIMATE?**

17 A. No, I do not. Staff estimates the MRP from historical data using the *total* return, rather  
18 than the *income* return, on government bonds.

19 **Q. HOW SHOULD THE HISTORICAL MRP BE ESTIMATED?**

20 A. The historical MRP should be estimated using the income component of total bond return.  
21 The historical MRP estimates of 6.5% used by Staff on Schedule D1.2 page 2 of the Report  
22 was drawn from Morningstar's Valuation 2008 Year Book. Over the period 1926 through  
23 2007, Morningstar's study estimated that the market risk premium is 6.5%.

1 But, as I discussed in my direct testimony, the more accurate way to estimate the  
2 market risk premium from historic data is to use the *income* return, not *total* returns, on  
3 government bonds. The long-term (1926-2007) MRP based on income returns, as required,  
4 is 7.1%, rather than 6.5%. The Morningstar publication on which Staff relies recommends  
5 use of the *income* return on government bonds as a more reliable estimate of the historical  
6 market risk premium because the income component of total bond return (*i.e.*, the coupon  
7 rate) is a better estimate of expected return than the total return (*i.e.*, the coupon rate +  
8 capital gain).<sup>1</sup> In other words, bond investors focus on income rather than realized capital  
9 gains/losses. This correction alone increases Staff's CAPM estimate by approximately 40  
10 basis points (the difference between 7.1% and 6.5% times Staff's beta of 0.70 shown on  
11 Schedule D-1.2 page 2, notwithstanding my earlier criticism of Staff's historical beta  
12 estimate.

### 13 **C. CAPM AND THE EMPIRICAL CAPM**

14 **Q. DO YOU AGREE WITH THE USE OF THE RAW FORM OF THE CAPM USED**  
15 **BY STAFF TO ESTIMATE THE COST OF CAPITAL?**

16 A. No, I do not. The plain vanilla version of the CAPM should be supplemented by the more  
17 refined version of the CAPM. There have been countless empirical tests of the CAPM to  
18 determine to what extent security returns and betas are related in the manner predicted by  
19 the CAPM. Chapter 6 of my book, The New Regulatory Finance, summarizes this  
20 extensive literature and provides additional statistical evidence that the risk-return  
21 relationship is flatter than that predicted by the CAPM. The results of the empirical tests  
22 support the idea that beta is related to security returns, that the risk-return tradeoff is  
23 positive, and that the relationship is linear. The contradictory finding is that the risk-return

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<sup>1</sup> See Ibbotson Associates, *Stocks, Bonds, Bills, and Inflation 2008 Yearbook: Valuation Edition* (2008).

1 tradeoff is not as steeply sloped as the predicted CAPM. That is, low-beta securities earn  
2 returns somewhat higher than the CAPM would predict, and high-beta securities earn less  
3 than predicted. This is one of the most well known results in finance. A CAPM-based  
4 estimate of cost of capital underestimates the return required from low-beta securities and  
5 overstates the return from high-beta securities based on the empirical evidence. The  
6 empirical form of the CAPM that I used in my testimony refines the standard form of the  
7 CAPM to account for this phenomenon.

8 For utility stocks with betas less than one, the CAPM understates the return. The  
9 understatement is particularly significant for low-beta securities, such as utilities. The  
10 empirical approximation to the CAPM that I utilize in my testimony is consistent with both  
11 theory and with a huge body of empirical evidence, including my own, and has the added  
12 advantage of computational simplicity.

13 The downward-bias inherent in the CAPM is particularly significant for low-beta  
14 securities, such as the vast majority of electric utilities. Staff' CAPM estimates of equity  
15 costs are understated by about 40 basis points from this bias alone.

#### 16 **D. FLOTATION COST**

17 **Q. WHAT FLOTATION COST TREATMENT DID STAFF RECOMMEND IN THIS**  
18 **CASE?**

19 **A.** Both Staff and I agree on the need for a flotation cost adjustment, but we disagree slightly  
20 on its magnitude. Staff recommends a generic flotation (issuance) cost allowance of 3.5%  
21 versus my recommended 5.0%. However, the 3.5% used by Staff does not include the  
22 indirect component of flotation cost, namely, the market pressure component, which would  
23 add another 1%-2% to the 3.5% estimate.



1 models to a large group of companies. Moreover, small samples are subject to  
2 measurement error, in violation of the Central Limit Theorem of statistics.<sup>2</sup> From a  
3 statistical standpoint, reliance on robust sample sizes mitigates the impact of possible  
4 measurement errors and vagaries in individual companies' market data. I believe that  
5 Staff's small sample size is deficient on those grounds. I believe that the culprit is Staff's  
6 requirement that the sample companies have a market capitalization of at least \$10 billion,  
7 which I believe to be unnecessarily excessive.

### 8 **III. CONCLUSIONS**

#### 9 **Q. WHAT IS YOUR MAJOR CONCLUSION FROM STAFF'S ROE** 10 **RECOMMENDATION?**

11 A. In the ongoing financial crisis, Staff has overweighted the importance of the CAPM results  
12 in arriving at its final ROE range recommendation. Coupled with an upward adjustment of  
13 10 basis points to account for the market pressure component of flotation costs and  
14 recognition of the appropriate MRP in the CAPM analysis, Staff's ROE estimates should  
15 be raised to the very upper end of its recommended range, namely, 11.14%. Moreover, the  
16 current market circumstances are anything but normal, and I consider the upper end of  
17 Staff's recommended range to be barebones and conservative.

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<sup>2</sup> The Central Limit Theorem (CLT) describes the characteristics of the distribution of values we would obtain if we were able to draw an infinite number of random samples of a given size from a given population and we calculated the mean of each sample. The CLT asserts: [1] The mean of the sampling distribution of means is equal to the mean of the population from which the samples were drawn. [2] The variance of the sampling distribution of means is equal to the variance of the population from which the samples were drawn divided by the size of the samples. [3] If the original population is distributed normally, the sampling distribution of means will also be normal. If the original population is not normally distributed, the sampling distribution of means will increasingly approximate a normal distribution as sample size increases.

1 Q. DOES THIS CONCLUDE YOUR SUPPLEMENTAL TESTIMONY?

2 A. Yes