



UTILITIES CO.

A Division of MDU Resources Group, Inc.

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January 29, 2016

Mr. Will Rosquist
Utility Division
Montana Public Service Commission
1701 Prospect Avenue
Helena, MT 59620

Re: General Electric Rate Application
Docket No. D2015.6.51

Dear Ms. Whitney:

Enclosed please find Montana-Dakota Utilities Co.'s responses to the Montana Public Service Commission data requests PSC-115 through PSC-138 that were dated January 22, 2016.

Sincerely,

A handwritten signature in black ink that reads 'Tamie A. Aberle'. The signature is written in a cursive, flowing style.

Tamie A. Aberle
Director of Regulatory Affairs

Attachments
cc: Service List

Montana-Dakota Utilities Co.
Docket No. D2015.6.51
Service List

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**MONTANA-DAKOTA UTILITIES CO.
MONTANA PUBLIC SERVICE COMMISSION
DATA REQUEST
DATED JANUARY 22, 2016
DOCKET NO. D2015.6.51**

PSC-115

Regarding: Line Loss Factors

Witness: Aberle

Do you agree with the corrected line loss factors Mr. Baron presents in Exhibit SJB-5? If not, please explain why.

Response:

Yes. I agree with the application of line loss factors to the 12 CP factors Mr. Baron presents in Exhibit SJB-5.

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PSC-116

**Regarding: ECOS Analysis – Coincident Peak
Witness: Aberle**

- a. Did MDU use the average of the single peaks over a 3 year period in its calculation of any other allocation factors apart from its AED allocator (Factor 2) in Statement L?**
- b. Please provide a modified Statement L sponsored by MDU that utilizes MDU's 2014 peak in its AED allocator (allocation factor 2), instead of the average of the single peaks over a 3 year period. If MDU agrees with the corrected line loss factors Mr. Baron presented in Exhibit SJB-5, please incorporate those changes. Please leave all other allocation factors unchanged. Please provide an electronic copy with all formulas intact.**
- c. Would the results of the ECOS analysis provided in part (b) to this question change MDU's recommendation of a uniform 21.1% increase to the revenue requirement of all rate classes?**

Response:

- a. No.**
- b. The line loss factor calculation was correct for the AED allocation factor determination. The line loss corrections reflected in Exhibit SJB-5 and Table 2 of Mr. Baron's testimony were applicable to the 12 CP data provided in Response to LCG-010. Please see the electronic file entitled Response No. PSC-116 AED allocator adjustment.**
- c. No.**

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PSC-117

**Regarding: AED Allocator – Excess Demand
Witness: Aberle**

- a. On page 2 of your rebuttal testimony, lines 21-23, you state that allocating the excess demand above the average demand will account for a customer's peak demand control. Please explain the rationale of encouraging a customer to control peak demand to reduce investment in generation and transmission capacity if that customer's peak demand does not occur at the same time as the MDU system peak.**
- b. Please explain why MDU prefers to allocate excess demand within the AED allocator on the basis of NCP demand rather than CP demand.**
- c. Please provide a modified Statement L sponsored by MDU that utilizes MDU's 2014 peak in its AED allocator (allocation factor 2), instead of the average of the single peaks over a 3 year period. Allocate the excess demand within the AED allocator to rate classes based on their contribution to 12-CP instead of NCP. If MDU agrees with the corrected line loss factors Mr. Baron presented in Exhibit SJB-5, please incorporate those changes. Please leave all other allocation factors unchanged.
Please provide an electronic copy with all formulas intact.**
- d. Would the results of the ECOS analysis provided in part (c) to this question change MDU's recommendation of a uniform 21.1% increase to the revenue requirement of all rate classes?**

Response:

- a. The Company's allocation factor recognizes that the production and transmission related facilities, while capacity based, are not in place to serve only the peak demand of the system.
- b. The Company does not agree it is appropriate to allocate the excess demand on the 12 CP demand. The next best alternative would be to utilize a 12 CP allocator.
- c. Please see the electronic file entitled Response No. PSC-117, AED/CP allocation.
- d. Montana-Dakota does not agree with the class study and does not have an opinion regarding the allocation of the revenue requirement under that class study.

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PSC-118

Regarding: Wind Facilities

Witness: Aberle

On page 4, line 10 of your rebuttal, should SBJ-9 actually be SJB-7?

Response:

Yes. The rebuttal testimony should have referenced Exhibit SBJ-7.

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PSC-119

Regarding: Mitigation of Rate Impacts

Witness: Aberle

- a. You state that Mr. Baron's recommended cap of 1.5 times the system average for the increase to any rate class is too significant a step to take in this rate case. Is there a lesser cap that MDU would find acceptable? If so, what size of a cap does MDU find acceptable?**
- b. Would you agree that another viable option to mitigate the impacts of a large rate increase would be to phase in the increase over a period of time, such as over a two to three year period?**
- c. If the answer to part b is yes, please explain what your thoughts are with respect to phasing in a rate increase over a period of time subsequent to this docket.**

Response:

- a. The appropriate cap would depend on the magnitude of the increase ultimately approved.
- b. No I do not. The investments underlying the need for the rate increase are in service and providing energy and capacity to meet customer needs.
- c. Not applicable.

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MONTANA PUBLIC SERVICE COMMISSION
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PSC-120

Regarding: Rate Design

Witness: Aberle

- a. Do you agree with Dr. Wilson's recommendation that, to the extent seasonal energy rate differentials are appropriate, they should be adopted for all customer classes? (Page 67, lines 15-18 of Dr. Wilson's direct testimony.) Please explain why or why not.**
- b. Please explain how MDU determined which customer classes should be subject to seasonal differentials within the energy rate, and which customer classes should not, under MDU's current rates.**
- c. For those customers that do have seasonal rates under MDU's current tariffs, please explain how MDU arrived at the seasonal differentials that are currently in place.**

Response:

- a. I do not agree that seasonal rate differentials are appropriate for all customer classes.
- b. The seasonal rates were implemented for the non-demand rates to recognize the higher capacity costs associated with the summer peak. The seasonal differentiation is appropriately reflected in the demand charge for the customer classes with demand metering.
- c. The seasonal differentiations were established in Docket No. D2007.7.79 based on the energy differential and the marginal demand costs identified in that docket.

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PSC-121

Regarding: PSC and MCC Taxes

Witness: Aberle

Do you object to Mr. Baron's recommendation to recover deferred MCC and PSC taxes on a uniform percentage basis factor applied to customer base rate revenues (as described on page 31 and 32 of his direct testimony)? Please explain why or why not.

Response:

The Company is not opposed to recovering the deferred MCC and PSC taxes based on revenues. The taxes are assessed based on revenues.

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PSC-122

**Regarding: Four Large Infrastructure Investments
Witness: Welte**

- a. Please provide the completion percentage of each project as of today's date.**
- b. Please provide the total generation percentage if the project is not 100% producing.**
- c. Please provide the estimated complete dates for all four investments as of today's date.**

Response:

- a. Construction and commissioning are 100 percent complete on each of the projects. Final emission testing remains to be completed on the Lewis & Clark MATS and RICE projects. Contractors and Original Equipment Manufacturers (OEM) are working to complete non-critical items identified during walk downs on the Lewis & Clark MATS and RICE, and on Thunder Spirit. Touch up of sites and roads will be performed at Thunder Spirit following the winter. Demolition of no longer used equipment continues on the Big Stone AQCS.
- b. All units are available to produce at one hundred percent with the exception of one turbine at Thunder Spirit Wind where post commissioning repairs were required.
- c. The Lewis & Clark MATS project was complete as of December 23, 2015. The Big Stone AQCS project was complete as of December 29, 2015. The Thunder Spirit Wind project and the Lewis & Clark RICE units were complete as of December 31, 2015. As with any large generation project, there will be ongoing work such as the items noted in response PSC-122(a).

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PSC-123

Regarding: Four Large Infrastructure Investments

Witness: Welte

a. Please provide a breakdown of the percentage of power flowing to Montana customers from the Lewis and Clark, Big Stone, Thunder Spirit and RICE generators as of today's date.

Response:

The Lewis & Clark Station with the MATS and the Big Stone Plant with the AQCS have been producing power since returning to service on November 23, 2015 and August 4, 2015, respectively. Both units are currently released to operate at the same generation levels and at the Montana customer allocations as those prior to the project installations. The generation produced to date January 26, 2016, for Thunder Spirit Wind and Lewis & Clark Station RICE are 33,942 Mwh and 726 Mwh, respectively. Approximately 26.5 percent of these generation totals is allocated to Montana customers.

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PSC-124

**Regarding: Four Large Infrastructure Investments
Witness: Welte**

- a. Please provide the total amount of trailing costs thus far incurred on all four large infrastructure investments as an aggregate. If a subcategory is available for the trailing costs and that subcategory accounts for twenty percent or more of the total trailing costs of any one unit, please describe that cost.**

Response:

Montana-Dakota has accrued costs for work completed through December 31, 2015. No additional trailing costs have been incurred to date.

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PSC-125

Regarding: Account 355

Witness: Robinson

- a. On page 42 of your rebuttal testimony, you mention companies often use contractors to perform construction work for several reasons, as the cost for company employees may be higher. Is that the case regarding Account 355?**
- b. Regarding all accounts in which MDU uses contractors instead of company employees, does MDU track these costs for comparison?**
- c. On page 8 of your testimony, an Iowa survivor curve labeled 57 R3 is listed for a graph title, as are Iowa 45R1 and Iowa 60 R3. Is it possible the Iowa 57 R3 graph should be labeled Iowa 50 R3? If not please reconcile the graph to the text.**

Response:

- a. The testimony statement was made in response to Mr. Pous generalized and unsupported statements concerning the company's historical net salvage experience. Montana-Dakota's practice is to augment company work forces, as required, to timely complete construction projects. The following statement from my testimony, "In fact, companies often use contractors to perform construction work for several reasons that may include but not be limited to the desire not to use higher cost overtime for Company employees. Also, often times the use of contractor labor may be less expensive than the cost of Company labor with benefits." is not necessarily specifically related to Montana-Dakota's circumstance.
- b. Yes, the Company does maintain costs for internal labor separately from contract labor. Each project is unique, and as stated above, many variables determine whether the Company uses internal labor or contract labor. Therefore, a meaningful cost comparison cannot be made on an account level.
- c. The graph on page 8 of Mr. Robinson's rebuttal testimony is correctly labeled. As per the testimony text which states that "In fact while the overall and more recent 5 year experience band analysis produced a life indication of an estimated 57 years' average service life, the current 2014 band produced an average service life indication of 45 years."

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The graph on page 8 of the testimony shows the overall experience of the property group, while the graph at the top of page 9 of Mr. Robinson's testimony shows the referenced more recent experience. The graph at the bottom of page 9 shows the plotting of Mr. Pous' recommended 60 year life versus Montana-Dakota's recent property group experience. It can be readily seen that Mr. Pous' recommendation is inconsistent with the most recent experience as well as the remaining text related to Account 355 on pages 10 and 11 of Mr. Robinson's rebuttal.

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PSC-126

Regarding: Exhibit 4

Witness: Robinson

- a. Please describe the event(s) that led to the drastic spikes in experienced net salvage values broken down by account and year.**
- b. On page 38 you reference “spikes” being discounted. Please describe the method you used to discount the spikes and provide workpapers.**

Response:

- a. As discussed on pages 37 and 38 of Mr. Robinson’s rebuttal; “The higher cost of removal percentage in 2013/2014 is due to the fact that as a result of the PowerPlan implementation tasks, the Company was somewhat behind on processing original cost of retirements. During the 2013/2014 system process implementation phase, the Company could not use the automated PowerPlan work order system to process original cost of retirements at the same time as the recording of cost of removal. During the initial time period, the cost of removal got recorded to the book depreciation reserve when the addition side of a replacement project was unitized. The CPR retirements were subsequently recorded and mostly caught up to date during 2014. Accordingly, when viewing the cost of removal information during 2013 or 2014, a combined/aggregate net salvage for 2013/2014, as a cost of removal percentage of original cost retirements, is more representative of what is anticipated on a going forward basis. Due to the continual effort to totally eliminate the processing lag experienced with the roll out of the PowerPlan record system, there may be some residual 2014 cost of removal that may related to 2015 retirements.”
- b. The task required in the estimation of future net salvage portion of the comprehensive depreciation study is to estimate depreciation parameters that best reflect the average service life and net salvage that will be experienced by the property group over the average remaining life of the property group. Accordingly, the range of data that has been historically experienced as well as any known or anticipated changes in the future are considered by the depreciation professional in arriving at the net salvage estimate for the applicable property group. In completing this task, and in reviewing the data included with the original filed depreciation study, as well as the additional graphs included with Mr. Robinson’s rebuttal, one

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can readily see that the proposed net salvage parameters are consistent with the recent past and trends being experienced by the applicable property groups. In other words, the referenced spikes in the net salvage activity data were not a driver for the net salvage estimates. Furthermore, the process of estimating the net salvage parameters is not an arithmetic calculation of a group of numbers, but a professional assessment of the range of experienced data. The end result of the profession assessment and estimates, as can be clearly seen in reviewing the linear analysis of data, is representative of recent experience.

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PSC-127

Regarding: PowerPlan

Witness: Robinson

- a. **Was the implementation of PowerPlan software disclosed in initial testimony? If not, please explain why.**
- b. **When MDU converted to PowerPlan from JDE, how was the conversion reconciled?**
- c. **How did MDU know the new inputted amounts to PowerPlan were correct? Please provide workpapers documenting how the conversion was reconciled.**

Response:

- a. No. Implementation does not change the essence of depreciation related information.
- b. Queries and reports were run out of old (JDE) and new (PowerPlan) systems on a business segment and account level, including work order balances.
- c. Montana-Dakota compared the amounts in the two systems at conversion as shown in the Excel files titled 'Response No. PSC-127 Attachment A U Book Plant Balances' and 'Response No. PSC-127 Attachment B U Book Accum Reserve Balances' on the enclosed CD.

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PSC-128

Regarding: Depreciation

Witness: Robinson

- a. If plant can be left in the ground, are you aware of any instances where that plant is considered in the net salvage calculation?**
- b. If so, how is it disclosed?**
- c. Do the net salvage values assume company personnel doing the work, or contractors?**
- d. If such a comparison exists please provide workpapers.**

Response:

- a. Absolutely, yes. From a book perspective any and all activities associated with the retirement of plant in service and net salvage (gross salvage minus cost of removal/retirement) are recorded on the Company's books and records. Even in cases where property is abandoned in place, costs are still incurred relative to the disconnection of plant from the network. All costs associated with that function (cost of retirement) including actual workforce effort to complete the task along with travel/vehicle costs, engineering, planning, supervision, safety, or other related costs which are applicable to the task must also be captured as cost of removal/retirement.
- b. See item a.
- c. The net salvage (gross salvage less cost of removal/retirement) can be performed by any workforce (company or contractor) assigned to complete the tasks.
- d. The information is not readily available.

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PSC-129

Regarding: Depreciation

Witness: Robinson

- a. Throughout the testimony, the survivor curves presented appear arbitrary, as there is no other analysis presented on a set interval for curves of the different accounts. Please explain in further detail why set intervals cannot be used.**
- b. Is it possible for MDU to provide to the Commission requested survivor curves?**
- c. If so, please provide them.**

Response:

- a. The presented survivor curves are not arbitrary. The historical analysis is and was prepared using the long standing actuarial study process. The development of observed life tables were prepared using actual company historical data. The Iowa Curves are tools used to define service life characteristics. The depreciation parameters presented in graphical form within the actual depreciation study reports are those that are estimated as the basis for developing the subsequent prepared depreciation calculations. Furthermore, the estimated average service lives or interim retirement curves are those that best represents the life characteristics that is are estimated for the foreseeable future of the present plant in service.

Conversely, within Mr. Robinson's rebuttal testimony, alternative survivor curve plots were presented to contrast the inappropriate depreciation parameters recommended by Mr. Pous.

- b. Alternative service lives were not calculated nor used for the Company's various property groups. The preparation of a depreciation study requires the estimation of selected depreciation parameters for the development of depreciation rates. The estimated depreciation parameters set forth in the filed depreciation studies were used as the basis to develop the proposed depreciation rates. See response to PSC-40 for a discussion related to the depreciation study analysis process.
- c. None available.

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PSC-130

**Regarding: KVAR Penalty Revenue
Witness: Jacobson**

- a. You state on page 2 of your rebuttal testimony that “Montana-Dakota has used the three year average in the computation of KVAR penalty revenue in the revenue requirement in both D2007.7.79 and D2010.8.82 rate filings.”**

- b. In the final orders of those dockets, how was the KVAR penalty revenue handled?**

Response:

- a. Correct.
- b. Al Clark, on behalf of the Montana Consumer Counsel, recommended the use of 2009 actual KVAR revenue in the D2010.8.82 filing but did not recommend changes in the D2007.7.79 filing. Each of these filings was settled and was not specific to how KVAR penalty was handled.

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PSC-131

Regarding: Self-Insurance Expense

Witness: Jacobson

In the final orders in D2007.7.79 and D2010.8.82, what average was used to calculate self-insurance expense?

Response:

Each of these filings was settled and was not specific to how self-insurance expense was handled.

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PSC-132

Regarding: Transmission Charges

Witness: Jacobson

- a. Has MDU recovered transmission charges in D2007.7.79 and D2010.8.82?**

- b. Please explain.**

Response:

Montana-Dakota has incurred transmission related expenses and both the D2007.7.79 and D.2010.8.82 rate filings included some level of transmission expense.

My rebuttal testimony at page 5 indicates that Mr. Clark proposes to remove all transmission charges the Company has included in this rate filing. The testimony incorrectly references all transmission charges and should have been specific to transmission service for the purpose of delivering energy to customers over non-owned transmission lines and charges from an RTO for the purpose of delivering energy. Mr. Clark proposed to exclude the Company's pro forma adjustment related to the change in transmission service expenses associated with the expiration of the WAPA agreement and that would allow the changes in expense categories related to Basin and WAPA joining the Southwest Power Pool.

The Company has had and will continue to have transmission expenses for operating and maintaining its transmission assets that are also part of the transmission expense function.

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PSC-133

Regarding: Exhibit No. TRJ-6

Witness: Jacobson

Incorporating the accepted adjustments in Exhibit No. TRJ-6, what is MDU's updated revenue requirement and rate base?

Response:

Please see Attachment A. Accepting the adjustments listed in Exhibit no. TRJ-6 as well as Mr. Gorman's recalculation of the embedded cost of debt would reduce the revenue requirement to approximately \$9.8 million. The rate base would increase approximately \$1.3 million, primarily from the reduction in the accumulated reserve for depreciation as a result of reduced depreciation expense, to approximately \$176.3 million.

**MONTANA-DAKOTA UTILITIES CO.
REVENUE INCREASE CALCULATION
ELECTRIC UTILITY - MONTANA**

	Montana-Dakota Request	Accepted Adjustments	Updated Montana-Dakota Request
Net Pro Forma Rate Base	\$ 174,957,348	\$ 1,332,441	\$ 176,289,789
Overall Rate of Return	7.588%		7.522%
Calculated Return on Rate Base	\$ 13,275,764		\$ 13,260,518
Total Pro Forma Operating Expenses	\$ 51,655,287	\$ (1,181,541)	\$ 50,473,746
Total Pro Forma Revenue Requirement	\$ 64,931,051	\$ (1,181,541)	\$ 63,734,264
(less) Total Pro Forma Revenue Estimates	57,827,098	-	57,827,098
Unadjusted Revenue Increase Estimate	\$ 7,103,953	\$ (1,181,541)	\$ 5,907,166
Gross Up Factor	1.654789		1.654623
MDU Calculated-Required Revenue Increase	\$ 11,755,544		\$ 9,774,133

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PSC-134

Regarding: Thunder Spirit Generation and Rate 35

Witness: Jacobson

Referencing page 15 of your rebuttal testimony, please elaborate how savings from Thunder Spirit wind generation has already impacted customers as a reduction to fuel and purchased power.

Response:

Montana-Dakota filed its annual fuel and power cost tracking pursuant to the terms of its Rate 35. The cost of fuel established in that filing is based on the 2016 projected costs, including the forecasted generation provided by Thunder Spirit wind generation facility. The Interim Order in Docket No. D2015.12.94, issued December 22, 2015 approved the implementation of the calculated rate on an interim basis.

All other customers are subject to the Company's Rate 58 – Fuel and Purchased Power Cost Tracking Adjustment (tracker). Effective with the in-service date, all Thunder Spirit generation will begin to be included in the computation of the tracker. While the tracker is based on the actual costs on a four month rolling average and lagged one month, the actual costs for the month will be compared to the calculated historical cost and any variance will be accumulated in the deferred account and adjusted in the next annual surcharge calculation.

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PSC-135

**Regarding: Historical ROEs, Reference Materials, R-Squared
Witness: Gaske**

- a. Page 4 of your rebuttal testimony contains a histogram showing 184 ROEs authorized in electric utility rate proceedings between 2011 and 2015. For each of the 184 authorized ROEs, please provide the name of the electric utility, the name of the state regulatory commission that authorized the ROE, and the date the ROE was authorized. Please order the authorized ROEs from January 2011 through December 2015.**
- b. Please provide copies of the three studies cited on page 16 and described in footnotes 16, 17, and 18.**
- c. Please provide a copy of the Fama and French article cited on page 19.**
- d. Please provide the underlying Beta calculations and associated R-squared statistics referenced on page 20, lines 18-20.**
- e. Please explain the significance of the R-squared statistic and the witness' definition of "so low there is not statistical significance to the Beta estimate."**

Response:

- a. Please see Response No. PSC-135 Attachment A on the enclosed CD for the histogram back-up information requested.**
- b. Please see Response No. LCG-091 Attachment D, Response No. LCG-091 Attachment E and Response No. LCG-091 Attachment F on the enclosed CD for the information requested.**
- c. Please see Response No. LCG-091 Attachment G on the enclosed CD for the article requested.**
- d. The cited sentence is based on Dr. Gaske's professional experience in calculating Betas for many companies over many years. However, please see Response No. PSC-135 Attachment B on the enclosed CD which shows the R-square values for the proxy companies based on regressions of monthly returns for each of the proxy company against the returns on the New York Stock Exchange for the 60-month period December 2010 to**

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November 2015. The R-square for proxy company Betas during that 5-year time period were:

Proxy Company	R-Square
ALE	0.20
LNT	0.10
AEE	0.05
AEP	0.03
EDE	0.07
GXP	0.10
OGE	0.16
OTTR	0.26
PNM	0.04
TE	0.06
WR	0.04
XEL	0.01

- e. R-square is the percent of the variance in a dependent variable (e.g., return on an individual stock) that is explained by an explanatory variable (e.g., return on the market as a whole). For example, an R-square of 1.00 means the two variables are perfectly correlated, while an R-square of 0.50 means that one-half of the variance in the dependent variable is explained by the explanatory variable. As can be seen in the response to PSC-135 (d), most of the proxy company R-squares are 0.10 or less, meaning that less than 10 percent of the variance in the proxy company stock returns can be explained by Beta. Moreover, none of the R-squares exceed 0.26.

In contrast, the CAPM assumes that Beta explains all of the variation in returns and implicitly assumes that the R-squares are 1.0. Given the very low values of R-squares for the proxy companies, the measured value for their Betas could be anywhere within a very wide range and cannot be measured accurately.

The level of R-square that is required in order to be statistically significant depends on the number of observations and the circumstances. Statistical significance in this context generally means that there is a reasonably high probability a regression coefficient (e.g., Beta) is different from zero (0). Thus, although one might not be able to determine the true value of Beta with any accuracy, one could at least say that the value of Beta is not zero. Applying this test to the proxy company data there

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generally should be a probability of at least 95 percent that an estimate of a regression coefficient (e.g., Beta) is different from zero (0) in order to say that there is some statistically significant relationship. In this instance any proxy company R-square of 0.06 or less would not meet this test. Thus, half of the proxy companies have R-squares of 0.06 percent and so there is no statistically significant Beta for these companies.

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PSC-136

**Regarding: CAPM, FERC Order, Wilson Comparable Earnings
Witness: Gaske**

- a. Please provide the information and data to support the statement on page 20, line 20-21, that the Fama and French test of the CAPM hypothesis “is the most comprehensive test of the CAPM hypothesis that has ever been conducted.”**
- b. Please explain in more detail the arguments presented on page 28, lines 1–9, regarding flotation costs and secondary and primary markets.**
- c. Please provide a copy of the FERC Order referenced on pages 32-33 and in footnote 38.**
- d. On page 34 of your rebuttal testimony, you state that Wilson’s comparable earnings has no perceptible relevance for the task of estimating an allowed rate of return. Yet on page 35, you use the comparable earnings from two of Wilson’s exhibits to show that your 10.0% ROE recommendation is reasonable. Please explain how the witness can say the analysis has no relevance but then utilize said analysis to support his own ROE recommendation?**
- e. Please explain where or how your algebraic interpretation of Wilson’s comparable earnings formula shown on page 34 was derived.**

Response:

- a. Fama and French (1992) analyzed all non-financial stocks that were publicly traded on the New York Stock Exchange, American Stock Exchange and NASDAQ during the 1941-1990 time period. They then looked at various sub-periods and also compared the results for individual stocks as well as numerous portfolios that were constructed using other explanatory variables such as size of firm, market-to-book ratios, financial leverage, and Earnings-Price ratios. Prior to their study, no one had conducted such a comprehensive analysis of the significance of Beta as a measure of market returns.

As Value Line noted (see Response No. LCG-091 Attachment I):

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*"In this study, [Fama and French] traced the performance of thousands of stocks over 50 years, but found no statistical support for the hypothesis that the relationship between volatility and return is significantly different from random. Indeed, professor Fama concluded 'The fact is that Beta, as the sole variable explaining returns on stocks, is dead.' These findings support previous studies that have called into question the real-world applicability of the CAPM Beta, including papers by Keim (Financial Analysts Journal, 1986), and Roll (Journal of Financial Economics, 1977). **Never before, however, has the lack of a statistically significant relationship between Beta and return been so rigorously and dramatically established.**"*[Emphasis added].

- b. As discussed in the cited testimony, the DCF analyses of the proxy companies provide an estimate of the returns that investors require when they trade already-issued stocks among themselves. The issuing company is not involved in those transactions and does not incur any costs when those secondary market transactions occur. However, the allowed rate of return should be sufficient to allow the issuing company to raise capital for its operations by issuing new shares to the public. That type of transaction is referred to as the "primary market" for the firm's shares, and the firm incurs flotation costs when it issues shares to the public. In order to convert a DCF estimate of secondary market returns into an estimate of the cost of capital to the issuing firm in the primary market, one must adjust the secondary market return for flotation costs.
- c. Please see Response No. PSC-136 Attachment A on the enclosed CD for a copy of the FERC Order referenced in footnote 38.
- d. Please refer to Dr. Wilson's Exhibit No. JWW-4. The observation of "no perceptible relevance" on page 34 of the rebuttal testimony refers to Column (3) of Dr. Wilson's exhibit. In contrast, the discussion on page 35 of the rebuttal testimony is referring to Column (1) of Dr. Wilson's exhibit.

Column (1), with no adjustment, is a relevant measure of comparable earnings because it shows the returns that the comparable proxy companies are expected to earn.

Column (3) is not a relevant measure of comparable earnings because it is Column (1) divided by the market-to-book ratio (see the response to PSC-137) in Column (2). As discussed in Dr. Gaske's testimony and the response to PSC-137, the values in Column (3) are equivalent to a simple

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Earnings-Price ratio. The adjustment used to calculate Column (3) is neither mathematically nor theoretically supportable because it ignores cash flows to investors and expected growth.

- e. Please see the response to PSC-137.

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PSC-137

Regarding: Wilson Comparable Earnings Formula Page 34
Witness: Gaske

On page 34 Gaske portrayed Wilson's Comparable Earnings algebraically.
The first term in the equation is as follows:

$$\frac{\textit{return on equity}}{\textit{Market to Book}}$$

In the following equation on page 34 the algebraic term above
has been modified to the following term:

$$\frac{\textit{Earnings per Share}}{\textit{Book Value per Share}} \quad X \quad \frac{\textit{Book Value per Share}}{\textit{Price per share}}$$

Please explain how the modified term was derived from the term in the first
equation.

Response:

The modified term was derived by substituting more detailed, algebraically-
equivalent terms into both the numerator and the denominator of Dr. Wilson's
formula. For example:

- 1) Dr. Wilson's numerator is defined as

$$\text{Return on Equity} = \text{Earnings Per Share} \div \text{Book Value Per Share}$$

The first term in the modified formula simply substitutes the definition
of return on equity into Dr. Wilson's formula.

And,

- 2) Dr. Wilson's denominator is defined as

$$\text{Market-to-Book} = \text{Price Per Share} \div \text{Book Value Per Share}$$

The second term in the modified formula substitutes the definition of
Market-to-Book value into Dr. Wilson's formula. One could then divide
the first term by the second term. However, because the second term
is a denominator, one could also multiply the first term by the

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reciprocal of the second term. That is why the second term in the modified equation is shown as BVPS/PPS.

When the definitions of the variables are substituted into Dr. Wilson's formula, and the two terms are converted to a multiplication relationship, it is easier to see why the MVPS in the two terms of the modified formula cancel each other out and produce only a simple Earnings-Price ratio.

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PSC-138

**Regarding: Non-Utility Operations and Other Investment Assets
Witness: Senger**

- a. What is the value of life insurance policies included in other investment assets? Please itemize the additional assets and their value included in this account.**
- b. Please itemize the assets held in the non-utility operations account and their value.**
- c. Gorman states in his direct testimony that in response to data request LCG-58, MDU asserts that the balance sheet items in question are supported by components of both debt and equity. Gorman disagrees. Gorman states that MDU Resources' debt rating generally reflects the relative stability of the utility and pipeline businesses, based on the stability and predictability of the cash flows from the utility-related businesses. He argues that investments that do not produce these cash flows should not get the benefit of the debt issued based on MDU's stable utility businesses. Therefore, he asserts it is reasonable to assume the investments are funded entirely with common equity, and this non-utility equity should be removed from the ratemaking capital structure. Please respond to Gorman's argument.**

Response:

- a. Below is the detail of Other Investments (Account 124) as of 12/31/14:

Other Investments (124)

Insurance Investments	\$62,292,998
North Dakota LNG, LLC	2,000,000
NDSBIC	140,314
Big Stone, LLC	6,684
Bismarck Industries, Inc.	5,500
Total Other Investments	<hr/> \$64,445,496

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b. Below is the net value of Nonutility Property assets as of 12/31/14:

Net Nonutility Property 1/	
Billings Landfill Gas Prod. Fac.	\$9,447,759
Fiber Optic Network	2,577,223
Misc. Other Assets	<u>577,723</u>
Net Nonutility Property	\$12,602,705

1/ Inclusive of Accounts 121 – Nonutility Property and 122 – Accumulated Provision on Nonutility Property.

c. As detailed in part a. above the primary other investments included are life insurance policies which support a non-qualified benefit plan. This plan is for certain employees of Montana-Dakota Utilities Co. There is also an associated liability with these policies. The debt rating for MDU Resources Group, Inc. is solely for the purpose of its utility operations (Montana-Dakota Utilities Co. and Great Plains Natural Gas Co.) and the debt on its books support just the utility operations. The insurance investments referenced above are for the benefit of the utility. When funding these plans the Company utilizes the cash flow from all funding sources, including internally generated cash flow, equity issuances and debt financings. The Company targets an overall 50/50 capital structure inclusive of all assets/liabilities which support its operations. These assets are funded with the overall capital structure and arbitrarily reducing the capital ratio by the amount of these assets is incorrect.