Montana Public Service Commission
Docket No. 2022.07.078
Electric and Natural Gas General Rate Review

STATE OF MONTANA
Department of Public Service Regulation
PUBLIC SERVICE COMMISSION

ELECTRIC AND GAS LEAD-LAG STUDIES

PREFILED DIRECT TESTIMONY OF
PAUL M. NORMAND
MANAGEMENT APPLICATIONS CONSULTING, INC.

ON BEHALF OF

NORTHWESTERN ENERGY

August 8, 2022

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I. WITNESS INTRODUCTION

Q. Please state your name, address and business affiliation.

A. My name is Paul M. Normand. I am a Principal with the firm of Management Applications Consulting, Inc. ("MAC"), 1103 Rocky Drive, Suite 201, Reading, PA 19609.

Q. Please describe MAC.

A. MAC is a management consulting firm that provides rate and regulatory assistance including lead lag studies, allocated cost of service studies, and depreciation services for electric, gas and water utilities.

Q. Please summarize your education and business experience.

A. This information is contained in Exhibit PMN-3.

II. PURPOSE OF TESTIMONY

Q. Please discuss the purpose of your testimony.

A. Our consulting firm was retained by NorthWestern Energy ("NorthWestern" or "the Company") to conduct an electric and natural gas lead-lag studies. My testimony presents and sponsors the electric net lag days for services associated with the electric transmission, distribution, generation, and electric supply assets (collectively "electric services") included in this filing. Separately, my testimony also presents and sponsors the natural gas net lag days for services associated with the natural gas transmission, distribution, production, and supply assets (collectively "gas services") included in this filing.

These net lag days are then used to calculate the cash working capital ("CWC") requirements included in NorthWestern's overall revenue requirements calculation by means of the CWC included in electric and natural gas rate bases.

Q. Please summarize your testimony regarding the lead-lag studies.

A. I have prepared electric and gas services lead-lag studies to separately compute the lag days associated with revenue collection from customers and the lag days associated with the utility revenue requirement expenses for electric and gas services. These lagged revenues and expenses are combined to determine the net lag days for each of NorthWestern's electric and gas services. The table below summarizes the results of the studies I have conducted:

Description	**Electric Services MPSC Method**	**Gas Services MPSC Method**	**Calculation**
Revenue Lag Days	36.74	39.65	
Expense Lag Days	83.01	78.97	
Net Lag for Operating Expense	-46.27	-39.32	Revenue Lag Days minus Expense Lag Days
Interest Lag Days	92.63	92.63	
Net Lag for Interest Expense	-55.88	-52.98	Revenue Lag Days minus Interest Lag Days

The use of the lag days, when applied to the test year revenue and expenses in the revenue requirement, will provide NorthWestern's electric and gas services CWC revenue requirements for the 2021 calendar test year.

III. LEAD-LAG STUDIES

Introduction to Lead-Lag Study

Q. What is a lead-lag study?

A. A lead-lag study is an analysis designed to determine the funding required to operate a company on a day-to-day basis. A lead-lag study compares (1) the timing difference between the receipt of services by customers and their subsequent payment for these same services and (2) the timing difference between the incurrence of costs by a company and its subsequent payment of these costs. Therefore, a lead-lag study must compute both a revenue (lead) or lag and an expense (lead) or lag.

Q. Please explain the term "revenue lag."

A. Revenue lag is the number of days between delivery of service to NorthWestern's customers and the subsequent receipt by NorthWestern of payment for the service (revenue lag days). Because NorthWestern's electric and natural gas customers receive service prior to paying for it, NorthWestern experiences a revenue lag in its daily operating costs. This revenue lag is computed based upon analyses of the time lag between the date when customers receive service and the date when the customers pay for such service. The longer the revenue lag, the greater the length of time that investor capital is required to fund the Company's day-to-day operations. The revenue lag for NorthWestern's electric services is 36.74 days as developed in Exhibit PMN-1, page 2, line 27. The revenue lag for NorthWestern's natural gas services is 39.65 days as developed in Exhibit PMN-2, page 2, line 26.

Q. Please explain "expense lag."

A. Expense lag is the number of days between the receipt of goods or services provided to NorthWestern by vendors and the payment by NorthWestern for those goods and services (expense lag days). Generally, expenses are paid by NorthWestern after vendors have provided their goods or services, which results in an expense lag. On occasion, NorthWestern pays for services before they are provided, such as prepayments. In these instances, the expenses lead their service period. The expense lag is calculated as the number of days between the date when NorthWestern receives goods or services from a vendor and the date when NorthWestern pays for such goods or services. There is also a separate lag computed for NorthWestern's interest payments on long-term debt. If the expenses are paid before the services are provided, then the expense lag is expressed as a negative amount. Consequently, any increase in the number of expense lag days results in a reduction of the amount of working capital required for ongoing NorthWestern electric and gas services operations.

Q. What is the significance of revenue lag and expense lag?

A. The arithmetic difference between the computed electric revenue lag and the computed electric expense lag is the number of days used to calculate the electric CWC. The same calculation using natural gas revenue lag and natural gas expense lag is used to calculate the natural gas CWC.

Q. Please define CWC.

A. CWC is the amount of stockholder-supplied capital required to fund the day-to-day operations of a company. Again, it accounts for the timing differences between when

service is provided to customers and revenues are received and when NorthWestern receives services from vendors and when it pays for these services. CWC represents amounts funded by investors to provide services prior to payment for such services by customers. As such, CWC is typically an addition to a utility's rate base. In some instances, CWC is a deduction to rate base. The results of these studies show that this is the case for NorthWestern; the utility's electric and natural gas operations provide a source of cash that can offset the investors' cash required. In these instances, the negative CWC can either be ignored and set to zero or considered as a reduction to the electric and natural gas rate bases, which is what we have proposed in this filing.

NorthWestern's Lead-Lag Studies

Q. Did you perform analyses to calculate NorthWestern's net lag days?

A. Yes. Exhibit PMN-1 and Exhibit PMN-2 summarize the results of the electric and natural gas lead-lag studies MAC conducted for NorthWestern using actual revenues to calculate the revenue lag and actual expenses to calculate the expense lag days for the test year ending December 31, 2021. As shown in these exhibits, the net lag for CWC for electric services operating expenses is -46.27 days and -55.88 days for interest expense, and the net lag for CWC for gas services operating expenses is -39.32 days and -52.98 days for interest expense.

Q. Has your firm conducted lead-lag studies for NorthWestern in the past?

A. Yes. MAC performed lead-lag studies for NorthWestern beginning with 2006 Informational Filing in Docket No. D2006.10.141 and updated that study for NorthWestern's filing in Docket No. D2007.7.82. MAC also performed natural gas and electric delivery function lead-lag studies in Docket No. D2009.9.129. In 2016, MAC

performed a natural gas delivery function lead-lag study in Docket No. 2016.09.068. In 2018, MAC performed an electric delivery function lead-lag study in Docket No. 2018.02.012.

Q. Are there any significant methodological differences between the earlier lead-lag studies and the studies you have conducted for this case?

A. Yes. The revenues and costs associated with electric supply, which are mostly purchased power costs, are included in the electric lead-lag study, and revenues and costs associated with natural gas supply, which are mostly purchased natural gas costs, are included in the natural gas lead-lag study. The reason for including these items in the lead-lag studies is that the CWC requirements for these supply costs are not currently recovered in their respective supply charges. NorthWestern is now proposing that the supply-related electric and natural gas CWC requirements be combined with the other CWC requirements and recovered in base rates.

Q. Please describe how the net lag days for NorthWestern were developed in these studies.

A. The net lag days computed for NorthWestern's electric and gas services in Exhibit PMN-1 and Exhibit PMN-2 used the same approach that the Montana Public Service Commission ("Commission") approved for The Montana Power Company in 1991 in Docket No. 90.6.39, Order No 5484k. The lead-lag studies systematically reviews cash flows for NorthWestern beginning with revenues, then operating expenses, and finally considers cash requirements for equity. These lead-lag studies calculate the net lag days for electric and natural gas services for the 12-month period ending December 31, 2021.

Q. Please describe the approach you used in preparing your lead-lag studies.

A. I began the lead-lag studies with the selection of the per-books revenues and expenses for the 12-month period ended December 31, 2021 for NorthWestern's electric and natural gas services to form the basis for my analysis. I then determined the lag days in the recovery of electric and natural gas revenue by type of revenue (i.e., sales and other revenues). For electric and natural gas operation and maintenance ("O&M") expenses, I developed lag days for each of several types of expenses (i.e., Labor, Fringe Benefits, Automobile Expenses, Debit Card Payments (E Card), Credit Card Payments (P Card), prepayments, and other O&M expenses). In addition, I developed lag days for electric and natural gas property taxes, other taxes, pension differential, income taxes, and interest expense. For the electric lead-lag study, I developed the lag days for Purchased Power expenses, and for the natural gas lead-lag study, I developed the lag days for Purchased Gas expenses. Once the electric and natural gas expense lag days for the test year are established on a per-books basis, they are applied to the test year expenses. The lead or lag days for each of the electric and natural gas expense items described above are then multiplied by the test year amounts to determine the weighted dollars of each expense. I then divided the total of the electric and natural gas weighted dollars by the total of the electric and natural gas expenses to compute the total working capital electric and natural gas expense lag. The net of each of the electric and natural gas revenue lags and the expense lags determined the net lead-lag days for the electric and natural gas CWC calculations.

Methods of Computation

Q. Please describe your calculation of revenue lag.

A. The calculation of the electric and gas services revenue lag is summarized on page 2 of Exhibit PMN-1 and Exhibit PMN-2.

The measurement of revenue lag days typically consists of four components: (1) service lag, (2) billing lag, (3) collection lag, and (4) revenue float. Since the time periods for these four components are mutually exclusive, revenue lag is computed by adding together the total number of days associated with each of the four revenue lag components. This total number of lag days represents the amount of time between the recorded delivery of service to customers and the receipt of the related revenues from customers for that service.

Q. Please describe how you calculate service lag.

A. The service lag is the average time span between the mid-point of the customer's consumption interval, also known as the usage period, and the time that such usage is recorded by NorthWestern for billing purposes. This service period determines the average length of time over which the billed services are provided and establishes a common point in time from which to measure (1) the time to reimbursement for the billed services, and (2) the time at which the accrued costs for the service period are actually paid. For virtually all utilities, including NorthWestern, the service lag for electric and natural gas is one-half of an average month or 15.21 days (365/12/2).

Q. Please describe your calculation of billing lag.

A. The billing lag is the time required to process and send out customer bills. The billing lag begins at the end of the service period when customer consumption is metered, and it ends when the bills are rendered and billings are posted to accounts receivable. The

billing lag may be influenced by factors such as whether automated or manual bills are produced, the time spent to review the invoices generated from this metering data, and other processes affecting the time to post billings to accounts receivable. The NorthWestern electric billing lag, which also considers the delay for weekends and holidays, was approximately 4.48 days for automated billing and 4.48 days for manual billing. For natural gas, the billing lag was approximately 4.57 days for automated billing and 8.01 days for manual billing.

Q. Please describe your calculation of collection lag.

A. The collection lag identifies the time delay between the posting of customer bills to accounts receivable and the receipt of these billed revenues. Collection lag begins with the posting of bills and ends with the receipt of payment. Collection lag may be influenced by payment arrangements, contract terms, postal delivery delays, customer inquiries, delinquent accounts, service termination practices, and other factors. I have employed the accounts receivable turnover ratio method, which is industry standard and used in my prior studies for NorthWestern, to determine the collection lags. Using this approach, the average monthly accounts receivable balances were divided by the average daily revenues for the 12 months ended December 31, 2021. Using the accounts receivable turnover method, the study derives a collection lag of 17.61 days for electric revenues and 19.48 days for natural gas revenues.

Q. Please describe the final component of revenue lag, revenue float.

A. Revenue float is the time difference between when funds are received from customers until customer payments clear the banks and are available to NorthWestern. To clarify, there are two periods of float. The first is associated with NorthWestern's payment of

services from vendors. The second period of float is the delay in NorthWestern's receipt of cash from the deposited customer payments. In this latter instance, NorthWestern's cash requirements are reduced by the delay in check processing. Some lead-lag studies assume that revenue float and check float are equal and offsetting and, therefore, can be removed.

For NorthWestern specifically, a closer examination reveals that the issue is much more complex. The majority of NorthWestern's larger payments are made by wire transfer with a much shorter lag than a conventional mailed check. On the revenue side, a portion of customer payments are made by cash, credit card, or bank transfer. Again, these payments have smaller lag times to clear than conventional checks. Since the dollar volume of utility payments far exceeds their receipts made by cash, credit card, and bank transfer, the inclusion of check float in the lead-lag study would slightly increase CWC requirements. I have chosen to avoid this level of complexity with the knowledge that our simplifying assumption will be conservative and slightly understate CWC and will not disadvantage customers. Therefore, I have chosen not to quantify float for revenues or expenses in these studies.

Q. How is the lag for labor expense determined?

A. The large majority of NorthWestern's payroll stems from 26 biweekly payroll disbursements. For each two-week period ending on a Friday, employees are normally paid the following Friday. For each pay period, MAC identified the pay period and the payment dates. However, not all of the labor costs earned by employees in the pay period are paid out along with salary. In order to make an accurate calculation of total labor costs, MAC identified all of the labor-related costs and identified when NorthWestern

was required to expend cash. These labor-related costs include all salary including incentive compensation, payroll taxes including withholding taxes, and a wide range of benefits. The lags for each component of labor-related costs were developed as part of the lead-lag studies.

Employee net payroll payments are the largest component of labor costs and have the shortest payment lag at 14.00 days. However, other components of labor costs have exceptionally long delays. For example, 2021 incentive pay earned during the course of the year was paid on March 15th of the following year resulting in an expense lag of 255.50 days. An even more extreme example is the sellback of unused vacation time. Employees occasionally earn more vacation than they use resulting in an accumulation of paid time off. MAC estimates that payments for unused vacation time occur on average over five years after the vacation is actually earned. The impact of vacation is substantial. The electric and natural gas net lag for all labor-related costs is 45.23 days when considering incentive pay and vacation sellback. In addition to direct labor expense, MAC examined other labor-related costs to NorthWestern, including Payroll Taxes and Pensions and Benefits as discussed below.

Q. Please describe how the lag is calculated for Pensions and Benefits.

A. The method for calculating expense lag for Pensions and Benefits follows the same approach used for all other lag calculations. For each expense, the service period and its mid-point were determined. Then the payment date was established. The lag was then computed as the difference between the payment date and the mid-point of the service period. Next, a weighted average of each expense was computed to determine the overall average for this category.

Q. Please describe how the lag is calculated for Purchased Power.

A. Each purchased power invoice for 2021, except those for Qualifying Facilities under $1M of expense, was used in the calculation of Purchased Power expense lags. Each invoice represents billings for the prior calendar month. Payments are made from approximately the 20th to the end of the following month. The calculated lag for Purchased Power expense is 36.42 days and 41.55 days for Purchased Power Qualifying Facilities over $1M.

Q. Please describe how the lag is calculated for Purchased Gas.

A. Each purchased natural gas invoice for the year 2021 was reviewed in the calculation of the Purchased Gas lag. Each invoice represents billings for the prior calendar month. The service period for each day is defined as the 24-hour period ending at 8:00 A.M. Consequently, each invoice is for the period beginning at 8:00 A.M. on the first day of the previous month and ending at the same time in the current month. Payments are made on approximately the 25th of the following month. The resulting calculated lag day for Purchased Gas is 39.81 days.

Q. Did MAC analyze separately and include other categories of O&M expense in the expense lag?

A. Yes. Automobile expenses were analyzed separately and included in the calculations of the expense lag. Again, the lags for each expense item were computed as the difference between the payment date and the mid-point of the service period.

E Card payments and P Card payments were also analyzed separately. E Card payments are payments made for vendor service by way of issuing of a debit card. The lags for

these payments were computed as the difference between the payment date made to the bank for the E Cards and the mid-point of the service period. E Card payments have longer expense lags due to the amount of time associated with processing the invoice, sending the approved payment to the bank, and the issuance of the E Card and subsequent payment to the bank by NorthWestern.

P Card payments are credit card purchases made by employees for mostly small expenditures. The lags for these payments were computed as the difference between the payment date made to the bank for the P Card and the mid-point of the credit card service period.

Q. Were Prepaid Expenses analyzed separately in the lead-lag studies?

A. Yes. After review of the payment vouchers for Other O&M expenses, it was noted that NorthWestern had a number of large prepayments for items whose service period was 365 days. Those items in the sample with service periods of 365 days were analyzed separately and the lead days computed. The lead days were then computed as the difference between the payment date and the mid-point of the service period. Next, a weighted average of each prepayment was computed to determine the overall average for this category.

Q. Were there Other O&M expenses included in the calculation of expense lag?

A. Yes, a category of Other O&M expenses directly paid by NorthWestern was included. Because these expenses are made up of thousands of vouchers processed throughout the course of the test year, a sample (as discussed below) was used to estimate the lags for NorthWestern. The listing of payment vouchers for the Other O&M sample included

common electric and natural gas payments and payments directly related to electric and natural gas expenses. NorthWestern was able to separate out the common and direct payments to electric and natural gas in the sample made from the expense vouchers. The common expense items were allocated to electric and natural gas based on the allocation percentage developed in the Gas and Electric Allocation Study NorthWestern performed in August 2021, which was the most recent allocation study available at the time of the lead-lag study. This allocation study is further described in the Pre-filed Direct Testimony of Jeffrey B. Berzina.

The sampling method used was a random sequential sample of the population using four (4) strata. The population was sorted by dollar amounts, and the following strata were used for the sample:

Stratum 1 – Largest vouchers – over $150,000
Stratum 2 – Every 25th voucher down to $15,000
Stratum 3 – Every 100th voucher down to $4,000
Stratum 4 – Every 750th voucher under $4,000

The resulting sample accounted for 35.72% of the dollars in the population and resulted in a lag of 15.38 days for the Other O&M expenses.

Q. Did you include any other expenses besides O&M expenses in the calculation of the expense lag?

A. Yes. Since Property Taxes, Other Taxes, Federal and State Income Taxes, and Interest on Long Term Debt represent cash outlays, they were included in the calculation of lag days in the 2021 test period. All electric and natural gas property tax payments made during 2021 were analyzed and the expense lags computed. The large dollar amount of the property tax payments with lag days of approximately 240 days are the main driver in the calculation of negative cash working capital for both electric and natural gas. Other

Taxes consist mostly of Employer Payroll Taxes, MPSC/MCC Taxes, Wholesale Energy Transaction Taxes, and Other Miscellaneous Taxes. Each type of tax was analyzed separately and assigned a lag based on the service periods and payment dates. Federal and State Income Taxes were assigned lags based on the statutorily required equal quarterly tax payments during the test year. Interest on Long Term Debt was assigned lags based on the actual interest payments for the 2021 test period.

Results of the NorthWestern Lead-Lag Study

Q. What were the net lag days between revenue and expense for NorthWestern's Montana electric and gas services in calendar year 2021?

A. As indicated by the data in Exhibit PMN-1 and Exhibit PMN-2, the net lag for NorthWestern's services as measured by the lead-lag studies, excluding interest expense, was -46.27 days for electric and -39.32 days for natural gas. The negative figure indicates that electric and gas services do not require stockholder capital. Instead, it suggests that ratepayers are providing a source of capital, which reduces the amount of CWC required from stockholders.

Q. Referring to Exhibit PMN-1 and Exhibit PMN-2, could you discuss the structure of the lead-lag studies summaries?

A. The summaries of MAC's electric and gas services lead-lag studies are shown on page 1 of Exhibit PMN-1 and Exhibit PMN-2. Both pages also include the summary of the expense lag data.

These calculations are based primarily on expenses. For each category of expense, the expense, along with its lag days, is tabulated. In order to compute subtotals and totals,

the rightmost column, labeled "Weighted Amount," is also shown. For those categories with known lag days, this column is the simple product of the annual expense and the lag days. For rows displaying subtotals and totals, this column is computed and then used along with the appropriate figure from the Annual Expense column to compute the average lag. In the electric lead-lag summary in Exhibit PMN-1, Page 1, Row 36 shows that the weighted average lag of all expenses is 83.01 days. Since revenues are received 36.74 days after the service is provided, the net lag for all expenses is -46.27 days after the revenues are received, as shown on Row 41. Since this figure is negative, the revenues lead the expenses. Stated differently, the revenues in aggregate are received before the expenses are paid, so operations provide a source of cash and therefore cash from stockholders or CWC is unnecessary.

The same case applies to the natural gas lead-lag study in that the net lag is negative. In the natural gas lead-lag summary in Exhibit PMN-2, Page 1, Row 33 shows that the weighted average lag of all expenses is 78.97 days. Since the revenues are received 39.65 days after the service is provided, the net lag for all expenses is -39.32 days after the revenues are received, as shown on Row 38.

Q. What else influenced how you structured the lead-lag studies summaries?

A. The Commission has previously established that the cash requirements associated with interest and preferred equity should be included in the CWC requirements.[1] In Exhibit PMN-1, Page 1, Lines 44 to 47 for electric and Exhibit PMN-2, Page 1, Lines 41 to 44 for natural gas, I compute the interest expense net lag days. Since NorthWestern currently has no preferred stock, the calculation is limited to the calculation of net lag

[1] Docket No. 90.6.39, Order No. 5484k.

days for debt. The method I used mirrors that approved by the Commission in Order No. 5484k. The lag of Long-Term Debt interest payments is 92.63 days for electric and natural gas, resulting in a net lag of negative 55.88 days for electric and negative 52.98 days for natural gas. This translates into an additional generation of CWC and a reduction to stockholder-supplied CWC requirements.

Q. Please explain how test year CWC should be computed.

A. The lead-lag study computes representative lag days for revenues and a number of expense categories that make up revenue requirements. The more representative calculation of test year CWC should apply the revenue and expense lag days to the test year level of revenue and expenses included in the revenue requirement. Using this approach, the computed CWC will properly reflect any and all adjustments deemed appropriate for ratemaking purposes that are allowed in the revenue requirements.

Q. Is the Commission's methodology the optimal methodology from your point of view?

A. No, I believe the underlying purpose of a lead-lag study is to compute a CWC adjustment to rate base to account for the timing differences between revenues and expenses. The goal is to ensure that stockholders have a fair opportunity to earn the level of return on investment deemed appropriate by the utility's regulators. That investment includes CWC. If revenues lag expenses, then stockholders must invest capital to support the utility's operations, or if expenses lag revenues, then the utility's operations provide a source of capital reducing the investment otherwise required from stockholders. The present ordered structure of the lead-lag study includes specific items from the utility's revenue requirement for the calculation of CWC. I believe that the better approach to

computing CWC is to identify the lag in all revenues and then deduct from it the lag in all expenses related to revenue requirements including Uncollectible Accounts Expense, Depreciation and Amortization, and Deferred Income Taxes. This approach includes all revenues and expenses in the revenue requirement, is straight-forward, is internally consistent, and does not require the Commission to selectively exclude items from the calculation. More importantly, this approach is theoretically appropriate and provides utilities with a fair and reasonable opportunity to earn their authorized rate of return. However, at this time, given the Commission's long established methodology, I am not recommending that the Commission consider a different approach. I support my studies' results, but want to make sure that the Commission knows that I believe there is also a different approach to consider.

Q. Are you recommending that the Commission revise its method to compute working capital?

A. With one minor exception, I am not recommending a change at the present time. While I believe that the methods used in these lead-lag studies result in an underestimate of NorthWestern's actual CWC needs as just discussed, my purpose here is to present the results of the lead-lag studies conducted in compliance with past Commission precedent except for inclusion of the electric and natural gas supply costs, as discussed above.

Q. Does this conclude your testimony?

A. Yes, it does.

VERIFICATION

This Pre-filed Direct Testimony of Paul M. Normand is true and accurate to the best of my knowledge, information, and belief.

/s/ Paul M. Normand
Paul M. Normand