

MONTANA-DAKOTA UTILITIES CO.

Before the South Dakota Public Utilities Commission

Docket No. EL23-___

Direct Testimony and Exhibits

of

Michael J. Adams

Cash Working Capital / Lead-Lag Study

August 15, 2023

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1 **I. INTRODUCTION AND WITNESS QUALIFICATIONS**

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

3 A. My name is Michael Adams. My business address is 293 Boston Post Road West, Suite
4 500, Marlborough, Massachusetts 01752.

5 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT POSITION?**

6 A. I am a Senior Vice President with Concentric Energy Advisors, Inc. (“Concentric”).

7 **Q. PLEASE DESCRIBE CONCENTRIC.**

8 A. Concentric is a management consulting and economic advisory firm focused on the North
9 American energy and water industries. Concentric specializes in regulatory and litigation
10 support, transaction-related financial advisory services, energy market strategies, market
11 assessments, energy commodity contracting and procurement, economic feasibility
12 studies, and capital market analyses and negotiations.

13 **Q. WHAT ARE YOUR RESPONSIBILITIES IN YOUR CURRENT POSITION?**

14 A. As a consultant, my responsibilities include assisting clients in identifying and addressing
15 business issues. My primary areas of focus have been regulatory-, financial- and
16 accounting-related issues.

17 **Q. PLEASE DESCRIBE YOUR EDUCATION.**

18 A. I have an MBA from the University of Illinois – Springfield and a Bachelor of Science in

1 Accounting from Illinois College. I am a member of the American Institute of Certified
2 Public Accountants and the Illinois Society of Certified Public Accountants.

3 **Q. PLEASE DESCRIBE YOUR QUALIFICATIONS.**

4 A. I have over thirty-five years of direct experience in the public utility industry. I have
5 worked for an investor-owned utility, a regulatory agency, and most recently as a
6 consultant to the energy industry. I have managed and/or participated in a wide variety of
7 consulting engagements. A statement of my background and qualifications is attached as
8 Exhibit MJA-1.

9 **Q. HAVE YOU EVER TESTIFIED IN A REGULATORY PROCEEDING?**

10 A. Yes. I have provided expert testimony or reports before the Arizona Corporation
11 Commission; Arkansas Public Service Commission; the City of El Paso; the Connecticut
12 Public Utilities Regulatory Authority, the Federal Energy Regulatory Commission
13 (FERC); the Georgia Public Service Commission; the Hawaii Public Utility Commission;
14 the Idaho Public Utilities Commission; the Illinois Commerce Commission; the Kentucky
15 Public Service Commission; the Maine Public Utilities Commission; the Maryland Public
16 Service Commission; the Massachusetts Department of Telecommunications and Energy;
17 the Missouri Public Service Commission; the Montana Public Service Commission, the
18 New Hampshire Public Utilities Commission; the New Mexico Public Regulation
19 Commission; the State of New Jersey Board of Public Utilities; the Oklahoma Corporation
20 Commission; the Ontario Energy Board; the Pennsylvania Public Utility Commission; the
21 Tennessee Public Utility Commission; the Public Utility Commission of Texas; the State

1 Corporation Commission of Virginia; and the Public Service Commission of West
2 Virginia.

3 My testimonies typically address issues related to cost of service/revenue requirement,
4 shared services, accounting and/or cost allocations.

5 **II. PURPOSE AND SCOPE**

6 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

7 A. I have been asked by Montana-Dakota Utilities Co. (“MDU” or the “Company”) to discuss
8 a lead-lag study that was used to develop cash working capital (“CWC”) factors and
9 ultimately to calculate the cash working capital leads and lags for the Company’s South
10 Dakota electric operations. Discussion of the study follows.

11 **III. CASH WORKING CAPITAL REQUIREMENT AND LEAD-LAG STUDY**

12 **Q. PLEASE DEFINE WHAT YOU MEAN BY THE PHRASE “CASH WORKING**
13 **CAPITAL.”**

14 A. Cash working capital is the amount of funds the Company is required to maintain on hand
15 to finance the day-to-day operations of the Company.

16 **Q. ARE YOU SPONSORING AN EXHIBIT IN THIS PROCEEDING RELATED TO**
17 **YOUR ANALYSIS OF CASH WORKING CAPITAL?**

18 A. Yes. Exhibit MJA-2 has been prepared under my direction and supervision and is accurate
19 and complete to the best of my knowledge and belief. Specifically, the Exhibit summarizes

1 the revenue lag and the various expense leads supported by a lead-lag study pertaining to
2 the Company’s electric operations.

3 **Q. FOR WHAT PERIOD WAS THE LEAD-LAG STUDY PERFORMED?**

4 A. The lead-lag study analyzed the Company’s cash transactions and invoices for the twelve
5 months ended December 31, 2022. The leads and lags were applied to expense amounts
6 for the Test Year.

7 **Q. HOW SHOULD THE RESULTS OF THE CASH WORKING CAPITAL
8 ANALYSIS BE TREATED FOR RATEMAKING PURPOSES?**

9 A. The cash working capital requirements should be included as part of MDU’s South Dakota
10 electric operations rate base for ratemaking purposes.

11 **Q. IS THE ANALYSIS OF THE REVENUE LAGS AND EXPENSE LEADS
12 TYPICALLY REFERRED TO AS A LEAD-LAG STUDY?**

13 A. Yes. Cash working capital requirements are generally determined by lead-lag studies that
14 are used to analyze the lag time between the date customers receive service and the date
15 the customers' payments are available to the Company. This lag is offset by a lead time
16 during which the Company receives goods and services but pays for them at a later date.
17 The “leads” and “lags” are both measured in days. The dollar-weighted lead and lag days
18 are then divided by 365 to determine a daily CWC factor. This CWC factor is multiplied
19 by the annual test year cash expenses to determine the amount of cash working capital
20 required for operations. The resulting amount of cash working capital is included as part

1 of the Company’s rate base. The test year operating expenses to which the leads and lags
2 were applied in this proceeding are described in the testimony of Company witness Vesey.

3 **Q. WHAT ARE THE VARIOUS LEADS AND LAGS THAT WERE CONSIDERED IN**
4 **THE CASH WORKING CAPITAL ANALYSIS?**

5 A. Two broad categories of leads and lags were considered: 1) lags associated with the
6 collection of revenues owed to the Company (“revenue lags”); and 2) lead times associated
7 with the payments for goods and services received by the Company, as well as the various
8 taxes and other expenses paid by the Company (“expense leads”).

9 **Q. WHAT IS A REVENUE LAG?**

10 A. A revenue lag refers to the elapsed time between the delivery of the Company’s product
11 (i.e., electricity) and its ability to use the funds received as payment for the delivery of the
12 product.

13 **Q. WHAT IS AN EXPENSE LEAD?**

14 A. An expense lead refers to the elapsed time from when a good or service is provided to the
15 Company to the point in time when the Company pays for the good or service and the funds
16 are no longer available to the Company.

17

1 **Q. WHAT WAS THE SOURCE OF INFORMATION YOU EMPLOYED TO**
2 **DETERMINE THE LEADS AND LAGS IN YOUR CASH WORKING CAPITAL**
3 **ANALYSIS?**

4 A. Information from the Company was utilized, including data from Accounts Receivables,
5 Accounts Payable, Customer Service, Human Resources, Payroll, and Tax systems. The
6 information derived from these sources, together with the analysis of specific transactions,
7 led to the determination of the appropriate number of lead-lag days for MDU's South
8 Dakota electric operations.

9 **A. Revenue Lag**

10 **Q. HOW WAS THE REVENUE LAG DETERMINED?**

11 A. The revenue lag measures the number of days from the date service was rendered by the
12 Company until the date payment was received from customers and such funds were
13 deposited and available to the Company. In the calculation, the revenue lag was divided
14 into five distinct components: 1) service lag; 2) billing lag; 3) collections lag; 4) payment
15 processing; and 5) bank float. An explanation of each component of the revenue lag
16 follows.

17 **Q. WHAT IS MEANT BY SERVICE LAG?**

18 A. The service lag refers to the number of days from the mid-point of the service period to the
19 meter reading date for that service period. Using the mid-point methodology, the average

1 lag associated with the provisioning of service was 15.21 days (365 days in the year divided
2 by 12 months divided by 2).

3 **Q. WHAT IS MEANT BY BILLING LAG?**

4 A. Billing lag refers to the average number of days from the date on which the meter was read
5 until the customer was billed. The billing lag was determined by analyzing the Company's
6 monthly billing schedules and meter reading records. The average billing lag was
7 conservatively determined to be 1.00 day.

8 **Q. WHAT IS MEANT BY COLLECTIONS LAG?**

9 A. The collections lag refers to the average amount of time from the date when the customer
10 received a bill to the date that the Company received payment from its customers. For
11 purposes of the cash working capital analyses, the Company's actual customer receivables
12 during the twelve months ended December 31, 2022, were analyzed to determine the
13 collections lag. Based on weighted average data from the Company and by considering
14 accounts receivables balances by days aged, the average collection lag was determined to
15 be 24.72 days.

16 **Q. EXPLAIN THE CALCULATION OF THE COMPANY'S COLLECTION LAG.**

17 A. The monthly accounts receivable data was categorized into aging "buckets" of 0-30 days,
18 30-60 days, 60-90 days, 90-120 days and 120+ days. For purposes of calculating the
19 collection lag, it was assumed the customers will pay their bills ratably over the month.
20 Therefore, the midpoint of the first month was determined to be 15 days (*i.e.*, 30 divided

1 by 2). I applied the same assumption that customers will pay their bills ratably over the
2 course of the month to each aging bucket. It was further assumed that customers will pay
3 their bills ratably over the course of the second month (the month that is 30-60 days after
4 the bill was issued). Therefore, the midpoint of payments that are received 30-60 days
5 after the bill is issued is 45 days (*i.e.*, 30 days outstanding from the first month plus the 15-
6 day midpoint of the second month = 45 days). This same theory applies to the use of 75
7 days for payments that were received 60-90 days after the bill is issued as well as the use
8 of 105 days for the 90-120 days period. Receivables outstanding for 120 days or longer
9 were conservatively capped at 120 days. The accounts receivable dollars in each bucket
10 were then multiplied by the midpoint of each bucket to calculate the collections lag.

11 **Q. WHAT IS MEANT BY PAYMENT PROCESSING?**

12 A. The payment processing lag refers to the period of elapsed time from the Company's
13 receipt of the customer's funds until the point in time when the customer's payments have
14 been processed and sent to the Company's bank for deposit. The payment processing lag,
15 which was determined based upon an analysis of the various methods of payments used by
16 the Company's customers to pay their bills, and the availability of such funds from each
17 method of payment, the payment lag was determined to be 0.82

18 **Q. WHAT DOES BANK FLOAT REPRESENT?**

19 A. Bank float represents the elapsed time from when customers' payments are sent to the bank
20 for deposit and the time when such funds are available to the Company. Based upon an

1 analysis of the availability of deposited funds during 2022, bank float was determined to
2 be 0.93 days.

3 **Q. PLEASE SUMMARIZE THE CALCULATION OF REVENUE LAG DAYS.**

4 A. The overall revenue lag, by lag component, is summarized in the following table.

Revenue Lag by Component	
Service Lag	15.21
Billing Lag	1.00
Collections Lag	24.72
Payment Processing	0.82
Bank Float	0.93
Total Lag	42.68

5 **B. Expense Leads**

6 **Q. WHAT EXPENSE-RELATED LEADS WERE CONSIDERED IN THE LEAD-LAG**
7 **ANALYSIS?**

8 A. Lead times associated with the following expense categories were considered in the lead-
9 lag study: a) payroll and withholdings; b) payroll taxes; c) employee benefits; d) other
10 O&M; e) fuel and purchased power; f) general taxes other than income taxes; g) federal
11 income taxes; h) interest on long-term debt; and i) short-term interest on commercial paper,
12 notes payable and commitment fees.

13

14

1 **Q. PROVIDE AN EXPLANATION OF THE EXPENSE LEAD ASSOCIATED WITH**
2 **THE COMPANY'S PAYROLL AND WITHHOLDINGS EXPENSES.**

3 A. Considering MDU's various payroll periods (i.e., bi-weekly, monthly, and interim
4 payrolls), as well as incentive compensation payments and payroll related withholding
5 payments the payroll and withholdings expense lead was determined to be 30.42 days.

6 **Q. WHAT PAYROLL RELATED TAXES DOES THE COMPANY PAY?**

7 A. The Company pays the following payroll-related taxes: (1) Federal Unemployment; (2)
8 State Unemployment (Idaho, Minnesota, Montana, North Dakota, Oklahoma, Oregon,
9 South Dakota, Texas, Washington, and Wyoming); (3) Oregon Workers Benefits Fund;
10 and (4) Workers Compensation (North Dakota, Washington, and Wyoming) The dollar-
11 weighted expense lead for all of these taxes was determined to be 22.25 days.

12 **Q. WHAT EMPLOYEE BENEFITS DOES THE COMPANY PROVIDE AND WHAT**
13 **IS THE EXPENSE LEAD ASSOCIATED WITH SUCH BENEFITS?**

14 A. The Company provides benefits associated with medical, dental, life, long-term disability
15 insurance as well as health savings accounts, employee assistance programs and 401(k)
16 matching. The dollar-weighted expense lead for these benefits was determined to be 12.33
17 days.

18

1 **Q. WHAT ARE OTHER O&M EXPENSES AND WHAT LEAD TIMES WERE**
2 **ASSOCIATED WITH SUCH EXPENSES?**

3 A. The Company engages in transactions with vendors for a variety of purposes including
4 facility maintenance, system maintenance, customer service, as well as other services.
5 Accounts payable data was analyzed in order to calculate a lead time associated with the
6 payment for services related to other operations and maintenance activities. The analysis
7 indicates that on average, invoices were paid by the Company 33.71 days after receipt.
8 This lead time includes a service lead time.

9 **Q. WHAT IS THE EXPENSE LEAD TIME ASSOCIATED WITH THE COMPANY'S**
10 **FUEL EXPENSES?**

11 A. The Company purchases power and fuel for distribution to its electric customers. Based on
12 an examination of the service periods and payment dates for the Company's purchases of
13 power and fuel, a weighted expense lead time of 8.96 days was determined.

14 **Q. WHAT ARE THE VARIOUS GENERAL TAXES CONSIDERED IN THE CASH**
15 **WORKING CAPITAL ANALYSIS?**

16 A. The following general taxes were considered in the study: a) Property Tax; b) Secretary
17 of State; c) Gross Revenue Tax; d) Electrical Energy License Tax; e) Wholesale Energy
18 Transaction Tax; f) Electric Wind Generation Tax; g) Highway Use Tax; h) Delaware
19 Franchise Tax; and i) Coal Conversion Tax.

1 **Q. EXPLAIN THE LEAD EFFECTS ASSOCIATED WITH EACH TYPE OF**
2 **GENERAL TAXES CONSIDERED IN THE CASH WORKING CAPITAL**
3 **ANALYSIS.**

4 A. The treatment of each category of general taxes in the study is described below:

5 a) Property Tax: Taking the semi-annual periods for which the tax is assessed, as well as
6 the timing of the actual payment dates and amounts into consideration for the property
7 tax payments, a dollar-weighted expense lead of 398.71 days was determined.

8 b) Highway Use Tax: The heavy highway vehicle use tax is a tax on highway motor
9 vehicles used during the tax period. Taking the annual period for which the tax was
10 assessed, as well as the timing of the actual payment date and amount into
11 consideration for the tax payment, a dollar-weighted expense lead of negative 136.50
12 days was determined.

13 c) The Electric Wind Generation Tax is a tax on the Company's Thunder Spirit Wind
14 farm. The tax is based in part on the rated capacity of the wind farm as well as
15 kilowatts generated for the year. The expense lead for the tax was determined to be
16 182.96 days.

17 d) Secretary of State Tax: If a company has received authority to do business in a State,
18 the Secretary of State's Office will require an annual or biennial report to be filed by
19 the Company to keep the Company's status in "good standing." If these reports are
20 not filed, the company's authority to do business in that State will be revoked. The
21 dollar-weighted expense lead associated with the Secretary of State Tax was
22 calculated to be negative 49.50 days.

- 1 e) Coal Conversion Tax: this is a tax in lieu of property taxes and is imposed on coal
2 conversion facilities. It is a two-part tax where the first tax is imposed on the installed
3 capacity and the second part is based on KWH available for sale. Based upon the due
4 dates, the expense lead associated with the Coal Conversion Tax was calculated to be
5 1.09 days.
- 6 f) Delaware Franchise Fee Tax: Montana-Dakota Co. was incorporated in the State of
7 Delaware, so this is a franchise fee which is due each year. The tax is based on
8 authorized shares. Based upon the due dates, the expense lead associated with the
9 Delaware Franchise Fee Tax was calculated to be 99.50 days.
- 10 g) Gross Revenue Tax: All companies providing services regulated by the Public Utilities
11 Commission must pay a quarterly fee on gross operating revenue generated by all
12 regulated activities in South Dakota. The dollar-weighted expense lead of 364.50 was
13 determined.
- 14 h) Electrical Energy License Tax: Electricity producers and hydroelectric facilities must
15 file an electrical energy producers tax return every quarter. The dollar-weighted
16 expense lead of 72.10 was determined.
- 17 i) Wholesale Energy Transaction Tax: Montana-Dakota's kilowatt hours of electricity
18 that is produced outside of South Dakota and delivered into South Dakota is assessed
19 on a per kilowatt hour fee. The dollar-weighted expense lead of 71.81 was determined.
- 20
21
22

1 **Q. HOW DID YOUR STUDY ADDRESS FEDERAL INCOME TAXES?**

2 A. The lead time associated with federal income tax payments was based on the provisions of
3 the Internal Revenue Code that require estimated tax payments of 25 percent of total
4 income taxes due each quarter of the current year. The first quarter payment is due by
5 April 15th, while the second, third, and fourth quarter payments are due on June 15th,
6 September 15th, and December 15th, respectively. Taking this schedule into consideration
7 a lead time of 37.88 days for federal income taxes was determined.

8 **Q. PROVIDE A DESCRIPTION OF HOW LEAD TIMES ASSOCIATED WITH THE**
9 **COMPANY'S LONG-TERM INTEREST EXPENSES WERE ADDRESSED BY**
10 **THE STUDY.**

11 A. The Company made semi-annual interest payments on its long-term debt throughout the
12 test year. Using the midpoints of the semi-annual service periods, a dollar-weighted lead
13 of 91.13 days for long-term interest payments was determined.

14 **Q. DID YOU ALSO CALCULATE THE LEAD TIMES ASSOCIATED WITH THE**
15 **COMPANY'S SHORT-TERM INTEREST EXPENSE?**

16 A. Yes. The Company made periodic interest payments on three different types of short-term
17 debt throughout the test year. The debt instruments included 1) term loan commercial
18 paper; 2) a Minot Air Force Base (“MAFB”) note payable associated with the purchase of
19 the gas distribution facilities; and 3) commitment fees paid associated with short-term debt.

1 Using the midpoints of the service periods, a combined dollar-weighted lead of 18.30 days
2 for short-term interest payments was determined.

3 **Q. BASED UPON THE RESULTS OF THE LEAD-LAG STUDY AND THE LEVEL**
4 **OF EXPENSES SPONSORED BY COMPANY WITNESS VESEY, WHAT LEVEL**
5 **OF CASH WORKING CAPITAL REQUIREMENTS SHOULD BE INCLUDED IN**
6 **MDU’S RATE BASE?**

7 A. Adjustment M, which is sponsored by MDU witness Vesey, shows the cash working capital
8 requirement that should be included in the Company’s rate base.

9 **IV. CONCLUSION**

10 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

11 A. Yes, it does.