

**DIRECT TESTIMONY OF  
CHARLES W. KING**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

**INTRODUCTION**

**Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.**

A. My name is Charles W. King. I am President of the economic consulting firm of Snavely King Majoros O'Connor & Lee, Inc. ("Snavely King"). My business address is 1220 L Street, N.W., Suite 410, Washington, D.C. 20005.

**Q. PLEASE DESCRIBE SNAVELY KING.**

A. Snavely King, formerly Snavely, King & Associates, Inc., was founded in 1970 to conduct research on a consulting basis into the rates, revenues, costs and economic performance of regulated firms and industries. The firm has a professional staff of 12 economists, accountants, engineers and cost analysts. Most of its work involves the development, preparation and presentation of expert witness testimony before federal and state regulatory agencies. Over the course of its 30-year history, members of the firm have participated in over 500 proceedings before almost all of the state commissions and all Federal commissions that regulate utilities or transportation industries.

**Q. HAVE YOU PREPARED A SUMMARY OF YOUR QUALIFICATIONS AND EXPERIENCE?**

A. Yes. Attachment A is a summary of my qualifications and experience.

**Q. HAVE YOU PREVIOUSLY SUBMITTED TESTIMONY IN REGULATORY PROCEEDINGS?**

1 A. Yes. Attachment B is a tabulation of my appearances as an expert witness before state  
2 and federal regulatory agencies.

3

4 **Q. FOR WHOM ARE YOU APPEARING IN THIS PROCEEDING?**

5

6 A. I am appearing on behalf of the Staff of the North Dakota Public Service Commission.

7

8 **Q. WHAT IS THE OBJECTIVE OF YOUR TESTIMONY?**

9

10 A. The objective of my testimony is to recommend the appropriate rate of return to be  
11 applied to the jurisdictional electric rate base of Montana-Dakota Utilities Company  
12 (“MDU” or “the Company”) in North Dakota.

13

14 **Q. WHAT HAVE YOU FOUND TO BE THE APPROPRIATE RATE OF RETURN  
15 FOR THE COMPANY’S NORTH DAKOTA ELECTRIC OPERATIONS?**

16

17 A. Based on the analyses presented in this testimony, I find that the appropriate rate of return  
18 on the Company’s electric operations in North Dakota is **9.67 percent**, inclusive of a  
19 return to equity of **11.2 percent**.

20

21 **Q. WHAT INFORMATION DID YOU OBTAIN FROM THE COMPANY IN  
22 PREPARING YOUR TESTIMONY?**

23

24 A. I obtained the Company’s last five annual reports to the Commission on its electric  
25 operations in the state of North Dakota. On the basis of these reports and the year 2000  
26 Annual Report to Stockholders of MDU’s parent, MDU Resources Group, Inc., I  
27 prepared 17 data requests, which the Company answered on July 2, 2001. These  
28 responses in turn prompted a further round of data requests which I submitted on July 19  
29 and the Company answered on August 2, 2001. I submitted a single further data request  
30 on August 15, which the Company promptly answered on August 16, 2001. Throughout  
31 my testimony and exhibits, I shall refer to these data responses by their dates, July 2,

1 August 2 and August 16. Copies of all referenced data responses are included in  
2 Attachment C to this testimony.

3  
4 **Q. HOW WILL YOU STRUCTURE YOUR TESTIMONY?**

5  
6 A. I will first discuss the capital structure of the Company, that is, the mix of debt, preferred  
7 stock and common equity. I will next quantify the cost of the Company's debt and  
8 preferred stock. I will then discuss the theory of return to equity, the methodology for  
9 estimating it, and my development of the equity return requirement of MDU. I will  
10 conclude by applying the respective cost rates to the components of the capital structure  
11 to develop the appropriate return to total capital.

12  
13 **I. CAPITAL STRUCTURE**

14  
15 **Q. WHAT WAS THE COMPANY'S CAPITAL STRUCTURE AT THE END OF**  
16 **YEAR 2000?**

17  
18 A. The reported capital structures of MDU and its parent, MDU Resources Group, Inc at the  
19 end of 2000 were as follows:

20  
21 Table 1  
22 Capital Structure, December 31, 2000  
23 (\$000)

	M-D Utilities Co.		MDU Resources Group, Inc.	
Short-term Debt	\$8,000	2.27%	\$27,695	1.68%
Long-term Debt	173,950	49.32%	728,166	44.04%
Preferred Stock	16,500	4.68%	16,400	0.99%
Common Equity	154,200	43.73%	881,060	53.29%
Total	\$352,650	100.00%	\$1,653,321	100.00%

24  
25 Sources: M-D Utilities Co. 2000 Report for Electric Operations to the North Dakota; P.S.C.;  
26 MDU Resources, Inc. 2000 Annual Report to Stockholders.

1 **Q. WHICH OF THESE CAPITAL STRUCTURES DOES THE COMPANY USE IN**  
2 **MEASURING ITS RETURN?**

3

4 A. Neither. It uses the capital structure of M-D Utilities Co. exclusive of short-term debt.  
5 The Company justifies the exclusion of short-term debt on the grounds that it finances its  
6 capital-intensive utility operations exclusively with long-term debt.<sup>1</sup>

7

8 **Q. IS IT APPROPRIATE TO EXCLUDE SHORT-TERM DEBT, AS THE**  
9 **COMPANY HAS DONE?**

10

11 A. The answer to this question depends upon the contents of the rate base upon which the  
12 return is being calculated or to which the return will be applied. If that rate base  
13 consisted solely of capital investments in plant and equipment, then the Company may  
14 have a point. These long-term investments are indeed financed with long-term debt and  
15 equity. However, the Company's rate base also consists of materials and supplies  
16 inventories, fuel stocks, and prepayments. These short-term capital commitments will be  
17 financed in part with short-term debt. For this reason, I believe it is appropriate to  
18 include short-term debt in the capital structure. In this particular case, the effect is  
19 relatively small anyway, because neither M-D Utilities nor MDU Resources is carrying a  
20 large amount of short-term debt.

21

22 **Q. WHICH CAPITAL STRUCTURE, M-D UTILITIES OR MDU RESOURCES,**  
23 **SHOULD BE USED IN CALCULATING THE RETURN TO CAPITAL FOR**  
24 **MDU'S INVESTMENT IN NORTH DAKOTA ELECTRIC OPERATIONS?**

25

26 A. A case can be made either way. On the one hand, M-D Utilities' capital structure is not  
27 necessarily driven by the need to optimize the mix of financial resources. While the  
28 parent company is prevented by M-D Utilities' bond indenture from taking on excessive  
29 debt, nothing prevents it from inflating the equity percentage so as to "game" the  
30 regulatory system into granting is relatively high composite return and tax allowance.

---

<sup>1</sup> July 2 Response to Q. 7.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30

On the other hand, the parent company's capital structure is likely to be unnecessarily conservative, that is, too equity rich, for a regulated electric utility operation. That is because, as I will demonstrate later in this testimony, the overwhelming majority of the Company's operations are in competitive, non-regulated lines of business. These activities incur much greater business risk than do the utility operations, and this risk must be offset by reducing the financial risk associated with large amounts of debt.

Looking at the ratios in Table 1, there is no evidence whatever that the Company has assigned excessive equity to M-D Utilities. To the contrary, the capital structures adhere to the relationship one would expect given the different mixes of business risk. M-D Utilities, the less risky enterprise, has a more levered, that is, more debt-rich, capital structure than does the parent company, with its greater involvement in non-regulated, competitive activities.

For this reason, I believe it appropriate to base the capital structure used for finding an appropriate composite return to MDU's North Dakota electric operations on the mix of financing sources of M-D Utilities Co.

**Q. DO YOU THEREFORE ADOPT THE CAPITAL STRUCTURE SHOWN IN THE COLUMN UNDER "M-D UTILITIES CO." IN TABLE 1 ABOVE?**

A. No. That capital structure is a "snapshot" of the Company's capital mix as of December 31, 2000. The capital structure use to find a composite return on rate base should reflect the on-going financing of the Company's operations during the coming years.

**Q. WHAT ADJUSTMENTS NEED TO BE MADE TO REFLECT THE ON-GOING FINANCING OF THE COMPANY'S OPERATIONS DURING THE COMING YEARS?**

1 A. First, the amount of short-term debt should reflect a broader average than just the amount  
2 outstanding on December 31, 2000. I do not have any estimate of the average amount of  
3 this debt during the year, but the Company's FERC Form 1 indicates that the beginning  
4 of the year amount of short-term debt was \$13 million. I have averaged this amount with  
5 the end-of-year amount of \$8 million to arrive at an estimate of \$10.5 million as an  
6 expression of the average requirement for short-term debt.

7  
8 The makeup of the remaining debt as proposed by the Company is set forth in its July 2  
9 response to question 2. That response shows \$40 million in a term loan from the Bank of  
10 America. This is a line of credit against which MDU can draw to meet its short-term  
11 financing requirements. The \$40 million was borrowed on December 29, 2000 and  
12 matured on January 2, 2001<sup>2</sup> – clearly not an expression of a continuing requirement.  
13 The Company indicates that the average amount outstanding against this line of credit  
14 during 2000 was \$1.3 million.<sup>3</sup> I have substituted this amount for the \$40 million.

15  
16 The other adjustment I have made is to the Grant County 6.2% Pollution Control bond.  
17 This bond is being paid off over the coming three years.<sup>4</sup> I have reduced the amount  
18 outstanding to reflect the average level of indebtedness during the years 2001 through  
19 2003. This results in a reduction of this outstanding debt from \$2.6 million to \$2.0  
20 million.

21

22 **Q. WHAT CAPITAL STRUCTURE DO YOU RECOMMEND?**

23

24 A. The detail of the capital structure that I recommend is presented in Schedule 1 to my  
25 exhibit. It can be summarized as follows:

26

27

28

29

---

<sup>2</sup> August 2 response to Q. 19..

<sup>3</sup> August 2 response to Q. 15.

1 Table 2  
2 M-D Utilities Co. Capital Structure

Item	Amount	Proportion
Debt	\$144,893,971	45.90%
Preferred Stock	16,500,000	5.23%
Common Equity	154,250,010	48.87%
Total	\$315,643,981	100.00%

3  
4

5 **II. THE COST OF DEBT AND PREFERRED STOCK**

6

7 **Q. HAS THE COMPANY PROVIDED A CALCULATION OF ITS CLAIMED COST**  
8 **OF DEBT?**

9

10 A. Yes. The Company's calculation of its claimed cost of debt was provided on July 2 in  
11 response to question no. 2. Further detail was provided on August 2 in response to  
12 question no. 9. The Company calculates a composite cost of debt, inclusive of \$40  
13 million in the Bank of America term loan, as 9.388 percent.

14

15 **Q. HOW DID THE COMPANY CALCULATE ITS DEBT COST?**

16

17 A. The Company subtracted the underwriters' commissions, loss on reacquisition, and  
18 issuance expense from each debt issue. It then calculated the effective cost based on the  
19 payments of interest and principal to maturity relative to these net proceeds. The  
20 relationship of these payments to the net proceeds is asserted by the Company to be its  
21 cost of debt.

22

23 **Q. IS THIS THE APPROPRIATE CALCULATION?**

24

25 A. No. Attachment B to the Company's August 2 response to question no. 10 is the FERC  
26 rules on the treatment of premium, discount, expense, and gain or loss on reacquisition of  
27 long-term debt. It states that the premium, discount or expense of a debt issue should be

---

<sup>4</sup> August 2 response to Q. 9, page 9.

1 amortized over the life of the issue. Losses (or gains) on reacquisition of debt should be  
2 amortized over the remainder of the original life of the issue retired. The process of  
3 reducing the initial amount of the proceeds is thus inconsistent with FERC practice.  
4 Instead, these costs should be amortized as an expense.  
5

6 **Q. HAVE YOU PROVIDED THE CORRECT CALCULATION?**

7  
8 A. Yes. Schedule 2 presents the correct calculation of debt cost. I have subtracted only  
9 underwriters' commissions in calculating the net proceeds. I have included as an expense  
10 the average 2001-2003 amortization of discounts, expenses and redemption losses as  
11 reported by the Company in its August 16 response to question no. 1. These expenses are  
12 added to the interest costs. As the tabulation shows, the composite cost of debt, inclusive  
13 of short-term debt, is 8.62 percent.  
14

15 **Q. WHAT IS THE COST OF THE PREFERRED STOCK PORTION OF THE**  
16 **COMPANY'S CAPITAL STRUCTURE?**

17  
18 A. The Company reports that the cost rate for its \$16.5 million in preferred stock is 4.632  
19 percent. I have accepted this value for purposes of calculating the Company's overall  
20 rate of return.  
21

22  
23 **III. THE COST OF EQUITY**

24  
25 **Q. WHAT IS THE BASIS FOR FINDING A RATE OR RETURN TO THE EQUITY**  
26 **COMPONENT OF THE CAPITAL DEVOTED TO MDU'S ELECTRIC UTILITY**  
27 **OPERATIONS IN NORTH DAKOTA?**

28  
29 A. In its landmark Hope Natural Gas decision, the United States Supreme Court established  
30 the following standards for the return to equity that must be allowed a regulated public  
31 utility:

1 ..the return to the equity owner should be commensurate with the  
2 returns on investments in other enterprises having corresponding  
3 risks. That return, moreover, should be sufficient to assure  
4 confidence in the financial integrity of the enterprise, so as to  
5 maintain its credit and to attract capital.<sup>5</sup>

6  
7 It can be seen from this excerpt that there are essentially three standards for determining  
8 an appropriate return to equity. The first is the "comparable earnings" standard, that the  
9 earnings must be "commensurate with the returns on investments in other enterprises  
10 having corresponding risks." The second is that they must be sufficient to assure  
11 "confidence in the financial integrity of the enterprise," and the third is that they must  
12 allow the utility to be able to attract capital.

13  
14 **Q. HOW CAN THE COMPARABLE EARNINGS STANDARD BE APPLIED IN**  
15 **ESTIMATING THE RATE OF RETURN TO EQUITY CAPITAL?**

16  
17 A. There is a certain circularity to the comparable earnings standard because the competitive  
18 nature of the capital markets virtually ensures that the returns to all enterprises having  
19 corresponding risks are comparable with each other. Investors establish the price of each  
20 traded stock based on that stock's present and prospective earnings in comparison with the  
21 present and prospective earnings of all other stocks and other investments available to  
22 them. If the earnings of a firm are depressed, then investors will pay only a low price for  
23 that firm's stock. As a result, their return on the market value of that stock will be  
24 comparable to the return on the market value of the stock of other highly profitable  
25 companies which, as a consequence of their profitability, have been bid up to a very high  
26 price. Thus, if "return" is defined as the earnings of an equity investment relative to its  
27 current market price, then the comparable earnings test becomes a cipher. All returns are  
28 comparable with all other returns.

29  
30 In public utility regulation the conventional procedure for resolving this circularity is to  
31 identify the required equity return based on the market value of a utility's stock. That

---

<sup>5</sup>Federal Power Commission et. al. vs. Hope Natural Gas Company, 320 U.S. 592, at 603.

1 return is combined with the cost of debt and preferred stock, using either the actual or a  
2 hypothetical minimum-cost capital structure. The blended return to total capital is then  
3 applied to a rate base reflective of the book value of the utility's investment. The book  
4 value is the accountant's quantification of the original cost of the utility's assets adjusted  
5 for ratepayer contributions such as deposits and deferred taxes. Under this procedure, the  
6 market price of a stock is used only to determine the return that investors expect from that  
7 stock. That expectation is then applied to the book value of the utility's investment to  
8 identify the level of earnings which regulation will allow the utility's common  
9 shareholders to recover.

10  
11 **Q. HOW CAN THE FINANCIAL INTEGRITY AND CAPITAL ATTRACTION**  
12 **STANDARDS BE APPLIED IN ESTIMATING THE RATE OF RETURN TO**  
13 **EQUITY CAPITAL?**

14  
15 A. If the utility can earn a return on its investment comparable to that required by enterprises  
16 of comparable risk, then it should have no difficulty in attracting capital and maintaining  
17 credit. Investors would have no reason to shun such a utility in favor of other investment  
18 opportunities. Thus, if the comparable earnings test is met, then the financial integrity and  
19 capital attraction standards are met as well.

20  
21 **Q. IN SEEKING "ENTERPRISES OF COMPARABLE RISK," WHAT IS THE**  
22 **RELEVANT "RISK" FOR PURPOSES OF THIS INQUIRY?**

23  
24 A. The purpose of this inquiry is to find the cost of the equity capital of MDU that is devoted  
25 to providing regulated retail electric service in North Dakota. The relevant risk is  
26 therefore that associated with providing regulated retail electric service.

27  
28 This level of risk is not the same risk as that of MDU Resources Group, Inc., the  
29 corporation that provides the electric service at issue in this inquiry. That is because  
30 regulated utility service is a relatively small proportion of the total revenue and earnings  
31 of the parent corporation, and regulated electric service is an even smaller proportion, as  
32 demonstrated in Table 3:

1 Table 3  
 2 MDU Resources Group, Inc.  
 3 (Dollars in Millions)  
 4

Business Segment	Revenues		Operating Income	
Electric Retail	\$161.6	8.6%	\$38.8	17.9%
Natural Gas Distribution	233.1	12.4%	9.5	4.4%
Total Regulated	\$394.7	21.0%	\$48.3	22.3%
Utility Services	169.4		16.6	
Pipeline and Energy Services	636.8		28.8	
Natural Gas and Oil Production	138.3		66.5	
Construction Materials and Mining	631.4		56.8	
Intersegment eliminations	(96.9)			
Total Company	\$1,873.7	100.0%	\$217.0	100.0%

5 Source: MDU Resources Group, Inc. 2000 Annual Report to Stockholders, page 1.

6 Note: numbers may not add due to rounding.  
 7

8 **Q. FOR PURPOSES OF THIS INQUIRY, WHAT TYPES OF ENTERPRISES HAVE**  
 9 **COMPARABLE RISK TO MDU'S REGULATED RETAIL ELECTRIC**  
 10 **SERVICE?**

11  
 12 A. The enterprises likely to have business risks most comparable to MDU's retail electric  
 13 service are those engaged in the same business, that is, the generation, transmission and  
 14 distribution of electricity to retail customers under rate base/rate-of-return regulation.  
 15 This criterion excludes a number of utilities that have sold their electric generation assets.

16  
 17 Since we are attempting to find a rate of return sufficient to maintain credit and attract  
 18 capital, we cannot examine utilities that have poor credit ratings. Accordingly, I have  
 19 established as a criterion for acceptability that the company must have an "investment  
 20 grade" bond rating, which is defined as BBB or better from Standard & Poors and Baa or  
 21 better from Moody's. Finally, the company must be of broadly comparable size, meaning  
 22 that must be a large corporation. I have established a criterion of \$100 million or more in  
 23 gross revenues.

24  
 25 **Q. HAVE YOU IDENTIFIED SPECIFIC COMPANIES THAT YOU BELIEVE**  
 26 **COMPARABLE TO MDU'S REGULATED ELECTRIC SERVICE?**

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31

Yes. Schedule 3 shows the companies engaged in regulated electric generation, transmission and distribution services that are listed by Moody's and Standard & Poors as having investment grade bonds and total operating revenues in excess of \$100 million. There are two lists. Page 1 presents companies engaged in regulated electric service only and that are still vertically integrated, that is, that still generate the power they distribute to their retail customers. Page 2 lists companies that provide both regulated electric and gas distribution service. As I shall demonstrate later in this testimony, there appears to be a difference in the perceived level of risk associated with these two categories of utilities.

One of the central difficulties of this inquiry is that the procedures for identifying the cost of equity capital require that we be able to analyze the market prices of traded stocks. This means that we must deal with stand-alone corporations whose stock is traded on public markets. We cannot look at subsidiaries, affiliates, divisions or sectors of larger companies.

For this inquiry, we must therefore find companies whose market risk is driven by the earnings, both present and prospective, from providing regulated utility services, including retail electric service. If the risk driver is some other business, the company cannot be said to be comparable.

Schedule 3 shows the revenues generated from regulated services and their proportion to total revenues. In the majority of cases, the regulated proportion of revenues is so low, and the unregulated proportion so high, that the perceived risk of the company has to be influenced heavily by its non-regulated activities. This is particularly relevant because in most cases, the non-regulated activities are fastest growing segments of the company, and they essentially drive investors' expectations as to future growth and profitability.

For this reason, I have adopted as a criterion of comparability that at least 85 percent of the company's revenues must be generated by regulated activities: electric service revenues for the utilities listed on page 1 and both electric and gas revenues for the

1 companies on page 2. This criterion yields a list of five electric-only utilities and nine  
2 combination electric/gas utilities, as follows:

<u>Electric Only</u>	<u>Electric and Gas</u>
Empire District Electric Co.	Alliant Energy
FPL Group	Ameren
Kansas City Power & Light	Consolidated Edison, Inc.
Pinnacle West	DPL, Inc.
Southern Company	Energy East
	Madison Gas & Electric
	Progress Energy
	Puget Sound Energy
	Sierra Pacific

15 **Q. HOW WILL YOU IDENTIFY THE MARKET-DETERMINED RATE OF**  
16 **RETURN TO THE EQUITY CAPITAL INVESTMENT IN MDU'S NORTH**  
17 **DAKOTA ELECTRIC OPERATIONS?**

18  
19 A. I shall first apply the Discounted Cash Flow ("DCF") procedure, which I consider to be  
20 the most accurate test of a market return. I shall then consider the interest rate risk  
21 premium approach as a "sanity check" on my DCF results.

22  
23 **A. DISCOUNTED CASH FLOW PROCEDURE**

24  
25  
26 **Q. PLEASE DESCRIBE THE DISCOUNTED CASH FLOW PROCEDURE.**

27  
28 A. The basic premise of the Discounted Cash Flow ("DCF") procedure is that the market  
29 values each stock at the discounted present value of all future flows of cash that investors  
30 expect from purchasing that stock. The discount rate that equates those future cash flows  
31 with the market value of the stock is the investors' required rate of return.

32  
33 The DCF approach is usually represented by the following formula:

$$k = \frac{d}{P} + g$$

34  
35  
36  
37 where k = required rate of return  
38 d = dividend in the immediate period  
39 P = market price

1                   g = expected growth rate in dividends

2  
3           While the DCF method is usually presented in mathematical notation format (as above), it  
4           can also be described in narrative fashion. The formula says that the return that any  
5           investor expects from the purchase of a stock consists of two components. The first is the  
6           immediate cash flow in the form of a dividend. The second is the prospect for future  
7           growth in dividends. The sum of the rates of these two flows, present and future, equals  
8           the return that investors require. Investors adjust the price they are willing to pay for the  
9           stock until the sum of the dividend yield and the annual rate of expected future growth in  
10          dividends equals the rate of return they expect from other investments of comparable risk.  
11          The DCF test thus determines what the investing community requires from the company  
12          in terms of present and future dividends relative to the current market price.

13  
14 **Q.   DON'T MOST INVESTORS REGARD CAPITAL APPRECIATION AS A**  
15 **PORTION OF THEIR EXPECTED RETURN?**

16  
17 A.   Yes. The expectation of capital appreciation is captured in the “g” or growth portion of  
18          the DCF formula. If dividends grow, then it follows that the market price of the stock will  
19          grow as well. It is this growth that most equity investors seek, at least in part, in  
20          purchasing shares in a traded company.

21  
22 **Q.   IS THERE A CONVENTIONAL PROCEDURE FOR CALCULATING DCF**  
23 **RETURNS?**

24  
25 A.   Yes. There is a conventional procedure for calculating equity return under the DCF  
26          formula that is often referred to as the “classic” DCF calculation. The Federal  
27          Communications Commission (“FCC”) recently concluded that this method should be  
28          given the greatest weight in determining the rate of return to equity.<sup>6</sup> I agree with this  
29          conclusion.

30  

---

<sup>6</sup> *Notice Initiating a Prescription Proceeding and Notice of Proposed Rulemaking*, CC Docket No. 98-166, October 5, 1998.

1 **Q. HOW IS THE “g” OR GROWTH FACTOR IN THE DCF FORMULA**  
2 **IDENTIFIED UNDER THE CLASSIC DCF CALCULATION?**

3  
4 A According to the DCF theory, the relevant measure of “g” should be the growth in  
5 dividends. Dividends, however, are largely a function of management discretion, and they  
6 do not necessarily reflect the underlying driver of earnings. Simply by changing the  
7 dividend payout ratio, a company’s management can create a rate of dividend growth that  
8 is unsustainable. For this reason, I believe that earnings per share (“EPS”) is the most  
9 reliable indicator of the “g” factor.

10  
11 The classic DCF calculation employs predictions of EPS growth, usually in the three to  
12 five year time horizon. Investment analysts routinely attempt to forecast future earnings of  
13 traded companies. No one forecast can be considered reliable, but presumably a  
14 consensus of forecasts might be a good indication of investors’ collective expectations as  
15 regards the company’s future prospects.

16  
17 I am aware of two sources for “consensus” estimates of investment analysts’ predictions.  
18 One is the Institutional Brokers Estimate Sytem (“I/B/E/S”). The other is a somewhat  
19 broader survey of investment analysts by Zacks Investment Research, Inc., which includes  
20 retail as well as institutional brokers.

21  
22 **Q. WHAT ARE THE CONSENSUS ESTIMATES OF EPS GROWTH FOR THE**  
23 **COMPARABLE COMPANIES THAT YOU HAVE IDENTIFIED?**

24  
25 A. The Zacks’ five year consensus growth estimates are as follows:  
26  
27  
28  
29  
30  
31  
32

1 Table 4  
2 Zacks Five Year Consensus EPS Forecasts  
3

Electric-only Utilities		Combination Electric and Gas	
Empire District Electric	n.a.	Alliant Energy	2.0%
FPL Group	7.1%	Ameren	4.7%
Kansas City Power & Light	6.0%	Consolidated Edison	4.0%
Pinnacle West	9.0%	DPL	9.7%
Southern Company	5.8%	Energy East	6.5%
		Madison Gas & Electric	n.a.
		Progress Energy	7.1%
		Puget Sound Energy	5.3%
		Sierra Pacific	4.0%

4  
5 n.a.: There have been no investment analysts' reports on these companies.  
6

7 **Q. HOW DOES THE CLASSIC DCF CALCULATION DERIVE THE DIVIDEND**  
8 **YIELD PORTION OF THE DCF FORMULA?**

9  
10 A. Under the classic calculation, the dividend yield is calculated as the next year's dividend  
11 divided by a recent average of the price of the stock. The resultant yield should  
12 reasonably match the dividend yields shown by the financial reporting services.  
13

14 There are several ways to predict next year's dividend. Several investors' services  
15 provide forecasts of dividends. Another, somewhat more mechanical approach is to  
16 compute the next year's dividend as the most recent dividend annualized and then  
17 increased by one half of the analysts' prediction of long-term annual growth rate in  
18 earnings per share.  
19

20 **Q. WHAT ARE THE NEXT YEAR'S DIVIDENDS FOR THE COMPARISON**  
21 **COMPANIES YOU HAVE IDENTIFIED?**

22  
23 A. Using the mechanical approach, I calculate the following dividends for the comparison  
24 companies.  
25

1 Table 5  
2 Next Period Dividends  
3

Electric Utilities				Electric and Gas Utilities			
	Current Dividend (1)	½ Grth Rate	Next Pd. Div.		Current Dividend (1)	½ Grth Rate	Next Pd. Div.
Empire District Electric	\$1.28	n.a.	n.a.	Alliant Energy	\$2.00	1.0%	\$2.02
FPL Group	\$2.24	3.65%	\$2.32	Ameren	\$2.54	2.35%	\$2.60
Kansas City P & L	\$1.66	3.0%	\$1.71	Consolidated Edison	\$2.20	2.0%	\$2.24
Pinnacle West	\$1.50	4.5%	\$1.57	DPL	\$0.94	4.85%	\$0.99
Southern Company	\$1.34	2.9%	\$1.38	Energy East	\$0.92	3.25%	\$0.95
				Madison Gas & Electric	\$1.32	n.a.	n.a.
				Progress Energy	\$2.12	3.55%	\$2.20
				Puget Sound Energy	\$1.84	2.66%	\$1.89
				Sierra Pacific	\$1.00	2.0%	\$1.02

4  
5 (1) Zacks Company Reports  
6

7  
8 **Q. HOW IS THE DENOMINATOR IN THE DIVIDEND YIELD CALCULATION,**  
9 **THE RECENT PRICE OF THE STOCKS, IDENTIFIED?**

10  
11 A. Some judgement is required to establish a set of price observations that capture the  
12 investing public's current perception of value, while at the same time reflecting some  
13 stability in the market. Given the fluctuations of the markets, a price observation for a  
14 single day, week, or even month runs the risk of becoming obsolete in a very short time.  
15 Market fluctuations also mean that the use of monthly highs and lows may exaggerate the  
16 effect of some of the sharp drops and rises that the markets have experienced recently.  
17 For this reason, I believe it is best to use the average of prices over a period somewhat  
18 longer than a month. Since CBS MarketWatch routinely publishes the average of the 50  
19 most recent trading day closing prices, I have chosen this series as the price basis for the  
20 calculation of dividend yield.

21  
22 **Q. WHAT IS THE DIVIDEND YIELD OF YOUR COMPARISON COMPANIES?**

23  
24 A. Using the foregoing dividends and the MarketWatch price averages, I calculate the  
25 dividend yields as follows:  
26

1 Table 6  
2 Next Period Dividend Yields  
3

Electric Utilities				Electric and Gas Utilities			
	Dividend	50-Day Price	Dividend Yield		Dividend	50-Day Price	Dividend Yield
Empire District Electric	n.a.	n.a.	n.a.	Alliant Energy	\$2.02	\$29.16	6.9%
FPL Group	\$2.32	\$56.76	4.1%	Ameren	\$2.60	\$40.80	6.4%
Kansas City P & L	\$1.71	\$24.82	6.9%	Consolidated Edison	\$2.24	\$40.12	5.6%
Pinnacle West	\$1.57	\$44.90	3.4%	DPL	\$0.99	\$26.43	3.7%
Southern Company	\$1.38	\$23.26	5.9%	Energy East	\$0.95	\$20.77	4.6%
				Madison Gas & Electric	n.a.	\$24.76	
				Progress Energy	\$2.20	\$42.83	5.1%
				Puget Sound Energy	\$1.89	\$24.99	7.6%
				Sierra Pacific	\$1.02	\$16.04	6.4%

4  
5 Note: 50 day prices prior to August 28, 2001. Source: CBS MarketWatch.  
6

7 **Q. WHAT ARE THE RESULTS FOR THE “CLASSIC” DCF FORMULATION?**

8  
9 A. The “classic” formulation of the DCF procedure is the sum the growth rates identified in  
10 Table 4 with the dividend yields in Table 6, as follows:  
11

12 Table 7  
13 “Classic” DCF Results  
14

Electric Utilities				Electric and Gas Utilities			
	5 Year Growth Rate	Dividend Yield	DCF Return		5 Year Growth Rate	Dividend Yield	DCF Return
Empire District Electric	n.a.	n.a.	n.a.	Alliant Energy	2.0%	6.9%	8.9%
FPL Group	7.1%	4.1%	11.2%	Ameren	4.7%	6.4%	11.1%
Kansas City P & L	6.0%	6.9%	12.9%	Consolidated Edison	4.0%	5.6%	9.6%
Pinnacle West	9.0%	3.4%	12.4%	DPL	9.7%	3.7%	13.4%
Southern Company	5.8%	5.9%	11.7%	Energy East	6.5%	4.6%	11.1%
				Madison Gas & Electric	n.a.	n.a.	n.a.
				Progress Energy	7.1%	5.1%	12.2%
				Puget Sound Energy	5.3%	7.6%	12.9%
				Sierra Pacific	4.0%	6.4%	10.4%
Average			<b>12.0%</b>				<b>11.2%</b>

15  
16

1 **Q. ARE THERE ALTERNATIVE FORMULATIONS OF THE DCF PROCEDURE?**

2

3 A. Yes. There are broadly two alternative formulations to the DCF procedure that have been  
4 used in utility rate of return studies, both reflecting different ways of estimating the “g”  
5 or growth factor. The first is based on the proposition that growth in earnings and  
6 dividends for a regulated public utility is constrained by the growth in book value per  
7 share. This is because public utility regulation has traditionally authorized earnings in  
8 relation to a “rate base” reflective of the book value of the investment devoted to utility  
9 service. The rate of growth in per-share book value is a function of (1) the earnings  
10 retention ratio, (2) the authorized rate of return and (3) dilution or accretion from sales of  
11 new stock.

12

13 The other alternative uses historical trends in growth in earnings and dividends to  
14 calculate the “g” factor in the DCF formula.

15

16 **Q. WHAT IS YOUR ASSESSMENT OF THE EARNINGS GROWTH MODEL FOR**  
17 **THE COMPARABLE COMPANIES YOU HAVE IDENTIFIED?**

18

19 A. The book value growth model is no longer suitable for most electric utilities for two  
20 reasons. Although I have limited my selection of comparable utilities to those having  
21 over 85 percent of their revenues subject to regulation, with the single exception of  
22 Madison Gas & Electric, all of these companies still have some unregulated activities for  
23 which the book value growth model does not apply.

24

25 Possibly more relevant is the fact that very few utilities are so closely regulated that the  
26 only source of book value growth is earnings retained within the limit of an authorized  
27 rate of return. Since the late 1980s, when the electric utility industry generally began  
28 experiencing declining costs, there have been relatively few rate cases. MDU is a good  
29 example. It has not had an electric rate case in North Dakota since 1987,<sup>7</sup> or an electric

---

<sup>7</sup> Case No. 10,799, decided January 27, 1987, See July 2 response to Q. 13.

1 rate case in any state since 1993.<sup>8</sup> During the interval since those cases, MDU may have  
 2 been able to enjoy returns above what regulation might have established as the authorized  
 3 rate of return. If so, then its “g” factor would be greater than would be indicated by the  
 4 earnings growth model.

5  
 6 **Q. WHAT IS THE RELEVANCE OF HISTORICAL GROWTH TRENDS FOR THE**  
 7 **COMPARABLE COMPANIES YOU HAVE IDENTIFIED?**

8  
 9 A. Historical trends in dividends and earnings are relevant to an estimation of the “g” factor  
 10 only to the extent that investors regard them as indicators of their future expectations.  
 11 Most financial reports display considerable historical data, including past earnings per  
 12 share and dividends, which suggests that this information is of interest to investors and  
 13 analysts. The weight that they give to the trends in these indicators is, of course,  
 14 unknown and unknowable.

15  
 16 **Q. CAN YOU IDENTIFY THE HISTORICAL GROWTH TRENDS OF THE**  
 17 **COMPARABLE COMPANIES?**

18  
 19 A. The record of earnings growth over the past five years for the comparable companies is  
 20 as follows:

21 Table 8  
 22 Five Year Historical EPS Growth  
 23  
 24

Electric-only Utilities		Combination Electric and Gas	
Empire District Electric	1.1%	Alliant Energy	1.6%
FPL Group	6.9%	Ameren	3.0%
Kansas City Power & Light	-0.7%	Consolidated Edison	1.2%
Pinnacle West	10.0%	DPL	6.5%
Southern Company	4.4%	Energy East	7.2%
		Madison Gas & Electric	6.7%
		Progress Energy	3.0%
		Puget Sound Energy	2.8%
		Sierra Pacific	-180.6%

<sup>8</sup> August 2 response to Q. 20.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32

**Q. WHAT IS YOUR ASSESSMENT OF THE USE OF HISTORICAL EARNINGS GROWTH AS AN INDICATOR OF THE “g” FACTOR IN THE DCF FORMULA?**

A. A comparison of the historical record of earnings growth in Table 8 with the Zacks’ investment analysts’ consensus future growth in Table 4 suggests that historical data, to the extent it is considered, is not the principal driver of investor expectations of the future. Certainly that appears to be the case for the two utilities with negative historical growth. In other cases, the history of strong past growth may reinforce the expectation of future growth, but in all cases, the “g” factor is better represented by the surveys of analysts’ EPS predictions.

**Q. CAN YOU EXPLAIN THE VARIATION AMONG THE “CLASSIC” DCF RESULTS SHOWN IN TABLE 7?**

A. To a great extent the variation among the “classic” DCF results shown in Table 7 can be explained by differences in capital structure. All other things being equal, the riskiness of a stock varies inversely with the proportion of total capital that consists of equity investment. The greater the proportion of equity, the less the risk that variations in earnings might tip the company into insolvency. Conversely, the lower the equity ratio, the greater the danger that the company might not be able to pay the interest on its debt or the fixed premiums on its preferred stock, leaving common shareholders with no earnings and no dividends. A comparison of the DCF results for the comparison companies with the common equity ratios, inclusive and exclusive of short term debt, is as follows:

1  
2  
3  
4

Table 9  
“Classic” DCF Results and Common Equity Ratios

Electric Utilities				Electric and Gas Utilities			
	DCF Return	Equity No short-term debt	Equity with short-term debt		DCF Return	Equity No short-term debt	Equity with short-term debt
Empire District Electric	n.a.	42.4%	37.7%	Alliant Energy	8.9%	50.2%	44.7%
FPL Group	11.2%	57.1%	51.1%	Ameren	11.1%	51.8%	50.1%
Kansas City P & L	12.9%	46.0%	44.8%	Consolidated Edison	9.6%	49.1%	48.0%
Pinnacle West	12.4%	54.9%	53.9%	DPL	13.4%	27.7%	27.7%
Southern Company	11.7%	48.0%	45.1%	Energy East	11.1%	41.8%	37.9%
				Madison Gas & Electric	n.a.	52.2%	46.8%
				Progress Energy	12.2%	47.5%	35.3%
				Puget Sound Energy	12.9%	37.4%	34.0%
				Sierra Pacific	10.4%	36.0%	34.1%

5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22

The four electric-only utilities are fairly closely grouped both as to equity ratios and DCF return indications. However, even within this group, the utility with the lowest equity ratio, Kansas City P&L, has the highest DCF return, and the utility with the highest equity ratio (excluding short-term debt), FPL, has the lowest DCF return.

Among the combination electric/gas utilities, the very low equity ratios of DPL and Puget Sound certainly help explain their relatively high DCF return requirements. Similarly, two of the three companies with DCF returns below 11 percent have equity ratios 45 percent or higher. Sierra Pacific remains an anomaly, with equity ratios in the 34-36 percent range and a DCF return of only 10.4 percent. However, the fact that this company, alone among those in the tabulation, provides not only electric and gas, but also water service may help explain investors’ perception of low business risk. So, too, might its position as an electric generator in the generation-short California-Nevada market.

**Q. HOW DOES MDU FIT INTO THIS PICTURE?**

1 A. MDU is a combination gas and electric utility. As shown on Table 7, these combination  
2 utilities appear to have lower return requirements than electric-only companies. This is  
3 not an accident. As a heating source, electricity and gas are to great extent competitors.  
4 When a company offers only electric service, it likely faces the competition of a gas  
5 utility and the consequent uncertainties as to market penetration. But when it offers both  
6 gas and electricity, it has a reasonable guarantee that regardless of changes in heating  
7 technology or consumer preference, it will control the most of the market for heating  
8 fuels. Its business risk is therefore lower. For this reason, the most comparable group of  
9 utilities to MDU is the combination electric and gas companies.

10  
11 As regards financial risk, MDU's equity ratio is 50.8 percent without short-term debt and  
12 48.9 percent with short term debt. See Schedule 1. These percentages are higher than all  
13 but one (Ameren) of the combination companies for which DCF results are shown on  
14 Table 9, suggesting a very low level of risk.

15  
16 In this regard, M-D Utilities may be helped by the very conservative capital structure of  
17 its parent, MDU Resources. Schedule 4 shows the capital structures of all of the  
18 combination gas and electric utilities fitting the criteria of investment grade bond ratings,  
19 retention of generating facilities, and revenues in excess of \$100 million. MDU  
20 Resources has a higher equity ratio than any of these companies. Its financial risk is  
21 therefore among the lowest. This condition undoubtedly contributes to a lower equity  
22 return for both the parent and the subsidiary.

23  
24 **Q. WHAT RATE OF RETURN DO YOU RECOMMEND FOR MDU?**

25  
26 A. In light of low level of both business and financial risk of MDU's electric service, I  
27 believe a good case could be made for setting its rate of return to equity at the very  
28 bottom end of the range of returns indicated in my DCF analysis of comparable  
29 companies. However, the rate of return set in this proceeding is likely to remain in effect  
30 for a number of years. I therefore believe it inadvisable to lock the company into a  
31 relatively low return for an extended period during which business conditions and the

1 company's outlook might change. For this reason, I recommend that the rate of return for  
2 MDU's electric operations be set at the average DCF return for combination electric and  
3 gas utilities, or **11.2 percent**.

4  
5 **B. INTEREST RATE RISK PREMIUM CHECK**

6  
7 **Q. IS THERE A WAY TO CHECK THE REASONABLENESS OF YOUR DCF**  
8 **FINDING?**

9  
10 A. Yes. While equity return requirements are difficult to estimate, bond yields and interest  
11 rates can be measured with precision and currency. Indeed, they are reported daily in  
12 business publications and weekly by the Federal Reserve Board.

13  
14 The relationship between bond yields and equity return requirements has been a subject  
15 of considerable controversy among rate-of-return analysts. There is a body of theory  
16 which holds that over enough time, the record of the historically realized differences  
17 between bond yields and common stock returns is a good measure of the risk premium  
18 that investors require from stocks relative to bonds.<sup>9</sup> I do not subscribe to this theory, but  
19 I do acknowledge that there is a relationship between measurable interest rates and bond  
20 yields and immeasurable equity returns.

21  
22 The reason for this relationship is that fixed income investments – bonds and preferred  
23 stock – compete with common stock for investors' dollars. If interest rates fall, then (all  
24 other things being equal) investors have an increased incentive to commit their funds to  
25 the stock market. As more funds flow into stocks, their prices increase, reducing the  
26 return available from current and forecast profits. Conversely, if interest rates increase,  
27 then stock prices fall, and the return to the newly repriced equity market increases.

28  

---

<sup>9</sup> "Stocks, Bonds, Bills and Inflation: The Past and the Future," by Roger G. Ibbotson and Rex. A. Sinquefeld, The Financial Analysts Research Foundation, University of Virginia.

1 To be sure, the return requirements of the two forms of investment do not move in lock  
2 step. Bonds suffer inflation risk, while stocks are considered a hedge against inflation.  
3 Conversely, stocks are far more susceptible to the effects of the business cycle than  
4 bonds, so when recession threatens, the spread between bond yields and required stock  
5 returns is likely to increase. Nonetheless, over time, a decline in bond yields should  
6 signal a corresponding (although not directly correlated) decline in equity return  
7 requirements.

8  
9 For this reason, its is worthwhile to examine the trend in bond yields and interest rates  
10 over the time since the last equity return prescriptions for MDU to determine whether a  
11 finding of 11.2 percent is reasonable. If it appears that bond yields have increased, but I  
12 am recommending a reduced return to equity, then there may be reason to question my  
13 finding. On the other hand, if my proposed equity return tracks with the changes in bond  
14 yields, then there is at least a “sanity check” on the propriety of my finding.

15  
16 **Q. WHAT IS THE RELATIONSHIP BETWEEN EQUITY RETURN**  
17 **ALLOWANCES AND BOND YIELDS OVER THE YEARS?**

18  
19 Figure 1 provides this comparison. It shows the average annual yields to 10-year  
20 Treasury bonds and Moody’s Aaa Corporate bonds from 1986 through 2000 and to July  
21 2001. It also shows the last electric equity return finding for MDU in North Dakota in  
22 1987 and the three other equity return rulings by other state commission since then. The  
23 chart shows that bond yields are now at their lowest level in 15 years, significantly below  
24 their position when each of the previous return findings were made.

25  
26 The specific the relationship between the equity return findings and the then-current bond  
27 yields is as follows:

28  
29  
30  
31

1 Table 10  
2 MDU Equity Return Allowances and Contemporaneous Bond Yields  
3

Case	Date	Equity Return	10 Year Treasury	Aaa Corp. Bonds
ND Electric	January 1987	12.71%	7.08%	8.36%
MT Electric	March 1987	12.3%	7.25%	8.36%
SD Gas	December 1994	11.5%	7.81%	8.46%
MT Gas	May 1996	12.0%	6.74%	7.62%
ND Electric	August 2001 <sup>10</sup>	11.2%	5.13%	7.07%

4 Source: MDU July 1 response to Q. 13 and August 2 response to Q. 20; Federal Reserve  
5 Statistical Releases.  
6

7  
8  
9 **Q. WHAT DO YOU CONCLUDE FROM THESE COMPARISONS?**

10  
11 A. I conclude that while my recommended equity return allowance is lower than any that  
12 have been approved for MDU in the past 15 years, this result is justified by the evidence  
13 of lower overall capital costs. Those lower capital costs are demonstrated by a dramatic  
14 reduction in bond yields relative to the experience of the past 15 years. For this reason, I  
15 conclude that my recommended equity return of 11.2 percent is reasonable.  
16

17 **IV RETURN TO TOTAL CAPITAL**

18  
19 **Q. WHAT IS YOUR RECOMMENDED RETURN TO TOTAL CAPITAL?**

20  
21 A. My recommended return to total capital is **9.67 percent**, calculated as follows:  
22

23 Table 11  
24 Return to Total Capital  
25

Item	Proportion	Cost	Weighted Cost
Debt	45.90%	8.62%	3.96%
Preferred Stock	5.23%	4.632%	0.24%
Equity	48.87%	11.2%	5.47%
Total	100.00%		<b>9.67%</b>

26  
<sup>10</sup> Bond yield data for the week ending August 3, 2001.

1 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

2

3 A. Yes. It does.

4

5

6