BEFORE

THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Gas Rates.	)))	Case No. 12-1685-GA-AIR
In the Matter of the Application of Duke Energy Ohio, Inc., for Tariff Approval.	)))	Case No. 12-1686-GA-ATA
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval of an Alternative Rate Plan for Gas Distribution Service.	))))	Case No. 12-1687-GA-ALT
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Change Accounting Methods.	)))	Case No. 12-1688-GA-AAM

SUPPLEMENTAL DIRECT TESTIMONY OF

ROGER A. MORIN, Ph.D.

ON BEHALF OF

DUKE ENERGY OHIO, INC.

_____	Management policies, practices, and organization
_____	Operating income
_____	Rate Base
_____	Allocations
___X___	Rate of return
_____	Rates and tariffs
_____	Other:

February 25, 2013

TABLE OF CONTENTS

I.   INTRODUCTION AND SUMMARY

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

2   A.   My name is Mr. Roger A. Morin.   My business address is Georgia State

3   University, Robinson College of Business, University Plaza, Atlanta, Georgia,

4   30303. I am Emeritus Professor of Finance at the College of Business, Georgia

5   State University and Professor of Finance for Regulated Industry at the Center for

6   the Study of Regulated Industry at Georgia State University. I am also a principal

7   in Utility Research International, an enterprise engaged in regulatory finance and

8   economics consulting to business and government.

9   Q.   **DID YOU FILE DIRECT TESTIMONY IN THIS PROCEEDING ON**

10   **BEHALF OF DUKE ENERGY OF OHIO, INC. (DUKE ENERGY OHIO**

11   **OR COMPANY)?**

12 A.   Yes, I did.

13 Q.   **WHAT IS THE PURPOSE OF THIS SUPPLEMENTAL DIRECT**

14   **TESTIMONY?**

15 A.   I have been asked to respond to the rate of return on common equity (ROE)

16   recommendation of the Staff of the Public Utilities Commission of Ohio (Staff) in

17   this proceeding.

18 Q.   **PLEASE SUMMARIZE STAFF'S RECOMMENDED ROE.**

19 A.   Staff recommends a ROE for Duke Energy Ohio in the range of 8.82% to 9.84%.

20   Staff relies on a three-stage Discounted Cash Flow (DCF) analysis applied to a

21   group of five utilities.   As summarized on page 18 of its report, the DCF analysis

22   produced an average ROE of 10.24%.

1   Staff also applies a Capital Asset Pricing Model (CAPM) analysis to the

2   same group of companies. As summarized on page 18 of its report, the average

3   CAPM result for the group was only 5.9%, which is barely above the Company's

4   cost of debt. This latter result is clearly an outlier and either should be ignored

5   entirely or relies on erroneous input data.

6   Based on these results, and giving 75% weight to the DCF result of

7   10.24% and 25% weight to the CAPM result of 5.9%, Staff concludes that the

8   cost of common equity for Duke Energy Ohio is 9.6%.   Using a 100 basis points

9   range of uncertainty, the cost of common equity lies in a range of 8.66% to

10   9.66%.   Allowance for flotation costs brings Staff's final recommended range to

11   8.82% - 9.84%.

12 Q.   **DO YOU AGREE WITH STAFF'S RECOMMENDED CAPITAL**

13   **STRUCTURE?**

14 A.   Yes, I do.

15 Q.   **WHAT ARE YOUR GENERAL REACTIONS TO STAFF'S ROE**

16   **RECOMMENDATION?**

17 A.   My first reaction is that there are numerous areas of agreement between Staff and

18   myself. My second general reaction is that the ROE recommended by Staff: 1)

19   lies outside the zone of currently authorized ROEs for natural gas utilities, 2) is

20   derived from a very small group of comparable companies, and 3) understates an

21   appropriate ROE for Duke Energy Ohio.

| 1 | Q. | **HOW DOES STAFF'S RECOMMENDED ROE COMPARE WITH** |

1   Q.   **HOW DOES STAFF'S RECOMMENDED ROE COMPARE WITH**

2   **ALLOWED RETURNS IN THE NATURAL GAS UTILITY INDUSTRY?**

3   A.   I believe that Staff's recommended ROE range of 8.82% - 9.84% with a midpoint

4   of 9.33% lies outside the zone of currently authorized rates of return for natural

5   gas utilities in the United States. Currently allowed returns, while certainly not a

6   precise indication of any individual company's cost of equity capital, are

7   nevertheless important determinants of investor growth perceptions and investor-

8   expected returns. They also serve to provide some perspective on the validity and

9   reasonableness of Staff's recommendation.

10   Staff recommends an ROE below the average currently allowed ROE of

11   10.22% in 2011 and 10.36% in 2012 in the utility industry [as reported by SNL

12   (formerly Regulatory Research Associates), in its most recent survey of

13   regulatory decisions dated December 2012].

14   The average currently allowed ROE in the utility industry as reported in

15   the January 2013 edition of AUS Utility Reports is 10.44% in the combination gas

16   and electric utility industry, 10.54% in the electric utility industry, and 10.55% in

17   the gas utility industry. Of the 71 energy utilities covered monthly in AUS Utility

18   Reports, none but one have an allowed return as low as Staff's recommended

19   midpoint ROE of 9.33%. These authorized returns exceed by a significant margin

20   Staff's recommended ROE. Moreover, as shown on the table below, the currently

21   authorized ROE for Staff's five comparable companies averages 10.22%, which

22   again, is much higher than its recommended ROE for Duke Energy Ohio.

1   **Table 1   Authorized Returns**

Company	Allowed ROE
Dominion Resources	10.52
Duke Energy	10.57
Consolidated Edison.	9.93
Northeast Utilities	9.38
Xcel Energy	10.70
AVERAGE:	**10.22%**

2   Source: AUS Utility Reports 1/2013

3   In short, Staff's recommendation is outside the mainstream of the allowed

4   rates of return in the industry and lies outside the zone of recently authorized

5   returns for natural gas utilities and for its sample of companies.

6   Unreasonable rate treatment for a utility, if implemented, may have

7   serious public policy implications and repercussions.   For example, the quality of

8   regulation and the reasonableness of rate of return awards clearly have

9   implications for regulatory climate, economic development and job creation in a

10   given territory.   It is my belief that Staff's recommended return has negative

11   implications on these grounds for it provides a disincentive to investment in Ohio

12   and undermines the ability of Duke Energy Ohio to invest in the equipment and

13   other resources needed to operate a natural gas utility in Ohio.

14   Moreover, Staff's recommendation could potentially cause adverse

15   consequences on the Company's credit ratings, its financial integrity, the stock of

16   its parent company, the company's capital raising ability, and ultimately

17   ratepayers.   Maintaining the Company's strong investment-grade status decreases

18   borrowing costs, improves access to capital and the availability of longer-term

19   debt maturities, and enables the Company to absorb any negative volatility in its

1   financial performance. Maintaining a strong investment-grade bond rating will

2   have beneficial long-term cost implications for the Company and its customers as

3   the Company re-finances existing debt, issues new capital and enters into new

4   contractual arrangements. Clearly, Duke Energy Ohio's customers have a vested

5   interest in a strong financial position for the utility. The interests of customers

6   and shareholders are consistent, not mutually exclusive. They both benefit from a

7   financially sound utility. Staff's understated recommended ROE is detrimental

8   toward maintaining a strong investment-grade status and contrary to customers'

9   interests. Approval of the allowed 10.6% ROE that I have recommended will

10   buttress these goals and provide benefits to Duke Energy Ohio customers.

II.   COMPARABLE GROUP

11   **Q.   DO YOU AGREE WITH STAFF'S GROUP OF COMPARABLE**

12   **UTILITIES?**

13   A.   While I agree with the individual companies in the reference group, the group is

14   far too small, consisting of only five companies. In the current unstable industry

15   and uncertain macroeconomic environment, and for reasons of statistical

16   reliability, it is important to select relatively large sample sizes, as opposed to

17   small sample sizes consisting of a handful of companies. This is because the

18   utility industry capital market data is highly unstable at this time.   As a result of

19   this instability, the composition of small groups of companies is very fluid, with

20   companies exiting the sample due to dividend suspensions or reductions,

21   insufficient or unrepresentative historical data due to recent mergers, impending

22   merger or acquisition, and changing corporate identities due to restructuring

1   activities.

2   From a statistical standpoint, confidence in the reliability of the DCF

3   model result is considerably enhanced when applying the DCF model to a large

4   group of companies. Any distortions introduced by measurement errors in the

5   two DCF components of equity return for individual companies, namely dividend

6   yield and growth are mitigated. Utilizing a large portfolio of companies reduces

7   the chance of either overestimating or underestimating the cost of equity for an

8   individual company.   For example, in a large group of companies, positive and

9   negative deviations from the expected growth will tend to cancel out owing to the

10   law of large numbers, provided that the errors are independent[1].   The average

11   growth rate of several companies is less likely to diverge from expected growth

12   than is the estimate of growth for a single firm.   More generally, the assumptions

13   of the DCF model are more likely to be fulfilled for a large group of companies

14   than for any single firm or for a small group of companies.

III.   DCF ANALYSIS

15   **Q.   DOES STAFF EMPLOY A THREE-STAGE DCF METHOD?**

16   A.   Yes, it does.

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[1]   If σ_i^2 represents the average variance of the errors in a group of N companies, and σ_{ij} the average covariance between the errors, then the variance of the error for the group of N companies, σ_N^2 is:

$$\sigma_N^2 = \frac{1}{N}\overline{\sigma}_i^2 + \frac{N-1}{N}\overline{\sigma}_{ij}$$

If the errors are independent, the covariance between them (σ_{ij}) is zero, and the variance of the error for the group is reduced to:

$$\sigma_N^2 = \frac{1}{N}\sigma_i^2 \qquad \text{As N gets progressively larger, the variance gets smaller and smaller.}$$

| 1 | Q. | DO YOU AGREE WITH STAFF'S IMPLEMENTATION OF THE |
| | | THREE-STAGE DCF METHOD? |

2 THREE-STAGE DCF METHOD?

3 A. Yes, I do. I agree with Staff's implementation of the three-stage DCF method and

4 its choice of DCF growth proxies for all three stages.

IV.   CAPM ESTIMATES

5 Q. DOES STAFF EMPLOY CAPM ESTIMATES?

6 A. Yes. Staff performs a CAPM analysis summarized on page 17. The CAPM

7 analysis was applied to Staff's group of five utilities, and produced a ROE of only

8 5.9%, clearly an outlier.

9 Q. WHAT INPUT DATA DOES A CAPM ANALYSIS REQUIRE?

10 A. To implement the CAPM, three quantities are required: the risk-free rate (R_F),

11 beta (β), and the market risk premium, (R_M - R_F). As shown on page 17, Staff

12 used a risk-free rate of 2.255%, Value Line beta of 0.64, and a market risk

13 premium (MRP) of 5.7%. I discuss each of these inputs below.

V.   CAPM RISK-FREE RATE

14 Q. HOW DOES STAFF DERIVE ITS RISK-FREE RATE PROXY IN THE

15 CAPM ANALYSIS?

16 A. For its risk-free rate proxy, Staff relies on the average yield on 10-year and 30-

17 year U.S. Treasury bonds over the one-year period 9/30/11 – 9/28/12. The

18 averaged 10-year yield is 1.76% and the averaged 30-year yield is 2.75%. This

19 averages to 2.255% for the two.

| 1 | Q. | DR. MORIN, DO YOU AGREE WITH STAFF'S RISK-FREE RATE |
| | | ESTIMATE IN THE CAPM ANALYSIS? |

1   **Q.**   **DR. MORIN, DO YOU AGREE WITH STAFF'S RISK-FREE RATE**

2   **ESTIMATE IN THE CAPM ANALYSIS?**

3   A.   No, I do not for several reasons. First, only the yield on 30-year Treasury bonds

4   should be considered as a reasonable proxy. Second, the current yields on

5   Treasury bonds are anomalous at best. Third, and most importantly, the CAPM is

6   a forward-looking model and should rely on prospective interest rates rather than

7   on historical interest rates reaching back one year in time. Let me elaborate

8   further on these concerns.

9   **Q.**   **DO THE YIELDS ON 10-YEAR US TREASURY BONDS PROVIDE**

10   **ADEQUATE PROXIES OF THE RISK-FREE RATE FOR PURPOSES OF**

11   **IMPLEMENTING THE CAPM?**

12   A.   No, they do not. The appropriate proxy for the risk-free rate in the CAPM is the

13   return on the longest term Treasury bond possible. This is because common

14   stocks are very long-term instruments more akin to very long-term bonds. Since

15   common stock is a very long-term investment because the cash flows to investors

16   in the form of dividends last indefinitely, the yield on the longest-term possible

17   government bonds, that is the yield on 30-year Treasury bonds, is the best

18   measure of the risk-free rate for use in the CAPM. Moreover, utility asset

19   investments generally have very long-term useful lives and should

20   correspondingly be matched with very long-term maturity financing instruments.

21   Another reason for utilizing the longest maturity Treasury bond possible is

22   that common equity has an infinite life span, and the inflation expectations

23   embodied in its market-required rate of return will therefore be equal to the

		inflation rate anticipated to prevail over the very long term. The same expectation
1		
2		should be embodied in the risk-free rate used in applying the CAPM model. It
3		stands to reason that the yields on 30-year Treasury bonds will more closely
4		incorporate within their yields the inflation expectations that influence the prices
5		of common stocks than do short-term Treasury bills or intermediate-term U.S.
6		Treasury notes.

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2   should be embodied in the risk-free rate used in applying the CAPM model. It

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4   incorporate within their yields the inflation expectations that influence the prices

5   of common stocks than do short-term Treasury bills or intermediate-term U.S.

6   Treasury notes.

7   Among U.S. Treasury securities, 30-year Treasury bonds have the longest

8   term to maturity and the yields on such securities should be used as proxies for

9   the risk-free rate in applying the CAPM.

10   **Q.**   **WHAT INTEREST RATES SHOULD HAVE STAFF'S RELIED UPON AS**

11   **PROXIES FOR THE RISK-FREE RATE IN ITS CAPM ANALYSIS?**

12   A.   Staff's risk-free rate, which is based on history, is too low for purposes of

13   applying the CAPM and fails to reflect the projected increase in interest rates.

14   All of the interest rate forecasts that I am aware of point to significantly

15   higher interest rates over the next several years. The table below reports the

16   forecast yields on 30-year US Treasury bonds from three prominent sources:

17   Global Insight, Value Line, and Consensus Economics Inc.

30-YEAR TREASURY YIELD FORECASTS

	2014	2015	2016	2017
Global Insight	4.1	4.6	5.3	5.4
Value Line	3.4	4.0	4.5	
Consensus Economics Inc.	3.4	4.4	5.1	5.4
AVERAGE	**3.6**	**4.3**	**5.0**	**5.4**

1   Global Insight forecasts a yield of 4.1% in 2014, 4.6% in 2015, 5.3% in

2   2016, and 5.4 in 2017 and thereafter. Value Line's quarterly economic review for

3   November 2012 forecasts a yield of 3.4% in 2014, 4.0% in 2015, and 4.5 in 2016.

4   Consensus Economics Inc.'s October 2012 edition forecasts a yield of 3.4% in

5   2014 rising to 5.4% in 2017.[2] The average 30-year long-term bond yield forecast

6   from the three sources is 3.6% in 2014, 4.3% in 2015, 5.0% in 2016, and 5.4% in

7   2017. The average over the 2015-2017 period is 4.6%, which also matches the

8   Global Insight 2015 forecast. The rising yield forecasts are also consistent with

9   the sharply upward-sloping yield curve observed at this time. Based on this

10   consistent evidence, a long-term bond yield forecast of 4.6% is a reasonable

11   estimate of the expected risk-free rate for purposes of forward-looking CAPM

12   analysis in the current economic environment. I deem this estimate conservative

13   as interest rate forecasts call for even higher interest rates over the next several

14   years in response to record high federal deficits, higher anticipated inflation, and

15   eventual economic recovery.

16   In short, Staff's risk-free rate proxy of 2.255% is far too low and the

17   average forecast of 4.6% over the 2015-2017 period is far more relevant.

18   Investors price securities on the basis on long-term expectations, including

19   interest rates. As a result, Staff's CAPM estimate is understated 234 basis points

20    $(4.60\% - 2.26\% = 2.34\%)$ from this factor alone.

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[2]   Global Insight forecasts are for 30-year bonds, while both Value Line and Consensus Economics forecasts are for 10-year bonds. 50 basis points were added to the 10-year forecasts based on the historical 50 basis points spread between 10 and 30-year yields.

1 **Q.   DR. MORIN, WHY SHOULD THE CURRENT LEVEL OF INTEREST**

2   **RATES BE IGNORED IN DEVELOPING A PROXY FOR THE RISK-**

3   **FREE RATE IN A CAPM ANALYSIS?**

4 A.   It should be ignored for two reasons.   First, the CAPM is an *ex-ante,* or forward-

5   looking model based on expectations of the future.   As a result, in order to

6   produce a meaningful estimate of investors' required rate of return, the CAPM

7   must be applied using data that reflects the expectations of actual investors in the

8   market.   *Morningstar* (formerly Ibbotson Associates) recognized the primacy of

9   current expectations[3]:

10   *"The cost of capital is always an expectational or forward- looking*
11   *concept. While the past performance of an investment and other*
12   *historical information can be good guides and are often used to*
13   *estimate the required rate of return on capital, the expectations of*
14   *future events are the only factors that actually determine cost of*
15   *capital."*

16   Second, the CAPM estimate is calibrated from investors' required risk

17   premium between risk-free bonds and common stocks.   However, in response to

18   heightened uncertainties, following the 2008-2009 financial crisis, the continuing

19   sovereign debt crises in Europe, and the anemic economic recovery here at home,

20   investors have sought a safe haven in U.S. Treasury bonds, and this "flight to

21   safety" has pushed long-term government bond yields significantly lower while

22   yield spreads for corporate debt have widened.   This distortion suggests that

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[3]Morningstar, *Ibbotson SBBI, 2011 Valuation Yearbook* at 21.

1   investors' required risk premium for common stocks over government bonds has

2   also increased.

3   Lower interest rates on long-term US Treasury bonds do not necessitate a

4   commensurate decline in allowed ROEs. This point of view fails to take into

5   consideration several important and relevant factors. First, if the economy is

6   improving, the current low level interest rate environment is only temporary as

7   most interest rate forecasts attest, as shown earlier. Investors are aware that the

8   U.S. central bank (Federal Reserve) is temporarily suppressing interest rates to

9   encourage economic growth. Investors recognize that once central banks change

10   their expansive monetary strategy when the economy rebounds, interest rates

11   could increase quickly and borrowing costs could increase significantly.[4] In fact,

12   as I showed earlier, interest rate forecasts and the current shape of the yield curve

13   indicate an expected surge in interest rates. Second, the fact that long-term

14   government bond yields and utility bond yields are at historically low levels does

15   not demonstrate that the cost of equity is likewise at historically low levels.

16   Rather, the current low levels of long-term government bond yields are the result

17   of investors' continued risk aversion and a "flight to quality."[5]   Reduced interest

18   rates on safe investments do not necessarily mean that equity market risks have

19   decreased or that investors have materially reduced their return requirements.

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[4] Morgan Stanley posits that likewise, "regulators appear to view the current interest rate environment as unsustainable, and as an indication of market instability and a flight from riskier assets." Morgan Stanley Research, "Regulated Utilities," (Jan. 7, 2012) at 11.
[5] Flight to quality refers to a sudden shift in investment behaviors in a period of financial turmoil where investors seek to sell assets perceived as risky and instead purchase safe assets.

1   Despite the low interest rate climate, equity investors expect that their investments

2   in utilities will provide adequate returns. Morgan Stanley Research reports:

3   *While interest rates have fallen substantially, we believe regulators*
4   *will lower ROEs only modestly....Relative to the significant move*
5   *in Treasuries, the ROEs allowed by regulators have come down*
6   *modestly. In our opinion, this is due to the 'long view' nature of*
7   *utility regulators, as they prefer to set a return level indicative of*
8   *longer-term required return levels.*[6]

9   Recognizing the impact the U.S. Federal Reserve's unprecedented

10   intervention in the capital markets has had on the yields on long-term Treasury

11   bonds, I believe that models that relate the investor-required return on equity to

12   the yield on government securities, such as the CAPM approach, need to be

13   implemented cautiously and recalibrated in order to produce realistic estimates of

14   the ROE at this time.

15   "Flight to quality" can be shown graphically using the traditional CAPM

16   model. A security market line is the relationship between the expected rate of

17   return of a security and its systematic, non-diversifiable risk (beta). The initial

18   security market line (dashed line) on the graph below has a risk-free rate r_f and

19   market risk premium of *MRP*. In a time of market uncertainty, investors flee to

20   risk-free assets driving the price of r_f down to r_f*. However, the market's level of

21   uncertainty has increased driving the security market line *steeper* (dotted line).

22   As such, there is an increased market risk premium *(MRP)*. This is why we see

23   large risk premiums when interest rates are low as we do now.

[6] Morgan Stanley Research, "Regulated Utilities," (Jan. 7, 2012) at 11.

r

Δ MRP

MRP

rf

rf *

β

β = 1
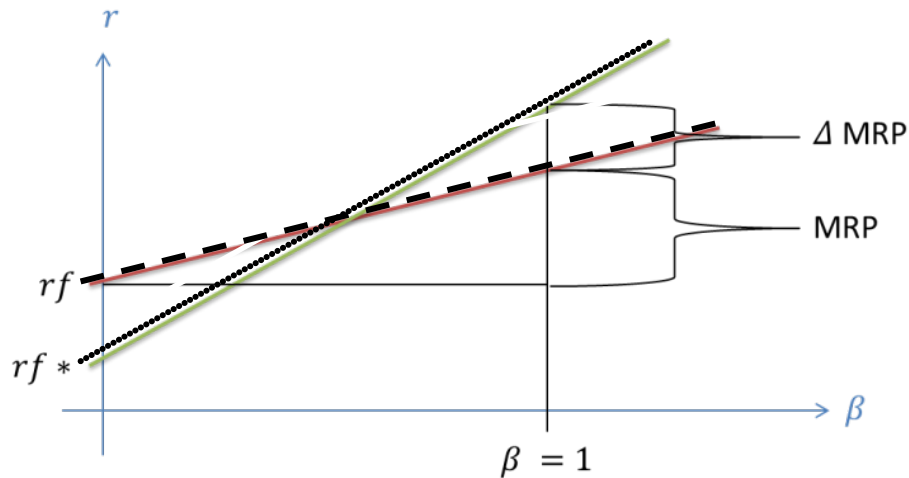
1   **Q.   DR. MORIN, DO YOU AGREE WITH STAFF'S BETA ESTIMATES IN**

2   **THE CAPM ANALYSIS?**

3   A.   Yes, I do.

4   **Q.   HOW DOES STAFF ESTIMATE THE MRP COMPONENT OF THE**

5   **CAPM?**

6   A.   In order to determine the MRP component of the CAPM, Staff relies on the

7   Ibbotson derived spread of arithmetic mean total returns between large company

8   stocks (11.8%) and long-term government bonds (6.1%). The historical difference

9   between realized stock returns and realized **total** bond returns over the 1926-2011

10 period is 5.7%, which is Staff's estimate of the MRP.

11 **Q.   DR. MORIN, DO YOU AGREE WITH STAFF'S MRP ESTIMATE IN THE**

12 **CAPM ANALYSIS?**

13 A.   No, not quite. For the historical MRP estimate, Staff subtracted total bond returns

14 from stock returns rather than subtracting the income component of bond returns

15 from stock returns. As I discussed in my direct testimony, the income component

1	(i.e., the coupon rate) is a far better estimate of expected return than the total
2	return (i.e., the coupon rate plus capital gains), because realized capital
3	gains/losses are largely unanticipated by investors. For that very reason, the
4	Morningstar (formerly Ibbotson Associates) publication on which Staff relied
5	recommends use of the *income* return on government bonds. In other words,
6	bond investors focus on income rather than realized capital gains/losses. This
7	correction increases Staff's MRP estimate by approximately 40 basis points,
8	which is the historical difference in the MRP based on total bond returns and the
9	MRP based on bond income returns. This in turn translates into a 26 basis points
10	understatement (40 times Beta of 0.64).

VI.   CAPM'S EMPIRICAL VALIDITY

11 **Q.   DO YOU AGREE WITH STAFF'S USE OF THE RAW FORM OF THE**

12 **CAPM TO ESTIMATE THE COST OF CAPITAL?**

13 A.   No, I do not. I believe that the plain vanilla version of the CAPM should be

14 supplemented by the more refined version of the CAPM.   There have been

15 countless empirical tests of the CAPM to determine to what extent security

16 returns and betas are related in the manner predicted by the CAPM. The results of

17 the tests support the idea that beta is related to security returns, that the risk-return

18 tradeoff is positive, and that the relationship is linear. The contradictory finding

19 is that the risk-return tradeoff is not as steeply sloped as the predicted CAPM.

20 That is, low-beta securities earn returns somewhat higher than the CAPM would

21 predict, and high-beta securities earn less than predicted. In other words, a

22 CAPM-based estimate of the cost of capital underestimates the return required

1   from low-beta securities and overstates the return from high-beta securities, based

2   on the empirical evidence. This is one of the most well-known results in finance.

3   The empirical form of the CAPM that I used in my direct testimony

4   refines the standard form of the CAPM to account for this phenomenon.

5   The downward-bias inherent in the CAPM is particularly significant for

6   low-beta securities, such as the natural gas utilities. As a result, Staff's CAPM

7   estimates of equity costs are understated by about 50 basis points.

VII.   FLOTATION COST ALLOWANCE

8   Q.   **WHAT ALLOWANCE FOR FLOTATION COSTS DOES STAFF MAKE**

9   **WITH RESPECT TO ITS RECOMMENDED ROE FOR DUKE ENERGY**

10   **OHIO?**

11 A.   Both Staff and I agree on the need for a flotation cost adjustment, but we disagree

12   on its magnitude. As shown on Schedule D-1.1 lines 7 and 8, Staff recommends

13   an allowance of only 4-6 basis points versus my 30 basis points. I disagree with

14   this adjustment for several reasons. First, I believe there is a computational

15   arithmetic error on Schedule D-1.1. The result of the multiplication in lines 7 and

16   8 should be 8.95% and 9.97% rather than 8.82% and 9.84%, a 13 basis points

17   discrepancy.

18   Second, I believe the generic flotation cost factor of 3.5% shown on line 4

19   ignores the market pressure component of flotation costs, and should be 5.0%

20   instead of 3.5%. According to the empirical finance literature discussed in

21   Appendix B of my direct testimony, total flotation costs amount to 4% for the

1	direct component and 1% for the market pressure component, for a total of 5% of
2	gross proceeds. Staff's 3.5% allowance is therefore understated.
3	Third, and most important, the standard textbook method of computing the
4	magnitude of flotation cost allowance differs from the method used by Staff. As
5	derived in Appendix B of my direct testimony, the utility's required return
6	adjusted for flotation follows directly from the standard DCF model and is as
7	follows, where 'f' is the flotation cost adjustment factor, D_1/P is the expected
8	dividend yield, and g is the growth rate:
9	$$ROE = D_1/P(1\text{-}f) + g$$
10	For flotation costs of 5%, dividing the expected dividend yield by 0.95 will
11	produce the adjusted cost of equity capital. For a dividend yield of 5% for
12	example, the magnitude of the adjustment is 26 basis points: .05/.95 = .0526.
13	This in turn amounts to approximately 25 basis points, depending on the
14	magnitude of the dividend yield component.
15	In short, Staff's ROE estimates of equity costs are understated by
16	approximately 20 basis points (25 basis points versus Staff's 4-6 basis points).

VIII. CONCLUSIONS

1 **Q. DR. MORIN, PLEASE PROVIDE A SUMMARY OF THE**

2 **RECOMMENDED CHANGES TO STAFF'S RATE OF RETURN**

3 **TESTIMONY.**

4 A. Although there are several areas of agreement between Staff's testimony and my

5 own, I do have some concerns. My only two concerns with Staff's DCF analysis

6 is its lack of statistical reliability as it relies on a very small sample of five

7 companies and an understated flotation cost allowance of only 4-6 basis points

8 which should amount to 20 basis points. The latter adjustment raises Staff's DCF

9 estimate from 10.24% to 10.44%.   This estimate is reasonably close to my own

10 recommendation of 10.6%.

11 My concerns with Staff's CAPM analysis are more severe. The following

12 table summarizes the principal reasons why Staff's CAPM results understate an

13 appropriate ROE for Duke Energy Ohio:

Source	Basis Points
Improper Risk-Free Rate	234
MRP Adjustment	26
Flotation Cost Understatement	20
Empirical CAPM Adjustment	50

Total Adjustment	330

21 Correction of these understatements would increase Staff's CAPM result

22 by 330 basis points, from 5.9% to 9.2%.

1   Based on these amended results, and giving 75% weight to the DCF result

2   of 10.44% and 25% weight to the CAPM result of 9.2%, as Staff did, the cost of

3   common equity estimate for Duke Energy Ohio becomes 10.13%.   Using a 100

4   basis points range of uncertainty, the cost of common equity lies in a range of

5   9.63% to 10.63%.   If we ignore the outlying result produced by the fragile and

6   tenuous CAPM at this time, we are left with Staff's DCF estimate of 10.44%.

7   With a 100 basis points range of uncertainty, the ROE lies in a range of

8   approximately 10.0% to 11.0%. I note that my own recommendation of 10.6%

9   lies in the middle of that range.

10   **Q.   DOES   THIS   COMPLETE   YOUR   SUPPLEMENTAL   DIRECT**

11   **TESTIMONY?**

12   A.   Yes.