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STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

IN THE MATTER OF:)
)
Carrying Charge Rate on Cash Working Capital)

DG 07-072

THIRD REVISED
DIRECT TESTIMONY
AND SCHEDULES
OF
JAMES A. ROTHSCHILD
ON BEHALF OF THE
PUBLIC UTILITIES COMMISSION

November 14, 2008

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2. APPENDIX A – TESTIFYING EXPERIENCE OF JAMES A. ROTHSCHILD

1 **I. STATEMENT OF QUALIFICATIONS**

2 Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

3 A. My name is James A. Rothschild and my address is 115 Scarlet Oak Drive, Wilton,
4 Connecticut 06897.

5

6 Q. WHAT IS YOUR OCCUPATION?

7 A. I am a financial consultant specializing in utility regulation. I have experience in the
8 regulation of electric, gas, telephone, sewer, and gas utilities throughout the United
9 States and Nova Scotia, Canada.

10

11 Q. PLEASE SUMMARIZE YOUR UTILITY REGULATORY EXPERIENCE.

12 A. I have been a consultant specializing in utility ratemaking since 1972. Initially, I was
13 employed by Touche Ross & Co. Touche Ross & Co. later merged to form Deloitte
14 Touche. I then provided similar consulting services while with J. Rothschild
15 Associates, Georgetown Consulting Group, and Rothschild Financial Consulting.
16 While associated with the above firms, I have worked for various state utility
17 commissions, attorneys general, and public advocates on regulatory matters relating
18 to regulatory and financial issues. These have included rate of return, financial
19 issues, and accounting issues. (See Appendix A.)

20

21 Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

22 A. I received an MBA in Banking and Finance from Case Western University (1971) and
23 a BS in Chemical Engineering from the University of Pittsburgh (1967).

1

2 **II. PURPOSE**

3 Q. WHAT IS THE PURPOSE OF THIS TESTIMONY?

4 A. The purpose of this testimony is to determine the appropriate rate utility companies in
5 New Hampshire should be allowed to charge ratepayers for the carrying costs of
6 supply-related cash working capital.

7

8 Q. WHAT IS SUPPLY-RELATED CASH WORKING CAPITAL?

9 A. Supply-related working capital is the financing a company needs to manage the
10 relationship between its short-term accounts receivables and accounts payable in
11 regards to purchasing natural gas or the fuel required to generate electricity.

1

2 **III. SUMMARY OF FINDINGS AND RECOMMENDATIONS**

3 Q. PLEASE SUMMARIZE YOUR CONCLUSIONS.

4 A. For reasons that are explained later in this testimony, Energy North, Granite State,
5 Northern Utilities and Unitil should be required to use the cost of short-term debt
6 when determining the revenue requirements associated with supply-related working
7 capital.

8 Public Service Company of New Hampshire (PSNH) has not made a claim for any
9 supply-related working capital, and has stated that it has not even computed the
10 amount of such capital needed to run its business. If, in the future, the PSNH should
11 make such a computation, the principles laid out in this testimony should govern the
12 determination of their appropriate carrying charge rate.

13

14 **IV. BACKGROUND AND APPROACH**

15 Q. HOW DOES A COMPANY OBTAIN ITS CAPITAL?

16 A. A company obtains its capital from investors. That capital is raised from investors
17 through a mix of equity, long-term debt, and short-term debt. Ideally, the percentage
18 of each that is used in the capital structure is determined with a goal of minimizing
19 the long-run overall cost of capital. Especially after considering the allowance for
20 income taxes, equity costs considerably more than either long-term or short-term
21 debt. Short-term debt generally is less expensive than long-term debt. However, the
22 greater the proportion of debt a company uses, the more financial risk exposure it will
23 have and therefore, other things being equal, both the cost of debt and the cost of

1 equity will rise as the proportion of total capital raised by debt increases. Therefore,
2 there is a limit on the maximum appropriate amount of debt a company should or can
3 use. There is also a separate appropriate limit on the total amount of debt that should
4 or can be raised as short-term debt rather than long-term debt because of factors such
5 as indenture limitations and the potential exposure to a financial environment in
6 which interest rates rise rapidly. By considering the appropriate cost tradeoffs
7 between equity and both long and short-term debt, a company can both maintain its
8 financial integrity and minimize its overall cost of capital by using reasonably
9 appropriate levels of each component of capital.

10

11 Q. WHAT ARE TYPICAL USES OF SHORT-TERM DEBT?

12 A. Common uses of short-term debt include the financing of short-duration assets such
13 as working capital and for bridge financing. Also, to take advantage of the relatively
14 low cost of short-term debt some companies may provide some level of financing of
15 long-term assets with short-term debt.

16

17 Q. WHY IS WORKING CAPITAL A COMMON USE FOR SHORT-TERM DEBT?

18 A. The need for working capital typically varies with time. Such variation could occur
19 for reasons such as seasonal variations in load, abnormal weather conditions, under
20 collection of fuel or purchased gas costs. A capital need that varies with time is
21 especially suited to be financed with short-term debt because, unlike permanent
22 capital, the costs incurred from short-term debt financing are only incurred during the
23 time the debt is actually being used. For example, a company that had a net positive

1 need for working capital for 9 months of a year would incur interest charges for only
2 9 months if that need is financed with short-term debt. This is in contrast to long-
3 term debt or equity in which the costs are incurred for all 12 months.

4

5 Q. WHAT IS BRIDGE FINANCING?

6 A. Bridge financing is temporary financing that is used until the amount of new
7 financing a company needs is large enough to make an issuance of long-term debt or
8 common equity economical. It can be uneconomical to issue long-term debt or
9 undertake major new issuances of common stock in small dollar increments.

10 Therefore, companies frequently use short-term debt to finance physical assets during
11 a construction period and then replace the short-term debt with long-term debt once
12 the amount of short-term debt becomes large enough to make the long-term debt
13 issuance economical.

14

15 Q. HOW SHOULD REGULATORS SUCH AS THE NEW HAMPSHIRE
16 COMMISSION TREAT SHORT-TERM DEBT?

17 A. Regulators have a responsibility to balance the interests of investors and ratepayers.
18 Since short-term debt is usually a relatively inexpensive source of capital, it is
19 important for regulators on the one hand to provide ratepayers with the benefit of the
20 lower cost associated with short-term debt while on the other hand protecting
21 investors by not assigning more short-term debt in the ratemaking process than a
22 company could reasonably be expected to use.

23

1 Q. HOW DOES THE REGULATORY PROCESS PROVIDE RATEPAYERS WITH
2 THE BENEFIT OF LOW COST SHORT-TERM DEBT?

3 A. Each of the companies in this proceeding has stated in response to discovery (see for
4 example Granite State's response to Staff 1-12) that it uses the Federal Energy
5 Regulatory Commission (FERC) method for computing the Allowance for Funds
6 Used During Construction (AFUDC) rate, which it earns on the eligible Construction
7 Work in Progress (CWIP) balance. The FERC has a policy of first allocating all
8 available short-term debt to CWIP that is eligible to earn the AFUDC rate. The way
9 the FERC method accomplishes this allocation is to set the AFUDC rate equal to the
10 cost of short-term debt so long as the short-term debt balance is equal to or greater
11 than the balance of CWIP eligible for AFUDC. If the balance of CWIP eligible for
12 AFUDC is greater than the short-term debt balance, then the FERC uses the overall
13 cost of capital for the AFUDC rate applied to the balance of CWIP eligible for
14 AFUDC in excess of the short-term debt balance.

15

16 Q. WHAT IMPLICATIONS DOES THE FERC METHOD FOR COMPUTING THE
17 AFUDC RATE HAVE ON THE TREATMENT OF SHORT-TERM DEBT IN THE
18 REST OF THE RATEMAKING PROCESS?

19 A. Since the FERC effectively assumes that the available short-term debt is used first to
20 finance CWIP, ratepayers benefit from an AFUDC rate that is lower than if another
21 rate, such as the overall cost of capital, were used. The lower the AFUDC rate used
22 by a company, the lower will be the capital cost of the physical asset when it is
23 completed and placed into service. This lower capital cost produces lower rates to

1 customers because a smaller rate base results in a smaller return on rate base and a
2 smaller depreciation expense. Therefore, it is appropriate for regulators to be
3 mindful of the amount of short-term debt that has already been assigned to the
4 AFUDC rate when deciding whether other assets should be financed with short-term
5 debt.

6

7 Q. OTHER THAN ITS IMPACT ON THE AFUDC RATE, HOW COULD
8 RATEPAYERS BENEFIT FROM SHORT-TERM DEBT?

9 A. A regulator could require that a certain portion of a utility's rate base be financed with
10 low cost short-term debt, and/or a regulator could determine that supply-related
11 working capital is being financed by short-term debt and therefore earns the short-
12 term debt rate.

13

14 Q. DOES THE NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION INCLUDE
15 SHORT-TERM DEBT IN THE CAPITAL STRUCTURE WHEN IT DETERMINES
16 THE OVERALL COST OF CAPITAL FOR THE COMPANIES IT REGULATES?

17 A. Yes, the New Hampshire Public Utilities Commission (Commission) has frequently
18 computed the cost of capital by including at least some short-term debt in the capital
19 structure.

20

21 Q. IN ADDITION TO INCLUDING SOME SHORT-TERM DEBT IN THE CAPITAL
22 STRUCTURE, DOES EACH COMPANY IN NEW HAMPSHIRE ALLOCATE
23 SHORT-TERM DEBT TO ITS AFUDC RATE?

1 A. Yes. As noted above, each company in this proceeding has responded to discovery
2 stating that it uses the FERC method for computing its AFUDC rate.

3

4 Q. IF SOME OF THE AVAILABLE SHORT-TERM DEBT HAS BEEN USED TO
5 FINANCE CWIP ELIGIBLE FOR AFUDC AND SOME TO FINANCE A
6 PORTION OF RATE BASE, IS IT POSSIBLE THAT THERE WOULD BE
7 ENOUGH SHORT-TERM DEBT LEFT OVER TO FINANCE SUPPLY-RELATED
8 WORKING CAPITAL?

9 A. Yes. Whether or not there is any short-term debt left over to finance supply-related
10 working capital depends on three factors: (i) the total amount of short-term debt that a
11 company is or should be using; (ii) the amount of CWIP earning the AFUDC, and
12 (iii) the amount of short-term debt that has been included in the determination of the
13 overall cost of capital that was applied to rate base. Thus, the amount of short-term
14 debt that is or should be financing supply-related working capital must be determined
15 on a case-by-case basis.

16

17 Q. ARE THERE ANY SPECIAL CHARACTERISTICS OF SUPPLY RELATED
18 WORKING CAPITAL THAT TEND TO MAKE IT ESPECIALLY APPROPRIATE
19 FOR SHORT-TERM DEBT FINANCING?

20 A. Yes. As will be shown later in this testimony, the need for supply-related working
21 capital tends to fluctuate greatly throughout the year. It sometimes falls to or below
22 zero. This self-liquidating characteristic of supply-related working capital makes it
23 especially suited for short-term debt financing. This is because providers of short-

1 term debt take comfort in the ability of the company to periodically repay the loan
2 and because the company can save on its interest expense by confining its borrowing
3 to only those portions of the year in which working capital is actually needed.

4

5 Q. WHAT SHOULD THE COMMISSION DO TO ALLOCATE SHORT-TERM DEBT
6 TO SUPPLY RELATED WORKING CAPITAL IN A WAY THAT FAIRLY
7 BALANCES THE INTERESTS OF INVESTORS AND RATEPAYERS?

8 A. Because short-term debt may already have been allocated to CWIP and/or to the
9 overall cost of capital applied to rate base, I recommend that the Commission use the
10 decision tree diagram I have presented on JAR Schedule 1.

11 The first question asked in the decision tree is “Does the company have at least
12 enough short-term debt to finance a) the amount of short-term debt allocated to rate
13 base, and b) CWIP eligible for AFUDC?”

14

15 Q. WHY IS THIS FIRST STEP OF THE DECISION TREE IMPORTANT?

16 A. It is this step that determines whether or not the regulatory process has or has not
17 already fully accounted for the amount of short-term debt being used by the company.

18

19 Q. WHAT SHOULD HAPPEN IF A COMPANY HAS MORE SHORT-TERM DEBT
20 THAN IS ACCOUNTED FOR IN STEP ONE?

21 A. If this is the case, then the ratemaking process should allocate the remaining short-
22 term debt to supply-related working capital. If this does not happen, ratepayers will
23 not realize the full benefit of the short-term debt being used by the company.

1

2 Q. IF IN STEP ONE OF THE DECISION TREE IT WAS DETERMINED THAT THE
3 COMPANY DID NOT HAVE ANY SHORT-TERM DEBT LEFT AFTER
4 ASSIGNMENTS TO EITHER CWIP ELIGIBLE FOR AFUDC OR RATE BASE, IS
5 IT STILL POSSIBLE FOR THE COMMISSION TO PROPERLY CONCLUDE
6 THAT AT LEAST SOME SHORT-TERM DEBT SHOULD BE ALLOCATED TO
7 SUPPLY RELATED WORKING CAPITAL?

8 A. Yes. A company is only entitled to recover prudently incurred costs. Costs are
9 imprudently high and rates are unreasonable if the company fails to use an adequate
10 amount of short-term debt. Therefore, if the reason no short-term debt is left after
11 assignments to CWIP eligible for AFUDC and rate base is that the company failed to
12 properly avail itself of short-term debt, ratepayers should not be penalized for that
13 mistake. If, on the other hand, a company is already using a reasonable amount of
14 short-term debt and that amount has already been fully allocated to CWIP eligible for
15 AFUDC and rate base, it would not be proper to assign any short-term debt to supply-
16 related working capital.

17

18 Q. THE DECISION TREE PROVIDES FOR POSSIBLE OUTCOMES WHERE IT IS
19 REASONABLE TO CONCLUDE SUPPLY RELATED WORKING CAPITAL IS
20 BEING FINANCED BY SHORT-TERM DEBT. IS THERE SOMETHING ELSE
21 THE COMMISSION SHOULD CONSIDER TO FURTHER DETERMINE IF
22 SUPPLY RELATED WORKING CAPITAL IS FINANCED BY SHORT-TERM
23 DEBT?

1 A. Yes. The annual fluctuation in the amount of supply-related working capital should
2 be examined. The greater the fluctuation, the more obvious it is that supply-related
3 working capital is or should be financed by short-term debt. However, even if the
4 amount of supply-related working capital does not fluctuate very much, it may still be
5 appropriate because of economics to assign short-term debt to supply related working
6 capital provided there is or should be short-term debt in excess of the amount that is
7 allocated to CWIP eligible for AFUDC and rate base.

1 **V. ANALYSIS BY COMPANY**

2 Energy North

3 Q. DOES ENERGY NORTH HAVE ENOUGH SHORT-TERM DEBT TO FINANCE
4 THE SHORT-TERM DEBT COMPONENT OF RATE BASE, CWIP ELIGIBLE
5 FOR AFUDC, AND STORAGE-RELATED WORKING CAPITAL?

6 A. Yes, Energy North has more than enough. In the fourth quarter of 2007, Energy
7 North had \$59.3 million in short-term debt while the sum of CWIP eligible for
8 AFUDC (\$6.7 million), short-term debt in rate base (\$9.2 million), and storage-
9 related working capital (\$20.4 million) was only \$36.3 million. (See JAR Schedule 2
10 - 11/6/08). Similar surpluses were recorded for each of the previous three quarters.

11

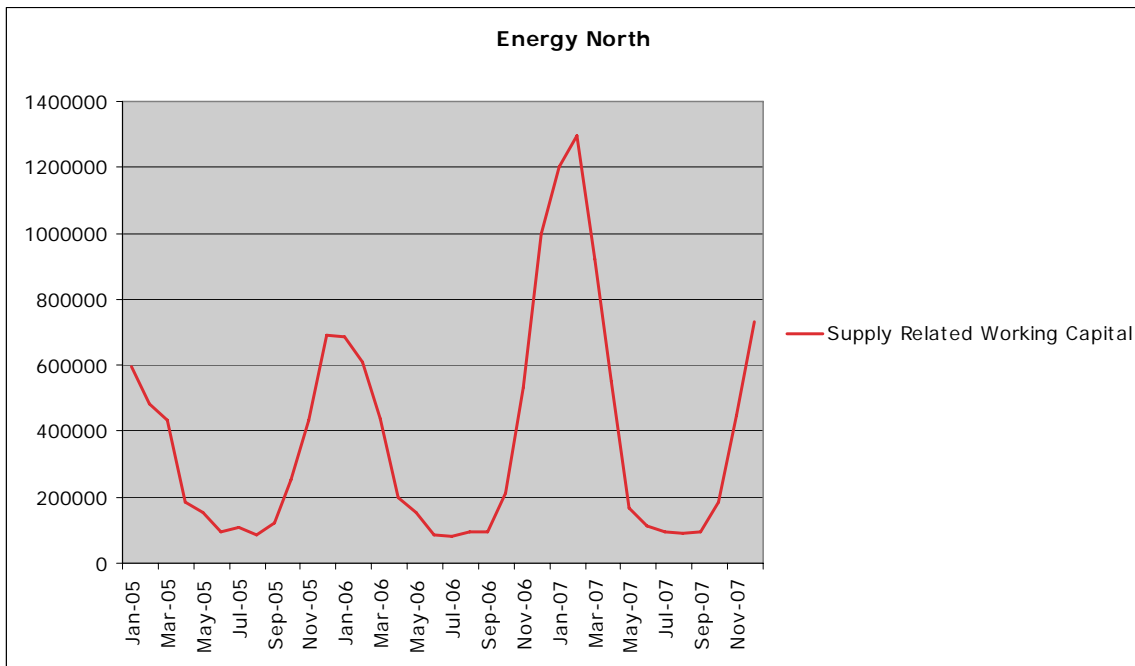
12 Q. IS THE SHORT-TERM DEBT BALANCE IN EXCESS OF THE AMOUNT
13 ALLOCATED TO RATE BASE, CWIP ELIGIBLE FOR AFUDC, AND
14 STORAGE-RELATED WORKING CAPITAL AT LEAST AS LARGE AS THE
15 SUPPLY-RELATED WORKING CAPITAL?

16 A. Yes. The amount of supply-related working capital in 2007 ranged between \$94,000
17 to a \$922,000. The short-term debt remaining after allocations to rate base, CWIP
18 eligible for AFUDC and storage-related working capital is substantially higher than
19 this supply-related working capital range. As shown on JAR Schedule 2 – 11/6/08
20 the excess for the four quarters of 2007 varied between \$11.0 million and \$22.3
21 million.

22

1 Q. IS ENERGY NORTH'S SUPPLY RELATED WORKING CAPITAL
2 REQUIREMENT CYCLICAL IN NATURE?

3 A. Yes. As shown in the graph below for the period January, 2005 to December 31,
4 2007, Energy North's supply-related working capital varied cyclically with a
5 minimum of \$80,000 and a maximum of positive \$1.3 million. This cyclical
6 variation in the amount of supply-related working capital indicates that short-term
7 debt is an ideal funding source for Energy North.



8
9 Source: 2nd Supplemental Attachment to Staff 1-2

10

11 Q. WHAT COST RATE DO YOU RECOMMEND BE APPLIED TO ENERGY
12 NORTH'S SUPPLY RELATED WORKING CAPITAL?

13 A. The cost of short-term debt should be assigned to Energy North's supply-related
14 working capital. I reach this conclusion for two reasons:

- 1 1. There is enough short-term debt to cover supply related working capital after
2 allocation to rate base and funding CWIP eligible for AFUDC and storage-
3 related working capital.
- 4 2. Energy North's supply-related working capital varies on a cyclical basis and is
5 therefore most likely best financed with short-term debt.

6

7 Granite State

8 Q. DOES GRANITE STATE HAVE ENOUGH SHORT-TERM DEBT TO FINANCE
9 THE AMOUNT OF SHORT-TERM DEBT ALLOCATED TO RATE BASE AND
10 CWIP ELIGIBLE FOR AFUDC?

11 A. No. Granite State does not report any short-term debt in its balance sheet. (See
12 discovery response to Staff 1-8)

13

14 Q. IS THE SHORT-TERM DEBT BALANCE IN EXCESS OF THE AMOUNT
15 ALLOCATED TO RATE BASE AND CWIP ELIGIBLE FOR AFUDC AT LEAST
16 AS LARGE AS THE SUPPLY RELATED WORKING CAPITAL?

17 A. No.

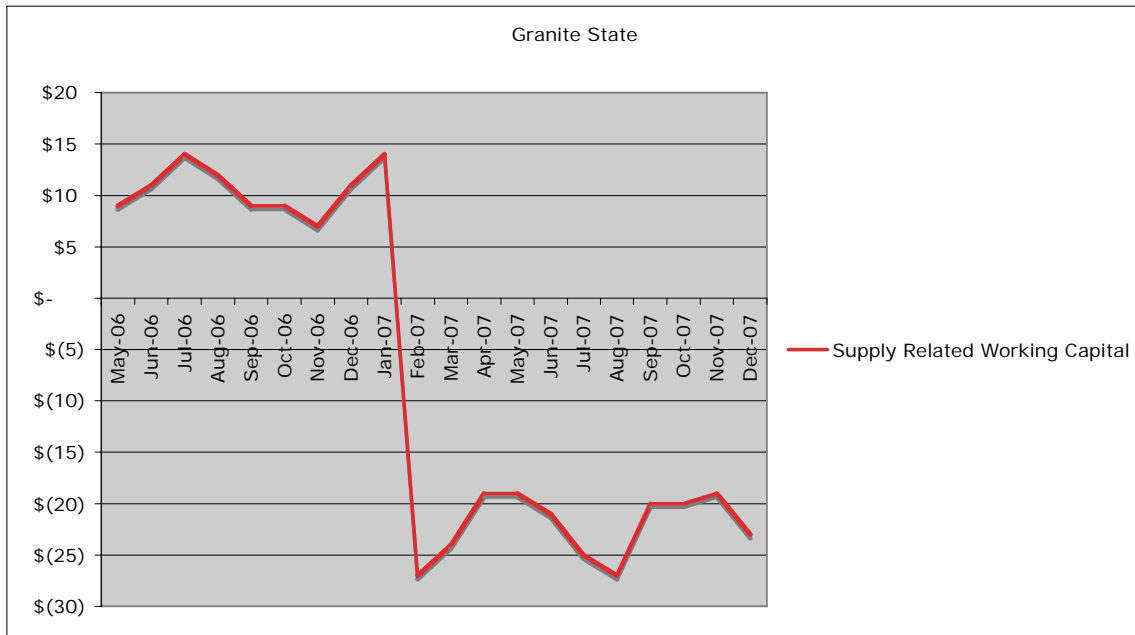
18

19 Q. DOES GRANITE STATE'S SUPPLY RELATED WORKING CAPITAL VARY
20 ON A CYCLICAL BASIS?

21 A. Yes. The graph below shows that Granite State's supply-related working capital
22 varied cyclically between negative \$25,000 and positive \$15,000 during the period

1 May 2006 to December 31, 2007, indicating that short-term debt is the best funding
2 source.

3
4



5

6 Source: Response to Request No.: Staff 1-2

7

8 Q. WHAT COST RATE DO YOU RECOMMEND BE APPLIED TO GRANITE
9 STATE'S SUPPLY RELATED WORKING CAPITAL?

10 A. Even though the Company does not have any short-term debt, the cyclical nature of
11 its supply-related working capital indicates that short-term debt should be used to
12 finance that need at a cost equal to the cost of the Company's short-term debt.

13

1 Q. WHAT IS THE EFFECT OF APPLYING THE SHORT-TERM DEBT RATE
2 INSTEAD OF THE OVERALL COST OF CAPITAL TO GRANITE STATE'S
3 SUPPLY RELATED WORKING CAPITAL?

4 A. As shown in Granite State's response to Staff 1-1, the Company has determined that
5 its supply-related working capital is negative. This means supply-related working
6 capital generates savings to ratepayers. Use of the short-term debt rate instead of the
7 overall cost of capital for calculating carrying charges will lower the savings to
8 ratepayers as long as the supply-related working capital remains negative.

9

10 Northern Utilities, Inc. ("Northern")

11 Q. DOES NORTHERN UTILITIES, INC. HAVE ENOUGH SHORT-TERM DEBT TO
12 FINANCE THE AMOUNT OF SHORT-TERM DEBT ALLOCATED TO RATE
13 BASE, CWIP ELIGIBLE FOR AFUDC AND STORAGE-RELATED WORKING
14 CAPITAL?

15 A. Yes. In the fourth quarter of 2007, for example, Northern Utilities Inc. had \$31.1
16 million in short-term debt while the sum of CWIP eligible for AFUDC, the short-term
17 debt component of rate base¹ for both divisions and storage-related working capital
18 was only \$20.5 million. (See JAR Schedule 5b – 11/6/08). This leaves approximately
19 \$10.5 million to cover supply-related working capital totaling \$0.340 million. Thus,
20 there was a \$10.2 million surplus in December 2007. In the previous three quarters
21 the surpluses were positive \$0.295 million, negative \$10.2 million, and positive \$10.9

¹ Northern reported that the short-term debt component of rate base for the New Hampshire division is 0%. (See Northern response to Staff 1-7). This total company analysis assumes the same percentage for the Maine division.

1 million respectively. The negative \$10.2 million in June 2007, however, is explained
2 by the fact that Northern used only \$9.6 million of short-term debt in that month,
3 which is substantially less than the average balance for 2007 of \$23.4 million². Thus,
4 even in June 2007 Northern could easily have utilized enough short-term debt to
5 cover its supply-related working capital.

6

7 Q. DID YOU ALSO DO A SIMILAR ANALYSIS FOR THE NEW HAMPSHIRE
8 DIVISION?

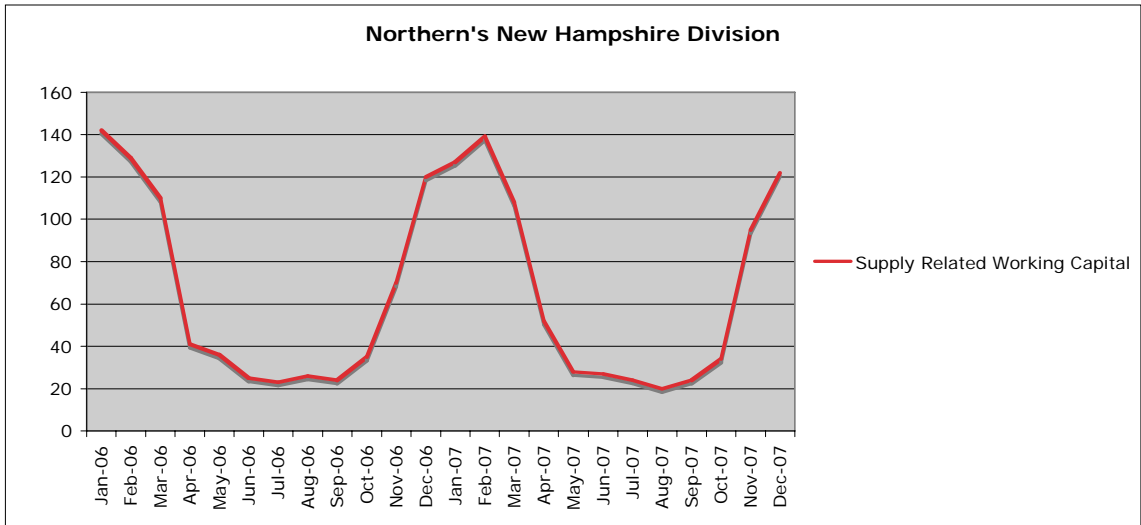
9 A. Yes, but only for December 2007 because that was the only month for which
10 consistent data was provided for the New Hampshire division. For that month, JAR
11 Schedule 5a – 11/6/08 shows a \$5.5 million short-term debt surplus after covering
12 short-term debt in rate base, CWIP, storage-related working capital and supply-
13 related working capital. Thus, the available data indicate that there is sufficient short-
14 term debt available to cover supply-related working capital at both the New
15 Hampshire division level and the total company level.

16

17 Q. DOES NORTHERN'S SUPPLY RELATED WORKING CAPITAL
18 REQUIREMENT VARY ON A CYCLICAL BASIS?

² See Response to Request No: Staff 1-8.

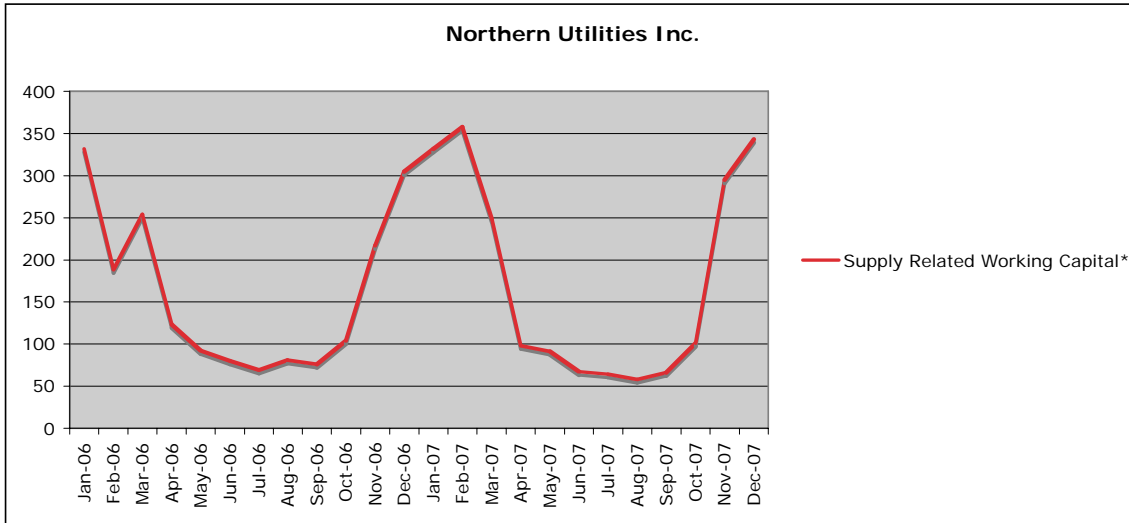
1 A. Yes. The graph below shows supply-related working capital for the New Hampshire
 2 division varying cyclically between positive \$23,000 and positive \$142,000 from
 3 January 2006 to December 31, 2007, indicating that short-term debt is the best
 4 funding source.



5 Source: 2nd Supplemental Response to Staff 1-2

6

7 The graph below shows supply-related working capital for Northern Utilities Inc. varying
 8 cyclically between \$58,000 and \$358,000 over the same period.



1

2 Source: Staff 1-8 - Updated Nov 4, 2008

3

4 Q. WHAT COST RATE DO YOU RECOMMEND BE APPLIED TO THE NEW
 5 HAMPSHIRE DIVISION'S SUPPLY-RELATED WORKING CAPITAL?

6 A. The cost of short-term debt should be assigned to the division's supply-related
 7 working capital. I reach this conclusion for three reasons:

8 1. Based on the data provided by the Company, there is enough short-term debt
 9 to cover the New Hampshire division's supply-related working capital after
 10 funding CWIP eligible for AFUDC, the short-term debt component of rate
 11 base and storage-related working capital.

12 2. For every quarter of 2007 except one, Northern had enough short-term debt
 13 left over to fund total company supply-related working capital. Further, the
 14 shortfall in the quarter ending June 2007 was explained by the fact that the
 15 Company used significantly less short-term debt than was actually available.

1 3. The supply-related working capital balances for 2006 and 2007 varied
2 cyclically for both Northern and the New Hampshire division.

3

4 PSNH

5 Q. DOES PSNH HAVE ENOUGH SHORT-TERM DEBT TO FINANCE THE
6 AMOUNT OF SHORT-TERM DEBT ALLOCATED TO RATE BASE AND CWIP
7 ELIGIBLE FOR AFUDC?

8 A. In 2007 PSNH did not have enough short-term debt in all but one quarter (See JAR
9 Schedule 6- Revised, line 5).

10

11 Q. IS THE SHORT-TERM DEBT BALANCE IN EXCESS OF THE AMOUNT
12 ALLOCATED TO THE AFUDC RATE AND TO RATE BASE AT LEAST AS
13 LARGE AS THE SUPPLY RELATED WORKING CAPITAL?

14 A. No. PSNH's CWIP balance eligible for AFUDC was higher than the short-term debt
15 balance.

16

17 Q. DOES PSNH'S SUPPLY RELATED WORKING CAPITAL VARY ON A
18 CYCLICAL BASIS?

19 A. PSNH has not provided the necessary computation. Therefore, I do not know the
20 extent to which its supply-related working capital varies throughout the year.

21

22 Q. WHAT COST RATE DO YOU RECOMMEND BE APPLIED TO PSNH'S
23 SUPPLY RELATED WORKING CAPITAL?

1 A. PSNH has not made a claim for any supply-related working capital (See PSNH
2 response to Staff 1-01), and has stated that it has not even computed the amount of
3 such capital needed to run its business. If, in the future, the company should make such a
4 computation, the principles laid out in this testimony should govern the determination
5 of the appropriate carrying charge rate.

6

7 Unitil

8 Q. DOES UNITIL HAVE ENOUGH SHORT-TERM DEBT TO FINANCE THE
9 SHORT-TERM DEBT ALLOCATED TO RATE BASE AND CWIP ELIGIBLE
10 FOR AFUDC?

11 A. In 2007, Unitil did not have enough short-term debt in three of the four quarters. See
12 JAR Schedule 6 – 11/6/08

13

14 Q. IS THE REASON THAT UNITIL DID NOT HAVE ENOUGH SHORT-TERM
15 DEBT TO FINANCE SUPPLY RELATED WORKING CAPITAL BECAUSE IT IS
16 NOT USING ENOUGH SHORT-TERM DEBT?

17 A. Yes. The amount of short-term debt needed to cover CWIP earning AFUDC, short-
18 term debt in rate base and supply related working capital peaked at \$14.2 million in
19 the third quarter of 2007. See JAR Schedule 6 – 11/6/08. This compares with a
20 short-term debt balance of \$9.2 million for the same quarter even though Unitil had a
21 Commission approved short-term borrowing limit of \$16 million

22

1 Q. HAS THE COMMISSION RECENTLY INCREASED UNITIL'S SHORT-TERM
2 BORROWING LIMIT?

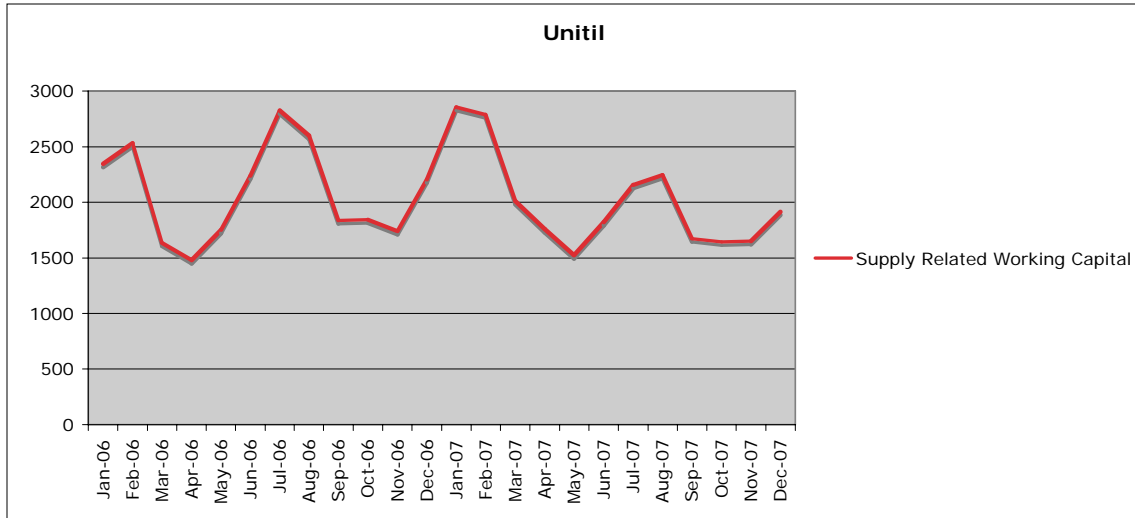
3 A. Yes, on June 12, 2008 Unitil filed a petition to increase its short-term debt limit to
4 \$24 million because the need for working capital for energy-related costs had
5 increased, among other things, On July 23, 2008, the Commission approved Unitil's
6 request in Order No. 24,875.

7
8

9 Q. DOES UNITIL'S SUPPLY RELATED WORKING CAPITAL VARY ON A
10 CYCLICAL BASIS?

11 A. Yes. As shown below, Unitil's supply-related working capital varied cyclically
12 between about \$1.5 million and \$2.9 million. Although the level of supply-related
13 working capital did not dip to zero like some of the other companies covered in this
14 testimony, the swing is sufficient to indicate that short-term debt is most likely the
15 best form of funding.

16



1

2

3 Source: Supplemental Response to Staff 1-2, May 19, 2008.

4 Q. WHAT COST RATE DO YOU RECOMMEND BE APPLIED TO UNITIL'S

5 SUPPLY RELATED WORKING CAPITAL?

6 A. It is appropriate at this time for Unitil to charge ratepayers the cost of short-term debt

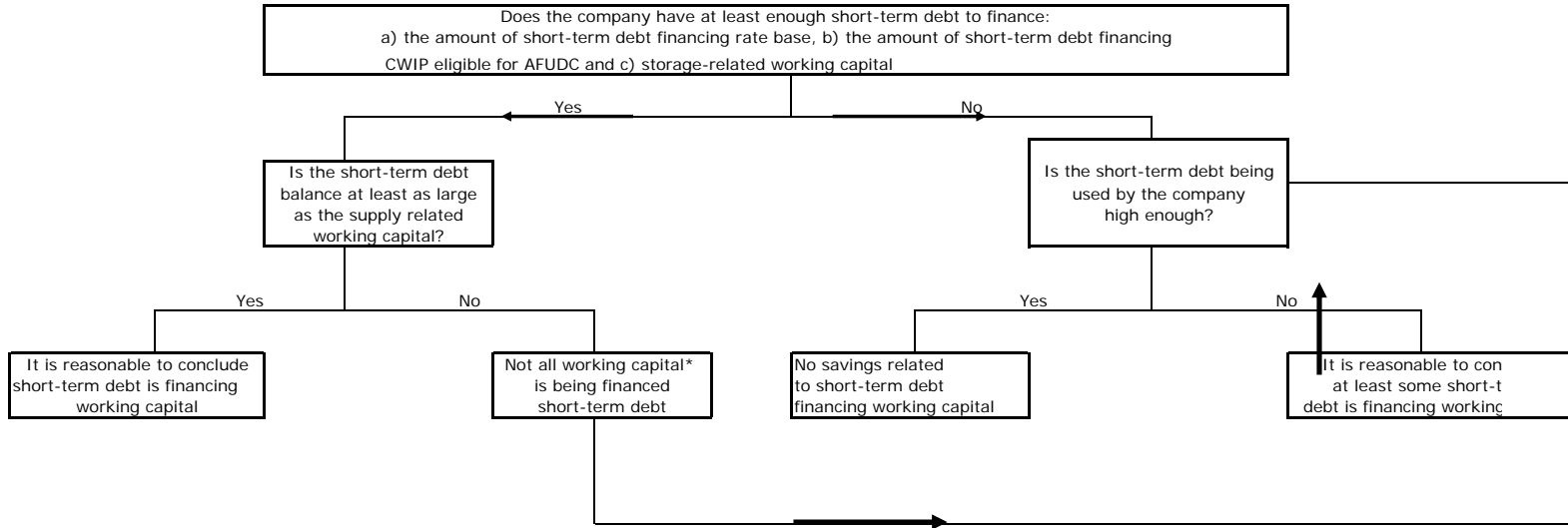
7 for supply-related working capital.

8

9 Q. DOES THIS CONCLUDE YOUR TESTIMONY?

10 A. Yes.

Supply Related Working Capital Cost Rate Decision Tree



Energy North d/b/a National Grid NH					
Line	(\$000s)				Source
	Mar-07	Jun-07	Sep-07	Dec-07	
1 Total Actual ST-Debt	\$35,610	\$34,761	\$37,270	\$59,262	Response to Request No.: Staff 1-8
2 Usage of ST-Debt					
a. Total Estimated Rate base					
1. Capitalization	\$246,910	\$242,114	\$250,991	\$275,635	Response to Request No.: Staff 1-7
2. CWIP Earning AFUDC*	\$ 1,313	\$ 2,743	\$ 4,862	\$ 6,663	Response to Request No.: Staff 1-10
3. Supply Related Working Capital	\$ 922	\$ 110	\$ 94	\$ 730	2nd Supplemental Attachment to Staff 1-2
4. Storage Related Working Capital	\$ 13,805	\$ 4,187	\$ 7,767	\$ 20,434	2nd Supplemental Attachment Staff 1-2
5. Total Estimated Rate Base**	\$230,870	\$235,074	\$238,268	\$247,808	Line 2a1 - Line 2a2 - Line 2a3
6. Percentage of ST-Debt in The Capital Structure	3.7%	3.7%	3.7%	3.7%	Response to Request No.: Staff 1-7
Estimated ST-Debt Accounted For In Rate Base	\$ 8,542	\$ 8,698	\$ 8,816	\$ 9,169	Line 2a4 X Line 2a5
b. CWIP Earning AFUDC	\$ 1,313	\$ 2,743	\$ 4,862	\$ 6,663	Response to Request No.: Staff 1-10
c. Storage Related Working Capital	\$ 13,805	\$ 4,187	\$ 7,767	\$ 20,434	2nd Supplemental Attachment Staff 1-2
Total ST-Debt Already Accounted For In Rate Making Process	\$ 23,660	\$ 15,628	\$ 21,445	\$ 36,266	Line 2a + Line 2b
3 St-Debt Balance As Yet Unaccounted For In The Rate Making Process	\$ 11,950	\$ 19,133	\$ 15,825	\$ 22,996	Line 1 - Line 2
4 Supply Related Working Capital***	\$ 922	\$ 110	\$ 94	\$ 730	Response to Request No.: Staff 1-2
5 ST-Debt Remaining After Covering Rate Base, CWIP Earning AFUDC, Storage Related Working Capital and Supply Related Working Capital	\$ 11,028	\$ 19,023	\$ 15,731	\$ 22,266	Line 3 - Line 4

* In July 24th filing All CWIP included. This has been corrected to only CWIP Earning AFUDC
 ** Capitalization - CWIP Earnings AFUDC - Supply Related Working Capital - Storage Related Working Capital
 *** Changed from Gas Cost Related Working Capital Interest to Gas Cost W.C. Requirement

JAR SCHEDULE 3 -- 11/6/08

PSNH					
Line	(\$000s)				Source
	Mar-07	Jun-07	Sep-07	Dec-07	
1 Total Actual ST-Debt	\$27,600	\$73,800	\$0	\$21,900	Response to Request No.: Staff 1-7
2 Usage of ST-Debt					
a. Total Estimated Rate base					
1. Capitalization	\$997,105	\$1,071,154	\$1,086,527	\$1,118,352	Response to Request No.: Staff 1-7
2. CWIP Earning AFUDC*	\$ 71,270	\$ 56,348	\$ 72,185	\$ 96,954	Response to Request No.: Staff 1-10
3. Supply Related Working Capital	\$ -	\$ -	\$ -	\$ -	
4. Total Estimated Rate Base	\$925,835	\$1,014,806	\$1,014,342	\$1,021,398	Line 2a1 - Line 2a2 - Line 2a3
5. Percentage of ST-Debt in The Capital Structure	1.2%	1.2%	1.2%	1.2%	Response to Request No.: Staff 1-7
Estimated ST-Debt Accounted For In Rate Base	\$ 10,925	\$ 11,975	\$ 11,969	\$ 12,052	Line 2a4 X Line 2a5
b. CWIP Earning AFUDC	\$ 71,270	\$ 56,348	\$ 72,185	\$ 96,954	Response to Request No.: Staff 1-10
Total ST-Debt Already Accounted For In Rate Making Process	\$ 82,195	\$ 68,323	\$ 84,154	\$ 109,006	Line 2a + Line 2b
3 St-Debt Balance As Yet Unaccounted For In The Rate Making Process	\$ (54,595)	\$ 5,477	\$ (84,154)	\$ (87,106)	Line 1 - Line 2
4 Supply Related Working Capital	\$ -	\$ -	\$ -	\$ -	Response to Request No.: Staff 1-2
5 ST-Debt Remaining After Covering: Rate Base, CWIP Earning AFUDC and Supply Related Working Capital	\$ (54,595)	\$ 5,477	\$ (84,154)	\$ (87,106)	Line 3 - Line 4

Note: Months changed to March, June, September and December but data unchanged
 * In July 24th filing All CWIP included. This has been corrected to only CWIP Earning AFUDC

Granite State d/b/a National Grid					
(\$000s)					
Line	Mar-07	Jun-07	Sep-07	Dec-07	Source
1 Total Actual ST-Debt	\$0	\$0	\$0	\$0	Response to Request No.: Staff 1-8
2 Usage of ST-Debt					
a. Total Estimated Rate base					
1. Capitalization	\$90,889	\$90,753	\$92,265	\$92,892	Response to Request No.: Staff 1-7
2. CWIP Earning AFUDC	\$ -	\$ -	\$ -	\$ -	Response to Request No.: Staff 1-10
3. Supply Related Working Capital	\$ (24)	\$ (21)	\$ (20)	\$ (23)	
4. Total Estimated Rate Base	\$90,913	\$90,774	\$92,285	\$92,915	Line 2a1 - Line 2a2 - Line 2a3
5. Percentage of ST-Debt in The Capital Structure	0.0%	0.0%	0.0%	0.0%	Response to Request No.: Staff 1-7
Estimated ST-Debt Accounted For In Rate Base	\$ -	\$ -	\$ -	\$ -	Line 2a4 X Line 2a5
b. CWIP Earning AFUDC	\$ -	\$ -	\$ -	\$ -	Response to Request No.: Staff 1-10
Total ST-Debt Already Accounted For In Rate Making Process	\$ -	\$ -	\$ -	\$ -	Line 2a + Line 2b
3 St-Debt Balance As Yet Unaccounted For In The Rate Making Process	\$ -	\$ -	\$ -	\$ -	Line 1 - Line 2
4 Supply Related Working Capital*	\$ (24)	\$ (21)	\$ (20)	\$ (23)	Response to Request No.: Staff 1-2
5 ST-Debt Remaining After Covering: Rate Base, CWIP Earning AFUDC and Supply Related Working Capital	\$ 24	\$ 21	\$ 20	\$ 23	Line 3 - Line 4

Note: Months are changed to March, June, September and December
 * March and June, 2007 data were changed from testimony filed July 24th

Northern Utilities, Inc. New Hampshire Only					
Line	(\$000s)				Source
	Mar-07	Jun-07	Sep-07	Dec-07	
1 Total Actual ST-Debt	\$13,743	\$4,935	\$13,331	\$15,902	Staff 1-8 - Updated Nov 4, 2008
2 Usage of ST-Debt					
a. Total Estimated Rate base					
1. Capitalization*	NA	NA	NA	NA	Response to Request No.: Staff 1-7
2. CWIP Earning AFUDC**	NA	NA	NA	\$ 1,172	Staff 1-8 - Updated Nov 4, 2008
3. Supply Related Working Capital	\$ 108	\$ 27	\$ 24	\$ 121	2nd Supplemental Staff 1-2
4. Storage Related Working Capital	\$ 7,031	\$ 8,554	\$ 11,723	\$ 9,098	2nd Supplemental Staff 1-2
5. Total Estimated Rate Base	NA	NA	NA	NA	
6. Percentage of ST-Debt in The Capital Structure	0.0%	0.0%	0.0%	0.0%	Response to Request No.: Staff 1-7
Estimated ST-Debt Accounted For In Rate Base	NA	NA	NA	\$ 0	
b. CWIP Earning AFUDC**	NA	NA	NA	\$ 1,172	Staff 1-8 - Updated Nov 4, 2008
c. Storage Working Capital	\$ 7,031	\$ 8,554	\$ 11,723	\$ 9,098	2nd Supplemental Staff 1-2
Total ST-Debt Already Accounted For In Rate Making Process**	NA	NA	NA	\$ 10,270	Line 2a + Line 2b
3 St-Debt Balance As Yet Unaccounted For In The Rate Making Process	NA	NA	NA	\$ 5,632	Line 1 - Line 2
4 Supply Related Working Capital	\$ 108	\$ 27	\$ 24	\$ 121	2nd Supplemental Staff 1-2
5 ST-Debt Remaining After Covering** Rate Base, CWIP Earning AFUDC, Storage Related Working Capital and Supply Related Working Capital	NA	NA	NA	\$ 5,511	Line 3 - Line 4

* New Hampshire Division data not available.

** New Hampshire Division data only available December 2007.

Northern Utilities, Inc. -- Combined New Hampshire and Maine					
(\$000s)					
Line	Mar-07	Jun-07	Sep-07	Dec-07	Source
1 Total Actual ST-Debt	\$26,842	\$9,638	\$26,037	\$31,058	Response to Request No.: Staff
2 Usage of ST-Debt					
a. Total Estimated Rate base					
1. Capitalization	\$ 168,820	\$ 167,507	\$ 164,502	\$ 164,892	Response to Request No.: Staff
2. CWIP Earning AFUDC*	\$ 1,569	\$ 2,735	\$ 2,262	\$ 2,336	Response to Request No.: Staff
3. Supply Related Working Capital**	\$ 249	\$ 67	\$ 66	\$ 342	2nd Supplemental Staff 1-2
4. Storage Related Working Capital	\$ 14,043	\$ 17,083	\$ 23,414	\$ 18,171	2nd Supplemental Staff 1-2
5. Total Estimated Rate Base	\$ 152,959	\$ 147,622	\$ 138,760	\$ 144,043	
6. Percentage of ST-Debt in The Capital Structure	0.0%	0.0%	0.0%	0.0%	Response to Request No.: Staff
Estimated ST-Debt Accounted For In Rate Base	\$0	\$0	\$0	\$0	
b. CWIP Earning AFUDC*	\$ 1,569	\$ 2,735	\$ 2,262	\$ 2,336	Response to Request No.: Staff
c. Storage Working Capital	\$ 14,043	\$ 17,083	\$ 23,414	\$ 18,171	2nd Supplemental Staff 1-2
Total ST-Debt Already Accounted For In Rate Making Process**	\$ 15,612	\$ 19,818	\$ 25,676	\$ 20,507	Line 2a + Line 2b
3 St-Debt Balance As Yet Unaccounted For In The Rate Making Process	\$ 11,230	\$ (10,180)	\$ 361	\$ 10,551	Line 1 - Line 2
4 Supply Related Working Capital**	\$ 249	\$ 67	\$ 66	\$ 342	2nd Supplemental Staff 1-2 and Staff 1-8 - Updated Nov 4, 2008
5 ST-Debt Remaining After Covering Rate Base					
CWIP Earning AFUDC, Storage Related Working Capital and Supply Related Working Capital	\$ 10,981	\$ (10,247)	\$ 295	\$ 10,209	Line 3 - Line 4

* Changed since July 24, 2008 Testimony because the numbers provided for month end

** This is the addition of supply related working capital for New Hampshire (2nd Supplemental Staff 1-2) and Maine (Staff 1-8 - Updated Nov 4, 2008)

Unitil Corporation					
(\$000s)					
<u>Line</u>	<u>Mar-07</u>	<u>Jun-07</u>	<u>Sep-07</u>	<u>Dec-07</u>	<u>Source</u>
1 Total Actual ST-Debt	\$12,102	\$5,876	\$9,187	\$10,188	Response to Request No.: Staff 1-
2 Usage of ST-Debt					
a. Total Estimated Rate base					
1. Capitalization	\$118,805	\$122,773	\$126,623	\$127,575	Response to Request No.: Staff 1-
2. CWIP Earning AFUDC*	\$ 6,901	\$ 9,948	\$ 10,500	\$ 9,846	Response to Request No.: Staff 1-
3. Supply Related Working Capital	\$ 2,011	\$ 1,824	\$ 1,675	\$ 1,917	
4. Total Estimated Rate Base (Capitalization - All CWIP - Supply Related Working Capital)	\$109,893	\$111,001	\$114,448	\$115,812	Line 2a1 - Line 2a2 - Line 2a3
5. Total Estimated Rate Base**	1.8%	1.8%	1.8%	1.8%	Response to Request No.: Staff 1-
Estimated ST-Debt Accounted For In Rate Base	\$ 1,978	\$ 1,998	\$ 2,060	\$ 2,085	Line 2a4 X Line 2a5
b. CWIP Earning AFUDC*	\$ 6,901	\$ 9,948	\$ 10,500	\$ 9,846	Response to Request No.: Staff 1-
Total ST-Debt Already Accounted For In Rate Making Process	\$ 8,879	\$ 11,946	\$ 12,560	\$ 11,931	Line 2a + Line 2b
3 St-Debt Balance As Yet Unaccounted For In The Rate Making Process	\$ 3,223	\$ (6,070)	\$ (3,373)	\$ (1,743)	Line 1 - Line 2
4 Supply Related Working Capital	\$ 2,011	\$ 1,824	\$ 1,675	\$ 1,917	Response to Request No.: Staff 1-
5 ST-Debt Remaining After Covering: Rate Base, CWIP Earning AFUDC and Supply Related Working Capital	\$ 1,212	\$ (7,894)	\$ (5,048)	\$ (3,660)	Line 3 - Line 4
6 Amount of Short-Term Debt Needed to Cover CWIP Earnings AFUDC and Short-Term Debt Accounted for in Rate Base	\$10,890	\$13,770	\$14,235	\$13,848	Line 1 - Line 5

* In July 24th filing All CWIP included. This has been corrected to only CWIP Earning AFUDC

APPENDIX A

TESTIFYING EXPERIENCE OF ROTHSCHILD FINANCIAL CONSULTING

ALABAMA

Continental Telephone of the South; Docket No. 17968, Rate of Return, January, 1981

ARIZONA

Southwest Gas Corporation; Rate of Return, Docket No. U-1551-92-253, March, 1993
Sun City West Utilities; Accounting, January, 1985

CONNECTICUT

Aquarion Water Company, Docket No. 04-02-14, Rate of Return, June 2004
Connecticut American Water Company; Docket No. 800614, Rate of Return, September, 1980
Connecticut American Water Company, Docket No. 95-12-15, Rate of Return, February, 1996
Connecticut Light & Power Company; Docket No. 85-10-22, Accounting and Rate of Return, February, 1986
Connecticut Light & Power Company; Docket No. 88-04-28, Gas Divestiture, August, 1988
Connecticut Light & Power Company, Docket No. 97-05-12, Rate of Return, September, 1997
Connecticut Light & Power Company, Docket No. 98-01-02, Rate of Return, July, 1998
Connecticut Light & Power Company, Docket No. 99-02-05, Rate of Return, April, 1999
Connecticut Light & Power Company, Docket No. 99-03-36, Rate of Return, July, 1999
Connecticut Light & Power Company, Docket No. 98-10-08 RE 4, Financial Issues, September 2000
Connecticut Light & Power Company, Docket No. 00-05-01, Financial Issues, September, 2000
Connecticut Light & Power Company, Docket No. 01-07-02, Capital Structure, August, 2001
Connecticut Light & Power Company, Docket No. 03-07-02, Rate of Return, October, 2003
Connecticut Natural Gas; Docket No. 780812, Accounting and Rate of Return, March, 1979
Connecticut Natural Gas; Docket No. 830101, Rate of Return, March, 1983
Connecticut Natural Gas; Docket No. 87-01-03, Rate of Return, March, 1987
Connecticut Natural Gas, Docket No. 95-02-07, Rate of Return, June, 1995
Connecticut Natural Gas, Docket No. 99-09-03, Rate of Return, January, 2000
Southern Connecticut Gas, Docket No. 97-12-21, Rate of Return, May, 1998
Southern Connecticut Gas, Docket No. 99-04-18, Rate of Return, September, 1999
United Illuminating Company; Docket No. 89-08-11:ES:BBM, Financial Integrity and Financial Projections, November, 1989.
United Illuminating Company; Docket No. 99-02-04, Rate of Return, April, 1999
United Illuminating Company, Docket No. 99-03-35, Rate of Return, July, 1999
United Illuminating Company, Docket No. 01-10-10-DPUC, Rate of Return, March 2002

DELAWARE

Artesian Water Company, Inc.; Rate of Return, December, 1986
Artesian Water Company, Inc.; Docket No. 87-3, Rate of Return, August, 1987
Diamond State Telephone Company; Docket No. 82-32, Rate of Return, November, 1982
Diamond State Telephone Company; Docket No. 83-12, Rate of Return, October, 1983
Wilmington Suburban Water Company; Rate of Return Report, September, 1986
Wilmington Suburban Water Company; Docket No. 86-25, Rate of Return, February, 1987

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

Koch Gateway Pipeline Company, Docket No. RP97-373-000 Cost of Capital, December, 1997
Maine Yankee Atomic Power Company, Docket No. EL93-22-000, Cost of Capital, July, 1993
New England Power Company; CWIP, February, 1984. Rate of return.

New England Power Company; Docket No.ER88-630-000 & Docket No. ER88-631-000, Rate of Return, April, 1989

New England Power Company; Docket Nos. ER89-582-000 and ER89-596-000, Rate of Return, January, 1990

New England Power Company: Docket Nos. ER91-565-000, ER91-566-000 , FASB 106, March, 1992. Rate of Return.

Philadelphia Electric Company - Conowingo; Docket No. EL-80-557/588, July, 1983. Rate of Return.

Ocean State Power Company, Ocean States II Power Company, Docket No. ER94-998-000 and ER94-999-000, Rate of Return, July, 1994.

Ocean State Power Company, Ocean States II Power Company, Docket No ER 95-533-001 and Docket No. ER-530-001, Rate of Return, June, 1995 and again in October, 1995.

Ocean State Power Company, Ocean State II Power Company, Docket No. ER96-1211-000 and ER96-1212-000, Rate of Return, March, 1996.

Southern Natural Gas, Docket No. RP93-15-000. Rate of Return, August, 1993, and revised testimony December, 1994.

Transco, Docket No. RP95-197-000, Phase I, August, 1995. Rate of Return.

Transco, Docket Nos. RP-97-71-000 and RP97-312-000, June, 1997, Rate of Return.

FLORIDA

Alltel of Florida; Docket No. 850064-TL, Accounting, September, 1985

Florida Power & Light Company; Docket No. 810002-EU, Rate of Return, July, 1981

Florida Power & Light Company; Docket No. 82007-EU, Rate of Return, June, 1982

Florida Power & Light Company; Docket No. 830465-EI, Rate of Return and CWIP, March, 1984

Florida Power & Light Company, Docket No. , Rate of Return, March 2002

Florida Power Corporation; Docket No. 830470-EI, Rate Phase-In, June, 1984

Florida Power Corp.; Rate of Return, August, 1986

Florida Power Corp.; Docket No. 870220-EI, Rate of Return, October, 1987

Florida Power Corp; Docket No. 000824-EI, Rate of Return, January, 2002

GTE Florida, Inc.; Docket No. 890216-TL, Rate of Return, July, 1989

Gulf Power Company; Docket No. 810136-EU, Rate of Return, October, 1981

Gulf Power Company; Docket No. 840086-EI, Rate of Return, August, 1984

Gulf Power Company; Docket No. 881167-EI, Rate of Return, 1989
Gulf Power Company; Docket No. 891345-EI, Rate of Return, 1990
Gulf Power Company; Docket No.010949-EI, Rate of Return, December 2001
Rolling Oaks Utilities, Inc.; Docket No. 850941-WS, Accounting, October, 1986
Southern Bell Telephone Company; Docket No. 880069-TL, Rate of Return, January, 1992
Southern Bell Telephone Company, Docket No. 920260-TL, Rate of Return, November, 1992
Southern Bell Telephone Company, Docket No. 90260-TL, Rate of Return, November, 1993
Southern States Utilities, Docket No. 950495-WS, Rate of Return, April, 1996
Tampa Electric Company; Docket No. 820007-EU, Rate of Return, June, 1982
Tampa Electric Company; Docket No. 830012-EU, Rate of Return, June, 1983
United Telephone of Florida; Docket No. 891239-TL, Rate of Return, November, 1989
United Telephone of Florida; Docket No. 891239-TL, Rate of Return, August, 1990
Water and Sewer Utilities, Docket No 880006-WS, Rate of Return, February, 1988.

GEORGIA

Georgia Power Company; Docket No. 3397-U, Accounting, July, 1983
BellSouth; Docket No. 14361-U, Rate of Return Rebuttal Testimony, October 2004.

ILLINOIS

Ameritech Illinois, Rate of Return and Capital Structure, Docket 96-0178, January and July, 1997.
Central Illinois Public Service Company; ICC Docket No. 86-0256, Financial and Rate of Return, October, 1986.
Central Telephone Company of Illinois, ICC Docket No. 93-0252, Rate of Return, October, 1993.
Commonwealth Edison Company; Docket No. 85CH10970, Financial Testimony, May, 1986.
Commonwealth Edison Company; Docket No. 86-0249, Financial Testimony, October, 1986.
Commonwealth Edison Company; ICC Docket No. 87-0057, Rate of Return and Income Taxes, April 3, 1987.
Commonwealth Edison Company; ICC Docket No. 87-0043, Financial Testimony, April 27, 1987.
Commonwealth Edison Company; ICC Docket Nos. 87-0169, 87-0427,88-0189,880219,88-0253 on Remand, Financial Planning Testimony, August, 1990.
Commonwealth Edison Company; ICC Docket Nos. 91-747 and 91-748; Financial Affidavit, March, 1991.
Commonwealth Edison Company; Financial Affidavit, December, 1991.
Commonwealth Edison Company, ICC Docket No. 87-0427, Et. Al., 90-0169 (on Second Remand), Financial Testimony, August, 1992.
Genesco Telephone Company, Financial Testimony, July, 1997.
GTE North, ICC Docket 93-0301/94-0041, Cost of Capital, April, 1994
Illinois Power Company, Docket No. 92-0404, Creation of Subsidiary, April, 1993
Illinois Bell Telephone Company, Dockets No. ICC 92-0448 and ICC _____, Rate of Return, July, 1993
Northern Illinois Gas Company; Financial Affidavit, February, 1987.
Northern Illinois Gas Company; Docket No. 87-0032, Cost of Capital and Accounting Issues, June, 1987.
Peoples Gas Light and Coke Company; Docket No. 90-0007, Accounting Issues, May, 1990.

KENTUCKY

Kentucky- American Water Company, Case No. 97-034, Rate of Return, June, 1997.
Kentucky Power Company; Case No. 8429, Rate of Return, April, 1982.
Kentucky Power Company; Case No. 8734, Rate of Return and CWIP, June, 1983.
Kentucky Power Company; Case No. 9061, Rate of Return and Rate Base Issues, September, 1984.
West Kentucky Gas Company, Case No. 8227, Rate of Return, August, 1981.

MAINE

Bangor Hydro-Electric Company; Docket No. 81-136, Rate of Return, January, 1982.
Bangor Hydro-Electric Company; Docket No. 93-62, Rate of Return, August, 1993
Maine Public Service Company; Docket No. 90-281, Accounting and Rate of Return, April, 1991.

MARYLAND

C & P Telephone Company; Case No. 7591, Fair Value, December, 1981

MASSACHUSETTS

Boston Edison Company; Docket No. DPU 906, Rate of Return, December, 1981
Fitchburg Gas & Electric; Accounting and Finance, October, 1984
Southbridge Water Company; M.D.P.U., Rate of Return, September, 1982

MINNESOTA

Minnesota Power & Light Company; Docket No. EO15/GR-80-76, Rate of Return, July, 1980

NEW JERSEY

Atlantic City Sewage; Docket No. 774-315, Rate of Return, May, 1977
Atlantic City Electric Company, Docket Nos. EO97070455 and EO97070456, Cost of Capital, Capital Cost Allocation, and Securitization, December, 1997.
Atlantic City Electric Company, Docket Nos. ER 8809 1053 and ER 8809 1054, Rate of Return, April, 1990
Atlantic City Electric Company, Securitization, 2002
Atlantic City Electric Company, BPU Docket No. ER03020121, Securitization, August, 2003
Bell Atlantic, Affidavit re Financial Issues regarding merger with GTE, June, 1999.
Bell Atlantic-New Jersey, Docket No. TO99120934, Financial Issues and Rate of Return, August 2000
Consumers New Jersey Water Company, BPU Docket No. WR00030174, September 2000
Conectiv/Pepeco Merger, BPU Docket No. EM01050308, Financial Issues, September 2001

Elizabethtown Gas Company. BRC Docket No. GM93090390. Evaluation of proposed merger with Pennsylvania & Southern Gas Co. April, 1994
 Elizabethtown Water Company; Docket No. 781-6, Accounting, April, 1978
 Elizabethtown Water Company; Docket No. 802-76, Rate of Return, January, 1979
 Elizabethtown Water Company; Docket No. PUC 04416-90, BPU Docket No. WR90050497J, Rate of Return and Financial Integrity, November, 1990.
 Elizabethtown Water Company; Docket No. WR 9108 1293J, and PUC 08057-91N, Rate of Return and Financial Integrity, January, 1992.
 Elizabethtown Water Company, Docket No. WR 92070774J, and PUC 06173-92N, Rate of Return and Financial Integrity, January, 1993.
 Elizabethtown Water Company, Docket No. BRC WR93010007, OAL No. PUC 2905-93, Regulatory treatment of CWIP. May, 1993.
 Elizabethtown Water Company, BPU Docket No. WR 95110557, OAL Docket No. PUC 12247-95, Rate of Return, March, 1996.
 Elizabethtown Water Company, BPU Docket No. WR01040205, Cost of Capital, September 2001.
 Elizabethtown Water Company, BPU Docket No. WR060307511, Cost of Capital, December 2003.
 Essex County Transfer Stations; OAL Docket PUC 03173-88, BPU Docket Nos. SE 87070552 and SE 87070566, Rate of Return, October, 1989.
 GPU/FirstEnergy proposed merger; Docket No. EM 00110870, Capital Structure Issues, April 2001
 GPU/FirstEnergy securitization financing, Docket No. EF99080615, Financial issues, January 2002
 Hackensack Water Company; Docket No. 776-455, October, 1977 and Accounting, February, 1979
 Hackensack Water Company; Docket No. 787-847, Accounting and Interim Rate Relief, September, 1978
 Hackensack Water Company; AFUDC & CWIP, June, 1979
 Hackensack Water Company; Docket No. 804-275, Rate of Return, September, 1980
 Hackensack Water Company; Docket No. 8011-870, CWIP, January, 1981
 Inquiry Into Methods of Implementation of FASB-106, Financial Issues, BPU Docket No. AX96070530, September, 1996
 Jersey Central Power & Light Company, Docket No. EO97070459 and EO97070460, Cost of Capital, Capital Cost Allocation, and Securitization, November 1997
 Jersey Central Power & Light Company, Docket No. EF03020133, Financial Issues, January 2004.
 Middlesex Water Company; Docket No. 793-254, Tariff Design, September, 1978
 Middlesex Water Company; Docket No. 793-269, Rate of Return, June, 1979
 Middlesex Water Company; Docket No. WR890302266-J, Accounting and Revenue Forecasting, July, 1989
 Middlesex Water Company; Docket No. WR90080884-J, Accounting, Revenue Forecasting, and Rate of Return, February, 1991
 Middlesex Water Company, Docket No. WR92070774-J, Rate of Return, January, 1993
 Middlesex Water Company, Docket No. WR00060362, Rate of Return, October, 2000
 Mount Holly Water Company; Docket No. 805-314, Rate of Return, August, 1980
 Mount Holly Water Company, Docket No. WR0307059, Rate of Return, December, 2003.
 National Association of Water Companies; Tariff Design, 1977
 Natural Gas Unbundling Cases, Financial Issues, August 1999
 New Jersey American Water Company, BPU Docket No. WR9511, Rate of Return, September, 1995

New Jersey American Water Company buyout by Thames Water, BPU Docket WM01120833, Financial Issues, July 2002,
New Jersey American Water Company, BPU Docket No. WR03070510, Rate of Return, December 2003.
New Jersey Bell Telephone; Docket No. 7711-1047, Tariff Design, September, 1978
New Jersey Land Title Insurance Companies, Rate of Return and Accounting, August and November, 1985
New Jersey Natural Gas; Docket No. 7812-1681, Rate of Return, April, 1979
New Jersey Water Supply Authority, Ratemaking Issues, February, 1995
Nuclear Performance Standards; BPU Docket No. EX89080719, Nuclear Performance Standards policy testimony
Pinelands Water Company and Pinelands Wastewater Company, Rate of Return, BPU Dockets WR00070454 and WR00070455, October, 2000.
Public Service Electric & Gas Company, Docket No. EX9412058Y and EO97070463, Cost of Capital, Capital Cost Allocation, and Securitization, November 1997
Public Service Electric & Gas Company, BPU Docket No. GR01050328, OAL Docket No. PUC-5052-01, Cost of Capital, August, 2001.
Rockland Electric Company; Docket No. 795-413, Rate of Return, October, 1979
Rockland Electric Company, Docket Nos. EO97070464 and EO97070465, Cost of Capital, Capital Cost Allocation, and Securitization, January, 1998
Rockland Electric Company, Docket No. , Cost of Capital, January 2003
Rockland Electric Company, Docket No. EF02110852, Financial Issues, January, 2004.
Salem Nuclear Power Plant, Atlantic City Electric Company and Public Service Electric & Gas Company, Docket No. ES96030158 & ES96030159, Financial Issues, April, 1996.
South Jersey Gas Company; Docket No. 769-988, Accounting, February, 1977
South Jersey Gas Company, BRC Docket No. GU94010002, June, 1994
South Jersey Gas Company, BPU Docket No. GR00050295, February, 2004
United Artists Cablevision; Docket No. CTV-9924- 83, Rate of Return, April, 1984
Verizon, Rate of Return, BPU Docket No. TO 00060356, October, 2000
Verizon, Rate of Return, BPU Docket No. TO 01020095, May 2001
Verizon, Rate of Return, BPU Docket No. TO00060356, January 2004
West Keansburg Water Company; Docket No. 838-737, Rate of Return, December, 1983

NEW HAMPSHIRE

Verizon New Hampshire, DT 02-110, Rate of Return, January, 2003.

NEW YORK

Consolidated Edison Company; Case No.27353, Accounting and Rate of Return, October, 1978
Consolidated Edison Company; Case No. 27744, Accounting and Rate of Return, August 1980
Generic Financing Case for Electric & Gas Companies; Case No. 27679, May, 1981
Long Island Lighting Company; Case No. 27136, Accounting and Rate of Return, June, 1977
Long Island Lighting Company; Case No. 27774, Rate of Return, November, 1980
Long Island Lighting Company; Case No. 28176 and 28177, Rate of Return and Revenue Forecasting, June, 1982
Long Island Lighting Company, Case No. 28553, Rate of Return and Finance, March, 1984

Long Island Lighting Company, Case No. 93-E-1123, Rate of Return and Finance, May, 1994
New York Telephone, Case No. 27469, April, 1979
New York Telephone, Case No. 27710, Accounting, September, 1981

NOVA SCOTIA

Nova Scotia Power Company, UARB 257-370, Rate of Return, March 2002
Nova Scotia Power Company, UARB 62-113, Rate of Return, October 2004.

OHIO

Columbia Gas Company of Ohio; Case No. 77-1428-GA-AIR, March, 1979
Columbia Gas Company of Ohio; Case No. 78-1118-GA-AIR, Accounting and Rate of Return,
May, 1979
Ohio Utilities Company; Case No. 78-1421-WS-AIR, Rate of Return, September, 1979

OKLAHOMA

Oklahoma Natural Gas Company, Case PUD No. 94000047, Rate of Return, May, 1995

OREGON

PacifiCorp, Case UE 116, Rate of Return, May 2001
Portland General Electric, Case UE 102, Rate of Return, July 1998
Portland General Electric, Case UE 115, Rate of Return, May 2001
Northwest Natural Gas Company, Docket No. UG-132, July 1999

PENNSYLVANIA

Allied Gas, Et. Al., Docket No. R-932952, Rate of Return, May, 1994
ATTCOM - Pennsylvania; Docket No. P-830452, Rate of Return, April, 1984
Borough of Media Water Fund; Docket No. R-901725, Rate of Return, November 1990
Bethel and Mt. Aetna Telephone Company; Docket No. LR-770090452, Accounting and Rate of
Return, January, 1978
Big Run Telephone Company; Docket No. R-79100968, Accounting and Rate of Return,
November, 1980.
Bloomsburg Water Company; Docket Nos. R-912064 and R-912064C001-C003, Rate of Return,
December, 1991.
Citizens Utilities Water Company of Pennsylvania and Citizens Utilities Home Water Company;
Docket No. R-901663 and R-901664, Rate of Return, September, 1990
Citizens Utilities Water Company of Pennsylvania, Docket No. R-00953300, Rate of Return,
September, 1995
City of Bethlehem, Bureau of Water, Docket No. R-943124, Rate of Return, October, 1994
City of Lancaster-Water Fund, Docket R-00984567, Rate of Return, May, 1999
Columbia Gas of Pennsylvania; Docket No. R-78120724, Rate of Return, May, 1979

Dallas Water Co., Harvey's Lake Water Co., Noxen Water Co., Inc. & Shavertown Water Co. Inc., Docket Nos R-922326, R-922327, R-922328, R-922329, Rate of Return, September, 1992

Dauphin Consolidated Water Company; Docket No. R-780-50616, Rate of Return, August, 1978

Dauphin Consolidated Water Company; Docket No. R-860350, Rate of Return, July, 1986

Dauphin Consolidated Water Company; Docket No. R-912000, Rate of Return, September, 1991

Duquesne Light Company; Docket No. RID-373, Accounting and Rate of Return,

Duquesne Light Company; Docket No. R-80011069, Accounting and Rate of Return, June, 1979

Duquesne Light Company; Docket No. R-821945, Rate of Return, August, 1982

Duquesne Light Company; Docket No. R-850021, Rate of Return, August, 1985

Emporium Water Company, Docket No. R-00005050, Rate of Return, October 2000

Equitable Gas Company; Docket No. R-780040598, Rate of Return, September, 1978

General Telephone Company of Pennsylvania; Docket No. R-811512, Rate of Return

Mechanicsburg Water Company; Docket No. R-911946; Rate of Return, July, 1991

Mechanicsburg Water Company, Docket No. R-922502, Rate of Return, February, 1993

Metropolitan Edison and Pennsylvania Electric Company; Rate of Return, December, 1980

National Fuel Gas Company; Docket No. R-77110514, Rate of Return, September, 1978

National Fuel Gas Company, Docket No. R-953299, Rate of Return, June, 1995

North Penn Gas Company, Docket No. R-922276, Rate of Return, September, 1992

North Penn Gas Company, Docket No. R-00943245, Rate of Return, May, 1995

Pennsylvania American Water Company, Docket R-922428, Rate of Return, October, 1992

Pennsylvania Electric Company; Rate of Return, September, 1980

Pennsylvania Gas & Water Company, Docket No. R-80071265, Accounting and Rate of Return

Pennsylvania Gas & Water Company; Docket No. R-78040597, Rate of Return, August, 1978

Pennsylvania Gas & Water Company; Docket No. R-911966; Rate of Return, August, 1991

Pennsylvania Gas & Water Company, Docket No. R-922404; Rate of Return, October, 1992

Pennsylvania Gas & Water Company; Docket No. R-922482; Rate of Return, January, 1993

Pennsylvania Gas & Water Company; Docket No. R-932667; Rate of Return, July, 1993

Pennsylvania Power Company; Docket No. R-78040599, Accounting and Rate of Return, May, 1978

Pennsylvania Power Company; Docket No. R-811510, Accounting, August, 1981

Pennsylvania Power Company; Case No. 821918, Rate of Return, July, 1982

Pennsylvania Power & Light Company; Docket No. R-80031114, Accounting and Rate of Return

Pennsylvania Power & Light Company; Docket No. R-822169, Rate of Return, March, 1983

Peoples Natural Gas Company; Docket No. R-78010545, Rate of Return, August, 1978

Philadelphia Electric Company; Docket No. R-850152, Rate of Return, January, 1986

Philadelphia Suburban Water Company; Docket No. R-79040824, Rate of Return, September, 1979

Philadelphia Suburban Water Company; Docket No. R-842592, Rate of Return, July, 1984

Philadelphia Suburban Water Company; Docket No. R-911892, Rate of Return, May, 1991

Philadelphia Suburban Water Company, Docket No. R-00922476, Rate of Return, March, 1993

Philadelphia Suburban Water Company, Docket No. R-932868, Rate of Return, April, 1994

Philadelphia Suburban Water Company, Docket No. R-00953343, Rate of Return, August, 1995.

Roaring Creek Water Company, Docket No. R-911963, Rate of Return, August, 1991

Roaring Creek Water Company, Docket No. R-00932665, Rate of Return, September, 1993

Sewer Authority of the City of Scranton; Financial Testimony, March, 1991

UGI Luzerne Electric; Docket No. R-78030572, Accounting and Rate of Return, October, 1978

United Water, Pennsylvania Inc., Docket No. R-00973947, Rate of Return, August, 1997

West Penn Power, Docket No. R-78100685, July, 1979

West Penn Power; Docket No. R-80021082, Accounting and Rate of Return

Williamsport vs. Borough of S. Williamsport re Sewage Rate Dispute

York Water Company, Docket No. R-850268, Rate of Return, June, 1986
York Water Company, Docket No. R-922168, Rate of Return, June, 1992
York Water Company, Docket No. R-994605, July, 1999
York Water Company, Docket No. R-00016236, Rate of Return, June 2001

RHODE ISLAND

Blackstone Valley Electric Company; Rate of Return, February, 1980
Blackstone Valley Electric Company; Docket No. 1605, Rate of Return, February, 1982
Blackstone Valley Electric Company, Docket No. 2016, Rate of Return, October, 1991
Block Island Power Company, Docket No. 1998, Interim Relief, Oral testimony only, March, 1991, Permanent relief accounting testimony , August, 1991
Bristol & Warren Gas Company; Docket No. 1395, Rate of Return, February, 1980
Bristol & Warren Gas Company; Docket No. 1395R, Rate of Return, June, 1982
FAS 106 Generic Hearing; Docket No. 2045, Financial Testimony, July, 1992
Interstate Navigation, Financial Testimony, March, 2004.
Narragansett Electric Corporation; Docket No. 1591, Accounting, November, 1981
Narragansett Electric Corporation; Docket No. 1719, Rate of Return, December, 1983
Narragansett Electric Corporation; Docket No. 1938, Rate of Return, October, 1989.
Narragansett Electric Corporation; Docket No. 1976, Rate of Return, October, 1990
Newport Electric Corporation; Docket No. 1410, Accounting, July, 1979
Newport Electric Corporation; Docket No. 1510, Rate of Return
Newport Electric Corporation; Docket No. 1801, Rate of Return, June, 1985
Newport Electric Corporation; Docket 2036, Rate of Return, April, 1992
Providence Gas Company; Docket No. 1971, Rate of Return, October, 1990
Providence Gas Company, Docket No. 2286, Rate of Return, May, 1995
South County Gas Company, Docket No. 1854, Rate of Return, December, 1986
Valley Gas and Bristol & Warren Gas Co., Docket No. 2276, April, 1995
Wakefield Water Company, Docket No. 1734, Rate of Return, April, 1984

SOUTH CAROLINA

Small Power Producers & Cogeneration Facilities; Docket No. 80-251-E, Cogeneration Rates, August, 1984
South Carolina Electric & Gas Company; Docket No. 79-196E, 79-197-G, Accounting, November, 1979

VERMONT

Green Mountain Power Company, Docket No. 4570, Accounting, July, 1982
New England Telephone Company; Docket No. 3806/4033, Accounting, November, 1979
New England Telephone Company; Docket No. 4366, Accounting

WASHINGTON, D.C.

PEPCO/BGE Merger Case, Formal Case No. 951, Rate of Return, September, 1996
Bell Atlantic- DC, Formal Case No. 814, Phase IV, Rate of Return, September, 1995

Chesapeake and Potomac Telephone Company; Formal Case No. 850; Rate of Return, July, 1991.

Chesapeake and Potomac Telephone Company, Formal Case No. 814-Phase III, Financial Issues, October, 1992.

Chesapeake and Potomac Telephone Company, Formal Case 926, Rate of Return, July, 1993.

PEPCO; Formal Case No. 889, Rate of Return, January, 1990.

PEPCO; Formal Case No. 905, Rate of Return, June, 1991.

PEPCO; Formal Case No. 912, Rate of Return, March, 1992.

PEPCO; Formal Case No. 929, Rate of Return, October, 1993.

PEPCO; Formal Case No. 951, Rate of Return, September, 1996

PEPCO; Formal Case No. 945, Phase I, Rate of Return, June, 1999.

Washington Gas Light Company, Case No. 922, Rate of Return, April, 1993.

Washington Gas Light Company, Case No. 934, Rate of Return, April, 1994.

Washington Gas Light Company, Case No.989, Rate of Return, March, 2002.

Washington Gas Light Company, Case No. 1016, Rate of Return, March, 2003

WASHINGTON, STATE OF

Verizon Northwest, Docket No. UT-040788, Rate of Return, November 2004.

PacifiCorp, Docket No. UE-05____, Rate of Return, October, 2005

OTHER

Railroad Cost of Capital, Ex Parte No. 436, Rate of Return, January 17, 1983 (Submitted to the Interstate Commerce Commission)

Report on the Valuation of Nemours Corporation, filed on behalf of IRS, October, 1983 (Submitted to Tax Court)