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GLOBE

STATE OF NEW HAMPSHIRE

Before the

PUBLIC UTILITIES COMMISSION

DOCKET NO. DG 08-009

ENERGYNORTH NATURAL GAS, INC. D/B/A
NATIONAL GRID NH

Supplemental Direct Testimony of
Gary L. Goble

April 23, 2008

Prepared by:



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**SUPPLEMENTAL DIRECT TESTIMONY OF GARY L. GOBLE
ON BEHALF OF
NATIONAL GRID NH**

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LIST OF ATTACHMENTS

<u>Attachment Number</u>	<u>Description</u>
GLG-LL-2-Revised	Per-Books Lead-lag Study Summary with Supply and Delivery CWC
GLG-LL-3	Pro Forma Lead-lag Study Summary with Supply and Delivery CWC

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SUPPLEMENTAL DIRECT TESTIMONY OF GARY L. GOBLE

I. POSITION AND QUALIFICATIONS

Q. PLEASE STATE YOUR NAME, POSITION AND BUSINESS ADDRESS.

A. My name is Gary L. Goble. I am a managing consultant with the firm of Management Applications Consulting, Inc. (“MAC”). MAC’s headquarters is 1103 Rocky Drive, Suite 201, Reading, Pennsylvania 19609. My business office is 2218 Equestrian Trail, Austin, Texas 78727.

Q. ARE YOU THE SAME GARY L. GOBLE THAT PRESENTED DIRECT TESTIMONY ON THE SUBJECT OF CASH WORKING CAPITAL FOR GAS SUPPLY COSTS?

A. Yes.

Q. HAVE YOU PREVIOUSLY PROVIDED AN ATTACHMENT SUMMARIZING YOUR QUALIFICATIONS AND EXPERIENCE?

A. Yes. In my pre-filed direct testimony, I included Attachment GLG-LL-1 presenting my qualifications and experience.

1 **II. PURPOSE OF TESTIMONY**

2 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

3 A. The purpose of my supplemental direct testimony is to present and sponsor the
4 cash working capital (“CWC”) requirements of National Grid to support its
5 supply and delivery services. In my pre-filed direct testimony, I provided CWC
6 to support gas supply costs alone. At the time of the filing, I had not completed
7 my study of lags associated with the delivery function. Now that I have
8 completed the entire lead-lag study, I am able to estimate the CWC required for
9 both supply and delivery functions. On a per-books basis, the Company’s cash
10 working capital requirements were \$7,885,512 comprised of \$4,464,340 of CWC
11 for purchased gas expense and \$3,421,171 for base revenue requirements.
12 However, now that the Company has identified its revenue requirements on a pro
13 forma basis, I have computed the CWC for the adjusted test year. On a pro forma
14 basis, the total CWC requirements are \$8,570,001 comprised of purchased gas
15 CWC of \$4,442,004 and base revenue requirement CWC of \$4,127,997. I
16 recommend a cash working capital amount of \$8,570,001 to be included in rate
17 base, as compared to \$6,937,148 initially estimated by the Company in the
18 February 25, 2008 filing in this case. As a result, the rate base estimated in the
19 Company's initial filing should be increased by \$1,632,853 to reflect this change
20 in CWC.

21

1 **Q. HOW IS YOUR SUPPLEMENTAL TESTIMONY ORGANIZED?**

2 A. My supplemental testimony consists of four sections. Section I is introductory
3 information. Section II describes the purpose and organization of my
4 supplemental testimony. Section III presents the revised lead-lag study I prepared
5 on behalf of National Grid to determine the per-books CWC, including both
6 supply and delivery CWC. A summary schedule detailing the lead and lag days
7 by revenue and cost component for the test year on a per-books basis is provided
8 as Attachment GLG-LL-2 (Revised). Finally, Section IV of my direct testimony
9 summarizes my conclusions and recommendations for CWC on a pro forma basis.

10

11 **III. CASH WORKING CAPITAL**

12 **1. Definition of CWC**

13 **Q. PLEASE EXPLAIN HOW YOUR SUPPLEMENTAL DIRECT**
14 **TESTIMONY MESHES WITH THE DIRECT TESTIMONY YOU HAVE**
15 **ALREADY PROVIDED.**

16 A. In my direct testimony, I explained that cash working capital represents the need
17 for stockholder-funded capital necessary to bridge the gap between expenses paid
18 to provide customer services and the collection of customer revenues. The direct
19 testimony went on to explain that cash working capital is the net of revenue lag
20 less expense lag. The direct testimony provided a detailed derivation of the
21 revenue lag as well as details for the expense lag associated with purchased gas
22 expense. In this supplemental testimony, I will incorporate the revenue lag in

1 purchased gas expense lag and expand my lead-lag study to include an estimate of
2 expense lag for all other factors required to provide delivery service.

3

4 **Q. PLEASE DESCRIBE THE CHANGES PROVIDED IN ATTACHMENT**
5 **GLG-LL-2 (REVISED).**

6 A. The revised version of this schedule expands the analysis to include 12 additional
7 categories of expense that were not presented in the original version of this
8 attachment. Referring to Attachment GLG-LL-2 (Revised), page 3, you will note
9 that I have expanded the analysis beyond the identification of purchased gas lag
10 days. The analysis now shows the additional categories shown on lines 3 through
11 28, which comprise the Company's total per-books test year revenue
12 requirements. As you will note, each of these additional expense categories is
13 shown in terms of test year amount and lag days. Just as important, the "source"
14 column provides a reference to the workpapers showing the derivation of the lag
15 days presented on the summary schedule.

16

17 **Q. HOW DID YOU DETERMINE THE LAG FOR LABOR EXPENSE?**

18 A. The procedures for calculating the lag for payroll and labor-related costs other
19 than payroll are addressed in detail in my initial direct testimony.

20

21 **Q. PLEASE DESCRIBE THE CALCULATION OF LABOR FOR PENSIONS**
22 **AND BENEFIT EXPENSE INCLUDED IN THE SUPPLEMENTAL**
23 **FILING.**

1 A. The methods used to calculate the lag for payroll and labor-related costs other
2 than payroll are addressed in detail in my initial direct testimony.

3

4 **Q. WHAT COSTS ARE REPRESENTED UNDER THE HEADING “OTHER**
5 **O&M EXPENSE” IN THE SUPPLEMENTAL FILING?**

6 A. As explained in my initial direct testimony, approximately \$7 million of expenses
7 were not accounted by my direct analysis of the data included in the Company’s
8 test year expenditures. These “Other O&M” were addressed by means of
9 statistical sampling.

10

11 **Q. PLEASE DESCRIBE HOW THE SAMPLING OF OTHER O&M**
12 **EXPENSE WAS ACCOMPLISHED.**

13 A. As I explained in my initial direct testimony, I used a stratified sequential sample
14 of four strata totaling over 300 samples to estimate the lag of the wide variety of
15 expenses included in the Other O&M expense category. This sample was quite
16 accurate in that it estimated the average voucher amount within 1% of the
17 population’s average. The sample produced an estimated lag for Other O&M
18 expenses of 34.50 days.

19

20 **Q. HAVE YOU EXAMINED THE CONSEQUENCES OF USING A SAMPLE**
21 **TO ESTIMATE THIS LAG?**

22 A. Yes. For the expense lag calculations that excluded the Other O&M category of
23 expenses, I incorporated 100% of the relevant expenses and computed the actual
24 lag. The use of a sample in the category of Other O&M Expense necessitates an

1 estimate of the actual lag, and introduces some potential sampling error. The
2 statistical properties of the stratified sample allowed the quantification of the
3 possible error introduced by the sample. I can state with 90% confidence that the
4 actual average lag for Other O&M lies within 3.23 days of the unbiased estimator
5 of 34.50 days. Narrowing this bandwidth would require much larger samples
6 without any expectation that the average lag would change. Considering the
7 thousands of cash expenses incurred by National Grid in the Other O&M
8 Expenses category, the sampling procedure I used provides a reasonable estimate
9 for the expense lag for this category without the considerable burden of reviewing
10 huge quantities of data.

11

12 **Q. HOW DID YOU DETERMINE THE LAG ASSOCIATED WITH**
13 **ACCRUED EXPENSES AND OTHER ACCOUNTING ENTRIES**
14 **APPEARING IN THE COMPANY'S INCOME STATEMENT?**

15 A. Utility revenue requirements include a number of non-cash expenses or accrual
16 accounting entries in addition to operating and maintenance expenses. These
17 accounting entries recognize the accrual of expenses commensurate with the
18 service rendered in the test period. The most notable items in this category are
19 depreciation and amortization, uncollectible accounts expense, and provision for
20 deferred income taxes. Since the timing and amount of these payments are
21 established to coincide with their accounting liability, the expense occurs at the
22 time service is rendered, and the net lag is zero days.

23

1 Q. **HAVE YOU MADE ANY CHANGES TO PAGE 2 OF ATTACHMENT**
2 **GLG-LL-2?**

3 A. No. Page 2 summarizes the revenue lag calculations. These figures were
4 finalized at the time of the filing of direct testimony, and therefore, the revised
5 schedule makes no changes to page 2.

6

7 **2. Revised Results of National Grid Lead-Lag Study**

8 Q. **WHERE HAVE YOU PRESENTED THE RESULTS OF THE CWC**
9 **CALCULATIONS FOR THE PER-BOOKS TEST YEAR?**

10 A. The results of the lead-lag study are summarized on Attachment GLG-LL-2
11 (Revised), page 1. This page summarizes the revenues from page 2 and the
12 expenses from page 3 and presents the Company's CWC for the test year on a
13 per-books basis.

14

15 Q. **HAVE YOU IDENTIFIED THE NET LAG DAYS BETWEEN REVENUE**
16 **AND EXPENSE FOR NATIONAL GRID'S GAS OPERATIONS FOR THE**
17 **TWELVE MONTHS ENDING JUNE 30, 2007 ON A PER-BOOKS BASIS?**

18 A. Yes. As indicated by the data in Attachment GLG-LL-2 (Revised), page 1, the
19 net lag for National Grid's purchased gas expense in New Hampshire as
20 measured by the lead-lag study is 12.04 days, the same figure shown in my
21 previous testimony. However, page 1 is no longer limited to the presentation of
22 purchased gas CWC. Instead, all CWC requirements are shown and are
23 segregated between purchased gas and base revenue CWC. The positive lags

1 shown on lines 34, 47 and 55 indicate that the system requires stockholder capital
2 to compensate for the fact that the lag in the recovery of revenues is greater than
3 the lead in the payment of expenses. On a per-books basis, National Grid's CWC
4 requirements for purchased gas expense for the June 30, 2007 test year are
5 \$4,464,340 as shown on Attachment GLG-LL-2 and Attachment GLG-LL-2
6 (Revised). Line 54 of Attachment GLG-LL-2 (Revised) indicates a CWC
7 requirement of \$3,421,171 for base revenues on a per-books basis.
8

9 **Q. REFERRING TO ATTACHMENT GLG-LL-2 (REVISED), COULD YOU**
10 **DISCUSS THE STRUCTURE OF YOUR PER-BOOKS LEAD-LAG**
11 **STUDY SUMMARY?**

12 A. The summary of the National Grid lead-lag study consists of three sections. Lines
13 1 through 4 summarize the revenue lag. Lines 6 through 32 detail the expense lag
14 data. Lines 34 to 55 show CWC in total and segregated between Purchased Gas
15 and all other costs.

16
17 The calculations are based on the actual, per-book, costs. In a number of
18 instances (for example, income taxes) the actual annual data are not indicative of
19 the cash working capital requirements of the Company on an ongoing basis.

20 Under normal conditions, the rates in effect are expected to allow the Company's
21 stockholders to earn a reasonable return on their investment, and the utility must
22 pay income taxes on this return. Therefore, it is important to note the level of
23 CWC computed on a per-books basis understates the level of CWC required for
24 normal operations. The importance of the per-books study is to determine the

1 appropriate number of lag days applicable to revenue and expense items.
2 Attachment GLG-LL-3 establishes the level of CWC using the lag days taken
3 from Attachment GLG-LL-2 (Revised) and applying the lags day for each
4 identified revenue requirement cost component to the pro forma revenue
5 requirements filed in this case.

6

7 **Q. PLEASE GUIDE US THROUGH THE CALCULATION OF CWC.**

8 A. Since revenues are received 50.98 days after the service is provided to customers,
9 as shown on line 1 of Attachment GLG-LL 2 (Revised), page 1, and expenses are
10 paid 34.67 days after service has been provided (line 32), there is a net lag of
11 16.31 days for revenues less expenses as shown on Line 34. Because the recovery
12 of revenues lags the payment of expenses, investors must provide the funds to pay
13 for the daily operations of the Company, and the CWC amount is a positive
14 addition to rate base. The CWC required to support revenue requirements is
15 computed by multiplying the 16.31 days of lag, dividing by 365 and then
16 multiplying by the revenue requirements, as shown on line 38.

17

18 **Q. HOW DID YOU COMPUTE THE CWC FOR THE COMPANY'S**
19 **REVENUE REQUIREMENTS ON A PRO FORMA BASIS?**

20 A. I have prepared Attachment GLG-LL-3 to develop the CWC requirements for the
21 pro forma test year revenue requirements. This attachment is very similar to and
22 employs the same format as Attachment GLG-LL-2 (Revised). However,
23 Attachment GLG-LL-3 takes the individual lag days from Attachment GLG-LL-2
24 (Revised) and applies these lag days on a line-by-line basis to the test year pro

1 forma revenue requirements. The resulting CWC of \$8,570,001 represents the
2 capital that must be provided by stockholders, which must be included in rate
3 base. Of this amount, \$4,442,004 represents cash working capital for purchased
4 gas expense, as previously discussed in my initial direct testimony. The Cost of
5 Gas Clause should be revised to reflect this level of purchased gas CWC. The
6 remainder of the CWC, \$4,127,997, represents the CWC that should be included
7 in rate base for purposes of determining the Company's base revenue
8 requirements.

9
10 **Q. WHAT LEVEL OF CWC WAS INCLUDED IN THE COMPANY'S**
11 **ORIGINAL FILING?**

12 A. The Company originally included a CWC of \$6,937,148 in rate base for purposes
13 of determining its revenue requirements. This figure was not derived rigorously
14 from a lead-lag study. Consequently, the original figure should be increased by
15 \$1,632,853 to reflect the actual CWC requirements as expected in the test year on
16 a pro forma basis.

17
18 **IV. SUMMARY**

19 **Q. PLEASE SUMMARIZE YOUR TESTIMONY.**

20 A. I have prepared a lead-lag study to separately compute the lag days associated
21 with revenue collection from customers and the lag days associated with the
22 utility revenue requirements, segregated between purchased gas expense and all
23 other. These lagged revenues and expenses are combined to determine the net lag
24 days for National Grid. The computation of per-books purchased gas expense

1 was previously provided in my direct testimony. The supplemental testimony
2 provides the per-books non-gas CWC requirements as well. It also provides the
3 CWC requirements on a pro forma basis in Attachment GLG-LL-3. I recommend
4 that, in computing the Company rate base for purposes of determining its base
5 revenue requirement, CWC of \$4,127,997 be included in accordance with the pro
6 forma lead-lag study summarized in Attachment GLG-LL-3. Gas supply rates
7 should be developed using 12.18 days of net lag in accordance with the pro forma
8 lead-lag study summarized in Attachment GLG-LL-3.

9
10 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

11 **A. Yes.**

National Grid NH
Cash Working Capital Requirements
12 Months Ended Jun 30, 2007
Lead Lag Summary

Line No	Annual Expense	Lead (Lag) Days	Day Weighted Amount	Source
	(1)	(2)	(3)	(4)
Revenues				
1	Sales Revenues	\$176,006,960	50.97	\$8,970,833,775 Page 2 of 3 - Line 14
2	Unbilled Revenues	310,864	51.18	15,910,123 Page 2 of 3 - Line 16
3	Other Revenues	202,363	58.21	11,780,151 Page 2 of 3 - Line 18-26
4	Total Revenue Lag	<u>176,520,187</u>	<u>50.98</u>	<u>\$8,998,524,049</u> Page 2 of 3 - Line 28
Operation & Maintenance Expense				
7	Purchased Gas	\$135,339,224	38.94	\$5,270,109,385 Page 3 of 3 - Line 2
8	Labor	8,482,884	35.35	\$299,869,946 Page 3 of 3 - Line 3
9	Employee Pensions & Benefits	2,043,633	25.28	51,663,037 Page 3 of 3 - Line 4
10	Uncollectible Accounts	3,693,923	-	0 Page 3 of 3 - Line 5
11	Other O&M Expenses	6,783,136	34.50	234,018,208 Page 3 of 3 - Line 6
13	Depreciation Expense	8,824,109	-	0 Page 3 of 3 - Line 9
Other Taxes				
16	Other Taxes Excluding Property Taxes	228,713	18.85	4,311,243 Page 3 of 3 - Line 12
17	Property Taxes	3,533,834	(28.87)	-102,021,801 Page 3 of 3 - Line 13
Income Taxes				
20	Federal Income Taxes	1,670,259	36.50	60,964,450 Page 3 of 3 - Line 17
21	State Income Taxes	1,007,476	36.50	36,772,870 Page 3 of 3 - Line 18
23	Provision for Deferred Income Taxes	-1,034,057	-	0 Page 3 of 3 - Line 21
25	Loss From Disposition of Property	113,812	-	0 Page 3 of 3 - Line 23
Return				
28	Interest on Long-Term Debt	2,900,000	91.25	264,625,000 Page 3 of 3 - Line 26
29	Interest on Short-Term Debt	508,859	-	0 Page 3 of 3 - Line 27
30	Income for Return	2,424,382	-	0 Page 3 of 3 - Line 28
32	Total Expense Lag	<u>\$176,520,187</u>	<u>34.67</u>	<u>\$6,120,312,338</u> Sum of Lines 7 to 30
34	Net of Revenue less Expense Lag		16.31	\$2,878,211,711 Line 4 - Line 32
35	Days			365
38	Avg Daily Cash Working Capital Requirements			<u>\$7,885,512</u> Line 34 / Line 35
41	Cash Working Capital Requirements			<u>\$7,885,512</u> Line 38
43	Numbers may vary due to rounding.			
Purchased Gas Working Capital				
47	Purchased Gas Net Lag Days		12.04	Line 4 - line 7
48	Purchased Gas Cost			\$135,339,224 Line 7
49	Purchased Gas CWC			<u>\$4,464,340</u> Line 48 / 365 X Line 47
Base Revenue Requirements Working Capital				
52	Total Cash Working Capital Requirements			\$7,885,512 Line 41
53	Less: Purchased Gas Cash Working Capital			\$4,464,340 Line 49
54	Base Revenue Requirements Working Capital			<u>\$3,421,171</u> Line 52 - Line 53
55	Base Revenue Net Lag Days		30.32	Line 54/(Line32-Line7) X 365

National Grid NH
Cash Working Capital Requirements
12 Months Ended Jun 30, 2007
Revenues Lag Summary

Line No	Revenue Lag	Revenues Billed	Lead (Lag) Days	Source	Wtg Delivery Dollar Days
1	Service Lag		15.22	See Note 1	
2					
3	Billing Lag				
4	Cycle Read Customers		1.00	See Note 3	
5					
6	Collection Lag		34.96	W/P Supporting Page 1 Line 21	
7					
8	Total Firm Gas Sales Revenues	\$167,620,007	51.18	Line 1 + 4 + 6	\$8,576,847,598
9					
10	Sales for Resale	\$3,044,423	38.94	W/P Supporting Page 2 Line 21	\$118,553,693
11	Gas Revenues Total	\$170,664,430	50.96		\$8,697,401,292
12					
13	Revenues from Transportation of Gas of Others	\$5,342,530	51.18	Line 8	\$273,432,484
14	Total Sales Revenues	\$176,006,960	50.97		\$8,970,833,775
15					
16	Unbilled Revenues	\$310,864	51.18	Line 8	\$15,910,123
17					
18	Reconnect Fees	\$298,420	51.18	Line 8	\$15,273,235
19					
20	NG Check Charge	\$7,225	40.36	See Note 2	\$291,612
21					
22	Broker Balancing Charges	-\$9,841	51.18	Line 8	-\$503,687
23					
24	Deferred Profit Off System Sales	-\$122,666	38.94	Line 10	-\$4,776,755
25					
26	Default Activity	\$29,225	51.18	Line 8	\$1,495,745
27					
28	Total Revenue Lag	\$176,520,187	50.98		\$8,998,524,049
29					
30					

Notes:

1. Computed as 365.25/12/2
2. Fees are assessed on the next billing. Lag is computed as the collection lag on Line 6 plus the average of 5.4 days from due date.
3. Meters are read from 7AM to 3PM and posted to accounts receivable on the following day.

35
36

National Grid NH
Cash Working Capital Requirements
12 Months Ended Jun 30, 2007
Cost of Service Lead Lag Summary

Line No	Revenue Req Amount	Lead (Lag) Days	Source	Weighted Amount	
1	Operation & Maintenance Expense				
2	Purchased Gas	\$135,339,224	38.94	W/P Supporting Page 2 Line 21	\$5,270,280,270
3	Labor	\$8,482,884	35.35	W/P Supporting Page 39 Line 72	\$299,893,179
4	Employee Pensions & Benefits - Acct 926	\$2,043,633	25.28	W/P Supporting Page 88 Line 41	\$51,667,919
5	Uncollectible Accounts - Acct 904	\$3,693,923	0.00		\$0
6	Other O&M Expenses	\$6,783,136	34.50	W/P Supporting Page 115 Line 27	\$234,026,387
7	Total Operating & Maintenance Expenses	\$156,342,800	37.46		\$5,855,867,756
8					
9	Depreciation & Amortization Expense	\$8,824,109	0.00		\$0
10					
11	Other Taxes				
12	Other Taxes Excluding Property Taxes	\$228,713	18.85	W/P Supporting Page 127 Line 17	\$4,312,300
13	Property Taxes	\$3,533,834	-28.87	W/P Supporting Page 134 Line 34	-\$102,021,629
14	Total Other Taxes	\$3,762,548	-25.97		-\$97,709,329
15					
16	Income Taxes				
17	Federal Income Taxes	\$1,670,259	36.50	W/P Supporting Page 167 Line 13	\$60,964,450
18	State Income Taxes	\$1,007,476	36.50	W/P Supporting Page 168 Line 13	\$36,772,870
19	Total Income Taxes	\$2,677,735	36.50		\$97,737,320
20					
21	Provision for Deferred Income Taxes	-\$1,034,057	0.00		\$0
22					
23	Loss From Disposition of Property	\$113,812	0.00		\$0
24					
25	Return				
26	Interest on Long-Term Debt - Push Down Debt	\$2,900,000	91.25	W/P Supporting Page 169 Line 5	\$264,624,999
27	Interest on Short-Term Debt	\$508,859	0.00		\$0
28	Income for Return	\$2,424,382	0.00		\$0
29	Total Return	\$5,833,241	45.37		\$264,624,999
30					
31	Total Requirements	\$176,520,187	34.67		\$6,120,520,746
32					

National Grid NH
Cash Working Capital Requirements
Pro Forma 12 Months Ended Jun 30, 2007
Lead Lag Summary

Line No	Annual Expense (1)	Lead (Lag) Days (2)	Day Weighted Amount (3)	Source (4)
Revenues				
1	Sales Revenues	\$179,183,582	51.18	\$9,170,675,231 Page 2 of 3 - Line 14
2	Unbilled Revenues	310,864	51.18	15,910,123 Page 2 of 3 - Line 16
3	Other Revenues	1,364,855	42.73	58,316,238 Page 2 of 3 - Line 18-28
4	Total Revenue Lag	180,859,301	51.12	\$9,244,901,592 Page 2 of 3 - Line 30
Operation & Maintenance Expense				
7	Purchased Gas	\$133,114,231	38.94	\$5,183,468,147 Page 3 of 3 - Line 2
8	Labor	8,458,605	35.35	\$299,011,681 Page 3 of 3 - Line 3
9	Employee Pensions & Benefits	4,705,624	21.24	99,947,454 Page 3 of 3 - Line 4
10	Uncollectible Accounts	4,593,826	-	0 Page 3 of 3 - Line 5
11	Other O&M Expenses	8,777,500	34.50	302,823,744 Page 3 of 3 - Line 6
13	Depreciation Expense	7,770,701	-	0 Page 3 of 3 - Line 9
Other Taxes				
16	Other Taxes Excluding Property Taxes	235,204	18.85	4,433,605 Page 3 of 3 - Line 12
17	Property Taxes	3,577,756	(28.87)	-103,289,822 Page 3 of 3 - Line 13
Income Taxes				
20	Federal Income Taxes	1,425,300	36.50	52,023,451 Page 3 of 3 - Line 17
21	State Income Taxes	378,300	36.50	13,807,942 Page 3 of 3 - Line 18
23	Provision for Deferred Income Taxes	0	-	0 Page 3 of 3 - Line 21
Return				
26	Interest on Long-Term Debt	2,900,000	91.25	264,625,000 Page 3 of 3 - Line 24
27	Interest on Short-Term Debt	508,859	-	0 Page 3 of 3 - Line 25
28	Income for Return	4,413,395	-	0 Page 3 of 3 - Line 26
30	Total Expense Lag	\$180,859,301	33.82	\$6,116,851,202 Sum of Lines 7 to 28
32	Net of Revenue less Expense Lag		17.30	\$3,128,050,390 Line 4 - Line 30
33	Days			365
36	Avg Daily Cash Working Capital Requirements			\$8,570,001 Line 32 / Line 33
39	Cash Working Capital Requirements			\$8,570,001 Line 36
41	Numbers may vary due to rounding.			
Purchased Gas Working Capital				
45	Purchased Gas Net Lag Days		12.18	Line 4 - line 7
46	Purchased Gas Cost		\$133,114,231	Line 7
47	Purchased Gas CWC		\$4,442,004	Line 46 / 365 X Line 45
Base Revenue Requirements Working Capital				
50	Total Cash Working Capital Requirements		\$8,570,001	Line 39
51	Less: Purchased Gas Cash Working Capital		\$4,442,004	Line 47
52	Base Revenue Requirements Working Capital		\$4,127,997	Line 50 - Line 51
53	Base Revenue Net Lag Days		31.56	Line 52/(Line30-Line7) X 365

National Grid NH
Cash Working Capital Requirements
Pro Forma 12 Months Ended Jun 30, 2007
Revenues Lag Summary

Line No	Revenue Lag	Revenues Billed	Lead (Lag) Days	Source	Wtg Delivery Dollar Days
1	Service Lag		15.22	See Note 1	
2					
3	Billing Lag				
4	Cycle Read Customers		1.00	See Note 3	
5					
6	Collection Lag		34.96	W/P Supporting Page 1 Line 21	
7					
8	Total Firm Gas Sales Revenues	<u>\$174,571,732</u>	<u>51.18</u>	Line 1 + 4 + 6	<u>\$8,934,639,217</u>
9					
10	Sales for Resale	<u>\$0</u>	<u>38.94</u>	W/P Supporting Page 2 Line 21	<u>\$0</u>
11	Gas Revenues Total	<u>\$174,571,732</u>	<u>51.18</u>		<u>\$8,934,639,217</u>
12					
13	Revenues from Transportation of Gas of Others	<u>\$4,611,850</u>	<u>51.18</u>	Line 8	<u>\$236,036,015</u>
14	Total Sales Revenues	<u>\$179,183,582</u>	<u>51.18</u>		<u>\$9,170,675,231</u>
15					
16	Unbilled Revenues	\$310,864	51.18	Line 8	\$15,910,123
17					
18	Reconnect Fees	\$298,420	51.18	Line 8	\$15,273,235
19					
20	NG Check Charge	\$21,675	40.36	See Note 2	\$874,837
21					
22	Broker Balancing Charges	\$0	51.18	Line 8	\$0
23					
24	Deferred Profit Off System Sales	\$0	38.94	Line 10	\$0
25					
26	Default Activity	\$0	51.18	Line 8	\$0
27					
28	Late Payments	<u>\$1,044,760</u>	40.36	See Note 2	<u>\$42,168,166</u>
29					
30	Total Revenue Lag	<u>\$180,859,301</u>	<u>50.88</u>		<u>\$9,202,733,426</u>

Notes:

1. Computed as 365.25/12/2
2. Fees are assessed on the next billing. Lag is computed as the collection lag on Line 6 plus the average of 5.4 days from due date.
3. Meters are read from 7AM to 3PM and posted to accounts receivable on the following day.

National Grid NH
Cash Working Capital Requirements
Pro Forma 12 Months Ended Jun 30, 2007
Cost of Service Lead Lag Summary

Line No	Revenue Req Amount	Lead (Lag) Days	Source	Weighted Amount	
1	Operation & Maintenance Expense				
2	Purchased Gas	\$133,114,231	38.94	W/P Supporting Page 2 Line 21	\$5,183,636,224
3	Labor	\$8,458,605	35.35	W/P Supporting Page 39 Line 72	\$299,034,848
4	Employee Pensions & Benefits - Acct 926	\$4,705,624	21.24	W/P Supporting Page 87 Line 10	\$99,932,128
5	Uncollectible Accounts - Acct 904	\$4,593,826	0.00		\$0
6	Other O&M Expenses	\$8,777,500	34.50	W/P Supporting Page 115 Line 27	\$302,834,329
7	Total Operating & Maintenance Expenses	\$159,649,786	36.86		\$5,885,437,528
8					
9	Depreciation & Amortization Expense				
10		\$7,770,701	0.00		\$0
11	Other Taxes				
12	Other Taxes Excluding Property Taxes	\$235,204	18.85	W/P Supporting Page 126 Line 11	\$4,434,779
13	Property Taxes	\$3,577,756	-28.87	W/P Supporting Page 134 Line 34	-\$103,289,648
14	Total Other Taxes	\$3,812,961	-25.93		-\$98,854,869
15					
16	Income Taxes				
17	Federal Income Taxes	\$1,425,300	36.50	W/P Supporting Page 167 Line 13	\$52,023,451
18	State Income Taxes	\$378,300	36.50	W/P Supporting Page 168 Line 13	\$13,807,942
19	Total Income Taxes	\$1,803,600	36.50		\$65,831,393
20					
21	Provision for Deferred Income Taxes				
22		\$0	0.00		\$0
23	Return				
24	Interest on Long-Term Debt - Push Down Debt	\$2,900,000	91.25	W/P Supporting Page 169 Line 5	\$264,624,999
25	Interest on Short-Term Debt	\$508,859	0.00		\$0
26	Income for Return	\$4,413,395	0.00		\$0
27	Total Return	\$7,822,254	33.83		\$264,624,999
28					
29	Total Requirements				
30		\$180,859,301	33.82		\$6,117,039,051