

NORTHERN UTILITIES, INC.

**DIRECT TESTIMONY OF
DANIEL T. NAWAZELSKI**

LEAD-LAG STUDY

EXHIBIT DTN-1

New Hampshire Public Utilities Commission

Docket No. DG 17-070

Table of Contents

I. INTRODUCTION	1
II. SUMMARY OF TESTIMONY	2
III. CASH WORKING CAPITAL.....	3
IV. SUMMARY	13

SCHEDULES

Schedule DTN-1

Pro Forma Lead-Lag
Summary

Schedule Workpapers

Supporting Lead-Lag
Schedules

1 **I. INTRODUCTION**

2 **Q. Please state your name and business address.**

3 A. Daniel T. Nawazelski, 6 Liberty Lane West, Hampton, New Hampshire 03842.

4 **Q. What is your position and what are your responsibilities?**

5 A. I am a Senior Financial Analyst for Unitil Service Corp., a subsidiary of Unitil
6 Corporation that provides managerial, financial, regulatory and engineering
7 services to Unitil Corporation's principal subsidiaries including the New
8 Hampshire Division of Northern Utilities, Inc. (hereinafter referred to as
9 "Northern" or the "Company"). In this capacity I perform complex financial
10 planning, forecasting and analyses for financial matters and in support of
11 regulatory proceedings.

12 **Q. Please describe your business and educational background.**

13 A. I began working for Unitil Service Corp. in June of 2012 as an Associate
14 Financial Analyst. Since then I have been promoted two times, the most recent
15 promotion was to the role of Senior Financial Analyst in 2016. I earned a
16 Bachelor of Science degree in Business with a concentration in Finance and
17 Operations Management from the University of Massachusetts, Amherst in May
18 of 2012.

19 **Q. Have you previously testified before this Commission?**

1 A. Yes, I have testified and provided default service lead lag studies before the New
2 Hampshire Public Utilities Commission (the “Commission”) in Dockets DE 16-
3 250 and DE 17-038. I have also testified before the Massachusetts Department of
4 Public Utilities on other utility financial and ratemaking matters.

5 **II. SUMMARY OF TESTIMONY**

6 **Q. Please discuss the purpose of your testimony.**

7 A. The purpose of my direct testimony is to present and sponsor the cash working
8 capital (“CWC”) requirements of Northern for its delivery and purchased gas
9 services. Northern has identified its revenue requirements on a pro forma basis
10 and I have computed the CWC for that adjusted test year.

11 On a pro forma basis, the total CWC requirement for Northern is 23.97 net lag
12 days for its delivery services. This CWC requirement represents the funds that
13 are needed due to the lag between the times that payments are made by the
14 Company and when the recovery of those funds is obtained from customers. The
15 CWC requirement for delivery services is included in the Company’s overall
16 revenue requirements calculation by means of the cash working capital allowance
17 included in rate base.

18 In addition to presenting and sponsoring the CWC requirements for delivery
19 service, I have also calculated 10.02 net lag days for purchased gas. The results of
20 this study will be used to calculate the purchased gas working capital costs to be

1 recovered through the Cost of Gas Adjustment. This change would become
2 effective on the same date as the base rate change in this proceeding.

3 My analysis is supported by the data presented in Schedule DTN-1

4 **Q. How is your testimony organized?**

5 A. My testimony consists of three sections. Section I is introductory information.
6 Section II describes the purpose and organization of my testimony. Section III
7 presents the results of the Company's lead-lag study that I've prepared to
8 determine the pro forma delivery portion of CWC.

9
10 **III. CASH WORKING CAPITAL**

11 **Q. Please define cash working capital.**

12 A. CWC is the amount of investor-supplied capital required to fund the day-to-day
13 operations of a company after accounting for the timing differences between
14 booked and actual revenues and expenses. CWC represents dollar amounts
15 funded by investors to provide service prior to receipt of payment for those
16 services by customers. As such, CWC is an appropriate addition to a company's
17 rate base.

18 **Q. Did you perform analyses to estimate the CWC of Northern for the adjusted**
19 **test year?**

1 A. Yes. Schedule DTN-1 summarizes the results of Northern's lead-lag study using
2 the pro forma revenue requirements for the test year ending December 31, 2016.
3 As shown in these schedules, the rate base addition for the delivery portion of
4 CWC is \$1,387,963, or a net lag of 23.97 days.

5 **Q. What is a lead-lag study?**

6 A. A lead-lag study is an analysis to determine the funding required to operate a
7 company on a day-to-day basis. A lead-lag study compares (1) the timing
8 difference between the receipt of service by customers and their subsequent
9 payment for these same services and (2) the timing difference between the
10 incurrence of costs by Northern and its subsequent payment of these costs.
11 Therefore, a lead-lag study must compute both a revenue lag (or lead) and an
12 expense (lead) or lag. Schedule DTN-1, page 1 of 4 summarizes the lead-lag
13 study results for Northern. The CWC was developed using systematic reviews of
14 cash flows for Northern's revenues and operating expenses. The lead-lag study
15 I've performed measured the base revenue requirement CWC needed for
16 Northern's day-to-day gas operations for the 12-month pro forma period ending
17 December 31, 2016.

18 **Q. Please define the terms "lag days" and "lead days" as used in your testimony.**

19 A. Revenue lag is measured as the number of days between delivery of service to
20 Northern's customers until the time payment is received from customers.
21 Because Northern's gas customers receive service prior to paying for it, the

1 Company experiences a revenue lag in daily operations. The longer the revenue
2 lag, the greater the length of time that investor capital is required to fund the
3 Company's day-to-day operations. The revenue lag for Northern is 46.31 days as
4 developed in Schedule DTN-1, page 2 of 4, line 29.

5 Expense lag is the number of days from the time of service is provided to the
6 Company until payment is made by the Company for that service. On occasion,
7 the Company pays for services before they are provided as an example. In these
8 instances, the expenses lead their service period and the expense lag is expressed
9 as a negative amount. Consequently, any increase in the number of expense lag
10 days results in a reduction of the amount of working capital required for ongoing
11 Northern operations.

12 The difference between the revenue lag and the expense lag determines if there is
13 a net revenue lag (revenue lag days are greater than the expense lag days for a
14 component) or a net expense lead (revenue lag days are less than the expense lag
15 days for a component).

16 As shown on Schedule DTN-1, page 1 of 4, line 34, column 5, Northern's net lag
17 days are 23.97 days.

18 **Q. Please describe the approach you use in preparing your lead-lag study.**

19 A. I began the lead-lag study with the selection of the per-books revenues and
20 expenses for the 12-month period ended December 31, 2016 for Northern to form
21 the basis for my analysis. I then determined the lag days in the recovery of

1 revenue by type of revenue (i.e. sales and other revenues). For operating and
2 maintenance (“O&M”) expenses, I developed lag days for each of several types of
3 expenses (i.e. labor, employee benefits, liability insurance, regulatory commission
4 expenses, automobile leases, service company charges, and other O&M
5 expenses). In addition, I developed lag days for property taxes, other taxes and
6 income taxes. Once the lag days for the test year are established on a per-books
7 basis, they are applied to the test year pro forma revenue requirements. The lead
8 or lag days for each of the items described above are then multiplied by the test
9 year pro forma expenses to determine the dollar-days of CWC. The net dollar-
10 days of revenue less expenses and taxes are then divided by 366 days to obtain the
11 average daily CWC.

12 **Q. Please describe your calculation of revenue lags.**

13 A. The calculation of the revenue lags is summarized on page 2 of Schedule DTN-1.
14 As previously described, “revenue lag” is the length of time that occurs between
15 the Company’s provision of service to its customers and the subsequent receipt of
16 payment for those services. The existence of a revenue lag makes it necessary for
17 investors to provide the funding for the Company to pay its operating costs during
18 the lag period.

19 The measurement of revenue lag typically consists of three components: (1)
20 service lag, (2) billing lag, and (3) collection lag. Since the time periods for these
21 three components are mutually exclusive, revenue lag is computed by adding

1 together the total number of days associated with each of the three components.

2 This total number of lag days represents the amount of time between the recorded
3 delivery of service to customers and the receipt of the related revenues from
4 customers.

5 **Q. Please describe how you calculate service lag.**

6 A. The service lag is the average time span between the mid-point of the customer's
7 consumption interval, also known as the usage period, and the time that such
8 usage is recorded by the Company for billing purposes. This service period
9 determines the average length of time over which the billed services are provided
10 and establishes a common point in time from which to measure (1) the time of
11 reimbursement for the billed services, and (2) the time at which the accrued costs
12 for the service period are actually paid. For virtually all utilities, the service lag is
13 one-half of an average month or 15.25 days (366/12/2).

14 **Q. Please describe the calculation of billing lag.**

15 A. The billing lag is the time required to process and send out customer bills. The
16 billing lag begins at the end of the service period when customer consumption is
17 metered, and it ends when the bills are rendered and billings are posted to
18 accounts receivable. Northern utilizes an automated meter reading system. It
19 posts its meter reading daily for billing the next day, and it is recorded into
20 accounts receivable on the following day. The Northern billing lag was
21 approximately 1.04 days after considering the delay for weekends and holidays.

1 **Q. Please describe the calculation of collection lag.**

2 A. The collection lag identifies the time delay between the posting of customer bills
3 to accounts receivable and the receipt of these billed revenues. Collection lag
4 begins with the posting of bills and ends with the receipt of payment. Collection
5 lag may be influenced by payment arrangements, contract terms, postal delivery
6 delays, customer inquiries, delinquent accounts, service termination practices, and
7 other factors. I have employed the accounts receivable turnover ratio method to
8 determine the collection lags. Using this approach, the average monthly accounts
9 receivable balances were divided by the average daily revenues for the 12 months
10 ended December 31, 2016. Using the accounts receivable turnover method, a
11 collection lag of 30.07 days was computed.

12 **Q. Are there other components of revenue lag for Northern?**

13 A. Yes, please see page 2 of Schedule DTN-1. This lists miscellaneous revenues
14 such as late payment charges, reconnect fees, etc.

15 **Q. What is the total revenue lag component for the lead-lag calculation?**

16 A. Each of the above revenue lag components was totaled to arrive at the total
17 revenue lag of 46.31 days, as shown on Schedule DTN-1, page 2.

18 **Q. How is the lag for labor expense determined?**

19 A. Please see Schedule DTN-1. The Company's payroll stems from weekly or
20 monthly payroll disbursements. Using sample data, I measured the lag between

1 the mid-point of the pay period and the pay date. However, not all labor costs
2 earned by employees in the pay period are paid out as salary, the difference being
3 payroll withholdings. In order to make an accurate calculation of total labor
4 costs, I identified all labor-related costs and identified when the Company actually
5 expended the cash. These labor-related costs include all salary including
6 incentive compensation, payroll taxes including withholding taxes, and a wide
7 range of benefits. Regular weekly payroll costs are the largest component of
8 labor costs and have the shortest payment lag. However, other components of
9 labor costs have relatively longer delays. For example, incentive compensation
10 pay was earned from January 2016 to December 2016 and was paid in February
11 2017, resulting in a much longer expense lag. In addition to direct labor expense,
12 we examined other labor-related costs to the Company, including Payroll Taxes,
13 and Pensions as discussed below.

14 **Q. Please describe how the lag is calculated for Pensions?**

15 A. The method for calculating expense lags for Pensions utilizes a benefit payments
16 approach. For each benefit payment, the service period and its mid-point were
17 determined. Then the payment date was established. The lag was then computed
18 as the difference between the payment date and the mid-point of the service
19 period. Next, a weighted average of each benefit payment was computed to
20 determine the overall average for this category.

1 **Q. Were other categories of O&M expense analyzed separately and included in**
2 **the expense lag?**

3 A. Yes, liability insurance, regulatory commission expenses, vehicle leases, credit
4 card fees and IRP expenses were analyzed separately and included in the
5 calculations of the expense lag. Again, the lags for each expense item were
6 computed as the difference between the payment date and the mid-point of the
7 service period.

8 **Q. How was the expense lag calculated for expenses allocated from the Service**
9 **Companies?**

10 A. The expenses allocated from the Service Companies consisted of Labor and Other
11 O&M expenses that are charged to O&M accounts. The expense lag of 40.46
12 days that is assigned to this expense was computed as the difference between the
13 payment date for Service Company charges, and the mid-point of the service
14 period, which is the mid-point of the calendar month being billed.

15 **Q. How is Uncollectible Accounts expense included in the lead-lag study?**

16 A. Uncollectible Accounts expense for base revenues was not assigned lead or lag
17 days in the study because it is a non-cash item. The lag for uncollectible accounts
18 has been recognized in the calculation of the collection lag. The accounts
19 receivable balance is reduced when uncollectible accounts are written off, and
20 therefore, the collection lag is reduced.

1 **Q. Are there any Other O&M expenses that were included in the calculation of**
2 **expense lag?**

3 A. Yes, there are Other O&M expenses directly paid by Northern. Because these
4 expenses are made up of thousands of vouchers processed throughout the course
5 of the test year, a sample was used to estimate the lags for each Operating
6 Company. The sample produced a lag of 39.57 days for these Other O&M direct
7 expenses.

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

11	Stratum 1	–	Largest 25 vouchers
12	Stratum 2	–	Every 3 rd voucher down to \$1,500
13	Stratum 3	–	Every 25 th voucher down to \$250
14	Stratum 4	–	Every 100 th voucher under \$250

15 The resulting sample accounted for 36.9% of the dollars in the population and
16 resulted in a lag of 39.57 days for the Other O&M expenses.

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

19 A. Yes. Since Property Taxes, Other Taxes and Federal and State Income Taxes,
20 represent cash outlays, they were included in the fiscal 2016 period in the
21 calculation of CWC. All property tax payments made during 2016 were analyzed,

1 and the expense lags computed. Other Taxes consist mostly of Payroll Taxes and
2 Unemployment Taxes. Each type of tax was analyzed separately and assigned a
3 lag based on the service periods and payments dates. Federal and State Income
4 Taxes were assigned lags based on the statutory required fiscal tax year equal tax
5 payments.

6 **Q. Did you compute the CWC requirements on any expenses not recovered in**
7 **base rates?**

8 A. Yes, I did. The CWC percent was calculated for purchased gas expenses. The
9 purchased gas expenses were analyzed for 2016 for each supplier. The lags for
10 each supplier payment were computed as the difference between the payment date
11 and the mid-point of the service period. This produced a purchased gas expense
12 lag of 36.34 days, as shown on page 4 of Schedule DTN-1. This page also
13 computes the revenue lag of 46.36 days. The resulting net lag is 10.02 days.

14 **Q. Where have you presented the results of the CWC calculations for the pro**
15 **forma test year?**

16 A. The results of the lead-lag study are summarized on page 1 of Schedule DTN-1.
17 This page summarizes the revenue lags from page 2 and the expense lags from
18 page 3 and presents the Company's CWC for the test year on a pro forma basis.
19 Schedule DTN-1, page 4, summarizes the purchased gas CWC.

1 **Q. Have you identified the net lag days between revenue and expense for**
2 **Northern for the twelve months ended December 31, 2016 on a pro forma**
3 **basis?**

4 A. Yes. As indicated by the data on page 1 of Schedule DTN-1, the net lag for CWC
5 is 23.97 days (line 34, column 5). The positive lag indicates that CWC is required
6 to compensate for the fact that the lag in the recovery of revenues is greater than
7 the lag in the payment of expenses.

8 On a pro forma basis, Northern's CWC requirement for December 31, 2016 test
9 year is \$1,387,963, or 6.55%, as shown on page 1, lines 32 and 36, of the above
10 noted schedule. This CWC requirement represents the capital that must be
11 provided and included as an addition to rate base.

12 **Q. Please explain how the CWC requirement impacts the Company's revenue**
13 **requirement as described in Mr. Chong's testimony and in the RevReq**
14 **schedules.**

15 A. Mr. Chong's RevReq schedule includes a CWC requirement of \$1,387,963 as
16 shown on Schedule RevReq-5-2. This amount was based on a net lag of 23.97
17 days.

18 **IV. SUMMARY**

19 **Q. Please summarize your testimony.**

1 A. I have prepared a lead-lag study for Northern to compute the lag days associated
2 with revenues and expenses. These revenue and expense lag days are offset to
3 determine the net lags. I then used these net lag days to compute the pro forma
4 CWC requirement for the Company. The resulting CWC requirement for the
5 Company is based on a net lag of 23.97 days for the rate case test year January 1,
6 2016 through December 31, 2016.

7 The results of the purchased gas working capital study of 10.02 net lag days will
8 be used to calculate the purchased gas working capital costs to be recovered
9 through the Cost of Gas Adjustment. This change would become effective on the
10 same date as the base rate change in this proceeding.

11 **Q. Does this conclude your testimony?**

12 A. Yes, it does.