

DEPARTMENT OF PUBLIC SERVICE REGULATION
BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MONTANA

IN THE MATTER OF THE APPLICATION)	
OF MONTANA-DAKOTA UTILITIES CO.,)	REGULATORY DIVISION
a Division of MDU Resources Group, Inc., for)	
Authority to Establish Increased Rates for)	DOCKET NO. D2015.6.51
Electric Service in the State of Montana)	

DIRECT TESTIMONY AND EXHIBITS

OF

MICHAEL P. GORMAN

ON BEHALF OF THE

MONTANA LARGE CUSTOMER GROUP

November 20, 2015

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

2 A. Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140,
3 Chesterfield, MO 63017.

4 **Q. WHAT IS YOUR OCCUPATION?**

5 A. I am a consultant in the field of public utility regulation and a Managing Principal of
6 Brubaker & Associates, Inc., an energy, economic and regulatory consulting firm.

7 **Q. PLEASE DESCRIBE YOUR EDUCATIONAL BACKGROUND AND**
8 **EXPERIENCE.**

9 A. This information is included in Appendix A to my testimony.

10 **Q. ON WHOSE BEHALF ARE YOU APPEARING IN THIS PROCEEDING?**

11 A. I am appearing on behalf of the Montana Large Customer Group (“LCG”).¹ The LCG
12 members in this matter receive retail electric service from Montana-Dakota Utilities
13 Co. (“MDU” or “Company) in Montana.

14 **Q. WHAT IS THE SUBJECT MATTER OF YOUR TESTIMONY?**

15 A. In my testimony I will respond to MDU’s proposed overall rate of return and return on
16 equity as sponsored by MDU witnesses Garret Senger and Dr. J. Stephen Gaske.

17 **Q. ARE YOU SPONSORING ANY EXHIBITS IN CONNECTION WITH YOUR**
18 **TESTIMONY?**

19 A. Yes. I am sponsoring Exhibits MPG-1 through MPG-18.

¹The LCG is an informal coalition of industrial energy customers which, among other activities, participate selectively in proceedings of the Montana Public Service Commission that may affect electric or natural gas prices and service within Montana. For purposes of the present matter, Denbury Onshore LLC is the sole member of LCG.

1 **I. SUMMARY**

2 **Q. PLEASE SUMMARIZE YOUR RECOMMENDATIONS AND CONCLUSIONS**
3 **ON MDU'S RATE OF RETURN.**

4 A. I recommend the Public Service Commission of the State of Montana (the
5 "Commission") award MDU a return on common equity of 9.35%, which is at the
6 approximate midpoint of my recommended range of 9.00% to 9.65%. My
7 recommended return on equity will fairly compensate MDU for its current market cost
8 of common equity, and it will mitigate the claimed revenue deficiency in this
9 proceeding by providing MDU fair compensation with the lowest cost to customers.

10 In addition to my return on equity recommendation, I recommend adjustments
11 to MDU's proposed ratemaking capital structure. In developing its capital structure,
12 MDU in part removed common equity supporting investments in subsidiaries.
13 However, that did not result in common equity used to support only regulated utility
14 companies. I propose to also remove common equity supporting all Nonutility
15 Property and Other Investments, to better estimate the amount of common equity
16 supporting utility plant investments. With this adjustment, the common equity ratio in
17 the ratemaking capital structure decreases from 49.5% as proposed by MDU, down to
18 46.1%.

19 I am also proposing an adjustment to the Company's embedded cost of debt to
20 reflect debt issuances that have already occurred and revise the cost of the projected
21 debt issuance. My adjustment reduces MDU's embedded cost of debt from 5.95% to
22 5.78%.

1 **A. Regulated Utility Industry Market Outlook**

2 **Q. PLEASE DESCRIBE REGULATED UTILITIES' CREDIT RATING**
3 **OUTLOOK.**

4 A. Utilities' credit ratings have improved over the recent past and the credit outlook is
5 Stable. Further, credit analysts have observed that utilities currently have strong
6 access to capital at attractive pricing (*i.e.*, utilities currently have low capital costs).

7 Standard & Poor's ("S&P") recently published a report titled "The Outlook For
8 U.S. Regulated Utilities Remains Stable On Increasing Capital Spending And Robust
9 Financial Performance." In that report, S&P noted the following:

10 **Capital Spending Will Grow**

11 Consistent with the trend over the past 10 years, we expect that utility
12 company capital spending will continue to grow (see related article
13 "U.S. Regulated Electric Utilities' Annual Capital Spending Is Poised
14 To Eclipse \$100 Billion," July 29, 2014). We project that capital
15 spending will reach an all-time high of about \$95 billion in 2014,
16 reflecting growing funding needs for environmental compliance
17 projects and new transmission investments. For 2015-2016, we expect
18 capital spending overall to slow somewhat, but transmission
19 investments to continue to grow to address reliability, accommodate
20 new generation, and integrate renewable energy projects into the grid.
21 The slowdown in the next few years is due to environmental
22 compliance-related capital spending that reflects the completion of [sic]
23 the necessary projects for much of coal-fired generation to meet the
24 existing U.S. Environmental Protection Agency's (EPA) Mercury and
25 Air Toxics Standards (MATS). Beginning in 2017, we expect the
26 industry's generation and overall capital spending needs to pick up
27 significantly, consistently exceeding \$100 billion annually. This hike
28 reflects some utilities' decisions to proactively boost lower carbon-
29 intensive generation capital spending in order to meet the EPA's
30 recently announced proposed carbon pollution rules.

31 * * *

1 fundamentals, including weak electricity demand and low power prices.
2 Affiliated gencos generally have investment-grade ratings and may be
3 under greater rating pressure. Recent consolidation among independent
4 gencos has added scale and diversity, and is a credit positive.³

5 And consistent with the reports from S&P and Fitch, Moody's recent
6 comments on the U.S. Utility Sector state as follows:

7 Our outlook for the US regulated utilities industry is stable. This
8 outlook reflects our expectation for the fundamental business
9 conditions in the industry over the next 12 to 18 months.

10 » **Regulatory support is the most important driver of our stable**
11 **outlook.** Our stable outlook for the US regulated utility industry is
12 based on our expectation that regulators will continue to help
13 utilities recover costs and maintain stable cash flow, such that the
14 ratio of cash flow from operations (CFO) to debt will remain close to
15 20%, on average, for the industry.

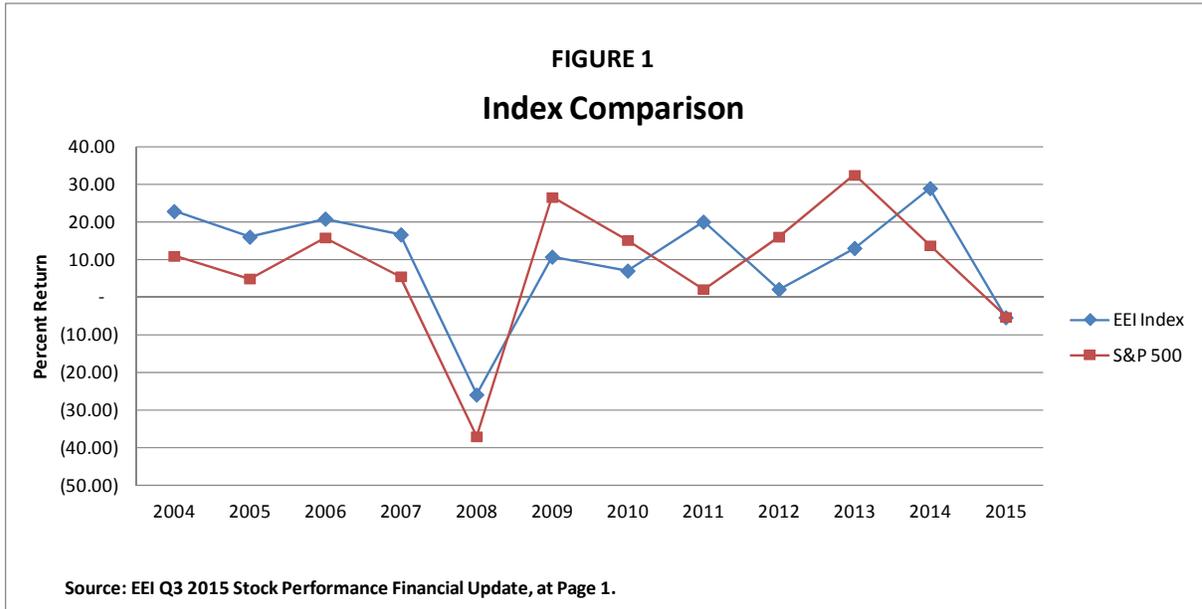
16 » **Capital spending will decline in 2015, which reduces borrowing**
17 **needs.** The credit profiles of large, integrated utilities that generate,
18 transmit and distribute power will benefit from a drop in capital
19 spending in 2015, because most of the heavy capital expenditures for
20 environmental compliance have been made. This will reduce the
21 industry's debt needs and stabilize financial metrics, at least for the
22 next two years.⁴

23 **Q. PLEASE DESCRIBE UTILITY STOCK PRICE PERFORMANCE OVER THE**
24 **LAST SEVERAL YEARS.**

25 A. As shown in the graph below, the Edison Electric Institute ("EEI") has recorded utility
26 stock price performance compared to the market. The EEI data, provided by SNL
27 Financial, shows the "Utility Index" has outperformed the market in downturns and
28 trailed the market during recovery. This supports my conclusion that utility stock
29 investments are regarded by market participants as a moderate- to low-risk investment.

³Fitch Ratings: "2015 Outlook: U.S. Utilities, Power and Gas," December 16, 2014, at 1-2, *emphasis added*.

⁴Moody's Investors Service: "2015 Outlook – US Regulated Utilities: Regulatory Support Drives Our Stable Outlook," December 15, 2014, at 1, *emphasis added*.



1 In its latest stock performance update, the EEI noted the following:

2 The EEI Index gained 6.3% during the third quarter of 2015,
3 partly offsetting a weak performance during the first half of the
4 year and offering investors a dependable safe harbor from
5 turmoil elsewhere in the markets.

6 * * *

7 The basic trend that has shaped utility share fortunes for six
8 years seems likely to continue: relative returns will be tied less
9 to slow-changing business fundamentals than faster-changing
10 macroeconomic developments, whether relating to interest
11 rates, natural gas prices, oil prices, economic strength or
12 geopolitical events that send investors fleeing to the safest
13 corners of U.S. markets.

14 **Regulated Fundamentals Remain Stable**

15 The rate stability offered by state regulation and the ability to
16 recover rising capital spending in rate base shield regulated
17 utilities from the volatility in the competitive power arena and
18 turn the growth of renewable generation (and the resulting need
19 for new and upgraded transmission lines) into a rate base
20 growth opportunity for many industry players.

1 Q. WHAT ARE THE IMPORTANT TAKEAWAY POINTS FROM THIS
2 ASSESSMENT OF UTILITY INDUSTRY CREDIT AND INVESTMENT RISK
3 OUTLOOKS?

4 A. Credit rating agencies and the EEI consider the regulated utility industry to be stable
5 and believe investors will continue to provide an abundance of capital to support
6 utilities' large capital programs at moderate capital costs. All of this supports the
7 continued belief that utility investments are generally regarded as safe-haven or low-
8 risk investments, and the market embraces such low-risk investments. The demand
9 for low-risk investments will provide funding for regulated utilities in general.

10 B. MDU Investment Risk

11 Q. PLEASE DESCRIBE THE MARKET'S ASSESSMENT OF THE
12 INVESTMENT RISK OF MDU.

13 A. The market's assessment of MDU's investment risk is described by credit rating
14 analysts' reports. MDU does not have a stand-alone credit rating from S&P; rather, it
15 is a wholly-owned subsidiary of MDU Resources. MDU Resources' current corporate
16 bond rating from S&P is BBB+ with a Stable outlook.

17 S&P comments as follows:

18 **Business Risk: Satisfactory**

19 Our ratings on MDU reflect our assessment of a "satisfactory"
20 business risk profile, an "intermediate" financial risk profile,
21 and "adequate" liquidity. We assess Centennial Energy
22 Holdings Corp. as a core, wholly owned subsidiary of MDU,
23 with the same corporate credit rating as the parent. We view
24 MDU's business risk profile as "satisfactory." MDU is a
25 diversified natural resources company operating in three main
26 business segments: utilities and pipelines, oil and gas
27 exploration and production (E&P), and construction services
28 and materials. Our assessment stems from the diversity of
29 MDU's business operations and the relative stability of its
30 regulated operations, which provide steady and predictable cash

1 flows. MDU's regulated utilities and pipeline businesses
2 together contributed about 30% of earnings for the full year
3 2013. We consider the company's individual segments as
4 weaker because of their limited scope of operations. Although
5 the company is rebalancing its E&P portfolio toward more
6 profitable oil production, its small scale of operations and the
7 inherent volatility of the E&P industry remain weaknesses in
8 the overall rating. Nevertheless, we believe this business will
9 continue to be very volatile and cyclical.

10 **Financial Risk: Intermediate**

11 We consider MDU's financial risk profile "intermediate," due to
12 the relatively steady cash flows from the company's utilities
13 business and its largely stable credit measures. Consolidated
14 credit measures are currently in line with our expectations and
15 the rating category. For the 12 months ended March 31, 2014,
16 adjusted debt to EBITDA was 2.5x and FFO to total debt was
17 33%. These measures are relatively stable and remain largely
18 unchanged from previous periods. However, if natural gas
19 prices fail to materially improve from current levels and the
20 construction materials segment operating results weaken, credit
21 measures may deteriorate. Given its commitment to
22 maintaining a solid balance sheet, we expect MDU to manage
23 capital spending and acquisitions to maintain FFO to total debt
24 in the 30% to 35% area and debt to EBITDA in the 2x to 2.5x
25 area.⁵

26 **Q. WHAT ARE THE KEY TAKEAWAYS FROM S&P'S REPORTS ON MDU?**

27 A. Overall, S&P views MDU as stable, consistent with the utility industry generally. As
28 shown by the comments above, ratings analysts see risk in MDU's non-utility
29 activities (*i.e.*, oil and gas exploration and production and construction services and
30 materials), and see "the relative stability" of MDU's regulated operations which
31 provide "steady and predictable cash flows."

⁵Standard & Poor's RatingsDirect: "Summary: MDU Resources Group, Inc.," June 30, 2014, at 3 and 4, *emphasis added*.

1 **C. MDU's Proposed Capital Structure**

2 **Q. WHAT IS MDU'S PROPOSED CAPITAL STRUCTURE?**

3 A. MDU's proposed capital structure is shown in Table 1 below:

<u>Description</u>	<u>Weight</u>
Long-Term Debt	41.14%
Short-Term Debt	8.11%
Preferred Stock	1.24%
Common Equity	<u>49.52%</u>
Total Regulatory Capital Structure	100.0%

Source: Rule 38.5.146, Statement F, Page 1.

4 MDU's proposed capital structure is largely based on its balance sheet
5 recordings as offered in its FERC Form 1 reflecting pro forma adjustments for
6 calendar year 2015. However, MDU witness Garret Senger developed the proposed
7 capital structure by removing common equity supporting MDU's investments in
8 subsidiaries. Mr. Senger's adjustments are made on his Rule 38.5.146, Statement F,
9 page 2. There, he removes approximately \$2.59 billion of Investment in Subsidiaries
10 in arriving at the common equity supporting utility plant and equipment.

11 **Q. DO YOU BELIEVE MR. SENGER'S ADJUSTMENT TO MDU'S TOTAL**
12 **COMMON EQUITY ACCURATELY ESTIMATES THE AMOUNT OF**
13 **COMMON EQUITY SUPPORTING UTILITY INFRASTRUCTURE?**

1 A. No. Mr. Senger should have removed all of the common equity supporting MDU's
2 Other Property and Investments shown on the Company's balance sheet on Rule
3 38.5.121 Statement A, page 1. For both 2013 and 2014, the Company had
4 \$2.45 billion and \$2.67 billion of Net Other Property and Investments, respectively.
5 This Net Other Property and Investments is largely made up of the Investment in
6 Subsidiary Companies recognized by Mr. Senger as not related to utility plant
7 investment. The Net Other Property and Investments also includes investment in
8 Nonutility Property and Other Investments. The common equity supporting these
9 non-utility investments should also be excluded from the ratemaking capital structure.

10 **Q. HOW DOES MDU DEFINE ITS INVESTMENTS IN NONUTILITY**
11 **PROPERTY INVESTMENT CATEGORIES?**

12 A. In its year-end 2014 FERC Form 1, MDU provides some description, albeit rather
13 vague, in describing its Nonutility Property and Other Investments categories.
14 Generally, MDU states as follows:

15 **Investments**

16 The Company's investments include its investment in subsidiary
17 companies, the cash surrender value of life insurance policies, an
18 insurance contract, and other miscellaneous investments. The
19 Company measures its investment in the insurance contract at fair value
20 with any unrealized gains and losses recorded on the Statement of
21 Income. The Company has not elected the fair value option for its
22 other investments. For more information, see Notes 4 and 11.⁶

⁶MDU Resources Group, Inc. 2014/Q4 FERC Form No. 1, page 123.3, emphasis added.

1 **Q. DID MDU PROVIDE AN EXPLANATION OF WHY IT DIDN'T REMOVE**
2 **THIS NONUTILITY PROPERTY AND OTHER INVESTMENTS FROM ITS**
3 **EQUITY CAPITAL SUPPORTING UTILITY OPERATIONS?**

4 A. Yes. In response to LCG-058, MDU simply stated that balance sheet items such as
5 Nonutility Property and Other Investments are supported by a component of both
6 equity and debt capital.

7 **Q. DO YOU BELIEVE IT IS REASONABLE TO ASSUME THAT THESE**
8 **OTHER NON-UTILITY INVESTMENTS ARE SUPPORTED BY THE DEBT**
9 **RECORDED ON MDU'S UTILITY ANNUAL REPORT FILING IN ITS FERC**
10 **FORM 1?**

11 A. No. MDU Resources Group, Inc.'s debt rating generally reflects the "relative stability
12 of MDU Resources Group, Inc.'s utility and pipeline businesses."⁷ This business risk
13 assessment generally reflects the stability and predictability of the cash flow produced
14 from utility-related businesses. Investments which do not produce this stable and
15 predictable cash flow then should not get the benefit of the debt issued based on MDU
16 stable utility businesses. This would provide a subsidy between MDU's utility and
17 non-utility investments.

18 Therefore, it is not appropriate to assume that Nonutility Property and Other
19 Investments are supported by the utility debt recorded on MDU's FERC Form 1.
20 Therefore, it is reasonable to assume that they are financed entirely with common
21 equity. Hence, it is appropriate to remove the non-utility equity from the ratemaking
22 capital structure.

⁷Standard & Poor's RatingsDirect: "MDU Resources Group, Inc.," June 30, 2014 at 2.

1 **Q. WOULD YOU PLEASE DESCRIBE THE RATEMAKING CAPITAL**
2 **STRUCTURE YOU PROPOSE BE USED TO SET MDU'S RATES IN THIS**
3 **PROCEEDING.**

4 A. The ratemaking capital structure I propose be used to set rates for MDU is shown in
5 Table 2 below. I developed this table using the same methodology used by MDU
6 witness Mr. Senger, except I removed all Net Other Property and Investments from
7 common equity supporting utility plant and equipment. This results in approximately
8 \$77 million additional reduction in common equity in the pro forma 2015 year relative
9 to that produced by Mr. Senger.

TABLE 2	
<u>Gorman Proposed Capital Structure</u>	
(Pro Forma 2015)	
<u>Description</u>	<u>Weight</u>
Long-Term Debt	43.89%
Short-Term Debt	8.65%
Preferred Stock	1.32%
Common Equity	<u>46.14%</u>
Total Regulatory Capital Structure	100.00%

Source: Exhibit MPG-1.

10
11 **Q. DO YOU BELIEVE YOUR PROPOSED RATEMAKING CAPITAL**
12 **STRUCTURE IS REASONABLE?**

13 A. Yes. My proposed ratemaking capital structure has a common equity ratio of
14 approximately 46.1%, which is reasonably consistent with the proxy group average
15 common equity ratio of 48.1% used to measure MDU's return on equity in this
16 proceeding. I will discuss this proxy group later in my testimony.

1 **D. Embedded Cost of Debt**

2 **Q. WHAT IS THE EMBEDDED COST OF DEBT THAT THE COMPANY IS**
3 **PROPOSING IN THIS PROCEEDING?**

4 A. The Company is proposing an embedded debt cost of 5.95% for 2015. The embedded
5 debt cost is sponsored by Company witness Garret Senger.

6 **Q. DO YOU HAVE ANY ISSUES WITH MDU'S PROPOSED EMBEDDED COST**
7 **OF DEBT?**

8 A. Yes. Mr. Senger included a projected 10-year debt issuance of \$150 million with an
9 interest rate of 5.0%. However, in a data response LCG-059, he outlined the already
10 issued debt and the projected balance for the remaining portion. Specifically, Mr.
11 Senger stated the following:

- 12 • \$87.0 million, ten year, coupon rate of 3.78 percent, issued
13 10/31/15; and
- 14 • \$11 .0 million, thirty year, coupon rate of 4.87 percent, issued
15 10/31/15.

16 The remaining debt will be issued as follows:

- 17 • \$52.0 million, fifteen year, coupon rate of 4.03 percent, issued
18 12/10/15.

19 **Q. HOW DID YOU REVISE MDU'S PROPOSED COST OF DEBT?**

20 A. Based on the information outlined above I adjusted Rule 38.5.147, Statement F, pages
21 1 and 4 while keeping the underwriter's commission and issuance costs at the same
22 rate as the Company originally proposed. As shown on my Exhibit MPG-2, these
23 adjustments reduced MDU's embedded cost of debt from 5.95% to 5.78%.

1 **E. Return on Equity**

2 **Q. PLEASE DESCRIBE WHAT IS MEANT BY A “UTILITY’S COST OF**
3 **COMMON EQUITY.”**

4 A. A utility’s cost of common equity is the return investors require on an investment in
5 the utility. Investors expect to achieve their return requirement from receiving
6 dividends and stock price appreciation.

7 **Q. PLEASE DESCRIBE THE FRAMEWORK FOR DETERMINING A**
8 **REGULATED UTILITY’S COST OF COMMON EQUITY.**

9 A. In general, determining a fair cost of common equity for a regulated utility has been
10 framed by two hallmark decisions of the U.S. Supreme Court: Bluefield Water Works
11 & Improvement Co. v. Pub. Serv. Comm’n of W. Va., 262 U.S. 679 (1923) and Fed.
12 Power Comm’n v. Hope Natural Gas Co., 320 U.S. 591 (1944).

13 These decisions identify the general standards to be considered in establishing
14 the cost of common equity for a public utility. Those general standards provide that
15 the authorized return should: (1) be sufficient to maintain financial integrity;
16 (2) attract capital under reasonable terms; and (3) be commensurate with returns
17 investors could earn by investing in other enterprises of comparable risk.

18 **Q. PLEASE DESCRIBE THE METHODS YOU HAVE USED TO ESTIMATE**
19 **MDU’S COST OF COMMON EQUITY.**

20 A. I have used several models based on financial theory to estimate MDU’s cost of
21 common equity. These models are: (1) a constant growth Discounted Cash Flow
22 (“DCF”) model using consensus analysts’ growth rate projections; (2) a constant
23 growth DCF using sustainable growth rate estimates; (3) a multi-stage growth DCF
24 model; (4) a Risk Premium model; and (5) a Capital Asset Pricing Model (“CAPM”).

1 I have applied these models to a group of publicly traded utilities that have investment
2 risk similar to MDU.

3 **F. Risk Proxy Group**

4 **Q HOW DID YOU SELECT A UTILITY PROXY GROUP SIMILAR IN**
5 **INVESTMENT RISK TO MDU TO ESTIMATE ITS CURRENT MARKET**
6 **COST OF EQUITY?**

7 A I relied on the same proxy group used by MDU witness Dr. J. Stephen Gaske to
8 estimate MDU's return on equity. However, I excluded TECO, Inc. because last
9 month it announced that it will be acquired by Emera, Inc. and its financials will be
10 affected by this acquisition transaction.

11 **Q PLEASE DESCRIBE WHY YOU BELIEVE YOUR PROXY GROUP IS**
12 **REASONABLY COMPARABLE IN INVESTMENT RISK TO MDU.**

13 A MDU does not have a stand-alone credit rating from S&P and its parent company is
14 currently not rated by Moody's. Therefore, I used the credit rating of its parent
15 company. The proxy group is shown in Exhibit MPG-3. My proxy group has an
16 average corporate credit rating from S&P of BBB+, which is identical to MDU's
17 parent company credit rating from S&P. Accordingly, I believe my proxy group is
18 reasonably comparable in investment risk to MDU.

19 The proxy group has an average common equity ratio of 48.1% (including
20 short-term debt) from SNL Financial ("SNL") and 51.1% (excluding short-term debt)
21 from *The Value Line Investment Survey* ("*Value Line*") in 2015. The proxy group
22 common equity balance is comparable to my proposed ratemaking capital structure
23 common equity ratio of 46.1% for MDU.

1 Based on the similarity of corporate credit ratings and common equity ratios, I
2 conclude the proxy group reasonably approximates the investment risk of MDU.

3 **G. Discounted Cash Flow Model**

4 **Q. PLEASE DESCRIBE THE DISCOUNTED CASH FLOW MODEL.**

5 A. The Discounted Cash Flow (or “DCF”) model posits that a stock price is valued by
6 summing the present value of expected future cash flows discounted at the investor’s
7 required rate of return or cost of capital. This model is expressed mathematically as
8 follows:

9
$$P_0 = \frac{D_1}{(1+K)^1} + \frac{D_2}{(1+K)^2} + \dots + \frac{D_\infty}{(1+K)^\infty} \quad \text{(Equation 1)}$$

10
11 P_0 = Current stock price
12 D = Dividends in periods 1 - ∞
13 K = Investor’s required return

14 This model can be rearranged in order to estimate the discount rate or investor-
15 required return, “K.” If it is reasonable to assume that earnings and dividends will
16 grow at a constant rate, then Equation 1 can be rearranged as follows:

17
$$K = D_1/P_0 + G \quad \text{(Equation 2)}$$

18 K = Investor’s required return
19 D_1 = Dividend in first year
20 P_0 = Current stock price
21 G = Expected constant dividend growth rate

22 Equation 2 is referred to as the annual “constant growth” DCF model.

23 **Q. PLEASE DESCRIBE THE INPUTS TO YOUR CONSTANT GROWTH DCF**
24 **MODEL.**

25 A. As shown in Equation 2 above, the constant growth DCF model requires a current
26 stock price, expected dividend, and expected growth rate in dividends.

1 **Q. WHAT STOCK PRICE HAVE YOU RELIED ON IN YOUR CONSTANT**
2 **GROWTH DCF MODEL?**

3 A. I relied on the average of the weekly high and low stock prices of the utilities in the
4 proxy group over a 13-week period ending on October 30, 2015. An average stock
5 price is less susceptible to market price variations than a spot price. Therefore, an
6 average stock price is less susceptible to aberrant market price movements, which may
7 not reflect the stock's long-term value.

8 A 13-week average stock price reflects a period that is still short enough to
9 contain data that reasonably reflects current market expectations, but the period is not
10 so short as to be susceptible to market price variations that may not reflect the stock's
11 long-term value. In my judgment, a 13-week average stock price is a reasonable
12 balance between the need to reflect current market expectations and the need to
13 capture sufficient data to smooth out aberrant market movements.

14 **Q. WHAT DIVIDEND DID YOU USE IN YOUR CONSTANT GROWTH DCF**
15 **MODEL?**

16 A. I used the most recently paid quarterly dividend, as reported in *Value Line*.⁸ This
17 dividend was annualized (multiplied by 4) and adjusted for next year's growth to
18 produce the D_1 factor for use in Equation 2 above.

19 **Q. WHAT DIVIDEND GROWTH RATES HAVE YOU USED IN YOUR**
20 **CONSTANT GROWTH DCF MODEL?**

21 A. There are several methods that can be used to estimate the expected growth in
22 dividends. However, regardless of the method, for purposes of determining the
23 market-required return on common equity, one must attempt to estimate investors'

⁸The *Value Line Investment Survey*, July 31, August 21, September 18, and October 30, 2015.

1 consensus about what the dividend or earnings growth rate will be, and not what an
2 individual investor or analyst may use to make individual investment decisions.

3 As predictors of future returns, security analysts' growth estimates have been
4 shown to be more accurate than growth rates derived from historical data.⁹ That is,
5 assuming the market generally reflects rational investment decisions, analysts' growth
6 projections are more likely to influence investors' decisions which are captured in
7 observable stock prices than growth rates derived only from historical data.

8 For my constant growth DCF analysis, I have relied on a consensus, or mean,
9 of professional security analysts' earnings growth estimates as a proxy for investor
10 consensus dividend growth rate expectations. I used the average of analysts' growth
11 rate estimates from three sources: Zacks, SNL, and Reuters. All such projections
12 were available on October 30, 2015, as reported online. These analysts' growth rate
13 projections are for three to five years out.

14 Each consensus growth rate projection is based on a survey of security
15 analysts. There is no clear evidence whether a particular analyst is most influential on
16 general market investors. Therefore, a single analyst's projection does not as reliably
17 predict consensus investor outlooks as does a consensus of market analysts'
18 projections. The consensus estimate is a simple arithmetic average, or mean, of
19 surveyed analysts' earnings growth forecasts. A simple average of the growth
20 forecasts gives equal weight to all surveyed analysts' projections. Therefore, a simple

⁹See, e.g., David Gordon, Myron Gordon, and Lawrence Gould, "Choice Among Methods of Estimating Share Yield," *The Journal of Portfolio Management*, Spring 1989.

1 average, or arithmetic mean, of analyst forecasts is a good proxy for market consensus
2 expectations.

3 **Q. WHAT ARE THE GROWTH RATES YOU USED IN YOUR CONSTANT**
4 **GROWTH DCF MODEL?**

5 A. The growth rates I used in my DCF analysis are shown in Exhibit MPG-4. The
6 average growth rate for my proxy group is 5.38%.

7 **Q. WHAT ARE THE RESULTS OF YOUR CONSTANT GROWTH DCF**
8 **MODEL?**

9 A. As shown in Exhibit MPG-5, the average and median constant growth DCF returns for
10 my proxy group are 9.36% and 9.53%, respectively.

11 **Q. DO YOU HAVE ANY COMMENTS ON THE RESULTS OF YOUR**
12 **CONSTANT GROWTH DCF ANALYSIS?**

13 A. Yes. The constant growth DCF analysis for my proxy group is based on a long-term
14 sustainable growth rate of 5.38%. This growth rate is higher than my estimate of a
15 maximum long-term sustainable growth rate of 4.4% (which I discuss next). I will
16 take into consideration my conclusion that the proxy group's three- to five-year
17 growth rate is too high to be a rational outlook for long-term sustainable growth in
18 interpreting my DCF return results. Overall, I believe the 5.38% growth rate in the
19 constant growth DCF analysis produces overstated return estimates.

20 **Q. HOW DID YOU ESTIMATE A MAXIMUM LONG-TERM SUSTAINABLE**
21 **GROWTH RATE?**

22 A. A long-term sustainable growth rate for a utility stock cannot exceed the growth rate
23 of the economy in which it sells its goods and services. As I will discuss in my multi-
24 stage growth DCF analysis, academic and investment practitioner evidence accepts the
25 projected long-term GDP growth outlook as a maximum sustainable growth rate

1 projection. Hence, recognizing the long-term GDP growth rate as a maximum
2 sustainable growth is logical, and generally consistent with academic and economic
3 practitioner accepted practices.

4 As a result, a reasonable proxy for the long-term maximum sustainable growth
5 rate for a utility investment is best proxied by the projected long-term Gross Domestic
6 Product (“GDP”). *Blue Chip Economic Indicators* projects that over the next 5 and 10
7 years, the U.S. nominal GDP will grow in the range of 4.5% to 4.3%. As such, the
8 average growth rate over the next 10 years is around 4.4%, which I believe is a
9 reasonable proxy of long-term sustainable growth.¹⁰

10 **Q. CAN YOU FURTHER EXPLAIN WHY YOU BELIEVE THE AVERAGE**
11 **GROWTH RATE IS NOT A REASONABLE ESTIMATE OF LONG-TERM**
12 **SUSTAINABLE GROWTH AS REQUIRED BY THE CONSTANT GROWTH**
13 **DCF MODEL?**

14 A. Yes. Primarily, the three- to five-year growth rate for the proxy group is more than
15 100 basis points above the projected growth of the U.S. GDP. This short-term growth
16 simply cannot be sustained indefinitely. This will be discussed in greater detail in
17 developing my multi-stage growth DCF model.

18 **H. Sustainable Growth DCF**

19 **Q. PLEASE DESCRIBE HOW YOU ESTIMATED A SUSTAINABLE**
20 **LONG-TERM GROWTH RATE FOR YOUR SUSTAINABLE GROWTH DCF**
21 **MODEL.**

22 A. A sustainable growth rate is based on the percentage of the utility’s earnings that is
23 retained and reinvested in utility plant and equipment. These reinvested earnings
24 increase the earnings base (rate base). Earnings grow when plant funded by reinvested

¹⁰*Blue Chip Economic Indicators, October 10, 2015, at 14.*

1 earnings is put into service, and the utility is allowed to earn its authorized return on
2 such additional rate base investment.

3 The internal growth methodology is tied to the percentage of earnings retained
4 in the company and not paid out as dividends. The earnings retention ratio is 1 minus
5 the dividend payout ratio. As the payout ratio declines, the earnings retention ratio
6 increases. An increased earnings retention ratio will fuel stronger growth because the
7 business funds more investments with retained earnings.

8 The dividend payout ratios of the proxy group are shown in my Exhibit MPG-
9 6. These dividend payout ratios and earnings retention ratios then can be used to
10 develop a sustainable long-term earnings retention growth rate. A sustainable
11 long-term earnings retention ratio will help gauge whether analysts' current three- to
12 five-year growth rate projections can be sustained over an indefinite period of time.

13 The data used to estimate the long-term sustainable growth rate is based on the
14 Company's current market-to-book ratio and on *Value Line's* three- to five-year
15 projections of earnings, dividends, earned returns on book equity, and stock issuances.

16 As shown in Exhibit MPG-7, the average sustainable growth rate for the proxy
17 group using this internal growth rate model is 4.52%.

18 **Q. WHAT IS THE DCF ESTIMATE USING THESE SUSTAINABLE LONG-**
19 **TERM GROWTH RATES?**

20 A. A constant growth DCF estimate based on these sustainable growth rates is developed
21 in Exhibit MPG-8. As shown there, a sustainable growth DCF analysis produces
22 average and median DCF results of 8.55% and 8.09%, respectively.

1 While these growth rate projections are referred to as sustainable long-term
2 growth rates, they are based on projections of earnings, dividends, and book value for
3 the utilities three to five years out. Hence, these parameters may change over time,
4 and may result in long-term growth rates being lower than that implied through the
5 sustainable growth rate model.

6 **I. Multi-Stage Growth DCF Model**

7 **Q. HAVE YOU CONDUCTED ANY OTHER DCF STUDIES?**

8 A. Yes. My constant growth DCF is based on consensus analysts' growth rate
9 projections, so it is a reasonable reflection of rational investment expectations over the
10 next three to five years. The limitation on the constant growth DCF model is that it
11 cannot reflect the rational expectation that a period of high/low short-term growth can
12 be followed by a change in growth to a rate that is more reflective of long-term
13 sustainable growth. To address this issue with the constant growth DCF model, I
14 performed a multi-stage growth DCF analysis to reflect this outlook of changing
15 growth expectations.

16 **Q. WHY DO YOU BELIEVE GROWTH RATES CAN CHANGE OVER TIME?**

17 A. Analyst projected growth rates over the next three to five years will change as utility
18 earnings growth outlooks change. Utility companies go through cycles in making
19 investments in their systems. When utility companies are making large investments,
20 their rate base grows rapidly, which accelerates their earnings growth. Once a major
21 construction cycle is completed or levels off, growth in the utility rate base slows, and
22 its earnings growth slows from an abnormally high three- to five-year rate to a lower
23 sustainable growth rate.

1 As major construction cycles extend over longer periods of time, even with an
2 accelerated construction program, the growth rate of the utility will slow simply
3 because rate base growth will slow and the utility has limited human and capital
4 resources available to expand its construction program. Hence, the three- to five-year
5 growth rate projection should be used as a long-term sustainable growth rate only if
6 supported by a reasonable and informed judgment to determine whether the three- to
7 five-year growth outlook considers the current market environment, the industry, and
8 whether the three- to five-year growth outlook is sustainable.

9 **Q. PLEASE DESCRIBE YOUR MULTI-STAGE GROWTH DCF MODEL.**

10 A. The multi-stage growth DCF model reflects the possibility of non-constant growth for
11 a company over time. My multi-stage growth DCF model reflects three growth
12 periods: (1) a short-term growth period, which consists of the first five years; (2) a
13 transition period, which consists of the next five years (years 6 through 10); and (3) a
14 long-term growth period, starting in year 11 through perpetuity.

15 For the short-term growth period, I relied on the consensus analysts' growth
16 projections described above in relationship to my constant growth DCF model. For
17 the transition period, the growth rates were reduced or increased by an equal factor,
18 which reflects the difference between the analysts' growth rates and the long-term
19 sustainable growth rate. For the long-term growth period, I assumed each company's
20 growth would converge to the maximum sustainable long-term growth rate, as
21 measured by the consensus economists' GDP growth projection.

22 **Q. WHY IS THE GDP GROWTH PROJECTION A REASONABLE PROXY FOR**
23 **THE MAXIMUM SUSTAINABLE LONG-TERM GROWTH RATE?**

1 A. Utilities cannot indefinitely sustain a growth rate that exceeds the growth rate of the
2 economy in which they sell services. Utilities' earnings/dividend growth is created by
3 increased utility investment or rate base. Such investment, in turn, is driven by service
4 area economic growth and demand for utility service. In other words, utilities invest
5 in plant to meet sales demand growth, and sales growth, in turn, is tied to economic
6 growth in their service areas.

7 The U.S. Department of Energy, Energy Information Administration ("EIA")
8 has observed that utility sales growth tracks the U.S. GDP growth, albeit at a lower
9 level, as shown in Exhibit MPG-9. Utility sales growth has lagged behind GDP
10 growth for more than a decade. As a result, nominal GDP growth is a very
11 conservative proxy for utility sales growth, rate base growth, and earnings growth.
12 Therefore, the U.S. GDP nominal growth rate is a conservative proxy for the highest
13 sustainable long-term growth rate of a utility.

14 **Q. IS THERE RESEARCH THAT SUPPORTS YOUR POSITION THAT, OVER**
15 **THE LONG TERM, A COMPANY'S EARNINGS AND DIVIDENDS CANNOT**
16 **GROW AT A RATE GREATER THAN THE GROWTH OF THE U.S. GDP?**

17 A. Yes. This concept is supported in both published analyst literature and academic
18 work. Specifically, in a textbook entitled "Fundamentals of Financial Management,"
19 published by Eugene Brigham and Joel F. Houston, the authors state as follows:

20 The constant growth model is most appropriate for mature companies
21 with a stable history of growth and stable future expectations.
22 Expected growth rates vary somewhat among companies, but dividends
23 for mature firms are often expected to grow in the future at about the

1 same rate as nominal gross domestic product (real GDP plus
2 inflation).¹¹

3 **Q. IS THERE ANY ACTUAL INVESTMENT HISTORY THAT SUPPORTS THE**
4 **NOTION THAT THE CAPITAL APPRECIATION FOR STOCK**
5 **INVESTMENTS WILL NOT EXCEED THE NOMINAL GROWTH OF THE**
6 **U.S. GDP?**

7 A. Yes. This is evident by a comparison of the compound annual growth of the U.S.
8 GDP relative to the geometric growth of the U.S. stock market. Morningstar measures
9 the historical geometric growth of the U.S. stock market over the period 1926-2014 to
10 be approximately 5.9%.¹² During this same time period, the U.S. nominal compound
11 annual growth of the U.S. GDP was approximately 6.2%.

12 As such, the compound geometric growth of the U.S. nominal GDP has been
13 higher but comparable to the nominal growth of the U.S. stock market capital
14 appreciation. This historical relationship indicates the U.S. GDP growth outlook is a
15 conservative estimate of the long-term sustainable growth of U.S. stock investments.

16 **Q. HOW DID YOU DETERMINE A SUSTAINABLE LONG-TERM GROWTH**
17 **RATE THAT REFLECTS THE CURRENT CONSENSUS OUTLOOK OF THE**
18 **MARKET?**

19 A. I relied on the consensus analysts' projections of long-term GDP growth. *Blue Chip*
20 *Economic Indicators* publishes consensus economists' GDP growth projections twice
21 a year. These consensus analysts' GDP growth outlooks are the best available
22 measure of the market's assessment of long-term GDP growth. These analyst
23 projections reflect all current outlooks for GDP, as reflected in analyst projections, and

¹¹“*Fundamentals of Financial Management*,” Eugene F. Brigham and Joel F. Houston, Eleventh Edition 2007, Thomson South-Western, a Division of Thomson Corporation at 298, emphasis added.

¹²Morningstar, Inc., Ibbotson SBBI 2015 Classic Yearbook inflation rate of 3.0% at 91, “U.S. Bureau of Economic Analysis,” August 27, 2015.

1 are likely the most influential on investors' expectations of future growth outlooks.
2 The consensus economists' published GDP growth rate outlook is 4.5% to 4.3% over
3 the next 10 years.¹³

4 Therefore, I propose to use the consensus economists' projected 5- and 10-year
5 average GDP consensus growth rates of 4.5% and 4.3%, respectively, as published by
6 *Blue Chip Economic Indicators*, as an estimate of long-term sustainable growth. *Blue*
7 *Chip Economic Indicators* projections provide real GDP growth projections of 2.3%
8 and 2.2%, and GDP inflation of 2.1%,¹⁴ over the 5-year and 10-year projection
9 periods, respectively. These consensus GDP growth forecasts represent the most
10 likely views of market participants because they are based on published consensus
11 economist projections.

12 **Q. DO YOU CONSIDER OTHER SOURCES OF PROJECTED LONG-TERM**
13 **GDP GROWTH?**

14 A. Yes, and these sources corroborate my consensus analysts' projections, as shown
15 below in Table 3.

¹³*Blue Chip Economic Indicators*, October 10, 2015, at 14.

¹⁴*Id.*

TABLE 3
GDP Forecasts

<u>Source</u>	<u>Term</u>	<u>Real GDP</u>	<u>Inflation</u>	<u>Nominal GDP</u>
EIA – Annual Earnings Outlook ¹⁵	25 Yrs	2.4%	1.8%	4.2%
Congressional Budget Office ¹⁶	10 Yrs	2.6%	1.8%	4.5%
Moody’s Analytics ¹⁷	30 Yrs	2.1%	2.0%	4.2%
Social Security Administration ¹⁸	30-75 Yrs			4.5%
The Economist Intelligence Unit ¹⁹	15 Yrs	2.2%	2.0%	4.2%
<i>Blue Chip Financial Forecasts</i>	10 Yrs	2.3%	2.1%	4.4%%

1 The EIA in its *Annual Energy Outlook* projects real GDP out until 2040. In its
2 2015 Annual Report, the EIA projects real GDP through 2040 to be in the range of
3 1.8% to 2.9%, with a midpoint or reference case of 2.4%, and a long-term GDP price
4 inflation projection of 1.8%. The EIA data supports a long-term nominal GDP growth
5 outlook of 4.2%.¹⁵

6 Also, the Congressional Budget Office (“CBO”) makes long-term economic
7 projections. The CBO is projecting real GDP growth to be in the range of 2.1% to
8 3.0%, with a midpoint of 2.6%, during the next 10 years, with a GDP price inflation

¹⁵DOE/EIA *Annual Energy Outlook 2015 With Projections to 2040*, April 2015, at 4 and A-38.

1 outlook in the range of 1.6% to 2.0%, with a midpoint of 1.8%.¹⁶ The CBO 10-year
2 outlook for nominal GDP based on this projection is 4.5%.

3 Moody's Analytics also makes long-term economic projections. In its recent
4 30-year outlook to 2044, Moody's Analytics is projecting real GDP growth of 2.0%
5 with GDP inflation of 2.2%.¹⁷ Based on these projections, Moody's is projecting
6 nominal GDP growth of 4.2% over the next 30 years.

7 The Social Security Administration makes long-term economic projections out
8 to 2090. The Social Security Administration's nominal GDP projections, under its
9 intermediate cost scenario for 30 and 75 years, ranges from 4.5% to 4.4%,
10 respectively.¹⁸ These projections are in line with the consensus economists.

11 The Economist Intelligence Unit, a division of *The Economist* and a third-party
12 data provider to SNL Financial, makes a long-term economic projection out to 2030.¹⁹
13 The Economist Intelligence Unit is projecting real GDP growth of 2.2% with an
14 inflation rate of 2.0% out to 2030. The real GDP growth projection is in line with the
15 consensus economists. The long-term nominal GDP projection based on these
16 outlooks is approximately 4.2%.

17 The real GDP and nominal GDP growth projections made by these
18 independent sources support the use of the consensus economist 5-year and 10-year
19 projected GDP growth outlooks as a reasonable estimate of market participants'
20 long-term GDP growth outlooks.

¹⁶CBO: *The Budget and Economic Outlook: Fiscal Years 2015 to 2025, January 2015, at 154.*

¹⁷www.economy.com, *Moody's Analytics Forecast, July 6, 2015.*

¹⁸www.ssa.gov, "2015 OASDI Trustees Report," Table VI.G4.

¹⁹SNL Financial, *Economist Intelligence Unit, downloaded on September 10, 2015.*

1 **Q. WHAT STOCK PRICE, DIVIDEND, AND GROWTH RATES DID YOU USE**
2 **IN YOUR MULTI-STAGE GROWTH DCF ANALYSIS?**

3 A. I relied on the same 13-week average stock prices and the most recent quarterly
4 dividend payment data discussed above. For stage one growth, I used the consensus
5 analysts' growth rate projections presented above in the discussion of my constant
6 growth DCF model. The first stage growth covers the first five years, consistent with
7 the term of the analyst growth rate projections. The second stage, or transition stage,
8 begins in year 6 and extends through year 10. The second stage growth transitions the
9 growth rate from the first stage to the third stage using a linear trend. For the third
10 stage, or long-term sustainable growth stage, which starts in year 11, I used a 4.4%
11 long-term sustainable growth rate, which conservatively is based on the consensus
12 economists' long-term projected nominal GDP growth rate.

13 **Q. WHAT ARE THE RESULTS OF YOUR MULTI-STAGE GROWTH DCF**
14 **MODEL?**

15 A. As shown in Exhibit MPG-10, the average and median DCF returns on equity for my
16 proxy group are 8.59% and 8.54%, respectively.

17 **J. Summary and Conclusions Regarding DCF Analyses**

18 **Q. PLEASE SUMMARIZE THE RESULTS FROM YOUR DCF ANALYSES.**

19 A. The results from my DCF analyses are summarized in Table 4 below:

<u>Description</u>	<u>Proxy Group Average</u>
Constant Growth DCF Model (Analysts' Growth)	9.36%
Constant Growth DCF Model (Sustainable Growth)	8.55%
Multi-Stage Growth DCF Model	8.59%

1 **Q. WHAT CONCLUSIONS DID YOU DRAW FROM YOUR DCF ANALYSES?**

2 A. I concluded that my DCF studies indicate a return on equity of 9.0% for MDU based
3 on the range of 8.59% to 9.36%. As discussed above, I believe certain constant
4 growth DCF estimates using three- to five-year growth rate projections that are far too
5 high to be rational estimates of long-term sustainable growth produce overstated DCF
6 results. However, I am also concerned about my low-end DCF estimate as being
7 reflective of capital cost when the rates determined in this case will be in effect.
8 Therefore, I recommend a range of DCF returns of 8.6% to 9.4%, with a midpoint
9 estimate of 9.0% for MDU based on my DCF studies.

10 **K. Risk Premium Model**

11 **Q. PLEASE DESCRIBE YOUR BOND YIELD PLUS RISK PREMIUM MODEL.**

12 A. This model is based on the principle that investors require a higher return to assume
13 greater risk. Common equity investments have greater risk than bonds because bonds
14 have more security of payment in bankruptcy proceedings than common equity and

1 the coupon payments on bonds represent contractual obligations. In contrast,
2 companies are not required to pay dividends or guarantee returns on common equity
3 investments. Therefore, common equity securities are considered to be more risky
4 than bond securities.

5 This risk premium model is based on two estimates of an equity risk premium.
6 First, I estimated the difference between the required return on utility common equity
7 investments and U.S. Treasury bonds. The difference between the required return on
8 common equity and the Treasury bond yield is the risk premium. I estimated the risk
9 premium on an annual basis for each year over the period 1986 through September
10 2015. The common equity required returns were based on regulatory commission-
11 authorized returns for utility companies. Authorized returns are typically based on
12 expert witnesses' estimates of the contemporary investor-required return.

13 The second equity risk premium estimate is based on the difference between
14 regulatory commission-authorized returns on common equity and contemporary
15 "A" rated utility bond yields by Moody's. I selected the period 1986 through
16 September 2015 because public utility stocks consistently traded at a premium to book
17 value during that period. This is illustrated in Exhibit MPG-11, which shows that the
18 market to book ratio since 1986 for the utility industry was consistently above a
19 multiple of 1.0x. Over this period, regulatory authorized returns were sufficient to
20 support market prices that at least exceeded book value. This is an indication that
21 regulatory authorized returns on common equity supported a utility's ability to issue
22 additional common stock without diluting existing shares. It further demonstrates that

1 utilities were able to access equity markets without a detrimental impact on current
2 shareholders.

3 Based on this analysis, as shown in Exhibit MPG-12, the average indicated
4 equity risk premium over U.S. Treasury bond yields has been 5.41%. Since the risk
5 premium can vary depending upon market conditions and changing investor risk
6 perceptions, I believe using an estimated range of risk premiums provides the best
7 method to measure the current return on common equity for a risk premium
8 methodology.

9 I incorporated five-year and 10-year rolling average risk premiums over the
10 study period to gauge the variability over time of risk premiums. These rolling
11 average risk premiums mitigate the impact of anomalous market conditions and
12 skewed risk premiums over an entire business cycle. As shown on my Exhibit
13 MPG-12, the five-year rolling average risk premium over Treasury bonds ranged from
14 4.25% to 6.55%, while the 10-year rolling average risk premium ranged from 4.38%
15 to 6.22%.

16 As shown on my Exhibit MPG-13, the average indicated equity risk premium
17 over contemporary Moody's utility bond yields was 4.03%. The five-year and 10-year
18 rolling average risk premiums ranged from 2.88% to 5.44% and 3.20% to 4.89%,
19 respectively.

20 **Q. DO YOU BELIEVE THAT THESE EQUITY RISK PREMIUM ESTIMATES**
21 **ARE BASED ON A TIME PERIOD THAT IS TOO LONG OR TOO SHORT**
22 **TO DRAW ACCURATE CONCLUSIONS CONCERNING CONTEMPORARY**
23 **MARKET CONDITIONS?**

1 A. No. The time period I use in this risk premium study is a generally accepted period to
2 develop a risk premium study using “expectational” data.

3 Contemporary market conditions can change dramatically during the period
4 that rates determined in this proceeding will be in effect. A relatively long period of
5 time where stock valuations reflect premiums to book value is an indication that the
6 authorized returns on equity and the corresponding equity risk premiums were
7 supportive of investors’ return expectations and provided utilities access to the equity
8 markets under reasonable terms and conditions. Further, this time period is long
9 enough to smooth abnormal market movement that might distort equity risk
10 premiums. While market conditions and risk premiums do vary over time, this
11 historical time period is a reasonable period to estimate contemporary risk premiums.

12 Alternatively, studies have recommended that use of “actual achieved
13 investment return data” in a risk premium study should be based on long historical
14 time periods. The studies find that achieved returns over short time periods may not
15 reflect investors’ expected returns due to unexpected and abnormal stock price
16 performance. Short-term abnormal actual returns would be smoothed over time and
17 the achieved actual investment returns over long time periods would approximate
18 investors’ expected returns. Therefore, it is reasonable to assume that averages of
19 annual achieved returns over long time periods will generally converge on the
20 investors’ expected returns.

21 My risk premium study is based on expectational data, not actual investment
22 returns, and, thus, need not encompass a very long historical time period.

1 **Q. BASED ON HISTORICAL DATA, WHAT RISK PREMIUM HAVE YOU**
2 **USED TO ESTIMATE MDU'S COST OF COMMON EQUITY IN THIS**
3 **PROCEEDING?**

4 A. The equity risk premium should reflect the relative market perception of risk in the
5 utility industry today. I have gauged investor perceptions in utility risk today in
6 Exhibit MPG-14. In that exhibit, I show the yield spread between utility bonds and
7 Treasury bonds over the last 36 years. As shown in this exhibit, the average utility
8 bond yield spreads over Treasury bonds for "A" and "Baa" rated utility bonds for this
9 historical period are 1.52% and 1.95%, respectively. The utility bond yield spreads
10 over Treasury bonds for "A" and "Baa" rated utilities through September 2015 were
11 1.24% and 2.06%, respectively. The current average "A" and "Baa" rated utility bond
12 yield spreads over Treasury bond yields are higher than the 36-year average spreads.

13 A current 13-week average "A" rated utility bond yield of 4.30%, when
14 compared to the current Treasury bond yield of 2.89% as shown in Exhibit MPG-15,
15 implies a yield spread of around 141 basis points. This current utility bond yield
16 spread is lower than the 36-year average spread for "A" rated utility bonds of 1.52%.
17 The current spread for the "Baa" rated utility bond yield of 2.48% is higher than the
18 36-year average spread of 1.95%.

19 **Q. HOW DID YOU ESTIMATE MDU'S COST OF COMMON EQUITY WITH**
20 **THIS RISK PREMIUM MODEL?**

21 A. I added a projected long-term Treasury bond yield to my estimated equity risk
22 premium over Treasury yields. The 13-week average 30-year Treasury bond yield,
23 ending October 30, 2015, was 2.89%, as shown in Exhibit MPG-15, page 1. *Blue*
24 *Chip Financial Forecasts* projects the 30-year Treasury bond yield to be 3.80%, and a

1 10-year Treasury bond yield to be 3.1% in the near term.²⁰ Using the projected
2 30-year Treasury bond yield of 3.80%, and a Treasury bond risk premium of 4.25% to
3 6.55%, as developed above, produces an estimated common equity return in the range
4 of 8.05% (3.80% + 4.25%) to 10.35% (3.80% + 6.55%). My risk premium estimates
5 fall in the range of 8.05% to 10.35%.

6 I next added my equity risk premium over utility bond yields to a current
7 13-week average yield on “Baa” rated utility bonds for the period ending October 30,
8 2015, of 5.37%. Adding the utility equity risk premium of 2.88% to 5.44%, as
9 developed above, to a “Baa” rated bond yield of 5.37%, produces a cost of equity in
10 the range of 8.25% (5.37% + 2.88%) to 10.81% (5.37% + 5.44%). Based on this
11 methodology my risk premium estimates fall in the range of 8.25% to 10.81%.

12 **Q. WHAT IS YOUR RECOMMENDED RETURN FOR MDU BASED ON YOUR**
13 **RISK PREMIUM STUDY?**

14 A. To be conservative, I am recommending slightly more weight to the high-end risk
15 premium estimates than the low-end. I state this because of the relatively low level of
16 interest rates now, but relative upward movements of utility yields more recently.
17 Hence, I propose to provide 60% weight to my high-end risk premium estimates and
18 40% to the low-end. Based on this methodology, my Treasury bond risk premium is
19 9.43%²¹ and based on my utility bond risk premium I recommend a return of 9.79%.²²

20 This methodology produces a return on equity in the range of 9.50% to 9.80%,
21 with a midpoint of 9.65%.

²⁰Blue Chip Financial Forecasts, November 1, 2015.

²¹ $(8.05\% * 40\%) + (10.35\% * 60\%) = 9.43\%$.

²² $(8.25\% * 40\%) + (10.81\% * 60\%) = 9.79\%$.

1 **L. Capital Asset Pricing Model**

2 **Q. PLEASE DESCRIBE THE CAPITAL ASSET PRICING MODEL.**

3 A. The Capital Asset Pricing Model (“CAPM”) method is based upon the theory that the
4 market-required rate of return for a security is equal to the risk-free rate, plus a risk
5 premium associated with the specific security. This relationship between risk and
6 return can be expressed mathematically as follows:

7 $R_i = R_f + B_i \times (R_m - R_f)$ where:

8 R_i = Required return for stock i

9 R_f = Risk-free rate

10 R_m = Expected return for the market portfolio

11 B_i = Beta - Measure of the risk for stock

12 The stock-specific risk term in the above equation is beta. Beta represents the
13 investment risk that cannot be diversified away when the security is held in a
14 diversified portfolio. When stocks are held in a diversified portfolio, firm-specific
15 risks can be eliminated by balancing the portfolio with securities that react in the
16 opposite direction to firm-specific risk factors (*e.g.*, business cycle, competition,
17 product mix, and production limitations).

18 The risks that cannot be eliminated when held in a diversified portfolio are
19 non-diversifiable risks. Non-diversifiable risks are related to the market in general and
20 are referred to as systematic risks. Risks that can be eliminated by diversification are
21 regarded as non-systematic risks. In a broad sense, systematic risks are market risks,
22 and non-systematic risks are business risks. The CAPM theory suggests that the
23 market will not compensate investors for assuming risks that can be diversified away.
24 Therefore, the only risk that investors will be compensated for are systematic or

1 non-diversifiable risks. The beta is a measure of the systematic or non-diversifiable
2 risks.

3 **Q. PLEASE DESCRIBE THE INPUTS TO YOUR CAPM.**

4 A. The CAPM requires an estimate of the market risk-free rate, the company's beta, and
5 the market risk premium.

6 **Q. WHAT DID YOU USE AS AN ESTIMATE OF THE MARKET RISK-FREE
7 RATE?**

8 A. As previously noted, *Blue Chip Financial Forecasts'* projected 30-year Treasury bond
9 yield is 3.80%.²³ The current 30-year Treasury bond yield is 2.89%, as shown in
10 Exhibit MPG-15, page 1. I used *Blue Chip Financial Forecasts'* projected 30-year
11 Treasury bond yield of 3.80% for my CAPM analysis.

12 **Q. WHY DID YOU USE LONG-TERM TREASURY BOND YIELDS AS AN
13 ESTIMATE OF THE RISK-FREE RATE?**

14 A. Treasury securities are backed by the full faith and credit of the United States
15 government, so long-term Treasury bonds are considered to have negligible credit risk.
16 Also, long-term Treasury bonds have an investment horizon similar to that of common
17 stock. As a result, investor-anticipated long-run inflation expectations are reflected in
18 both common stock required returns and long-term bond yields. Therefore, the
19 nominal risk-free rate (or expected inflation rate and real risk-free rate) included in a
20 long-term bond yield is a reasonable estimate of the nominal risk-free rate included in
21 common stock returns.

²³*Blue Chip Financial Forecasts, November 1, 2015 at 2.*

1 Treasury bond yields, however, do include risk premiums related to
2 unanticipated future inflation and interest rates. A Treasury bond yield is not a
3 risk-free rate. Risk premiums related to unanticipated inflation and interest rates are
4 systematic or market risks. Consequently, for companies with betas less than 1.0,
5 using the Treasury bond yield as a proxy for the risk-free rate in the CAPM analysis
6 can produce an overstated estimate of the CAPM return.

7 **Q. WHAT BETA DID YOU USE IN YOUR ANALYSIS?**

8 A. As shown in Exhibit MPG-16, the average *Value Line* beta estimate is 0.78 for my
9 proxy group.

10 **Q. HOW DID YOU DERIVE YOUR MARKET RISK PREMIUM ESTIMATE?**

11 A. I derived two market risk premium estimates, a forward-looking estimate and one
12 based on a long-term historical average.

13 The forward-looking estimate was derived by estimating the expected return
14 on the market (as represented by the S&P 500) and subtracting the risk-free rate from
15 this estimate. I estimated the expected return on the S&P 500 by adding an expected
16 inflation rate to the long-term historical arithmetic average real return on the market.
17 The real return on the market represents the achieved return above the rate of inflation.

18 Morningstar's *Stocks, Bonds, Bills and Inflation 2015 Classic Yearbook*
19 estimates the historical arithmetic average real market return over the period 1926 to
20 2014 as 8.9%.²⁴ A current consensus analysts' inflation projection, as measured by

²⁴*Morningstar, Inc., Ibbotson SBBi 2015 Classic Yearbook at 92.*

1 the Consumer Price Index, is 2.3%.²⁵ Using these estimates, the expected market
2 return is 11.40%.²⁶ The market risk premium then is the difference between the
3 11.40% expected market return, and my 3.80% risk-free rate estimate, or
4 approximately 7.6%.

5 The historical estimate of the market risk premium was also estimated by
6 Morningstar in *Stocks, Bonds, Bills and Inflation 2015 Classic Yearbook*. Over the
7 period 1926 through 2014, Morningstar's study estimated that the arithmetic average
8 of the achieved total return on the S&P 500 was 12.1%,²⁷ and the total return on
9 long-term Treasury bonds was 6.10%.²⁸ The indicated market risk premium is 6.0%
10 (12.1% - 6.1% = 6.0%). The average of my market risk premium estimates is 6.80%
11 (6.0% to 7.6%).

12 **Q. HOW DOES YOUR ESTIMATED MARKET RISK PREMIUM RANGE**
13 **COMPARE TO THAT ESTIMATED BY MORNINGSTAR?**

14 A. Morningstar's analysis indicates that a market risk premium falls somewhere in the
15 range of 6.3% to 7.0%. My market risk premium falls in the range of 6.0% to 7.6%.
16 My average market risk premium of 6.80% is within Morningstar's range.

17 Morningstar estimates a forward-looking market risk premium based on actual
18 achieved data from the historical period of 1926 through 2014. Using this data,
19 Morningstar estimates a market risk premium derived from the total return on large
20 company stocks (S&P 500), less the income return on Treasury bonds. The total
21 return includes capital appreciation, dividend or coupon reinvestment returns, and

²⁵Blue Chip Financial Forecasts, November 1, 2015 at 2.

²⁶ $\{ [(1 + 0.089) * (1 + 0.023)] - 1 \} * 100$.

²⁷Morningstar, Inc., Ibbotson SBBi 2015 Classic Yearbook at 91.

²⁸Id.

1 annual yields received from coupons and/or dividend payments. The income return, in
2 contrast, only reflects the income return received from dividend payments or coupon
3 yields. Morningstar argues that the income return is the only true risk-free rate
4 associated with Treasury bonds and is the best approximation of a truly risk-free
5 rate.²⁹ I disagree with this assessment from Morningstar, because it does not reflect a
6 true investment option available to the marketplace and therefore does not produce a
7 legitimate estimate of the expected premium of investing in the stock market versus
8 that of Treasury bonds. Nevertheless, I will use Morningstar's conclusion to show the
9 reasonableness of my market risk premium estimates.

10 Morningstar's range is based on several methodologies. First, Morningstar
11 estimates a market risk premium of 7.0% based on the difference between the total
12 market return on common stocks (S&P 500) less the income return on Treasury bond
13 investments. Second, Morningstar found that if the New York Stock Exchange
14 ("NYSE") was used as the market index rather than the S&P 500, that the market risk
15 premium would be 6.8%, not 7.0%. Third, if only the two deciles of the largest
16 companies included in the NYSE were considered, the market risk premium would be
17 6.3%.³⁰

18 Finally, Morningstar found that the 7.0% market risk premium based on the
19 S&P 500 was influenced by an abnormal expansion of price-to-earnings ("P/E") ratios
20 relative to earnings and dividend growth during the period 1980 through 2001.

²⁹*Id. at 153.*

³⁰*Morningstar observes that the S&P 500 and the NYSE Decile 1-2 are both large capitalization benchmarks. Id. at 152.*

1 Morningstar believes this abnormal P/E expansion is not sustainable.³¹ Therefore,
2 Morningstar adjusted this market risk premium estimate to normalize the growth in the
3 P/E ratio to be more in line with the growth in dividends and earnings. Based on this
4 alternative methodology, Morningstar published a long-horizon supply-side market
5 risk premium of 6.2%.³²

6 **Q. WHAT ARE THE RESULTS OF YOUR CAPM ANALYSIS?**

7 A. As shown in Exhibit MPG-17, based on my market risk premium estimates of 6.0%
8 and 7.6%, a risk-free rate of 3.8%, and a beta of 0.78, the CAPM analysis produces a
9 return of 8.49% to 9.74%. Similar to my previous risk premium, I place 60% weight
10 on my high-end CAPM return estimate, and 40% weight on my low-end. This
11 produces a CAPM return estimate recommendation of 9.25%.³³

12 **M. Return on Equity Summary**

13 **Q. BASED ON THE RESULTS OF YOUR RETURN ON COMMON EQUITY**
14 **ANALYSES DESCRIBED ABOVE, WHAT RETURN ON COMMON EQUITY**
15 **DO YOU RECOMMEND FOR MDU?**

16 A. Based on my analyses, I estimate MDU's current market cost of equity to be 9.35%.

³¹*Id. at 156.*

³²*Id. at 157.*

³³ $(8.49\% * 40\%) + (9.74\% * 60\%) = 9.25\%$.

<u>Description</u>	<u>Results</u>
DCF	9.00%
Risk Premium	9.65%
CAPM	9.25%

1 My recommended return on common equity of 9.35% is at the approximate
2 midpoint of my estimated range of 9.00% to 9.65%. The high-end of my estimated
3 range is based on my risk premium analysis. The low-end is based on my DCF
4 studies. The CAPM return estimate falls within this recommended range.

5 This range reflects current market capital costs, increased interest rate risk in
6 the current market due to Federal Reserve policies and other factors, and represents
7 fair compensation to MDU's investors for the total investment risk of its regulated
8 utility.

9 **N. Financial Integrity**

10 **Q. WILL YOUR RECOMMENDED OVERALL RATE OF RETURN SUPPORT**
11 **AN INVESTMENT GRADE BOND RATING FOR MDU?**

12 A. Yes. I have reached this conclusion by comparing the key credit rating financial ratios
13 for MDU, at my proposed return on equity, embedded cost of debt, and my proposed
14 capital structure, to S&P's benchmark financial ratios using S&P's new credit metric
15 ranges.

16 **Q. PLEASE DESCRIBE THE MOST RECENT S&P FINANCIAL RATIO**
17 **CREDIT METRIC METHODOLOGY.**

1 A. S&P publishes a matrix of financial ratios that correspond to its assessment of the
2 business risk of utility companies and related bond ratings. On May 27, 2009, S&P
3 expanded its matrix criteria by including additional business and financial risk
4 categories.³⁴

5 Based on S&P's most recent credit matrix, the business risk profile categories
6 are "Excellent," "Strong," "Satisfactory," "Fair," "Weak," and "Vulnerable." Most
7 utilities have a business risk profile of "Excellent" or "Strong."

8 The financial risk profile categories are "Minimal," "Modest," "Intermediate,"
9 "Significant," "Aggressive," and "Highly Leveraged." Most of the utilities have a
10 financial risk profile of "Aggressive." MDU has a "Strong" business risk profile and a
11 "Significant" financial risk profile.

12 **Q. PLEASE DESCRIBE S&P'S USE OF THE FINANCIAL BENCHMARK**
13 **RATIOS IN ITS CREDIT RATING REVIEW.**

14 A. S&P evaluates a utility's credit rating based on an assessment of its financial and
15 business risks. A combination of financial and business risks equates to the overall
16 assessment of MDU's total credit risk exposure. On November 19, 2013, S&P
17 updated its methodology. In its update, S&P published a matrix of financial ratios that
18 defines the level of financial risk as a function of the level of business risk.

19 S&P publishes ranges for three primary financial ratios that it uses as guidance
20 in its credit review for utility companies. The two core financial ratio benchmarks it
21 relies on in its credit rating process include: (1) Debt to Earnings Before Interest,

³⁴S&P updated its 2008 credit metric guidelines in 2009, and incorporated utility metric benchmarks with the general corporate rating metrics. Standard & Poor's RatingsDirect: "Criteria Methodology: Business Risk/Financial Risk Matrix Expanded," May 27, 2009.

1 Taxes, Depreciation and Amortization (“EBITDA”); and (2) Funds From Operations
2 (“FFO”) to Total Debt.³⁵

3 **Q. HOW DID YOU APPLY S&P’S FINANCIAL RATIOS TO TEST THE**
4 **REASONABLENESS OF YOUR RATE OF RETURN**
5 **RECOMMENDATIONS?**

6 A. I calculated each of S&P’s financial ratios based on MDU’s cost of service for its
7 retail jurisdictional operations. While S&P would normally look at total consolidated
8 MDU Resources financial ratios in its credit review process, my investigation in this
9 proceeding is not the same as S&P’s. I am attempting to judge the reasonableness of
10 my proposed cost of capital for rate-setting in MDU’s electric retail regulated utility
11 operations in Montana. Hence, I am attempting to determine whether my proposed
12 rate of return will in turn support cash flow metrics, balance sheet strength, and
13 earnings that will support an investment grade bond rating and MDU’s financial
14 integrity.

15 Importantly, MDU Resources does have off-balance sheet debt obligations
16 reported by S&P. However, S&P’s report for MDU Resources does not allow for a
17 reasonable identification of those off-balance sheet obligations that allows for
18 allocation between MDU Resources’ non-regulated and regulated operations. For
19 these reasons, I have not reflected any off-balance sheet debt equivalents in my credit
20 metric evaluation. Therefore, in interpreting my ratios, I am recognizing a need for
21 conservative compliance with investment grade credit metrics.

22 **Q. PLEASE DESCRIBE THE RESULTS OF THIS CREDIT METRIC ANALYSIS**
23 **FOR MDU.**

³⁵Standard & Poor’s RatingsDirect: “Criteria: Corporate Methodology,” November 19, 2013.

1 A. The S&P financial metric calculations for MDU at a 9.35% return are developed on
2 Exhibit MPG-18, pages 1-3. S&P currently rates MDU's business risk as
3 "Satisfactory" and financial risk as "Intermediate." The credit metrics produced
4 below, with this financial and business risk outlook by S&P, will be used to assess the
5 strength of the credit metrics based on MDU's retail operations in Montana.

6 MDU's adjusted total debt ratio for retail cost of service is approximately 54%.
7 This adjusted debt ratio is generally comparable to the adjusted debt ratios for utilities
8 with an S&P bond rating of BBB, which is comparable to MDU's bond rating. Hence,
9 I concluded this capital structure reasonably supports MDU's current investment grade
10 bond rating. This adjusted total debt ratio will support an investment grade bond
11 rating.

12 Based on an equity return of 9.35%, MDU will be provided an opportunity to
13 produce a debt to EBITDA ratio of 3.3x, which is within S&P's "Intermediate"
14 guideline range of 2.5x to 3.5x,³⁶ which reflects less risk and stronger metrics than
15 needed to support MDU's financial risk ranking of "Satisfactory."

16 MDU's retail operations FFO to total debt coverage at a 9.35% equity return is
17 34%. The FFO to debt ratio projected for 2015 is within S&P's "Intermediate" range
18 of 23% to 35%. These FFO/total debt ratios will support an investment grade bond
19 rating.

³⁶*Id.*

1 At my recommended return on equity of 9.35% and proposed embedded debt
2 cost and capital structure, MDU's financial credit metrics are supportive of its
3 investment grade utility bond rating.

4 **III. RESPONSE TO MDU WITNESS DR. J. STEPHEN GASKE**

5 **Q. WHAT IS DR. GASKE'S RETURN ON EQUITY RECOMMENDATION?**

6 A. Dr. Gaske recommends a return on equity of 10.00% based on results summarized in
7 Table 6 below.

TABLE 6				
<u>Dr. Gaske's Results</u>				
	<u>Median</u>	<u>High</u>	<u>Low</u>	<u>Adjusted Median</u>
	(1)	(2)	(3)	(4)
<u>DCF</u>				
Retention Growth	7.97%	10.08%	6.65%	7.70%
Analyst Growth	9.40%	13.27%	7.13%	9.08%
Blended Growth	8.53%	10.70%	6.96%	8.24%
<u>Risk Premium</u>				
Large Company Stocks (S&P 500)	9.72%			9.46%
Small Company Stocks	18.20%			Reject
Market DCF (S&P 500)	12.40%			9.46%

Source: Direct Testimony of Dr. J. Stephen Gaske
(Exhibit No. ___ (JSG-1) at 36.

8 As outlined in Table 6 above under Column (4), Dr. Gaske's DCF models
9 indicate a return no higher than 9.08%. Further, reasonable adjustments to his risk
10 premium studies would indicate a fair return on equity for MDU regulated operations
11 of no higher than 9.46%. Hence, a reasonable interpretation of Dr. Gaske's models,

1 adjusted to reflect MDU's regulated operations investment risk, indicates a fair return
2 on equity in this proceeding of 9.1% to 9.5%.

3 **Q. DO DR. GASKE'S RETURN ON EQUITY STUDIES SUPPORT A 10%**
4 **RETURN FOR MDU?**

5 A. No. Dr. Gaske's studies support a return on equity in the range of 7.97% to 9.40% for
6 MDU.

7 **Q. PLEASE DESCRIBE DR. GASKE'S DCF ANALYSIS.**

8 A. Dr. Gaske developed three versions of the DCF analysis. His first approach calculates
9 the DCF return based on Value Line projected dividends, earnings and returns, which
10 results in a recommended return in the range of 6.43% to 9.74% with a median of
11 7.70%. Dr. Gaske then adjusted his proxy group Retention Growth DCF results for
12 flotation costs by increasing the DCF return estimate by 3.5%. This increased the
13 median result of the proxy group from 7.70% up to 7.97%.

14 His second approach is based on a traditional or basic DCF analysis using
15 analysts' projected growth rate estimates. This basic DCF analysis estimates a return
16 on equity for MDU in the range of 6.89% and 12.83%, with a median of 9.08%.
17 Again, Dr. Gaske increased his proxy group return by adjusting each DCF estimate by
18 a 3.5% flotation cost adjustment. This increased the group proxy median from 9.08%
19 up to 9.40%.

20 Finally, Dr. Gaske develops a blended DCF analysis relying on both his
21 retention and analysts' projected growth rate estimates. This approach yields a return
22 on equity in the range of 6.72% to 10.34% with a median of 8.24%. Once again, Dr.

1 Gaske adjusted his Blended Growth DCF return by a 3.5% flotation cost adjustment.
2 This increased his Blended Growth DCF return from 8.24% to 8.53%.

3 **Q. PLEASE DESCRIBE THE ISSUES YOU HAVE WITH DR. GASKE'S DCF**
4 **ANALYSES.**

5 A. My primary issue with Dr. Gaske's DCF studies lies in his proposal to adjust all of the
6 DCF return estimates by a flotation cost adder or adjustment of 3.5%. The effect of
7 this flotation cost adjustment is to increase the DCF return estimate by approximately
8 30 basis points.

9 **Q. DO YOU BELIEVE THAT DR. GASKE'S FLOTATION COST ADJUSTMENT**
10 **TO HIS DCF RETURN ESTIMATES IS REASONABLE?**

11 A. No. Dr. Gaske's proposed flotation cost adjustment for MDU is not based on known
12 and measurable costs for MDU. Therefore, his flotation cost adjustment should be
13 rejected.

14 **Q. HOW DID DR. GASKE DEVELOP A FLOTATION COST ADJUSTMENT**
15 **FOR MDU?**

16 A. Dr. Gaske reviews a representative sample of flotation costs incurred with 51 new
17 common stock issues by electric utilities during the period January 2005 to November
18 2014. This produces an average flotation cost of 3.37%. Dr. Gaske rounds this up to
19 3.5%, and increases his proposed return on equity by approximately 30 basis points.
20 This flotation cost adjustment is intended to recover the cost a utility incurred by
21 issuing additional stock to the public.

22 **Q. WHY IS DR. GASKE'S FLOTATION COST ADJUSTMENT FLAWED?**

23 A. Dr. Gaske's flotation cost adjustment is not based on the recovery of prudent and
24 reasonable flotation expenses for MDU. Rather, as discussed at pages 17-18 of his

1 direct testimony, Dr. Gaske derives a flotation cost adjustment based on cost
2 information of other companies relying on publicly available information. Because
3 Dr. Gaske does not show that his adjustment is based on MDU's actual and verifiable
4 flotation expenses, there are no means of verifying whether his proposal is reasonable
5 or appropriate. Stated differently, Dr. Gaske's flotation cost adder is not based on
6 known and measurable MDU costs. Therefore, the Commission should reject his
7 proposed flotation expense return on equity adder.

8 **Q. IF DR. GASKE HAD SHOWN AN ACTUAL AND VERIFIABLE FLOTATION**
9 **EXPENSE ALLOCATED TO MDU'S REGULATED OPERATIONS, WOULD**
10 **HIS PROPOSED FLOTATION COST ADJUSTMENT BE REASONABLE?**

11 A. No. A clear understanding of how the actual and verifiable flotation costs were treated
12 in the past for ratemaking purposes is also needed. Specifically, if the flotation
13 expenses had been amortized to cost of service, then these costs would have already
14 been recovered in past rates. If this is the case, then allowing a return on equity
15 adjustment in this case would provide cost recognition in prospective rates for costs
16 that have already been recovered, this double recovery of flotation costs would be
17 unjust and unreasonable.

18 As such, Dr. Gaske would have to identify MDU Resources' actual flotation
19 costs that are properly allocated to regulated operations, show the time period these
20 costs were incurred, and show how they have been treated for ratemaking purposes in
21 the past. Without this clear demonstration, Dr. Gaske's proposed flotation cost
22 adjustment is simply not a known and measurable component of MDU's cost of
23 service in this case.

1 **Q. CAN DR. GASKE'S DCF ANALYSES BE ADJUSTED TO PRODUCE MORE**
2 **REASONABLE RESULTS?**

3 A. Yes. Removing the flotation cost adjustment from Dr. Gaske's DCF studies produces
4 a DCF return in the range of 7.7% up to 9.1%. These are the medians of his proxy
5 group studies which eliminate low-end and high-end outliers. Hence, these estimates
6 reasonably reflect the investment risk and a fair return for his proxy group based on
7 his own DCF studies. Conservatively, Dr. Gaske's DCF studies demonstrate that a
8 fair return on equity for MDU in this case is not higher than 9.08%, or approximately
9 9.1%.

10 **Q. DO YOU HAVE ANY OTHER ISSUES WITH DR. GASKE'S DCF RETURN**
11 **RESULTS?**

12 A. Yes. Dr. Gaske's proposal to set the return on equity for MDU above the median DCF
13 results will place an unreasonable burden on the ratepayers and should be rejected. As
14 discussed below, MDU's relative risk is comparable to the risk of the utility
15 companies included in the proxy group.

16 **Q. WHY DO YOU BELIEVE THAT MDU FACES RISKS THAT ARE**
17 **COMPARABLE TO THE RISKS FACED BY DR. GASKE'S PROXY GROUP**
18 **COMPANIES?**

19 A. This is evident by Dr. Gaske's own testimony. He describes his stringent
20 methodology to identify companies that are risk comparable to MDU's operations and
21 on his Exhibit No. ___(JSG-2), Schedule 13 he shows that the average credit rating for
22 his proxy group of BBB+ is identical to MDU Resources' credit rating from S&P.
23 The relative risks discussed on pages 29-34 of Dr. Gaske testimony are already
24 incorporated in the credit ratings of the proxy group companies. S&P and other credit
25 rating agencies go through great detail in assessing a utility's business risk and

1 financial risk in order to evaluate their assessment of its total investment risk.
2 Therefore, this total risk investment assessment of MDU, in comparison to a proxy
3 group, is fully absorbed into the market's perception of MDU's risk and the proxy
4 group fully captures the investment risk of MDU.

5 **Q. HOW DOES S&P ASSIGN CORPORATE CREDIT RATINGS FOR**
6 **REGULATED UTILITIES?**

7 A. In assigning corporate credit ratings the credit rating agency considers both business
8 and financial risks. Business risks among others include company's size and
9 competitive position, generation portfolio, as well as a consideration of the regulatory
10 environment, current state of the industry and the economy as whole. Specifically,
11 S&P states:

12 To determine the assessment for a corporate issuer's business risk profile, the
13 criteria combine our assessments of industry risk, country risk, and competitive
14 position. Cash flow/leverage analysis determines a company's financial risk
15 profile assessment. The analysis then combines the corporate issuer's business
16 risk profile assessment and its financial risk profile assessment to determine its
17 anchor. In general, the analysis weighs the business risk profile more heavily
18 for investment-grade anchors, while the financial risk profile carries more
19 weight for speculative-grade anchors.³⁷

20 **Q. PLEASE DESCRIBE DR. GASKE'S UTILITY RISK PREMIUM ANALYSIS.**

21 A. Dr. Gaske develops two risk premium studies based on the average Moody's corporate
22 bond yield for the 6-month period from November 2014 to April 2015 of 4.02%. For
23 his first risk premium study Dr. Gaske derived an equity risk premium of 5.7%, which
24 is the difference between the annual total return on a large company stock of 12.1%
25 and the return on long-term corporate bonds of 6.4% since 1926 as published by

³⁷Standard & Poor's RatingsDirect: "Criteria/Corporates/General: Corporate Methodology," November 19, 2013.

1 Ibbotson Associates 2015 Classic Yearbook. Then, Dr. Gaske added the Moody's
2 corporate bond yield of 4.02% to his risk premium of 5.7% to produce a return on
3 equity for MDU of 9.72%. (Exhibit No. ___(JSG-1) at 27).

4 In his second risk premium analysis Dr. Gaske estimates a risk premium over
5 the return for a small company stock again using the data from Ibbotson Associates.
6 He estimates MDU's market capitalization based on the Company's projected rate
7 base and equity ratio and he determines that MDU falls in the Ibbotson's 10th decile,
8 which has a return of 20.6%. Then, he estimates a risk premium of 14.2% over the
9 return of long-term corporate bonds of 6.4%. Adding his small company risk
10 premium of 14.2% to Moody's corporate bond yield of 4.02% produces a return on
11 equity of 18.2%.

12 **Q. ARE DR. GASKE'S RISK PREMIUMS A FAIR RETURN ON EQUITY**
13 **ESTIMATE FOR MDU?**

14 A. No. Dr. Gaske's risk premium estimates reasonably reflect returns on the overall
15 market or some unregulated market index. These returns on equity were not calibrated
16 to reflect the low risk of MDU's regulated utility operations.

17 **Q. DO YOU BELIEVE THAT DR. GASKE'S PROPOSAL FOR A SMALL**
18 **COMPANY RETURN ON EQUITY ADDER FOR MDU IS REASONABLY**
19 **DEVELOPED?**

20 A. No. This is unreasonable for several reasons. First, Dr. Gaske has not properly
21 gauged an investment risk adjustment for MDU relative to his proxy group.
22 Therefore, to the extent MDU could justify a small company risk adder, it should be
23 relative to the proxy group market return and not to the return on the total market.
24 Second, the development of a small company adder should not be the only

1 consideration in developing a fair return for MDU's regulated business operations.
2 The risk assessment for MDU's regulated operations should reflect small company
3 risk adders, as well as regulatory risk reductions. Dr. Gaske's small company risk
4 return is not a fair return for MDU because he ignores the risk reduction produced by
5 regulatory protections and cost-based prices.

6 Finally, Dr. Gaske's risk premium analysis is the development of his small
7 company risk premium of 14.2%. The total return of 20.6% for the 10th decile reflects
8 risks that are not characteristic of MDU. This total return used by Dr. Gaske reflects
9 companies that have beta estimates of approximately 1.40.³⁸ These beta estimates are
10 substantially higher than the average beta of 0.78 for the proxy group. Therefore, his
11 small company risk premium produces a return estimate that is inflated and does not
12 reflect a risk appropriate return for MDU. Hence, the return produced by Dr. Gaske
13 small company risk premium is not reasonable and should be rejected.

14 His large company risk premium suffers from the same deficiencies described
15 above in regards to his small company risk premium. However, Dr. Gaske's large
16 company risk premium produces a return on equity that is in line with market
17 expectation.

18 **Q. PLEASE DESCRIBE DR. GASKE'S MARKET DCF ANALYSIS.**

19 A. Dr. Gaske developed a market DCF analysis as a benchmark to test the reasonableness
20 of his proxy group DCF estimates. He calculated the required return for the

³⁸2015 SBBI Valuation Yearbook at 109.

1 companies included in the S&P 500, based on an expected dividend yield of 2.5% and
2 an expected growth rate of 9.9%, which produced a market DCF return of 12.4%.

3 **Q. DO YOU HAVE ANY CONCERNS IN REGARDS TO DR. GASKE'S**
4 **MARKET DCF ANALYSIS.**

5 A. Yes. I have two major concerns with his analysis. First, his market DCF return is
6 based on a growth rate of 9.9%, which is significantly above the long-term sustainable
7 growth rate of 4.4% that I discussed earlier. It is unreasonable to assume that this
8 growth rate that is almost twice the growth of the U.S. economy can be sustained
9 indefinitely.

10 Second, the S&P 500 includes companies with risk characteristics significantly
11 different than the risks encountered by MDU and its parent company. The companies
12 in the utility industry operate as natural monopolies and are shielded from the
13 economic turbulence faced by corporations operating in other industries. As noted by
14 the major credit rating agencies, the utility industry has relatively low risk in
15 comparison with the market. Indeed, the regulatory process itself provides an
16 effective mechanism to mitigate some of the market risks influencing the U.S.
17 economy. Therefore, using Dr. Gaske's market DCF analysis as a benchmark will
18 produce an unreliable and inflated return on equity for a low-risk utility such as MDU.
19 Therefore, the Commission should disregard the results of Dr. Gaske's market DCF
20 analysis.

1 **Q. CAN DR. GASKE’S RISK PREMIUM STUDIES BE USED TO ESTIMATE A**
2 **FAIR RETURN FOR MDU REGULATED OPERATIONS?**

3 A. Dr. Gaske’s risk premium models largely ignore the investment risk and a fair return
4 based on that risk for MDU’s regulated operations. Hence, these models are primarily
5 just not useful in estimating a fair risk-adjusted return for regulated utility systems.

6 However, he has estimated two returns for the S&P 500: one based on a risk
7 premium estimate of 9.7% and one based on a DCF return on the market of 12.4%.
8 The midpoint of these two estimates produces a market return estimate of 11.05%.
9 Using a risk-free rate of 3.8%, and a comparable risk proxy group systematic risk beta
10 factor of 0.78, would produce a risk premium estimated fair return for the proxy group
11 of 9.46%.³⁹

12 His Small Company stock return of 18.2% is based on non-regulated small
13 companies. There has been no demonstration that this proxy group reasonably reflects
14 the investment risk of MDU Resources, much less its lower-risk regulated
15 subsidiaries. Hence, this Small Company market return estimate should simply be
16 rejected.

17 **Q DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

18 A Yes, it does.

³⁹ $(11.05\% - 3.8\%) \times 0.78 + 3.8\% = 9.46\%$.

Qualifications of Michael P. Gorman

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

2 A Michael P. Gorman. My business address is 16690 Swingley Ridge Road, Suite 140,
3 Chesterfield, MO 63017.

4 **Q PLEASE STATE YOUR OCCUPATION.**

5 A I am a consultant in the field of public utility regulation and a Managing Principal with
6 Brubaker & Associates, Inc. (“BAI”), energy, economic and regulatory consultants.

7 **Q PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND**
8 **WORK EXPERIENCE.**

9 A In 1983 I received a Bachelors of Science Degree in Electrical Engineering from
10 Southern Illinois University, and in 1986, I received a Masters Degree in Business
11 Administration with a concentration in Finance from the University of Illinois at
12 Springfield. I have also completed several graduate level economics courses.

13 In August of 1983, I accepted an analyst position with the Illinois Commerce
14 Commission (“ICC”). In this position, I performed a variety of analyses for both
15 formal and informal investigations before the ICC, including: marginal cost of
16 energy, central dispatch, avoided cost of energy, annual system production costs, and
17 working capital. In October of 1986, I was promoted to the position of Senior
18 Analyst. In this position, I assumed the additional responsibilities of technical leader
19 on projects, and my areas of responsibility were expanded to include utility financial
20 modeling and financial analyses.

21 In 1987, I was promoted to Director of the Financial Analysis Department. In
22 this position, I was responsible for all financial analyses conducted by the Staff.

1 Among other things, I conducted analyses and sponsored testimony before the ICC on
2 rate of return, financial integrity, financial modeling and related issues. I also
3 supervised the development of all Staff analyses and testimony on these same issues.
4 In addition, I supervised the Staff's review and recommendations to the Commission
5 concerning utility plans to issue debt and equity securities.

6 In August of 1989, I accepted a position with Merrill-Lynch as a financial
7 consultant. After receiving all required securities licenses, I worked with individual
8 investors and small businesses in evaluating and selecting investments suitable to their
9 requirements.

10 In September of 1990, I accepted a position with Drazen-Brubaker &
11 Associates, Inc. ("DBA"). In April 1995, the firm of Brubaker & Associates, Inc. was
12 formed. It includes most of the former DBA principals and Staff. Since 1990, I have
13 performed various analyses and sponsored testimony on cost of capital, cost/benefits
14 of utility mergers and acquisitions, utility reorganizations, level of operating expenses
15 and rate base, cost of service studies, and analyses relating to industrial jobs and
16 economic development. I also participated in a study used to revise the financial
17 policy for the municipal utility in Kansas City, Kansas.

18 At BAI, I also have extensive experience working with large energy users to
19 distribute and critically evaluate responses to requests for proposals ("RFPs") for
20 electric, steam, and gas energy supply from competitive energy suppliers. These
21 analyses include the evaluation of gas supply and delivery charges, cogeneration
22 and/or combined cycle unit feasibility studies, and the evaluation of third-party

1 asset/supply management agreements. I have participated in rate cases on rate design
2 and class cost of service for electric, natural gas, water and wastewater utilities. I have
3 also analyzed commodity pricing indices and forward pricing methods for third party
4 supply agreements, and have also conducted regional electric market price forecasts.

5 In addition to our main office in St. Louis, the firm also has branch offices in
6 Phoenix, Arizona and Corpus Christi, Texas.

7 **Q HAVE YOU EVER TESTIFIED BEFORE A REGULATORY BODY?**

8 A Yes. I have sponsored testimony on cost of capital, revenue requirements, cost of
9 service and other issues before the Federal Energy Regulatory Commission and
10 numerous state regulatory commissions including: Arkansas, Arizona, California,
11 Colorado, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas,
12 Louisiana, Michigan, Missouri, Montana, Mississippi, New Jersey, New Mexico, New
13 York, North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Texas,
14 Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming, and
15 before the provincial regulatory boards in Alberta and Nova Scotia, Canada. I have
16 also sponsored testimony before the Board of Public Utilities in Kansas City, Kansas;
17 presented rate setting position reports to the regulatory board of the municipal utility
18 in Austin, Texas, and Salt River Project, Arizona, on behalf of industrial customers;
19 and negotiated rate disputes for industrial customers of the Municipal Electric
20 Authority of Georgia in the LaGrange, Georgia district.

1 **Q PLEASE DESCRIBE ANY PROFESSIONAL REGISTRATIONS OR**
2 **ORGANIZATIONS TO WHICH YOU BELONG.**

3 A I earned the designation of Chartered Financial Analyst (“CFA”) from the CFA
4 Institute. The CFA charter was awarded after successfully completing three
5 examinations which covered the subject areas of financial accounting, economics,
6 fixed income and equity valuation and professional and ethical conduct. I am a
7 member of the CFA Institute’s Financial Analyst Society.

Direct Testimony of

Michael P. Gorman

Exhibit MPG-1

MONTANA-DAKOTA UTILITIES CO.

Rate of Return (December 31, 2013 and December 31, 2014)

<u>Line</u>	<u>Description</u>	<u>Amount</u> (1)	<u>Weight</u> (2)	<u>Cost</u> (3)	<u>Weighted</u> <u>Cost</u> (4)
1	Long-Term Debt	\$ 505,460,413	43.89%	5.78%	2.54%
2	Short-Term Debt	\$ 99,623,527	8.65%	1.63%	0.14%
3	Preferred Stock	\$ 15,258,600	1.32%	4.58%	0.06%
4	Common Equity*	<u>\$ 531,387,131</u>	<u>46.14%</u>	9.35%	<u>4.31%</u>
5	Total	\$ 1,151,729,671	100.00%		7.05%

Source:

Rule 38.5.146, Statement F, Page 1.

* Page 2.

MONTANA-DAKOTA UTILITIES CO.

Adjusted Capital Structure

<u>Line</u>	<u>Description</u>	<u>Amount</u>
1	Common Equity - 12/31/2013	\$2,808,164,204
2	Investment in Subsidiaries	<u>2,454,243,612</u>
3	Utility Common Equity - 12/31/2013	<u>\$353,920,592</u>
4	Common Equity - 12/31/2014	\$3,119,040,893
5	Investment in Subsidiaries	<u>2,667,331,431</u>
6	Utility Common Equity - 12/31/2014	<u>\$451,709,462</u>
7	Average @ 12/31/2014	\$402,815,027
8	Common Equity - 12/31/2015	\$3,275,802,000
9	Investment in Subsidiaries	<u>2,664,737,201</u>
10	Utility Common Equity - 12/31/2015	<u>\$611,064,799</u>
11	Average @ 12/31/2015	<u>\$531,387,131</u>

Source:
Rule 38.5.146, Statement F, Page 2.

MONTANA-DAKOTA UTILITIES CO.

Nonconsolidated Balance Sheet (December 31, 2013 and December 31, 2014)

<u>Line</u>	<u>Description</u>	<u>2013</u>	<u>2014</u>
	<u>Assets and Other Debits</u>		
1	Utility Plant	\$1,618,679,070	\$1,807,075,033
2	Construction Work in Progress	151,552,008	161,794,898
3	Less Acc. Provision for Depreciation and Amort.	760,970,889	781,150,735
4	Net Utility Plant	1,009,260,189	1,187,719,196
5	Gas Stored Underground - Noncurrent	1,558,796	2,539,826
	<u>Other Property and Investments</u>		
6	Nonutility Property	15,629,869	16,086,364
7	(Less) Accum. Prov. for Depr. And Amort.	2,901,889	3,483,659
8	Investment in Subsidiary Companies	2,380,828,521	2,590,283,230
9	Other investments	60,687,111	64,445,496
10	Net Other Property and Investments	2,454,243,612	2,667,331,431
11		(73,415,091)	(77,048,201)
	<u>Current and Accrued Assets</u>		
12	Cash	4,718,520	5,873,534
13	Special Deposits	260,505	14,870
14	Working Fund	332,668	246,893
15	Temporary Cash Investments	0	0
16	Customer Accounts Receivable	29,796,719	29,467,184
17	Other Accounts Receivable	4,403,590	8,855,452
18	(Less) Accum.Prov. For Uncollectible Acct. - Cr.	443,629	485,245
19	Notes Receivable from Assoc. Companies	0	0
20	Accounts Receivable from Assoc.Companies	31,371,687	32,690,791
21	Fuel Stock	4,751,688	4,417,908
22	Plant Materials and Operating Supplies	19,097,488	19,800,235
23	Merchandise	75,479	16,232
24	Stores Expense Undistributed	0	0
25	Gas Stored Underground - Current	5,386,681	9,350,117
26	Prepayments	5,074,231	6,105,991
27	Accrued Utility Revenues	49,648,010	47,389,618
28	Miscellaneous Current and Accrued Assets	0	0
29	Total Current and Accrued Assets	154,473,637	163,743,580
	<u>Deferred Debits</u>		
30	Unamortized Debt Expenses	1,219,120	2,019,812
31	Unrecovered Plant and Regulatory Study Costs	3,698,596	3,350,503
32	Other Regulatory Assets	83,915,120	121,494,214
33	Prelim. Survey and Investigation Charges (EI)	336,423	500,300
34	Prelim. Survey and Investigation Charges (Gas)	61,412	93,539
35	Clearing Accounts	(6,513)	55,122
36	Miscellaneous Deferred Debits	26,225,949	29,214,803
37	Unamortized Loss on Reaquired Debt	7,407,081	6,687,570
38	Accumulated Deferred Income Taxes	49,133,806	63,779,943
39	Unrecovered Purchased Gas Costs	8,019,627	10,651,144
40	Total Deferred Debits	180,010,621	237,846,950
41	Total Assets and Other Debits	\$3,799,546,855	\$4,259,180,983

MONTANA-DAKOTA UTILITIES CO.

Nonconsolidated Balance Sheet (December 31, 2013 and December 31, 2014)

<u>Line</u>	<u>Description</u>	<u>2013</u>	<u>2014</u>
	<u>Liabilities and Other Credits</u>		
	<u>Proprietary Capital</u>		
42	Common Stock Issued	\$189,868,780	\$194,754,812
43	Preferred Stock Issued	15,000,000	15,000,000
44	Premium on Capital Stock	1,061,253,848	1,213,676,764
45	(Less) Capital Stock Expense	4,257,578	6,488,675
46	Retained Earnings	540,130,502	555,934,822
47	Unappropriated Undistributed Sub Earnings	1,062,999,041	1,206,892,280
48	(Less) Reacquired Capital Stock	3,625,813	3,625,813
49	Accumulated Other Comprehensive Income	(38,204,576)	(42,103,297)
50	Total Proprietary Capital	2,823,164,204	3,134,040,893
	<u>Long-Term Debt</u>		
51	Bonds	280,000,000	0
52	Other Long-Term Debt	154,705,972	508,273,506
53	(Less) Unamortized Discount on Long-Term Debt-De	0	0
54	Total Long-Term Debt	434,705,972	508,273,506
	<u>Other Noncurrent Liabilities</u>		
55	Accumulated Provision for Injuries and Damages	1,355,445	3,736,056
56	Accumulated Provision for Pensions and Benefits	51,449,261	54,640,098
57	Accumulated Provision for Rate Refunds	191,185	450,000
58	Asset Retirement Obligations	7,142,915	6,509,617
59	Total Other Noncurrent Liabilities	60,138,806	65,335,771
	<u>Current and Accrued Liabilities</u>		
60	Notes Payable	0	0
61	Accounts Payable	44,138,862	46,830,236
62	Accounts Payable to Associated Companies	4,839,083	30,863,009
63	Customer Deposits	1,428,796	1,510,515
64	Taxes Accrued	12,336,506	(41,641,535)
65	Interest Accrued	4,973,368	7,431,466
66	Dividends Declared	33,737,408	35,606,942
67	Tax Collections Payable	1,143,473	1,257,661
68	Miscellaneous Current and Accrued Liabilities	29,444,730	24,909,601
69	Total Current and Accrued Assets	132,042,226	106,767,895
	<u>Deferred Credits</u>		
70	Customer Advances for Construction	18,726,550	22,623,499
71	Accumulated Deferred Investment Tax Credit	767,331	2,411,735
72	Other Deferred Credits	62,138,894	96,422,495
73	Other Regulatory Liabilities	16,286,380	9,005,624
74	Accumulated Deferred Income Taxes	251,576,492	314,299,565
75	Total Deferred Credits	349,495,647	444,762,918
76	Total Liabilities and Equity	\$3,799,546,855	\$4,259,180,983

Source:
Rule 38.5.121, Statement A, Pages 1-2 of 4.

Direct Testimony of

Michael P. Gorman

Exhibit MPG-2

MONTANA-DAKOTA UTILITIES CO.

Adjusted Embedded Cost of Debt

<u>Line</u>	<u>Description</u>	<u>Balance Outstanding (1)</u>	<u>Annual Cost (2)</u>	<u>Adjusted Embedded Cost (3)</u>
1	Balance at 12/31/2013	\$355,000,000	\$19,834,125	5.587%
2	Minot Air Force Base Payable	473,372	28,402	6.000%
3	Amortization of Gain/Loss		43,469	
4	Total @ 12/31/2013	<u>\$355,473,372</u>	<u>\$19,905,996</u>	<u>5.600%</u>
5	Balance at 12/31/2014	\$430,000,000	\$26,154,600	6.082%
6	Minot Air Force Base Payable	464,906	27,894	6.000%
7	Amortization of Gain/Loss		43,469	
8	Total @ 12/31/2014	<u>\$430,464,906</u>	<u>\$26,225,963</u>	<u>6.092%</u>
9	Average @ 12/31/2014	<u>\$392,969,139</u>	<u>\$23,065,980</u>	<u>5.870%</u>
10	Balance at 12/31/2015	580,000,000	32,112,826	5.537%
11	Minot Air Force Base Payable	455,919	27,355	6.000%
12	Amortization of Gain/Loss		43,469	
13	Total @ 12/31/15	<u>\$580,455,919</u>	<u>\$32,183,650</u>	<u>5.545%</u>
14	Average @ 12/31/2015	<u>\$505,460,413</u>	<u>\$29,204,807</u>	<u>5.778%</u>

Source:
Rule 38.5.147, Statement F, Page 1.

MONTANA-DAKOTA UTILITIES CO.

Adjusted Embedded Cost of Debt

Line	Description	Date of Issuance (1)	Date of Maturity (2)	Interest Rate (3)	Principal Amount of Issue (4)	Gross Proceeds (5)	Underwriters' Commission		Loss on Reacquirement Redemption and Issuance Expense	
							Amount (6)	% Gross Proceeds (7)	Amount (1)	% Gross Proceeds (1)
Secured Medium-term Notes, Series A:										
1	6.61% - Senior Note	9/1/2009	9/30/2016	6.610%	\$25,000,000	\$25,000,000	\$68,308	0.273%	\$517,287	2.069%
2	6.66% - Senior Note	10/1/2009	9/30/2016	6.660%	25,000,000	25,000,000	68,308	0.273%	517,287	2.069%
3	5.98% - Senior Note	12/15/2003	12/15/2033	5.980%	30,000,000	30,000,000	624,465	2.082%	0	0.000%
4	6.33% - Senior Note	8/24/2006	8/24/2026	6.330%	100,000,000	100,000,000	344,061	0.344%	10,532,009	10.532%
5	6.04% - Senior Note	9/16/2008	9/16/2018	6.040%	100,000,000	100,000,000	362,432	0.362%	0	0.000%
6	5.18% - Senior Note	4/15/2014	4/15/2044	5.180%	50,000,000	50,000,000	239,178	0.478%	0	0.000%
7	4.24% - Senior Note	7/15/2014	7/15/2024	4.240%	60,000,000	60,000,000	289,913	0.483%	0	0.000%
8	4.34% - Senior Note	7/15/2014	7/15/2026	4.340%	40,000,000	40,000,000	195,691	0.489%	0	0.000%
9	3.78% - Senior Note*	10/30/2015	10/30/2025	3.780%	87,000,000	87,000,000	210,187	0.242%	0	0.000%
10	4.87% - Senior Note*	10/30/2015	10/30/2045	4.870%	11,000,000	11,000,000	26,575	0.242%	0	0.000%
11	4.03% - Senior Note*	12/10/2015	10/30/2030	4.030%	52,000,000	52,000,000	125,629	0.242%	0	0.000%
12	Total Long-Term Debt Capital				\$580,000,000	\$580,000,000	\$2,554,747		\$11,566,583	

Description	Net Proceeds		Cost of Money	Principal Outstanding	Annual Cost	Embedded Cost
	Amount	Per Unit				
Secured Medium-term Notes, Series A:						
13	6.61% - Senior Note	\$24,414,405	97.658%	7.120%	\$25,000,000	1,780,000
14	6.66% - Senior Note	24,414,405	97.658%	7.172%	25,000,000	1,793,000
15	5.98% - Senior Note	29,375,535	97.918%	6.210%	30,000,000	1,863,000
16	6.33% - Senior Note	89,123,930	89.124%	7.514%	100,000,000	7,514,000
17	6.04% - Senior Note	99,637,568	99.638%	6.181%	100,000,000	6,181,000
18	5.18% - Senior Note	49,760,822	99.522%	5.280%	50,000,000	2,640,000
19	4.24% - Senior Note	59,710,087	99.517%	4.346%	60,000,000	2,607,600
20	4.34% - Senior Note	39,804,309	99.511%	4.440%	40,000,000	1,776,000
21	3.78% - Senior Note*	86,789,813	99.758%	3.809%	87,000,000	3,314,073
22	4.87% - Senior Note*	10,973,425	99.758%	4.885%	11,000,000	537,397
23	4.03% - Senior Note*	51,874,371	99.758%	4.051%	52,000,000	2,106,756
24	Total Long-Term Debt Capital	\$565,878,670			\$580,000,000	\$32,112,826
						5.537%

Source:

Rule 38.5.147, Statement F, Page 4.

* Data Response to LCG-059.

Direct Testimony of

Michael P. Gorman

Exhibit MPG-3

MONTANA-DAKOTA UTILITIES CO.

Proxy Group

<u>Line</u>	<u>Company</u>	<u>Credit Ratings¹</u>		<u>Common Equity Ratios</u>	
		<u>S&P</u> (1)	<u>Moody's</u> (2)	<u>SNL¹</u> (3)	<u>Value Line²</u> (4)
1	ALLETE, Inc.	BBB+	A3	53.9%	55.8%
2	Alliant Energy Corporation	A-	A3	44.8%	47.5%
3	Ameren Corporation	BBB+	Baa1	48.6%	51.7%
4	American Electric Power Company, Inc.	BBB	Baa1	45.0%	51.0%
5	Empire District Electric Company	BBB	Baa1	48.0%	49.4%
6	Great Plains Energy Inc.	BBB+	Baa2	46.8%	50.4%
7	OGE Energy Corp.	A-	A3	53.2%	54.1%
8	Otter Tail Corporation	BBB	Baa2	52.9%	53.5%
9	PNM Resources, Inc.	BBB	Baa3	44.3%	51.9%
10	Westar Energy, Inc.	BBB+	Baa1	46.9%	50.0%
11	Xcel Energy Inc.	A-	A3	44.4%	47.0%
12	Average	BBB+	Baa1	48.1%	51.1%
13	MONTANA-DAKOTA UTILITIES CO.	BBB+³		46.1%⁴	

Sources:

¹ SNL Financial, Downloaded on October 30, 2015.

² *The Value Line Investment Survey*, August 21, September 18, and October 30, 2015.

³ Rating for MDU Resources.

⁴ Exhibit MPG-1.

Direct Testimony of

Michael P. Gorman

Exhibit MPG-4

MONTANA-DAKOTA UTILITIES CO.

Consensus Analysts' Growth Rates

<u>Line</u>	<u>Company</u>	<u>Zacks</u>		<u>SNL</u>		<u>Reuters</u>		<u>Average of Growth Rates</u>
		<u>Estimated Growth %¹</u> (1)	<u>Number of Estimates</u> (2)	<u>Estimated Growth %²</u> (3)	<u>Number of Estimates</u> (4)	<u>Estimated Growth %³</u> (5)	<u>Number of Estimates</u> (6)	
1	ALLETE, Inc.	N/A	N/A	5.50%	2	5.50%	2	5.50%
2	Alliant Energy Corporation	5.30%	N/A	5.70%	3	5.75%	2	5.58%
3	Ameren Corporation	6.80%	N/A	6.20%	2	6.25%	2	6.42%
4	American Electric Power Company, Inc.	4.70%	N/A	5.50%	7	4.63%	6	4.94%
5	Empire District Electric Company	5.00%	N/A	5.00%	1	4.00%	1	4.67%
6	Great Plains Energy Inc.	6.10%	N/A	6.90%	5	6.37%	3	6.46%
7	OGE Energy Corp.	5.00%	N/A	5.80%	3	2.51%	2	4.44%
8	Otter Tail Corporation	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	PNM Resources, Inc.	8.50%	N/A	5.00%	1	8.56%	2	7.35%
10	Westar Energy, Inc.	3.90%	N/A	3.20%	5	3.40%	2	3.50%
11	Xcel Energy Inc.	5.00%	N/A	5.20%	6	4.68%	3	4.96%
12	Average	5.59%	N/A	5.40%	4	5.17%	3	5.38%

Sources:

¹ Zacks Elite, <http://www.zackselite.com/>, downloaded on October 30, 2015.

² SNL Interactive, <http://www.snl.com/>, downloaded on October 30, 2015.

³ Reuters, <http://www.reuters.com/>, downloaded on October 30, 2015.

Direct Testimony of

Michael P. Gorman

Exhibit MPG-5

MONTANA-DAKOTA UTILITIES CO.

Constant Growth DCF Model (Consensus Analysts' Growth Rates)

<u>Line</u>	<u>Company</u>	<u>13-Week AVG Stock Price¹</u> (1)	<u>Analysts' Growth²</u> (2)	<u>Annualized Dividend³</u> (3)	<u>Adjusted Yield</u> (4)	<u>Constant Growth DCF</u> (5)
1	ALLETE, Inc.	\$49.70	5.50%	\$2.02	4.29%	9.79%
2	Alliant Energy Corporation	\$58.72	5.58%	\$2.20	3.96%	9.54%
3	Ameren Corporation	\$41.77	6.42%	\$1.64	4.18%	10.59%
4	American Electric Power Company, Inc.	\$56.17	4.94%	\$2.12	3.96%	8.90%
5	Empire District Electric Company	\$22.44	4.67%	\$1.04	4.85%	9.52%
6	Great Plains Energy Inc.	\$26.31	6.46%	\$0.98	3.96%	10.42%
7	OGE Energy Corp.	\$28.38	4.44%	\$1.00	3.68%	8.12%
8	Otter Tail Corporation	\$26.66	N/A	\$1.23	N/A	N/A
9	PNM Resources, Inc.	\$26.98	7.35%	\$0.80	3.18%	10.54%
10	Westar Energy, Inc.	\$38.11	3.50%	\$1.44	3.91%	7.41%
11	Xcel Energy Inc.	\$34.83	4.96%	\$1.28	3.86%	8.82%
12	Average	\$37.28	5.38%	\$1.43	3.98%	9.36%
13	Median					9.53%

Sources:

¹ SNL Financial, Downloaded on November 2, 2015.

² Exhibit MPG-4.

³ *The Value Line Investment Survey*, August 21, September 18, and October 30, 2015.

Direct Testimony of

Michael P. Gorman

Exhibit MPG-6

MONTANA-DAKOTA UTILITIES CO.

Payout Ratios

<u>Line</u>	<u>Company</u>	<u>Dividends Per Share</u>		<u>Earnings Per Share</u>		<u>Payout Ratio</u>	
		<u>2014</u> (1)	<u>Projected</u> (2)	<u>2014</u> (3)	<u>Projected</u> (4)	<u>2014</u> (5)	<u>Projected</u> (6)
1	ALLETE, Inc.	\$1.96	\$2.40	\$2.90	\$4.00	67.59%	60.00%
2	Alliant Energy Corporation	\$2.04	\$2.85	\$3.48	\$4.50	58.62%	63.33%
3	Ameren Corporation	\$1.61	\$1.95	\$2.40	\$3.50	67.08%	55.71%
4	American Electric Power Company, Inc.	\$2.03	\$2.65	\$3.34	\$4.25	60.78%	62.35%
5	Empire District Electric Company	\$1.03	\$1.20	\$1.55	\$1.75	66.45%	68.57%
6	Great Plains Energy Inc.	\$0.94	\$1.20	\$1.57	\$2.00	59.87%	60.00%
7	OGE Energy Corp.	\$0.95	\$1.55	\$1.98	\$2.25	47.98%	68.89%
8	Otter Tail Corporation	\$1.21	\$1.32	\$1.55	\$2.25	78.06%	58.67%
9	PNM Resources, Inc.	\$0.76	\$1.30	\$1.45	\$2.35	52.41%	55.32%
10	Westar Energy, Inc.	\$1.40	\$1.65	\$2.35	\$3.00	59.57%	55.00%
11	Xcel Energy Inc.	\$1.20	\$1.60	\$2.03	\$2.50	59.11%	64.00%
12	Average	\$1.38	\$1.79	\$2.24	\$2.94	61.59%	61.08%

Source:

The Value Line Investment Survey, August 21, September 18, and October 30, 2015.

Direct Testimony of

Michael P. Gorman

Exhibit MPG-7

MONTANA-DAKOTA UTILITIES CO.

Sustainable Growth Rate

Line	Company	3 to 5 Year Projections									Sustainable Growth Rate	
		Dividends Per Share	Earnings Per Share	Book Value Per Share	Book Value Growth	ROE	Adjustment Factor	Adjusted ROE	Payout Ratio	Retention Rate		Internal Growth Rate
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)		(10)
1	ALLETE, Inc.	\$2.40	\$4.00	\$42.50	3.92%	9.41%	1.02	9.59%	60.00%	40.00%	3.84%	4.56%
2	Alliant Energy Corporation	\$2.85	\$4.50	\$34.65	2.19%	12.99%	1.01	13.13%	63.33%	36.67%	4.81%	5.45%
3	Ameren Corporation	\$1.95	\$3.50	\$34.00	4.21%	10.29%	1.02	10.51%	55.71%	44.29%	4.65%	4.96%
4	American Electric Power Company, Inc.	\$2.65	\$4.25	\$42.00	4.09%	10.12%	1.02	10.32%	62.35%	37.65%	3.89%	4.16%
5	Empire District Electric Company	\$1.20	\$1.75	\$20.25	2.36%	8.64%	1.01	8.74%	68.57%	31.43%	2.75%	3.19%
6	Great Plains Energy Inc.	\$1.20	\$2.00	\$26.75	2.84%	7.48%	1.01	7.58%	60.00%	40.00%	3.03%	3.06%
7	OGE Energy Corp.	\$1.55	\$2.25	\$20.25	4.47%	11.11%	1.02	11.35%	68.89%	31.11%	3.53%	3.73%
8	Otter Tail Corporation	\$1.32	\$2.25	\$18.10	3.30%	12.43%	1.02	12.63%	58.67%	41.33%	5.22%	7.01%
9	PNM Resources, Inc.	\$1.30	\$2.35	\$25.50	2.64%	9.22%	1.01	9.34%	55.32%	44.68%	4.17%	4.19%
10	Westar Energy, Inc.	\$1.65	\$3.00	\$29.25	3.17%	10.26%	1.02	10.42%	55.00%	45.00%	4.69%	5.33%
11	Xcel Energy Inc.	\$1.60	\$2.50	\$24.25	3.72%	10.31%	1.02	10.50%	64.00%	36.00%	3.78%	4.07%
12	Average	\$1.79	\$2.94	\$28.86	3.36%	10.20%	1.02	10.37%	61.08%	38.92%	4.03%	4.52%

Sources and Notes:

Cols. (1), (2) and (3): *The Value Line Investment Survey*, August 21, September 18, and October 30, 2015.

Col. (4): [Col. (3) / Page 2 Col. (2)] ^ (1/5) - 1.

Col. (5): Col. (2) / Col. (3).

Col. (6): [2 * (1 + Col. (4))] / (2 + Col. (4)).

Col. (7): Col. (6) * Col. (5).

Col. (8): Col. (1) / Col. (2).

Col. (9): 1 - Col. (8).

Col. (10): Col. (9) * Col. (7).

Col. (11): Col. (10) + Page 2 Col. (9).

MONTANA-DAKOTA UTILITIES CO.

Sustainable Growth Rate

<u>Line</u>	<u>Company</u>	<u>13-Week</u>	<u>2014</u>	<u>Market</u>	<u>Common Shares</u>		<u>Growth</u>	<u>S Factor</u> ³	<u>V Factor</u> ⁴	<u>S * V</u>
		<u>Average</u>	<u>Book Value</u>	<u>to Book</u>	<u>Outstanding (in Millions)</u> ²					
		<u>Stock Price</u> ¹	<u>Per Share</u> ²	<u>Ratio</u>	<u>2014</u>	<u>3-5 Years</u>	<u>(6)</u>	<u>(7)</u>	<u>(8)</u>	<u>(9)</u>
		(1)	(2)	(3)	(4)	(5)				
1	ALLETE, Inc.	\$49.70	\$35.06	1.42	45.90	50.00	1.73%	2.45%	29.45%	0.72%
2	Alliant Energy Corporation	\$58.72	\$31.09	1.89	110.94	115.00	0.72%	1.36%	47.05%	0.64%
3	Ameren Corporation	\$41.77	\$27.67	1.51	242.63	250.00	0.60%	0.91%	33.76%	0.31%
4	American Electric Power Company, Inc.	\$56.17	\$34.37	1.63	489.40	500.00	0.43%	0.70%	38.81%	0.27%
5	Empire District Electric Company	\$22.44	\$18.02	1.25	43.48	47.50	1.78%	2.22%	19.70%	0.44%
6	Great Plains Energy Inc.	\$26.31	\$23.26	1.13	154.16	155.50	0.17%	0.20%	11.60%	0.02%
7	OGE Energy Corp.	\$28.38	\$16.27	1.74	199.40	202.00	0.26%	0.45%	42.68%	0.19%
8	Otter Tail Corporation	\$26.66	\$15.39	1.73	37.22	42.00	2.45%	4.24%	42.26%	1.79%
9	PNM Resources, Inc.	\$26.98	\$22.39	1.20	79.65	80.00	0.09%	0.11%	17.01%	0.02%
10	Westar Energy, Inc.	\$38.11	\$25.02	1.52	131.69	140.00	1.23%	1.88%	34.35%	0.64%
11	Xcel Energy Inc.	\$34.83	\$20.20	1.72	505.73	516.00	0.40%	0.69%	42.00%	0.29%
12	Average	\$37.28	\$24.43	1.52	185.47	190.73	0.90%	1.38%	32.61%	0.49%

Sources and Notes:

¹ SNL Financial, Downloaded on November 2, 2015.

² *The Value Line Investment Survey*, August 21, September 18, and October 30, 2015.

³ Expected Growth in the Number of Shares, Column (3) * Column (6).

⁴ Expected Profit of Stock Investment, [1 - 1 / Column (3)].

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Exhibit MPG-8

MONTANA-DAKOTA UTILITIES CO.

Constant Growth DCF Model (Sustainable Growth Rate)

<u>Line</u>	<u>Company</u>	<u>13-Week AVG Stock Price¹</u> (1)	<u>Sustainable Growth²</u> (2)	<u>Annualized Dividend³</u> (3)	<u>Adjusted Yield</u> (4)	<u>Constant Growth DCF</u> (5)
1	ALLETE, Inc.	\$49.70	4.56%	\$2.02	4.25%	8.81%
2	Alliant Energy Corporation	\$58.72	5.45%	\$2.20	3.95%	9.41%
3	Ameren Corporation	\$41.77	4.96%	\$1.64	4.12%	9.08%
4	American Electric Power Company, Inc.	\$56.17	4.16%	\$2.12	3.93%	8.09%
5	Empire District Electric Company	\$22.44	3.19%	\$1.04	4.78%	7.97%
6	Great Plains Energy Inc.	\$26.31	3.06%	\$0.98	3.84%	6.89%
7	OGE Energy Corp.	\$28.38	3.73%	\$1.00	3.65%	7.38%
8	Otter Tail Corporation	\$26.66	7.01%	\$1.23	4.95%	11.96%
9	PNM Resources, Inc.	\$26.98	4.19%	\$0.80	3.09%	7.28%
10	Westar Energy, Inc.	\$38.11	5.33%	\$1.44	3.98%	9.31%
11	Xcel Energy Inc.	\$34.83	4.07%	\$1.28	3.82%	7.90%
12	Average	\$37.28	4.52%	\$1.43	4.03%	8.55%
13	Median					8.09%

Sources:

¹ SNL Financial, Downloaded on November 2, 2015.

² Exhibit MPG-7, page 1.

³ *The Value Line Investment Survey*, August 21, September 18, and October 30, 2015.

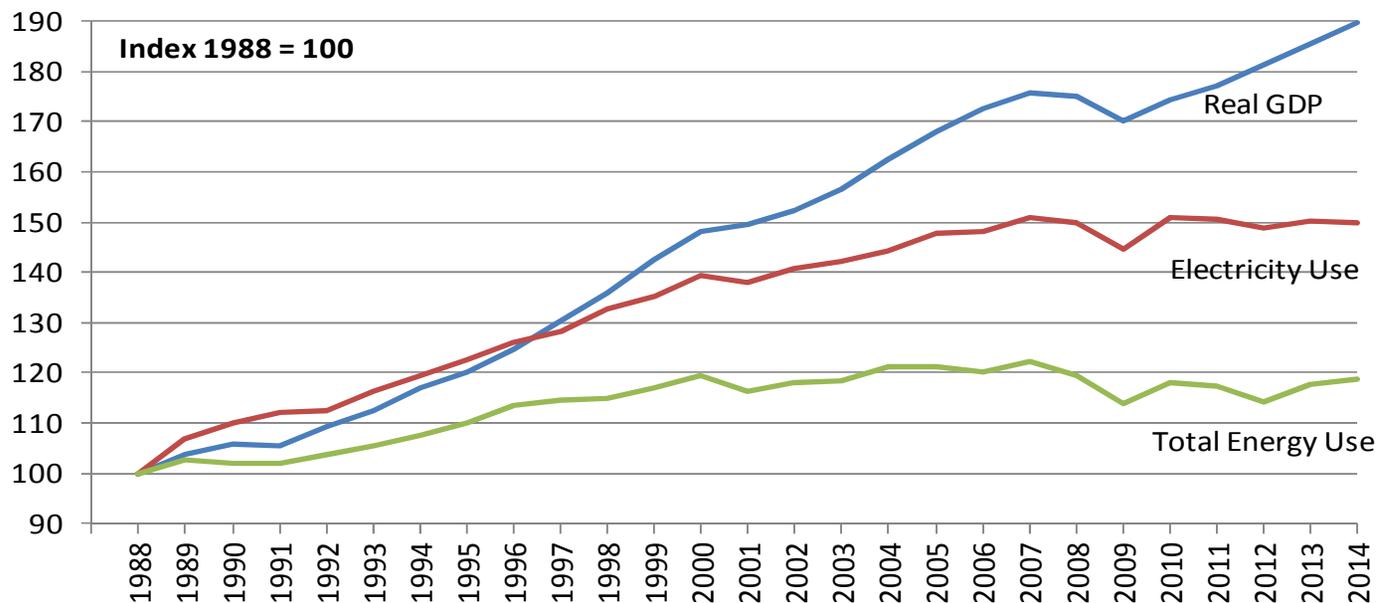
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Exhibit MPG-9

MONTANA-DAKOTA UTILITIES CO.

Electricity Sales Are Linked to U.S. Economic Growth



Note:

1988 represents the base year. Graph depicts increases or decreases from the base year.

Sources:

U.S. Department of Energy, Energy Information Administration.

Edison Electric Institute, <http://www.eei.org>.

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Exhibit MPG-10

MONTANA-DAKOTA UTILITIES CO.

Multi-Stage Growth DCF Model

Line	Company	13-Week AVG	Annualized	First Stage	Second Stage Growth					Third Stage	Multi-Stage
		Stock Price ¹	Dividend ²	Growth ³	Year 6	Year 7	Year 8	Year 9	Year 10	Growth ⁴	Growth DCF
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	ALLETE, Inc.	\$49.70	\$2.02	5.50%	5.32%	5.13%	4.95%	4.77%	4.58%	4.40%	8.94%
2	Alliant Energy Corporation	\$58.72	\$2.20	5.58%	5.39%	5.19%	4.99%	4.79%	4.60%	4.40%	8.61%
3	Ameren Corporation	\$41.77	\$1.64	6.42%	6.08%	5.74%	5.41%	5.07%	4.74%	4.40%	9.04%
4	American Electric Power Company, Inc.	\$56.17	\$2.12	4.94%	4.85%	4.76%	4.67%	4.58%	4.49%	4.40%	8.48%
5	Empire District Electric Company	\$22.44	\$1.04	4.67%	4.62%	4.58%	4.53%	4.49%	4.44%	4.40%	9.32%
6	Great Plains Energy Inc.	\$26.31	\$0.98	6.46%	6.11%	5.77%	5.43%	5.09%	4.74%	4.40%	8.82%
7	OGE Energy Corp.	\$28.38	\$1.00	4.44%	4.43%	4.42%	4.42%	4.41%	4.41%	4.40%	8.08%
8	Otter Tail Corporation	\$26.66	\$1.23	N/A	N/A	N/A	N/A	N/A	N/A	4.40%	N/A
9	PNM Resources, Inc.	\$26.98	\$0.80	7.35%	6.86%	6.37%	5.88%	5.38%	4.89%	4.40%	8.13%
10	Westar Energy, Inc.	\$38.11	\$1.44	3.50%	3.65%	3.80%	3.95%	4.10%	4.25%	4.40%	8.12%
11	Xcel Energy Inc.	\$34.83	\$1.28	4.96%	4.87%	4.77%	4.68%	4.59%	4.49%	4.40%	8.37%
12	Average	\$37.28	\$1.43	5.38%	5.22%	5.05%	4.89%	4.73%	4.56%	4.40%	8.59%
13	Median										8.54%

Sources:

¹ SNL Financial, Downloaded on November 2, 2015.

² *The Value Line Investment Survey*, August 21, September 18, and October 30, 2015.

³ Exhibit MPG-4.

⁴ Blue Chip Economic Indicators, October 10, 2015 at 14.

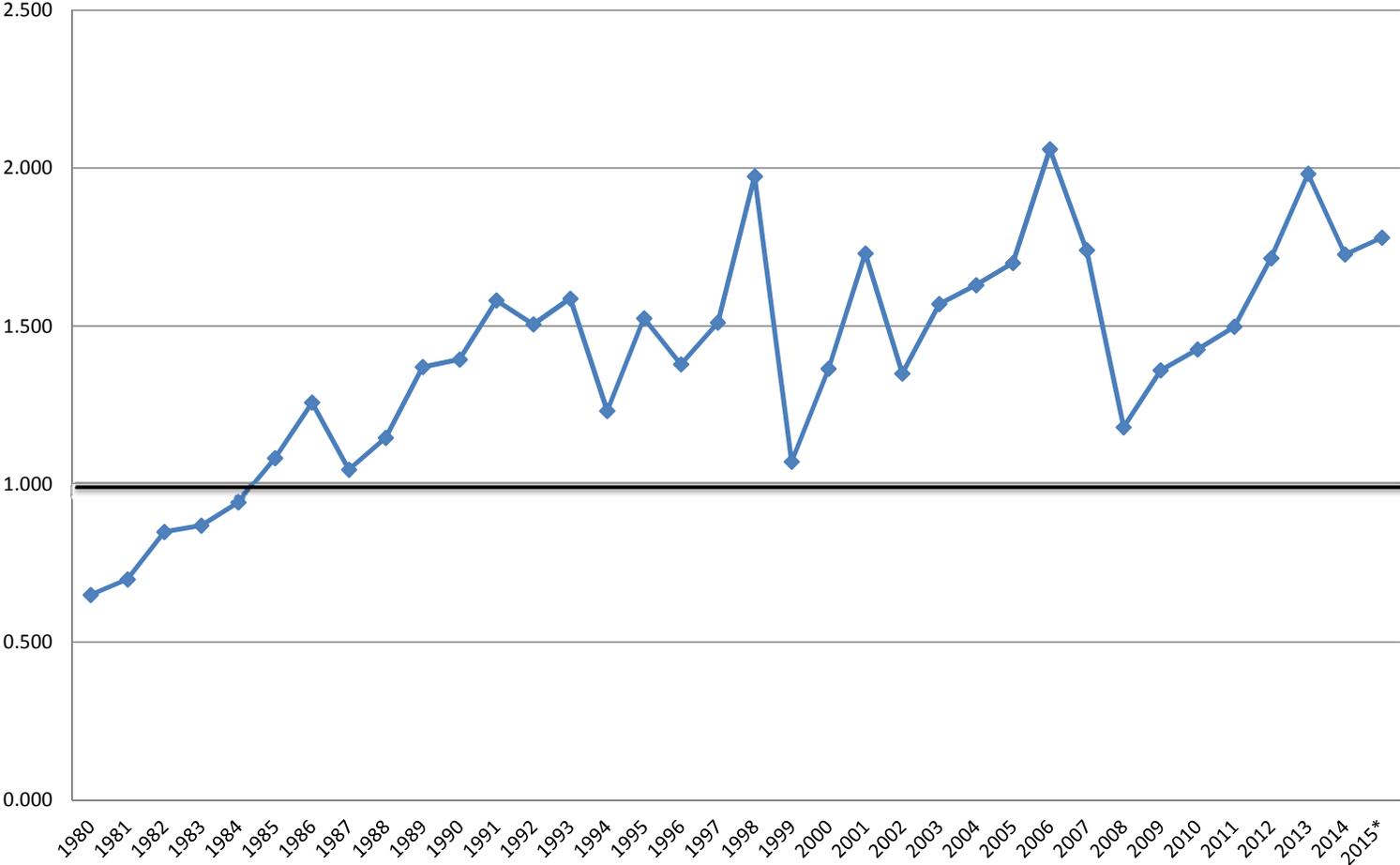
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Exhibit MPG-11

MONTANA-DAKOTA UTILITIES CO.

Common Stock Market/Book Ratio



* through June 2015

Source:
1980 - 2000: Mergent Public Utility Manual.
2001 - 2015: AUS Utility Reports, various dates.

Direct Testimony of

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Exhibit MPG-12

MONTANA-DAKOTA UTILITIES CO.

Equity Risk Premium - Treasury Bond

<u>Line</u>	<u>Year</u>	<u>Authorized Electric Returns¹</u> (1)	<u>30 yr. Treasury Bond Yield²</u> (2)	<u>Indicated Risk Premium</u> (3)	<u>Rolling 5 - Year Average</u> (4)	<u>Rolling 10 - Year Average</u> (5)
1	1986	13.93%	7.80%	6.13%		
2	1987	12.99%	8.58%	4.41%		
3	1988	12.79%	8.96%	3.83%		
4	1989	12.97%	8.45%	4.52%		
5	1990	12.70%	8.61%	4.09%	4.60%	
6	1991	12.55%	8.14%	4.41%	4.25%	
7	1992	12.09%	7.67%	4.42%	4.26%	
8	1993	11.41%	6.60%	4.81%	4.45%	
9	1994	11.34%	7.37%	3.97%	4.34%	
10	1995	11.55%	6.88%	4.67%	4.46%	4.53%
11	1996	11.39%	6.70%	4.69%	4.51%	4.38%
12	1997	11.40%	6.61%	4.79%	4.59%	4.42%
13	1998	11.66%	5.58%	6.08%	4.84%	4.65%
14	1999	10.77%	5.87%	4.90%	5.03%	4.68%
15	2000	11.43%	5.94%	5.49%	5.19%	4.82%
16	2001	11.09%	5.49%	5.60%	5.37%	4.94%
17	2002	11.16%	5.43%	5.73%	5.56%	5.07%
18	2003	10.97%	4.96%	6.01%	5.55%	5.19%
19	2004	10.75%	5.05%	5.70%	5.71%	5.37%
20	2005	10.54%	4.65%	5.89%	5.79%	5.49%
21	2006	10.36%	4.99%	5.37%	5.74%	5.56%
22	2007	10.36%	4.83%	5.53%	5.70%	5.63%
23	2008	10.46%	4.28%	6.18%	5.73%	5.64%
24	2009	10.48%	4.07%	6.41%	5.88%	5.79%
25	2010	10.24%	4.25%	5.99%	5.89%	5.84%
26	2011	10.07%	3.91%	6.16%	6.05%	5.90%
27	2012	10.01%	2.92%	7.09%	6.37%	6.03%
28	2013	9.79%	3.45%	6.34%	6.40%	6.07%
29	2014	9.76%	3.34%	6.42%	6.40%	6.14%
30	2015 ³	9.55%	2.80%	6.75%	6.55%	6.22%
31	Average	11.22%	5.81%	5.41%	5.35%	5.35%
32	Minimum				4.25%	4.38%
	Maximum				6.55%	6.22%

Sources:

¹ Regulatory Research Associates, Inc., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 through Oct. 2015. In 2010 forward, the Virginia cases, which are subject to an adjustment for certain generation assets up to 200 basis points, are excluded.

² St. Louis Federal Reserve: Economic Research, <http://research.stlouisfed.org/>. The yields from 2002 to 2005 represent the 20-Year Treasury yields obtained from the Federal Reserve Bank.

³ The data includes the period Jan - Sep 2015.

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Exhibit MPG-13

MONTANA-DAKOTA UTILITIES CO.

Equity Risk Premium - Utility Bond

<u>Line</u>	<u>Year</u>	<u>Authorized Electric Returns¹</u> (1)	<u>Average "A" Rated Utility Bond Yield²</u> (2)	<u>Indicated Risk Premium</u> (3)	<u>Rolling 5 - Year Average</u> (4)	<u>Rolling 10 - Year Average</u> (5)
1	1986	13.93%	9.58%	4.35%		
2	1987	12.99%	10.10%	2.89%		
3	1988	12.79%	10.49%	2.30%		
4	1989	12.97%	9.77%	3.20%		
5	1990	12.70%	9.86%	2.84%	3.12%	
6	1991	12.55%	9.36%	3.19%	2.88%	
7	1992	12.09%	8.69%	3.40%	2.99%	
8	1993	11.41%	7.59%	3.82%	3.29%	
9	1994	11.34%	8.31%	3.03%	3.26%	
10	1995	11.55%	7.89%	3.66%	3.42%	3.27%
11	1996	11.39%	7.75%	3.64%	3.51%	3.20%
12	1997	11.40%	7.60%	3.80%	3.59%	3.29%
13	1998	11.66%	7.04%	4.62%	3.75%	3.52%
14	1999	10.77%	7.62%	3.15%	3.77%	3.52%
15	2000	11.43%	8.24%	3.19%	3.68%	3.55%
16	2001	11.09%	7.76%	3.33%	3.62%	3.56%
17	2002	11.16%	7.37%	3.79%	3.61%	3.60%
18	2003	10.97%	6.58%	4.39%	3.57%	3.66%
19	2004	10.75%	6.16%	4.59%	3.86%	3.81%
20	2005	10.54%	5.65%	4.89%	4.20%	3.94%
21	2006	10.36%	6.07%	4.29%	4.39%	4.00%
22	2007	10.36%	6.07%	4.29%	4.49%	4.05%
23	2008	10.46%	6.53%	3.93%	4.40%	3.98%
24	2009	10.48%	6.04%	4.44%	4.37%	4.11%
25	2010	10.24%	5.46%	4.78%	4.35%	4.27%
26	2011	10.07%	5.04%	5.03%	4.49%	4.44%
27	2012	10.01%	4.13%	5.88%	4.81%	4.65%
28	2013	9.79%	4.48%	5.31%	5.09%	4.74%
29	2014	9.76%	4.28%	5.48%	5.30%	4.83%
30	2015 ³	9.55%	4.04%	5.51%	5.44%	4.89%
31	Average	11.22%	7.18%	4.03%	3.97%	3.95%
32	Minimum				2.88%	3.20%
33	Maximum				5.44%	4.89%

Sources:

¹ Regulatory Research Associates, Inc., Regulatory Focus, Major Rate Case Decisions, Jan. 1997 through Oct. 2015. In 2010 forward, the Virginia cases, which are subject to an adjustment for certain generation assets up to 200 basis points, are excluded.

² Mergent Public Utility Manual, Mergent Weekly News Reports, 2003. The utility yields for the period 2001-2009 were obtained from the Mergent Bond Record. The utility yields from 2010-2015 were obtained from <http://credittrends.moodys.com/>.

³ The data includes the period Jan - Sep 2015.

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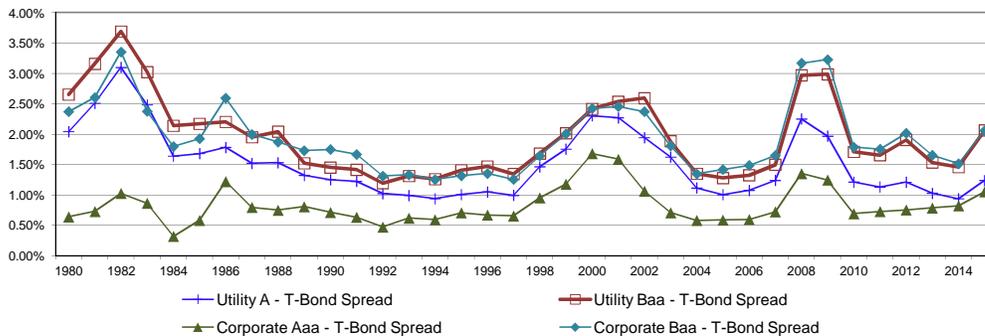
Exhibit MPG-14

MONTANA-DAKOTA UTILITIES CO.

Bond Yield Spreads

Line	Year	Public Utility Bond					Corporate Bond				Utility to Corporate	
		T-Bond Yield ¹ (1)	A ² (2)	Baa ² (3)	A-T-Bond Spread (4)	Baa-T-Bond Spread (5)	Aaa ¹ (6)	Baa ¹ (7)	Aaa-T-Bond Spread (8)	Baa-T-Bond Spread (9)	Baa Spread (10)	A-Aaa Spread (11)
1	1980	11.30%	13.34%	13.95%	2.04%	2.65%	11.94%	13.67%	0.64%	2.37%	0.28%	1.40%
2	1981	13.44%	15.95%	16.60%	2.51%	3.16%	14.17%	16.04%	0.73%	2.60%	0.56%	1.78%
3	1982	12.76%	15.86%	16.45%	3.10%	3.69%	13.79%	16.11%	1.03%	3.35%	0.34%	2.07%
4	1983	11.18%	13.66%	14.20%	2.48%	3.02%	12.04%	13.55%	0.86%	2.38%	0.65%	1.62%
5	1984	12.39%	14.03%	14.53%	1.64%	2.14%	12.71%	14.19%	0.32%	1.80%	0.34%	1.32%
6	1985	10.79%	12.47%	12.96%	1.68%	2.17%	11.37%	12.72%	0.58%	1.93%	0.24%	1.10%
7	1986	7.80%	9.58%	10.00%	1.78%	2.20%	9.02%	10.39%	1.22%	2.59%	-0.39%	0.56%
8	1987	8.58%	10.10%	10.53%	1.52%	1.95%	9.38%	10.58%	0.80%	2.00%	-0.05%	0.72%
9	1988	8.96%	10.49%	11.00%	1.53%	2.04%	9.71%	10.83%	0.75%	1.87%	0.17%	0.78%
10	1989	8.45%	9.77%	9.97%	1.32%	1.52%	9.26%	10.18%	0.81%	1.73%	-0.21%	0.51%
11	1990	8.61%	9.86%	10.06%	1.25%	1.45%	9.32%	10.36%	0.71%	1.75%	-0.29%	0.54%
12	1991	8.14%	9.36%	9.55%	1.22%	1.41%	8.77%	9.80%	0.63%	1.67%	-0.25%	0.59%
13	1992	7.67%	8.69%	8.86%	1.02%	1.19%	8.14%	8.98%	0.47%	1.31%	-0.12%	0.55%
14	1993	6.60%	7.59%	7.91%	0.99%	1.31%	7.22%	7.93%	0.62%	1.33%	-0.02%	0.37%
15	1994	7.37%	8.31%	8.63%	0.94%	1.26%	7.96%	8.62%	0.59%	1.25%	0.01%	0.35%
16	1995	6.88%	7.89%	8.29%	1.01%	1.41%	7.59%	8.20%	0.71%	1.32%	0.09%	0.30%
17	1996	6.70%	7.75%	8.17%	1.05%	1.47%	7.37%	8.05%	0.67%	1.35%	0.12%	0.38%
18	1997	6.61%	7.60%	7.95%	0.99%	1.34%	7.26%	7.86%	0.66%	1.26%	0.09%	0.34%
19	1998	5.58%	7.04%	7.26%	1.46%	1.68%	6.53%	7.22%	0.95%	1.64%	0.04%	0.51%
20	1999	5.87%	7.62%	7.88%	1.75%	2.01%	7.04%	7.87%	1.18%	2.01%	0.01%	0.58%
21	2000	5.94%	8.24%	8.36%	2.30%	2.42%	7.62%	8.36%	1.68%	2.42%	-0.01%	0.62%
22	2001	5.49%	7.76%	8.03%	2.27%	2.54%	7.08%	7.95%	1.59%	2.45%	0.08%	0.68%
23	2002	5.43%	7.37%	8.02%	1.94%	2.59%	6.49%	7.80%	1.06%	2.37%	0.22%	0.88%
24	2003	4.96%	6.58%	6.84%	1.62%	1.89%	5.67%	6.77%	0.71%	1.81%	0.08%	0.91%
25	2004	5.05%	6.16%	6.40%	1.11%	1.35%	5.63%	6.39%	0.58%	1.35%	0.00%	0.53%
26	2005	4.65%	5.65%	5.93%	1.00%	1.28%	5.24%	6.06%	0.59%	1.42%	-0.14%	0.41%
27	2006	4.99%	6.07%	6.32%	1.08%	1.32%	5.59%	6.48%	0.60%	1.49%	-0.16%	0.48%
28	2007	4.83%	6.07%	6.33%	1.24%	1.50%	5.56%	6.48%	0.72%	1.65%	-0.15%	0.52%
29	2008	4.28%	6.53%	7.25%	2.25%	2.97%	5.63%	7.45%	1.35%	3.17%	-0.20%	0.90%
30	2009	4.07%	6.04%	7.06%	1.97%	2.99%	5.31%	7.30%	1.24%	3.23%	-0.24%	0.72%
31	2010	4.25%	5.46%	5.96%	1.21%	1.71%	4.94%	6.04%	0.69%	1.79%	-0.08%	0.52%
32	2011	3.91%	5.04%	5.56%	1.13%	1.65%	4.64%	5.66%	0.73%	1.75%	-0.10%	0.40%
33	2012	2.92%	4.13%	4.83%	1.21%	1.91%	3.67%	4.94%	0.75%	2.01%	-0.11%	0.46%
34	2013	3.45%	4.48%	4.98%	1.03%	1.53%	4.24%	5.10%	0.79%	1.65%	-0.12%	0.24%
35	2014	3.34%	4.28%	4.80%	0.94%	1.46%	4.16%	4.85%	0.82%	1.51%	-0.06%	0.11%
36	2015 ³	2.80%	4.04%	4.86%	1.24%	2.06%	3.85%	4.86%	1.05%	2.06%	0.00%	0.19%
37	Average	6.83%	8.36%	8.79%	1.52%	1.95%	7.66%	8.77%	0.83%	1.93%	0.02%	0.69%

Yield Spreads
Treasury Vs. Corporate & Treasury Vs. Utility



Sources:

¹ St. Louis Federal Reserve: Economic Research, <http://research.stlouisfed.org/>.

² Mergent Public Utility Manual, Mergent Weekly News Reports, 2003. The utility yields for the period 2001-2009 were obtained from the Mergent Bond Record. The utility yields from 2010-2015 were obtained from <http://credittrends.moodys.com/>.

³ The data includes the period Jan - Sep 2015.

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Exhibit MPG-15

MONTANA-DAKOTA UTILITIES CO.

Treasury and Utility Bond Yields

<u>Line</u>	<u>Date</u>	<u>Treasury Bond Yield¹</u> (1)	<u>"A" Rated Utility Bond Yield²</u> (2)	<u>"Baa" Rated Utility Bond Yield²</u> (3)
1	10/30/15	2.93%	4.32%	5.47%
2	10/23/15	2.90%	4.29%	5.46%
3	10/16/15	2.87%	4.27%	5.45%
4	10/09/15	2.94%	4.34%	5.50%
5	10/02/15	2.82%	4.25%	5.44%
6	09/25/15	2.96%	4.39%	5.45%
7	09/18/15	2.93%	4.36%	5.37%
8	09/11/15	2.95%	4.38%	5.38%
9	09/04/15	2.89%	4.32%	5.36%
10	08/28/15	2.92%	4.34%	5.39%
11	08/21/15	2.74%	4.15%	5.19%
12	08/14/15	2.84%	4.23%	5.20%
13	08/07/15	2.83%	4.20%	5.11%
14	Average	2.89%	4.30%	5.37%
15	Spread To Treasury		1.41%	2.48%

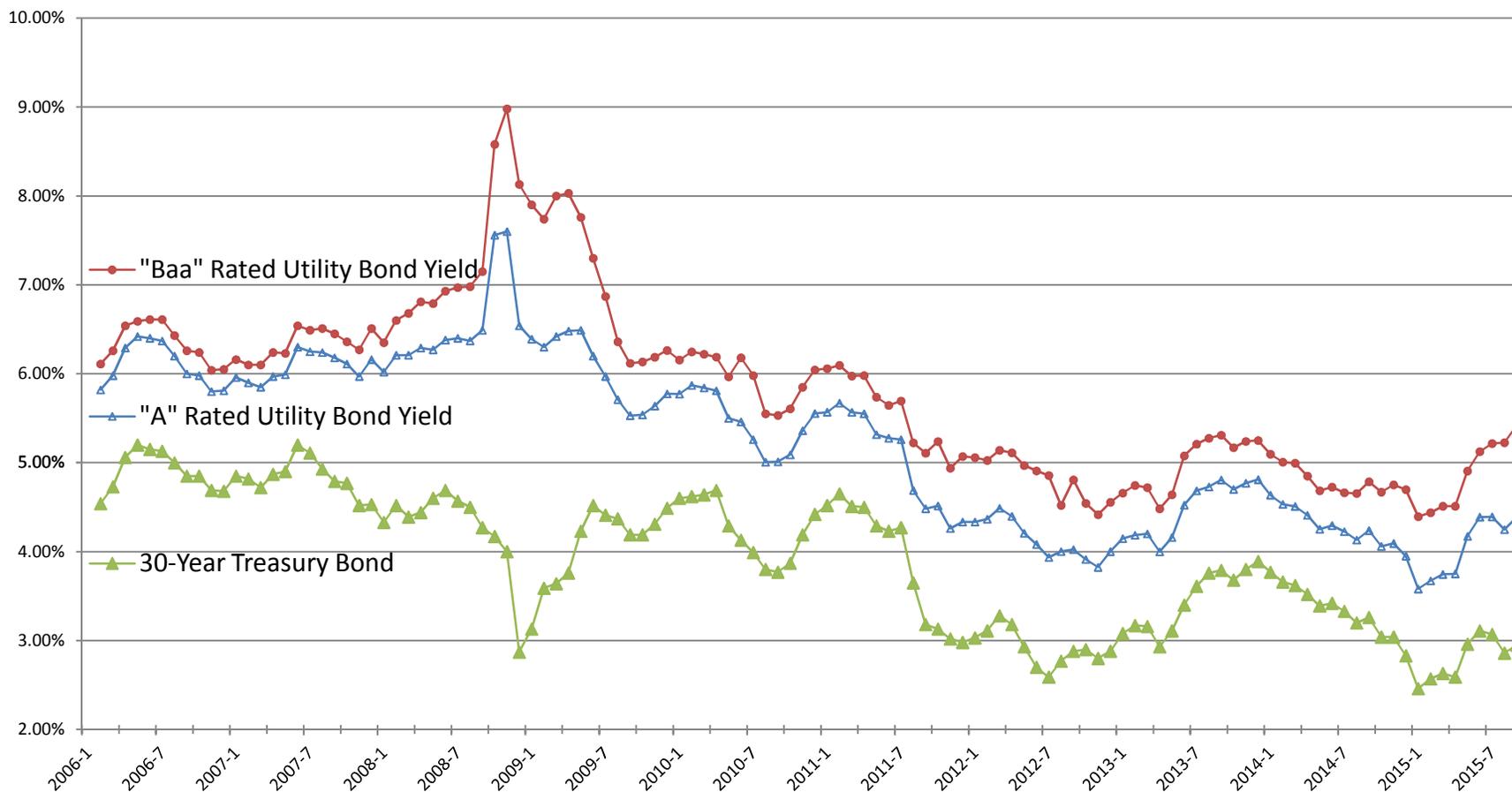
Sources:

¹ St. Louis Federal Reserve: Economic Research, <http://research.stlouisfed.org>.

² <http://credittrends.moody.com/>.

MONTANA-DAKOTA UTILITIES CO.

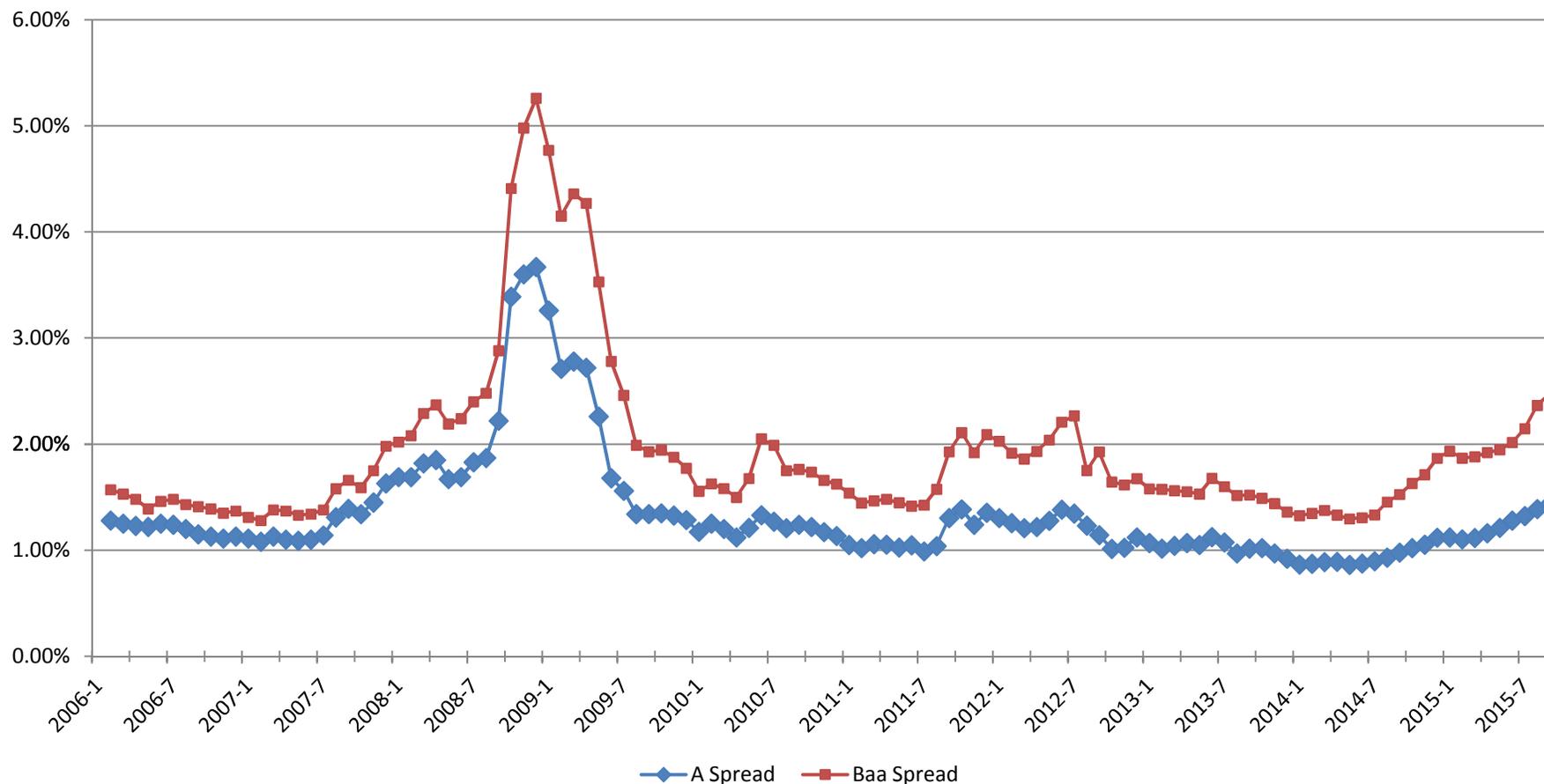
Trends in Bond Yields



Sources:
Mergent Bond Record.
www.moodys.com, Bond Yields and Key Indicators.
St. Louis Federal Reserve: Economic Research, <http://research.stlouisfed.org/>

MONTANA-DAKOTA UTILITIES CO.

Yield Spread Between Utility Bonds and 30-Year Treasury Bonds



Sources:
Mergent Bond Record.
www.moodys.com, Bond Yields and Key Indicators.
St. Louis Federal Reserve: Economic Research, <http://research.stlouisfed.org/>

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Exhibit MPG-16

MONTANA-DAKOTA UTILITIES CO.

Value Line Beta

<u>Line</u>	<u>Company</u>	<u>Beta</u>
1	ALLETE, Inc.	0.80
2	Alliant Energy Corporation	0.80
3	Ameren Corporation	0.75
4	American Electric Power Company, Inc.	0.70
5	Empire District Electric Company	0.70
6	Great Plains Energy Inc.	0.85
7	OGE Energy Corp.	0.90
8	Otter Tail Corporation	0.85
9	PNM Resources, Inc.	0.85
10	Westar Energy, Inc.	0.75
11	Xcel Energy Inc.	0.65
12	Average	0.78

Source:

The Value Line Investment Survey,

August 21, September 18, and October 30, 2015.

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Exhibit MPG-17

MONTANA-DAKOTA UTILITIES CO.

CAPM Return

<u>Line</u>	<u>Description</u>	<u>High Market Risk Premium (1)</u>	<u>Low Market Risk Premium (2)</u>
1	Risk-Free Rate ¹	3.80%	3.80%
2	Risk Premium ²	7.60%	6.00%
3	Beta ³	0.78	0.78
4	CAPM	9.74%	8.49%

Sources:

¹ Blue Chip Financial Forecasts, November 1, 2015, at 2.

² Morningstar, Inc. Ibbotson SBBI 2015 Classic Yearbook at 91 and 152.

³ Exhibit MPG-16.

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Exhibit MPG-18

MONTANA-DAKOTA UTILITIES CO.

Standard & Poor's Credit Metrics

<u>Line</u>	<u>Description</u>	Retail	<u>S&P Benchmark (Medial Volatility)^{1/2}</u>			<u>Reference</u> (5)
		<u>Cost of Service</u> <u>Amount (\$000)</u> (1)	<u>Intermediate</u> (2)	<u>Significant</u> (3)	<u>Aggressive</u> (4)	
1	Rate Base	\$ 174,957,348				Rule 38.5.175, Page 8 of 8.
2	Weighted Common Return	4.31%				Page 2, Line 4, Col. 4.
3	Pre-Tax Rate of Return	9.88%				Page 2, Line 5, Col. 5.
4	Income to Common	\$ 7,547,520				Line 1 x Line 2.
5	EBIT	\$ 17,279,080				Line 1 x Line 3.
6	Depreciation & Amortization	\$ 11,509,161				Rule 38.5.175, Page 8 of 8.
7	Imputed Amortization	\$ -				N/A
8	Deferred Income Taxes & ITC	\$ 13,047,826				Rule 38.5.175, Page 8 of 8.
9	Funds from Operations (FFO)	\$ 32,104,507				Sum of Line 4 and Lines 6 through 8.
10	Imputed Interest Expense	\$ -				N/A
11	EBITDA	\$ 28,788,241				Sum of Lines 5 through 7 and Line 10.
12	Total Debt Ratio	54%				Page 3, Line 4, Col. 2.
13	Debt to EBITDA	3.3x	2.5x - 3.5x	3.5x - 4.5x	4.5x - 5.5x	(Line 1 x Line 12) / Line 11.
14	FFO to Total Debt	34%	23% - 35%	13% - 23%	9% - 13%	Line 9 / (Line 1 x Line 12).

Sources:

¹ Standard & Poor's RatingsDirect: "Criteria: Corporate Methodology," November 19, 2013.

² Standard & Poor's RatingsDirect: "MDU Resources Group. Inc.," June 30, 2014.

Note:

Based on the June 2014 S&P report, MDU has a "Satisfactory" business risk profile and an "Intermediate" financial risk profile, and falls under the "Medial Volatility" matrix.

MONTANA-DAKOTA UTILITIES CO.

Standard & Poor's Credit Metrics (Pre-Tax Rate of Return)

<u>Line</u>	<u>Description</u>	<u>Amount</u> ¹ (1)	<u>Weight</u> (2)	<u>Cost</u> (3)	<u>Weighted Cost</u> (4)	<u>Pre-Tax Weighted Cost</u> (5)
1	Long-Term Debt	\$ 505,460,413	43.89%	5.78%	2.54%	2.54%
2	Short-Term Debt	\$ 99,623,527	8.65%	1.63%	0.14%	0.14%
3	Preferred Stock	\$ 15,258,600	1.32%	4.58%	0.06%	0.06%
4	Common Equity	<u>\$ 531,387,131</u>	<u>46.14%</u>	9.35%	<u>4.31%</u>	<u>7.14%</u>
5	Total	\$ 1,151,729,671	100.00%		7.05%	9.88%
6	Tax Conversion Factor*					1.6548

Sources:

¹ Exhibit MPG-1.

* Rule 38.5.175, Page 8 of 8.

MONTANA-DAKOTA UTILITIES CO.

Standard & Poor's Credit Metrics (Financial Capital Structure)

<u>Line</u>	<u>Description</u>	<u>Amount</u> (1)	<u>Weight</u> (2)
1	Long-Term Debt	\$ 505,460,413	43.89%
2	Short-Term Debt	\$ 99,623,527	8.65%
3	Preferred Stock	<u>\$ 15,258,600</u>	<u>1.32%</u>
4	Total Debt	\$ 620,342,540	53.86%
5	Common Equity	<u>531,387,131</u>	<u>46.14%</u>
6	Total	\$ 1,151,729,671	100.00%

Sources:
Page 2.