

Schedule DLG/PMN-1G-1

**Qualifications Debbie L. Gajewski
and
Paul M. Normand**

DEBBIE L. GAJEWSKI
Managing Consultant

Extensive consulting experience in the electric, gas, and water industries includes demand analysis, cost-of-service, rate design, econometric forecasting, and rate information systems. Utility industry knowledge is coupled with experience in accounting processes, system analysis, and software capabilities. Provided expert testimony before regulatory agencies. Developed schedules and Schedules for rate filings before regulatory agencies.

EXPERIENCE:

2008 to Present	MANAGEMENT APPLICATIONS CONSULTING, INC. Managing Consultant – provide rate and regulatory services to the utility industry as described below.
2007-2008	KISSINGER ASSOCIATES, INC. Director of Sales, EDI – Manage and train sales staff and resellers to achieve sales objectives and targets via Webinars, technical conferences, and presentations. Work with Marketing to implement all marketing plans and promotional activities as well as participate in creation of marketing materials. Identify market needs and feed market requirements to Product Development and Marketing. Prepare sales projections and budgets.
1993-2007	MANAGEMENT APPLICATIONS CONSULTING, INC. Principal - Provided rate and regulatory services to the utility industry. Prepared and analyzed embedded class cost of service studies and marginal cost studies for electric, gas, and water utilities. Designed and evaluated utility rates and tariffs. Responsible for gathering and processing engineering, operating, and accounting data necessary for these studies. Prepared and submitted expert testimony concerning class cost of service analyses and allocation methodologies.
1985-1993	Management Consultant - Performed econometric forecast modeling for natural gas distribution utilities which included collecting, compiling, reconciling, and analyzing data elements as well as model development, testing, and integration of multiple models into system sales forecast. Developed allocation factors to be used in cost-of-service studies from bill frequency information, load research, system engineering data, and other sources. Developed software for microcomputers using numerous database and spreadsheet languages. Developed Visual Basic programs for running class cost of service models. Developed training materials and resources, including user manuals, software documentation, and presentation materials. Conducted numerous training sessions to educate utility personnel in the application and use of cost-of-service models. Performed financial, accounting, and administrative functions including preparation of financial statements, processing of monthly billing, tax reporting, preparing receivable reports, and administration of accounts payable.

DEBBIE L. GAJEWSKI / Page 2
(Continued)

- 1984 - 1985 **GAI-TRONICS CORPORATION**
Regional Sales Coordinator - Responsible for coordinating sales efforts between regional factory representatives and inside sales. Worked with electrical engineers and plant engineers in designing equipment to meet special applications. Trained factory representatives in regional offices on the features, benefits, and advantages of several product lines. Direct customer sales contact with major accounts within regional territory. Maintained constant lead follow-up and established many new accounts.
- 1982 - 1984 **GILBERT ASSOCIATES, INC.**
Management Consultant, Cost and Load Analysis Department - Participated in the preparation and analysis of computerized average embedded and marginal time-differentiated cost studies for electric, gas, and water utilities. Responsible for the gathering and processing of engineering, financial, and accounting data necessary to complete these studies.
- Assisted in the development of allocation factors to be used in cost-of-service studies from bill frequency information, load research and system engineering characteristics.
- 1978 - 1982 Technical Assistant, Cost and Load Analysis Department - Assisted Consultants in the preparation of average embedded and time-differentiated cost studies. Assisted in the development, implementation, and documentation of load research software for gas and electric companies involving Fortran programming and system analysis. Program included meter tape translations, load data analyses, reports generating, and load profile graphics for stratified class data.
- 1976 - 1977 **GAI-TRONICS CORPORATION**
Experience included the use of time sharing and remote job entry terminals. Work also included clerical and secretarial responsibilities. Processed, coordinated, and expedited work orders within the sales and system engineering, purchasing, and production departments for major clients.

EDUCATION:

B.S., Business Administration, Albright College, 1993
M.B.A. classes, Ashford University, 2009
Additional Courses:
Sandler Training Solutions – Corporate Sales Training Course, 2007
Programming Languages, Computer Hardware and Software Capabilities

EXPERT WITNESS/TESTIMONY:

Massachusetts Department of Public Utilities
Public Service Commission of Maryland
Railroad Commission of Texas

PAUL M. NORMAND
Principal

Experience in the electric, gas, and water industry includes project management of various cost analyses, engineering system planning and design functions, detailed electric power loss analyses, as well as cost and contract functions for a manufacturer of nuclear equipment. Also, experienced in the analysis and preparation of economic data, revenue requirements and rate design for presentation before state and federal regulatory agencies. Presented expert testimony on behalf of utilities in over 30 applications before regulatory commissions.

EXPERIENCE:

- 1984 - Present **MANAGEMENT APPLICATIONS CONSULTING, INC.**
Principal consultant providing consulting services to industry in planning, pricing, and regulation. Extensive experience in analyzing power systems for power loss studies and unbundling issues.
- 1983 - 1984 **P. M. NORMAND ASSOCIATES**
Independent consultant providing services to the utility industry in cost analyses, rate design and expert testimony.
- 1976 - 1983 **GILBERT/COMMONWEALTH**, Reading, Pa.
Director, Rate Regulatory Services - Administrative and fiscal responsibility for rate and regulatory services nationally for electric, gas, and water utilities. Additional responsibilities included all marketing, research and development efforts, and contract negotiations for all studies performed by the Regulatory Service Department. Provided consulting service to utilities in project management, personnel staffing, and future development efforts.
- Manager, Austin, Texas Office - Responsibility for the overall administrative and business aspects for the department in the Southwest. Duties included the preparation of all aspects of rate cases and PURPA compliance studies.
- Senior Management Consultant - Responsibilities included project management of various electric and gas cost-of-service studies and the development of methodologies utilized in the analysis of time-differentiated average and marginal cost studies.

PAUL M. NORMAND / Page 2
(Continued)

Consulting Engineer - Prepared class and time-differentiated cost-of-service studies, revenue requirements Schedules, and expert testimony for formal rate proceedings before regulatory agencies. Performed forecasted ten-year cost-of-service studies by customer classes. Analyzed and prepared transmission (wheeling) rates based on cost-of-service.

Engineer - Derived system demand and energy loss factors and customer load characteristics required for cost-of-service results and related rate schedules.

- 1975 - 1976 **WESTINGHOUSE ELECTRIC CORPORATION**, Pittsburgh, PA
Responsible for the procurement of electrical/electronic control equipment and power cables for the nuclear reactor control system. Assisted in the development of procedures for the seismic testing of various electronic equipment related to reactor control.
- 1971 - 1974 **NEW ENGLAND ELECTRIC SYSTEM**, Westborough, Massachusetts
Experience from various system assignments in conjunction with formal education. Assigned to the Transmission and Distribution Department with responsibilities in several voltage conversion efforts and system planning. Development of network modeling techniques, load flow, and fault study analyses for the system planning department.
- 1966 - 1970 **U.S. NAVY**
Aviation electronic technician with responsibilities for maintenance and trouble-shooting of electronic communication equipment.

EDUCATION:

B.S.E.E., Electrical Engineering, Northeastern University, 1975
M.S.E.E., Electrical Power Systems, Northeastern University, 1975

Graduate Studies - MBA Program, Lehigh University and Albright College,
1977 to 1980

SOCIETIES:

Institute of Electrical and Electronic Engineers

PAUL M. NORMAND / Page 3
(Continued)

APPEARANCES AS EXPERT WITNESS:

Federal Energy Regulatory Commission
Arkansas Public Service Commission
Delaware Public Service Commission
Indiana Utility Regulatory Commission
Illinois Commerce Commission
Kansas Corporation Commission
Kentucky Public Service Commission
Louisiana Public Service Commission
Maine Public Utilities Commission
Maryland Public Service Commission
Massachusetts Department of Public Utilities
Missouri Public Service Commission
New Hampshire Public Utilities Commission
New Jersey Board of Public Utilities
New York Public Service Commission
North Carolina Utilities Commission
Ohio Public Utilities Commission
Pennsylvania Public Utility Commission
Rhode Island Public Utilities Commission
Texas Public Utilities Commission

PAPERS AND PRESENTATIONS:

“Probability of Dispatch Costing Method for Electric Utility Cost-of-Service Analysis.” Co-authored with P. S. Hurley, presented to Edison Electric Institute Rate Research Committee May 4, 1982.

“Costing Strategies under Changing Marketing Goals and Long Term Investment Growth.” Presented to Missouri Valley Electric Association (MVEA), Kansas City, MO, November 13, 1991.

Schedule DLG/PMN-1G-2

Pages 1 – 4

**– Total Company Cost of Service Study
(Reference Workpapers for Detailed Cost
Allocation)**

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
SUMMARY OF RESULTS-1				
RATE BASE				
1 GAS PLANT IN SERVICE		212,059,660	93,490,278	3,943,147
2 LESS: DEPREC & AMORT RES		67,148,218	31,046,992	1,382,940
3 NET UTILITY PLANT IN SERVICE		144,911,442	62,443,287	2,560,207
ADD:				
4 WORKING CASH REQUIREMENT		1,387,963	716,350	28,771
5 MATERIALS & SUPPLIES		2,421,808	1,053,597	44,353
6 PREPAYMENTS		0	0	0
DEDUCT:				
7 CUSTOMER DEPOSITS		430,588	79,268	4,156
8 CUSTOMER ADVANCES		0	0	0
9 DEFERRED TAXES		16,798,824	7,366,244	308,849
10 RATE BASE		131,491,801	56,767,721	2,320,327
DEVELOPMENT OF RETURN				
11 SALES OF GAS TO ULTIMATE CUST		55,234,662	26,159,490	593,352
12 OTHER OPERATING REVENUES		979,079	323,900	12,835
13 TOTAL GAS OPERATING REVENUES		56,213,741	26,483,390	606,187
LESS:				
14 PURCHASED GAS COSTS		20,951,307	9,655,623	125,522
15 OTHER OPER & MAINT EXPENSE		12,909,475	6,418,177	299,554
16 DEPRECIATION AND AMORTIZATION EXPENSE		7,420,524	3,484,709	157,364
17 OTHER TAXES		4,467,456	1,977,634	83,846
18 INCOME TAXES		2,402,684	2,045,782	17,384
19 INTEREST ON CUSTOMER DEPOSITS		13,346	2,457	129
20 TOTAL OPERATING EXPENSE		48,164,792	23,584,382	683,799
21 NET OPERATING INCOME		8,048,949	2,899,008	(77,612)
22 RATE OF RETURN		6.12%	5.11%	-3.34%
23 RELATIVE RATE OF RETURN		1.000	0.834	-0.546

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
SUMMARY OF RESULTS-1							
RATE BASE							
1	GAS PLANT IN SERVICE	33,907,972	5,077,961	29,346,331	8,651,285	12,516,303	25,126,381
2	LESS: DEPREC & AMORT RES	10,770,643	1,640,702	8,723,262	2,607,793	3,667,701	7,308,184
3	NET UTILITY PLANT IN SERVICE	23,137,329	3,437,260	20,623,069	6,043,491	8,848,602	17,818,197
ADD:							
4	WORKING CASH REQUIREMENT	244,791	39,716	166,597	49,695	56,130	85,914
5	MATERIALS & SUPPLIES	384,408	58,249	338,594	100,667	145,810	296,130
6	PREPAYMENTS	0	0	0	0	0	0
DEDUCT:							
7	CUSTOMER DEPOSITS	143,967	32,651	112,209	58,338	0	0
8	CUSTOMER ADVANCES	0	0	0	0	0	0
9	DEFERRED TAXES	2,677,242	400,399	2,336,283	687,087	1,003,185	2,019,535
10	RATE BASE	20,945,320	3,102,174	18,679,768	5,448,428	8,047,357	16,180,705
DEVELOPMENT OF RETURN							
11	SALES OF GAS TO ULTIMATE CUST	10,515,195	1,680,688	8,325,713	2,324,704	2,754,921	2,880,601
12	OTHER OPERATING REVENUES	360,512	57,444	84,825	26,822	37,646	75,095
13	TOTAL GAS OPERATING REVENUES	10,875,707	1,738,132	8,410,538	2,351,526	2,792,566	2,955,696
LESS:							
14	PURCHASED GAS COSTS	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
15	OTHER OPER & MAINT EXPENSE	2,215,426	339,152	1,576,973	488,343	558,264	1,013,585
16	DEPRECIATION AND AMORTIZATION EXPENSE	1,193,628	182,097	944,444	282,975	393,340	781,965
17	OTHER TAXES	716,329	107,396	615,820	181,936	261,215	523,280
18	INCOME TAXES	595,336	133,892	140,742	16,923	(63,385)	(483,990)
19	INTEREST ON CUSTOMER DEPOSITS	4,462	1,012	3,478	1,808	0	0
20	TOTAL OPERATING EXPENSE	9,332,900	1,454,776	6,908,588	1,985,730	2,157,205	2,057,413
21	NET OPERATING INCOME	1,542,807	283,356	1,501,949	365,795	635,362	898,284
22	RATE OF RETURN	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
23	RELATIVE RATE OF RETURN	1.203	1.492	1.314	1.097	1.290	0.907

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
REVENUE REQUIREMENTS-22				
PRESENT RATES				
1 RATE BASE		131,491,801	56,767,721	2,320,327
2 NET OPER INC (PRESENT RATES)		8,048,949	2,899,008	(77,612)
3 RATE OF RETURN (PRES RATES)		6.12%	5.11%	-3.34%
4 RELATIVE RATE OF RETURN		1.000	0.834	-0.546
5 SALES REVENUE (PRE RATES)		54,051,875	25,844,412	589,604
6 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
7 SALE REV \$/CCF (PRE RATES)		\$0.7732	\$1.4921	\$2.4662
CLAIMED RATE OF RETURN				
8 CLAIMED RATE OF RETURN		8.30%	8.30%	8.30%
9 RETURN REQ FOR CLAIMED ROR		10,913,819	4,711,721	192,587
10 SALES REVENUE REQ CLAIMED ROR		58,780,320	28,836,279	1,035,566
11 REVENUE DEFICIENCY SALES REV		4,728,445	2,991,867	445,962
12 PERCENT INCREASE REQUIRED		8.75%	11.58%	75.64%
13 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
14 SALES REV REQUIRED \$/CCF		\$0.8408	\$1.6648	\$4.3316
15 REVENUE DEFICIENCY \$/CCF		\$0.0676	\$0.1727	\$1.8654
PROPOSED REVENUES				
16 PROPOSED SALES REVENUES		58,780,320	28,836,279	1,035,566
17 REVENUE DEFICIENCY SALES REV		4,728,445	2,991,867	445,962
18 PERCENT INCREASE PROPOSED		8.75%	11.58%	75.64%
19 PROPOSED RATE OF RETURN		8.30%	8.30%	8.30%
20 RETURN REQ FOR PROPOSED REV		10,913,819	4,711,721	192,587
21 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
22 SALES REV REQUIRED \$/CCF		\$0.8408	\$1.6648	\$4.3316
23 REVENUE DEFICIENCY \$/CCF		\$0.0676	\$0.1727	\$1.8654

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
REVENUE REQUIREMENTS-22							
PRESENT RATES							
1	RATE BASE	20,945,320	3,102,174	18,679,768	5,448,428	8,047,357	16,180,705
2	NET OPER INC (PRESENT RATES)	1,542,807	283,356	1,501,949	365,795	635,362	898,284
3	RATE OF RETURN (PRES RATES)	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
4	RELATIVE RATE OF RETURN	1.203	1.492	1.314	1.097	1.290	0.907
5	SALES REVENUE (PRE RATES)	10,339,903	1,656,200	8,087,564	2,257,615	2,639,790	2,636,787
6	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
7	SALE REV \$/CCF (PRE RATES)	\$1.1072	\$0.9854	\$0.6150	\$0.5037	\$0.3906	\$0.1557
CLAIMED RATE OF RETURN							
8	CLAIMED RATE OF RETURN	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
9	RETURN REQ FOR CLAIMED ROR	1,738,462	257,480	1,550,421	452,220	667,931	1,342,999
10	SALES REVENUE REQ CLAIMED ROR	10,662,829	1,613,493	8,167,565	2,400,257	2,693,545	3,370,785
11	REVENUE DEFICIENCY SALES REV	322,926	(42,707)	80,002	142,643	53,755	733,998
12	PERCENT INCREASE REQUIRED	3.12%	-2.58%	0.99%	6.32%	2.04%	27.84%
13	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
14	SALES REV REQUIRED \$/CCF	\$1.1418	\$0.9600	\$0.6211	\$0.5355	\$0.3986	\$0.1990
15	REVENUE DEFICIENCY \$/CCF	\$0.0346	-\$0.0254	\$0.0061	\$0.0318	\$0.0080	\$0.0433
PROPOSED REVENUES							
16	PROPOSED SALES REVENUES	10,662,829	1,613,493	8,167,565	2,400,257	2,693,545	3,370,785
17	REVENUE DEFICIENCY SALES REV	322,926	(42,707)	80,002	142,643	53,755	733,998
18	PERCENT INCREASE PROPOSED	3.12%	-2.58%	0.99%	6.32%	2.04%	27.84%
19	PROPOSED RATE OF RETURN	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
20	RETURN REQ FOR PROPOSED REV	1,738,462	257,480	1,550,421	452,220	667,931	1,342,999
21	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
22	SALES REV REQUIRED \$/CCF	\$1.1418	\$0.9600	\$0.6211	\$0.5355	\$0.3986	\$0.1990
23	REVENUE DEFICIENCY \$/CCF	\$0.0346	-\$0.0254	\$0.0061	\$0.0318	\$0.0080	\$0.0433

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Pages 5 and 6 – Detailed Revenue Reconciliation

NORTHERN - NEW HAMPSHIRE
Summary of Cost Study Results
Derivation of Base Rate Increase

TOTAL
COMPANY
(1)-1

REVENUES FROM GAS SALES		
1	REVENUES FIRM SALES OF GAS	TOTAL LINE 2 TO 12
2	WEATHER ADJ NET REV SALES	54,051,875
3	WEATHER ADJ NET REV TRANS	732,954
4	CGA REVENUES	164,445
5	BASE REVENUE SALES	20,951,307
6	BASE REVENUE EXTERNAL SUPPLY	24,162,798
7	PRODUCTION REVENUES	6,532,260
8	CGA BAD DEBT CHARGES	938,029
9	LOW INCOME DISCOUNT	129,165
10	CGA BAD DEBT CHARGES FROM INCR	366,440
11	ANNUALIZATION ADJUSTMENT	74,476
12	PRODUCTION REVENUE ADJUSTMENT	0
		0

DELIVERY SERVICE

13	Total Delivery Service Revenue Requirements	36,378,086
14	Less: Present Rate Revenues Lines 2,3,5,6,9 & 11	31,958,897
15		
16	Increase Delivery Service	<u>4,419,189</u>

PRODUCTION COMPONENT

17	Production Component Revenues Requirements	22,402,234
18	Less: Direct Gas Costs	20,951,307
19	Less: Production Bad Debt Expense	203,641
20	Total Indirect for Rate Design	<u>1,247,286</u>
21	Less: Present CGA Revenues in COS - Lines 7 & 12	<u>938,029</u>
22	Increase Production Revenues	<u>309,256</u>

COMPONENTS OF INDIRECT GAS COSTS

23	LNG & LPG Excluding Bad Debts	543,041
24	Dispatching & Acquisition	242,838
25	Other A&G and Miscellaneous	461,407
26	Total Indirect Gas Costs	<u>1,247,286</u>

TOTAL INCREASE DELIVERY & PRODUCTION

27	Increase Production Revenues	309,256
28	Increase Delivery Service Revenues	4,419,189
29	Total Increase	<u>4,728,445</u>

NORTHERN - NEW HAMPSHIRE
Summary of Cost Study Results
Derivation of Base Rate & Production Increase
12 MONTHS ENDED DECEMBER 31, 2012

		TOTAL COMPANY	BASE REVENUES	PRODUCTION REVENUES	
<u>Present Revenues</u>					
<u>Base Revenues</u>					
1	Base Revenues Sales	24,162,798	24,162,798		
2	Base Revenues External Supply	6,532,260	6,532,260		
3	Weather Adjustment Net Revenues	897,399	897,399		
4	Annualization Adjustment	0	0		
5	Low Income Discount	366,440	366,440		
6	Total Base Revenues	31,958,897	31,958,897	0	
<u>Production Revenues</u>					
7	CGA Revenues	20,951,307		20,951,307	Revenue & Expense added to COS
8	Production Revenues	938,029		938,029	
9	CGA Bad Debt Revenues	203,641		203,641	Revenue & Expense added to COS
10	Total Production Revenues	22,092,978	0	22,092,978	
11	Total Present Revenues for Rates	54,051,875	31,958,897	22,092,978	Line 6 & 10
12	Plus: Other Operating Revenues	2,161,866	2,119,042	42,825	
13	Total Present Operating Revenues	56,213,741	34,077,939	22,135,802	Line 11 & 12
14	Present Revenues per Revenue Req	35,058,793	34,077,939	980,854	Line 13 Less 7 & 9 Schedule RevReq-2 Page 2 of 2 Line 3
<u>Proposed Revenues</u>					
15	Total Present Revenues for Rates	54,051,875	31,958,897	22,092,978	Line 11
16	Rate Increase	4,728,445	4,419,189	309,256	
17	Revenue Requirements per COS	58,780,320	36,378,086	22,402,234	Line 15 & 16 Include CGA Gas Costs & CGA Bad Debts
18	Less: CGA Revenues	20,951,307	0	20,951,307	Line 7
19	Less: CGA Bad Debt Revenues	203,641	0	203,641	Line 9
20	Plus: Other Operating Revenues	2,161,866	2,119,042	42,825	Line 12
21	Proposed Revenues per Revenue Req	39,787,238	38,497,128	1,290,110	Schedule RevReq-2 Page 2 of 2 Line 3
<u>Base Rate Increase</u>					
22	Base Rate Revenue Requirements per COS	36,378,086	36,378,086		Line 17
23	Less: Present Base Rate Revenues	31,958,897	31,958,897		Line 11
24	Base Rate Increase	4,419,189	4,419,189		Line 22 Less 23
<u>Production Rate Increase</u>					
25	Production Revenue Requirements per COS	22,402,234		22,402,234	Line 17 Include CGA Gas Costs & CGA Bad Debts
26	Less: Present Production Revenues	22,092,978		22,092,978	Line 11
27	Production Revenue Increase	309,256		309,256	Line 25 Less 26
28	Total Increase	4,728,445	4,419,189	309,256	Line 24 & 27 Schedule RevReq-2 Page 2 of 2 Line 3
<u>Indirect Production Rev Requirement</u>					
29	Production Revenue Requirements per COS	22,402,234		22,402,234	Line 17 Include CGA Gas Costs & CGA Bad Debts
30	Less: CGA Revenue	20,951,307		20,951,307	Line 7
31	Less: CGA Bad Debt Revenue	203,641		203,641	Line 9
32	Total Indirect Production Rev Req	1,247,286		1,247,286	

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Pages 7 and 8 – Unbundled Total Class Revenue Requirements

NORTHERN - NEW HAMPSHIRE
Summary of Cost Study Results
Revenues Requirements

Acct 904

Acct 904

Line No. (1)	Rate Class			Sales Annual THERMS (5)	Transportation THERMS (6)	Gas Supply Revenue Reqmt (ACS)					Total Net Rev Items (12) =(9)-(10)-(11)	Allocated Costs of Net Revenue Items				
	Size (2)	Load Factor (3)	Rate Class (4)			Production Capacity (7) from COSS	Commodity (8) from COSS	Total Gas Supply (9) =(6)+(7)	Direct Gas Costs (10) from COSS	Production Bad Debts (11) from COSS		LP & LNG (13) from COSS	Dispatching & Acq Costs (14) from COSS	Other (15) from COSS	Other A&G and Misc. (16) =(17)-(13)-(14)-(15)	Total Net Rev Items (17) =(12)
1	Resi Ht	Low	R5&R10	17,320,928	0	\$257,234	\$10,062,371	10,319,605	9,655,623	94,847	569,135	257,234	\$111,914	\$0	199,986	569,135
2	Resi No-Ht	High	R6&R11	239,073	0	1,584	130,630	132,214	125,522	1,084	5,608	1,584	1,455	0	2,570	5,608
3	Low C&I	Low	G-40	7,920,404	1,418,408	132,194	4,812,161	4,944,355	4,607,719	45,889	290,747	132,194	53,406	0	105,147	290,747
4	Low C&I	High	G-50	1,430,830	249,975	3,968	721,112	725,081	691,226	6,028	27,826	3,968	8,012	0	15,846	27,826
5	Med C&I	Low	G-41	6,394,039	6,755,474	104,167	3,790,093	3,894,259	3,627,131	35,067	232,062	104,167	42,041	0	85,854	232,062
6	Med C&I	High	G-51	2,102,482	2,379,766	10,986	1,057,239	1,068,225	1,013,744	9,116	45,365	10,986	11,750	0	22,629	45,365
7	High C&I	Low	G-42	1,742,565	5,015,519	26,987	1,053,009	1,079,995	1,007,770	9,484	62,742	26,987	11,681	0	24,074	62,742
8	High C&I	High	G-52	440,337	16,498,426	5,921	232,579	238,499	222,573	2,126	13,801	5,921	2,580	0	5,300	13,801
9																
10																
11																
12	Total			37,590,657	32,317,568	543,041	21,859,193	22,402,234	20,951,307	203,641	1,247,286	543,041	242,838	0	461,407	1,247,286

Indirect Unit Cost per Sales Volum \$0.0332
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NORTHERN - NEW HAMPSHIRE

NORTHERN - NEW HAMPSHIRE
Summary of Cost Study Results
Revenues Requirements

Comparison of Revenue Requirements

Line No.	Rate Class			Gas Costs for New Rates		Net Revenues in Base Rates				Total Revenues		Base Rate Impact	Rate Base	Base Rate Increase
	Size	Load Factor	Rate Class	Test Year Gas Revenues	Gas Supply Costs to Serve	Present Base Revenues	COSS Target Base Cust Rev	COSS Target Base Dem&Uncoll	COSS Target Rev @ EROR	Total Present Revenues	COSS Target Total Revenues			
(1)	(2)	(3)	(4)	(18) Present Revs	(19) =(10)+(17)	(20) from COSS	(21) from COSS	(22) from COSS	(23) =(21)+(22)	(24) =(18)+(20)	(25) =(19)+(21)+(22)	(26) =(23)/(20)-1	(27) from COSS	(28) =(23)-(20)
1	Resi Ht	Low	R5&R10	10,184,302	\$10,319,605	15,660,110	\$14,594,735	\$3,921,940	18,516,675	25,844,412	28,836,279	18.2%	56,767,721	2,856,565
2	Resi No-Ht	High	R6&R11	132,214	132,214	457,390	846,713	56,639	903,352	589,604	1,035,566	97.5%	2,320,327	445,962
3	Low C&I	Low	G-40	4,857,238	4,944,355	5,482,665	3,665,640	2,052,834	5,718,474	10,339,903	10,662,829	4.3%	20,945,320	235,809
4	Low C&I	High	G-50	729,990	725,081	926,210	599,627	288,785	888,412	1,656,200	1,613,493	-4.1%	3,102,174	-37,798
5	Med C&I	Low	G-41	3,822,109	3,894,259	4,265,455	1,526,269	2,747,037	4,273,306	8,087,564	8,167,565	0.2%	18,679,768	7,851
6	Med C&I	High	G-51	1,070,753	1,068,225	1,186,862	561,191	770,842	1,332,032	2,257,615	2,400,257	12.2%	5,448,428	145,170
7	High C&I	Low	G-42	1,061,047	1,079,995	1,578,743	293,006	1,320,544	1,613,549	2,639,790	2,693,545	2.2%	8,047,357	34,806
8	High C&I	High	G-52	235,325	238,499	2,401,462	346,860	2,785,426	3,132,286	2,636,787	3,370,785	30.4%	16,180,705	730,824
9														
10														
11														
12	Total			22,092,978	22,402,234	31,958,897	22,434,040	13,944,046	36,378,086	54,051,875	58,780,320	13.8%	131,491,801	4,419,189

Schedule DLG/PMN-1G-3

Total Delivery Only Cost of Service Study

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE				
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
SUMMARY OF RESULTS-1				
RATE BASE				
1 GAS PLANT IN SERVICE		209,378,101	92,220,244	3,934,807
2 LESS: DEPREC & AMORT RES		66,598,595	30,787,733	1,380,993
3 NET UTILITY PLANT IN SERVICE		142,779,506	61,432,511	2,553,814
ADD:				
4 WORKING CASH REQUIREMENT		1,318,416	684,703	28,449
5 MATERIALS & SUPPLIES		2,421,808	1,053,597	44,353
6 PREPAYMENTS		0	0	0
DEDUCT:				
7 CUSTOMER DEPOSITS		430,588	79,268	4,156
8 CUSTOMER ADVANCES		0	0	0
9 DEFERRED TAXES		16,618,127	7,280,300	308,374
10 RATE BASE		129,471,015	55,811,242	2,314,086
DEVELOPMENT OF RETURN				
11 SALES OF GAS TO ULTIMATE CUST		32,895,803	15,890,295	462,337
12 OTHER OPERATING REVENUES		936,254	295,097	12,495
13 TOTAL GAS OPERATING REVENUES		33,832,058	16,185,392	474,832
LESS:				
14 PURCHASED GAS COSTS		0	0	0
15 OTHER OPER & MAINT EXPENSE		12,123,003	6,052,820	295,443
16 DEPRECIATION AND AMORTIZATION EXPENSE		7,354,128	3,453,416	157,123
17 OTHER TAXES		4,405,773	1,948,487	83,639
18 INCOME TAXES		2,016,185	1,878,049	15,901
19 INTEREST ON CUSTOMER DEPOSITS		13,346	2,457	129
20 TOTAL OPERATING EXPENSE		25,912,436	13,335,229	552,235
21 NET OPERATING INCOME		7,919,621	2,850,163	(77,404)
22 RATE OF RETURN		6.12%	5.11%	-3.34%
23 RELATIVE RATE OF RETURN		1.000	0.835	-0.547

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE							
	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
SUMMARY OF RESULTS-1							
RATE BASE							
1	GAS PLANT IN SERVICE	33,259,538	5,054,248	28,835,930	8,592,518	12,383,582	25,097,235
2	LESS: DEPREC & AMORT RES	10,639,544	1,633,848	8,620,069	2,593,564	3,640,613	7,302,230
3	NET UTILITY PLANT IN SERVICE	22,619,994	3,420,400	20,215,860	5,998,954	8,742,969	17,795,004
ADD:							
4	WORKING CASH REQUIREMENT	228,731	37,952	153,815	46,933	52,665	85,169
5	MATERIALS & SUPPLIES	384,408	58,249	338,594	100,667	145,810	296,130
6	PREPAYMENTS	0	0	0	0	0	0
DEDUCT:							
7	CUSTOMER DEPOSITS	143,967	32,651	112,209	58,338	0	0
8	CUSTOMER ADVANCES	0	0	0	0	0	0
9	DEFERRED TAXES	2,632,887	399,550	2,301,324	683,948	994,182	2,017,562
10	RATE BASE	20,456,278	3,084,400	18,294,738	5,404,269	7,947,262	16,158,741
DEVELOPMENT OF RETURN							
11	SALES OF GAS TO ULTIMATE CUST	5,578,379	955,363	4,433,102	1,257,635	1,675,594	2,643,098
12	OTHER OPERATING REVENUES	353,240	56,716	81,562	25,241	36,977	74,926
13	TOTAL GAS OPERATING REVENUES	5,931,619	1,012,079	4,514,664	1,282,876	1,712,571	2,718,025
LESS:							
14	PURCHASED GAS COSTS	0	0	0	0	0	0
15	OTHER OPER & MAINT EXPENSE	2,037,799	317,761	1,438,182	455,269	520,505	1,005,224
16	DEPRECIATION AND AMORTIZATION EXPENSE	1,177,836	181,220	932,013	281,202	390,071	781,246
17	OTHER TAXES	701,528	106,724	604,170	180,446	258,169	522,610
18	INCOME TAXES	503,209	123,629	65,830	1,320	(83,632)	(488,121)
19	INTEREST ON CUSTOMER DEPOSITS	4,462	1,012	3,478	1,808	0	0
20	TOTAL OPERATING EXPENSE	4,424,834	730,346	3,043,674	920,046	1,085,112	1,820,960
21	NET OPERATING INCOME	1,506,785	281,732	1,470,991	362,830	627,459	897,064
22	RATE OF RETURN	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
23	RELATIVE RATE OF RETURN	1.204	1.493	1.314	1.098	1.291	0.908

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE-2					
GAS PLANT IN SERVICE					
INTANGIBLE PLANT					
1	303.2-INTANGIBLE SOFTWARE - 10YR	LABOR	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	LABOR	3,397,935	1,646,933	79,742
3	TOTAL INTANGIBLE PLANT		3,397,935	1,646,933	79,742
PRODUCTION PLANT					
4	304-LAND	DEMLPG	0	0	0
5	305-STRUCTURES	DEMLPG	0	0	0
6	310-LAND & LAND RIGHTS	DEMLPG	0	0	0
7	311-LPG GAS EQUIPMENT	DEMLPG	0	0	0
8	320-OTHER EQUIPMENT	DEMLPG	0	0	0
9	321-LNG EQUIPMENT	DEMLPG	0	0	0
10	TOTAL PRODUCTION PLANT		0	0	0
OTHER STORAGE PLANT					
11	360-LAND	DEMLNG	0	0	0
12	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0
13	362-GAS HOLDERS	DEMLPG	0	0	0
14	363-PURIFICATION EQUIPMENT	DEMLPG	0	0	0
15	TOTAL OTHER STORAGE PLANT		0	0	0
16	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE-2								
GAS PLANT IN SERVICE								
INTANGIBLE PLANT								
1	303.2-INTANGIBLE SOFTWARE - 10YR	LABOR	0	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	LABOR	571,336	89,031	418,915	132,669	155,547	303,762
3	TOTAL INTANGIBLE PLANT		571,336	89,031	418,915	132,669	155,547	303,762
PRODUCTION PLANT								
4	304-LAND	DEMLPG	0	0	0	0	0	0
5	305-STRUCTURES	DEMLPG	0	0	0	0	0	0
6	310-LAND & LAND RIGHTS	DEMLPG	0	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	DEMLPG	0	0	0	0	0	0
8	320-OTHER EQUIPMENT	DEMLPG	0	0	0	0	0	0
9	321-LNG EQUIPMENT	DEMLPG	0	0	0	0	0	0
10	TOTAL PRODUCTION PLANT		0	0	0	0	0	0
OTHER STORAGE PLANT								
11	360-LAND	DEMLNG	0	0	0	0	0	0
12	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0	0	0	0
13	362-GAS HOLDERS	DEMLPG	0	0	0	0	0	0
14	363-PURIFICATION EQUIPMENT	DEMLPG	0	0	0	0	0	0
15	TOTAL OTHER STORAGE PLANT		0	0	0	0	0	0
16	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-3					
DISTRIBUTION PLANT					
1	374.4-LAND RIGHTS	DISTOTH	89,111	23,738	282
2	374.5-RIGHT OF WAY	DISTRMAIN	17,911	4,771	57
3	375-STRUCTURES & IMPROVE	DISTR	2,910,194	775,235	9,220
4	376-MAINS	DISTRMAIN	106,849,866	28,463,298	338,537
5	378-MEAS & REG STATION EQ	DISTR	3,445,431	917,814	10,916
6	379-MEAS & REG CITY GATE	DISTR	39,266	10,460	124
7	380-SERVICES	CUST380	60,250,315	42,480,267	2,487,389
8	381-METERS	CUST3813	3,913,705	2,204,145	129,061
9	382-METER INSTALLATION	CUST3813	19,938,729	11,229,221	657,516
10	383-HOUSE REGULATORS	CUST3813	537,766	302,862	17,734
11	386-CONV BURNERS & WAT HEATER	CUST386	1,637,356	436,169	5,188
12	TOTAL DISTRIBUTION PLANT		199,629,651	86,847,981	3,656,025
GENERAL & COMMON PLANT					
13	389.1-LAND	LABOR	223,561	108,357	5,247
14	391-OFFICE EQUIPMENT	LABOR	403,221	195,436	9,463
15	392-TRANSPORTATION EQUIP	LABOR	0	0	0
16	393-STORES EQUIPMENT	DISTRPLT	31,520	13,713	577
17	394-TOOLS, SHOP & GARAGE EQ	DISTRPLT	1,173,029	510,321	21,483
18	396-POWER OPERATED EQUIP	DISTRPLT	75,266	32,744	1,378
19	397-COMMUNICATION EQUIP	LABOR	1,394,632	675,959	32,729
20	397-COMM EQ METSCAN - TELEMET	CUST397M	112,656	0	0
21	397-COMM EQ - ERT AUTO RDG DEV-G	CUST397I	2,936,629	2,188,800	128,163
22	TOT GENERAL & COMMON PLT		6,350,516	3,725,330	199,040
23	TOTAL GAS PLANT IN SERVICE		209,378,101	92,220,244	3,934,807

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-3								
DISTRIBUTION PLANT								
1	374.4-LAND RIGHTS	DISTOTH	13,206	1,845	17,942	5,054	8,674	18,369
2	374.5-RIGHT OF WAY	DISTRMAIN	2,654	371	3,606	1,016	1,743	3,692
3	375-STRUCTURES & IMPROVE	DISTR	431,296	60,251	585,955	165,069	283,274	599,894
4	376-MAINS	DISTRMAIN	15,835,343	2,212,176	21,513,751	6,060,627	10,400,593	22,025,541
5	378-MEAS & REG STATION EQ	DISTR	510,619	71,333	693,722	195,428	335,373	710,225
6	379-MEAS & REG CITY GATE	DISTR	5,819	813	7,906	2,227	3,822	8,094
7	380-SERVICES	CUST380	10,033,733	1,658,527	2,109,398	787,280	373,927	319,795
8	381-METERS	CUST3813	739,959	122,312	424,962	158,606	72,583	62,076
9	382-METER INSTALLATION	CUST3813	3,769,788	623,128	2,165,009	808,035	369,782	316,250
10	383-HOUSE REGULATORS	CUST3813	101,675	16,806	58,392	21,793	9,973	8,530
11	386-CONV BURNERS & WAT HEATER	CUST386	242,659	33,899	329,675	92,872	159,378	337,517
12	TOTAL DISTRIBUTION PLANT		31,686,752	4,801,461	27,910,318	8,298,009	12,019,122	24,409,983
GENERAL & COMMON PLANT								
13	389.1-LAND	LABOR	37,590	5,858	27,562	8,729	10,234	19,985
14	391-OFFICE EQUIPMENT	LABOR	67,798	10,565	49,711	15,743	18,458	36,046
15	392-TRANSPORTATION EQUIP	LABOR	0	0	0	0	0	0
16	393-STORES EQUIPMENT	DISTRPLT	5,003	758	4,407	1,310	1,898	3,854
17	394-TOOLS, SHOP & GARAGE EQ	DISTRPLT	186,192	28,214	164,002	48,759	70,625	143,434
18	396-POWER OPERATED EQUIP	DISTRPLT	11,947	1,810	10,523	3,129	4,532	9,203
19	397-COMMUNICATION EQUIP	LABOR	234,497	36,541	171,937	54,452	63,842	124,674
20	397-COMM EQ METSCAN - TELEMET	CUST397M	1,587	4,760	15,867	6,347	38,081	46,015
21	397-COMM EQ - ERT AUTO RDG DEV-G	CUST397I	456,836	75,250	62,688	23,372	1,243	278
22	TOT GENERAL & COMMON PLT		1,001,450	163,756	506,697	161,841	208,912	383,490
23	TOTAL GAS PLANT IN SERVICE		33,259,538	5,054,248	28,835,930	8,592,518	12,383,582	25,097,235

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF RATE BASE CON'T-4					
DEPRECIATION & AMORTIZATION RESERVE					
INTANGIBLE PLANT RESERVE					
1	303.2-INTANGIBLE SOFTWARE - 10YR	PLT303.2	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	PLT303.3	2,488,916	1,206,344	58,410
3	TOT INTANGIBLE PLT RESERVE		2,488,916	1,206,344	58,410
PRODUCTION PLANT RESERVE					
4	305-STRUCTURES	PLT305	0	0	0
5	311-LPG GAS EQUIPMENT	PLT311	0	0	0
6	320-OTHER EQUIPMENT	PLT320	0	0	0
7	321-LNG EQUIPMENT	PLT321	0	0	0
8	TOTAL PRODUCTION RESERVE		0	0	0
9	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	0	0	0
OTHER STORAGE PLANT					
10	361-STRUCTURES & IMPROVE	PLT361	0	0	0
11	362-GAS HOLDERS	PLT362	0	0	0
12	363-PURIFICATION EQUIPMENT	PLT363	0	0	0
13	TOTAL OTHER STORAGE PLANT		0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-4								
DEPRECIATION & AMORTIZATION RESERVE								
INTANGIBLE PLANT RESERVE								
1	303.2-INTANGIBLE SOFTWARE - 10YR	PLT303.2	0	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	PLT303.3	418,492	65,213	306,846	97,177	113,935	222,499
3	TOT INTANGIBLE PLT RESERVE		418,492	65,213	306,846	97,177	113,935	222,499
PRODUCTION PLANT RESERVE								
4	305-STRUCTURES	PLT305	0	0	0	0	0	0
5	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0	0
6	320-OTHER EQUIPMENT	PLT320	0	0	0	0	0	0
7	321-LNG EQUIPMENT	PLT321	0	0	0	0	0	0
8	TOTAL PRODUCTION RESERVE		0	0	0	0	0	0
9	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	0	0	0	0	0	0
OTHER STORAGE PLANT								
10	361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0	0
11	362-GAS HOLDERS	PLT362	0	0	0	0	0	0
12	363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0	0
13	TOTAL OTHER STORAGE PLANT		0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-5					
DISTRIBUTION PLANT RESERVE					
1	375-STRUCTURES & IMPROVE	PLT375	742,822	197,877	2,354
2	376-MAINS	PLT376	29,105,074	7,753,181	92,215
3	378-MEAS & REG STATION EQ	PLT378	707,635	188,504	2,242
4	379-MEAS & REG CITY GATE	PLT379	1,589	423	5
5	380-SERVICES	PLT380	19,892,215	14,025,265	821,235
6	381-METERS	PLT381	1,541,268	868,021	50,826
7	382-METER INSTALLATION	PLT382	5,924,107	3,336,377	195,358
8	383-HOUSE REGULATORS	PLT383	128,575	72,412	4,240
9	386-CONV BURNERS & WAT HEATER	PLT386	775,908	206,691	2,458
10	TOTAL DISTRIBUTION PLANT		58,819,193	26,648,751	1,170,933
GENERAL & COMMON PLT RESERVE					
11	391-OFFICE EQUIPMENT	PLT391	154,128	74,704	3,617
12	392-TRANSPORTATION EQUIP	PLT392	0	0	0
13	393-STORES EQUIPMENT	PLT393	31,511	13,709	577
14	394-TOOLS, SHOP & GARAGE EQ	PLT394	539,019	234,498	9,872
15	396-POWER OPERATED EQUIP	PLT396	69,923	30,420	1,281
16	397-COMMUNICATION EQUIP	PLT397	1,032,048	500,220	24,220
17	397-COMM EQ METSCAN - TELEMET	PLT397M	109,973	0	0
18	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	1,974,038	1,471,338	86,153
19	TOTAL GENERAL PLT RESERVE		3,910,640	2,324,887	125,719
20	PROFORMA ADJUSTMNTS - OTHER	PLANT	1,379,846	607,751	25,931
21	TOTAL DEPRECIATION RESERVE		66,598,595	30,787,733	1,380,993
22	NET UTILITY PLANT		142,779,506	61,432,511	2,553,814

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-5								
DISTRIBUTION PLANT RESERVE								
1	375-STRUCTURES & IMPROVE	PLT375	110,088	15,379	149,564	42,134	72,305	153,122
2	376-MAINS	PLT376	4,313,425	602,580	5,860,179	1,650,868	2,833,041	5,999,586
3	378-MEAS & REG STATION EQ	PLT378	104,873	14,651	142,479	40,138	68,880	145,869
4	379-MEAS & REG CITY GATE	PLT379	236	33	320	90	155	328
5	380-SERVICES	PLT380	3,312,732	547,579	696,438	259,928	123,455	105,583
6	381-METERS	PLT381	291,405	48,168	167,356	62,461	28,584	24,446
7	382-METER INSTALLATION	PLT382	1,120,063	185,141	643,258	240,080	109,868	93,963
8	383-HOUSE REGULATORS	PLT383	24,309	4,018	13,961	5,211	2,385	2,039
9	386-CONV BURNERS & WAT HEATER	PLT386	114,991	16,064	156,226	44,010	75,526	159,942
10	TOTAL DISTRIBUTION PLANT		9,392,121	1,433,612	7,829,780	2,344,919	3,314,199	6,684,878
GENERAL & COMMON PLT RESERVE								
11	391-OFFICE EQUIPMENT	PLT391	25,915	4,038	19,002	6,018	7,056	13,778
12	392-TRANSPORTATION EQUIP	PLT392	0	0	0	0	0	0
13	393-STORES EQUIPMENT	PLT393	5,002	758	4,406	1,310	1,897	3,853
14	394-TOOLS, SHOP & GARAGE EQ	PLT394	85,557	12,964	75,360	22,405	32,453	65,909
15	396-POWER OPERATED EQUIP	PLT396	11,099	1,682	9,776	2,906	4,210	8,550
16	397-COMMUNICATION EQUIP	PLT397	173,531	27,041	127,236	40,295	47,244	92,261
17	397-COMM EQ METSCAN - TELEMET	PLT397M	1,549	4,647	15,489	6,196	37,174	44,919
18	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	307,091	50,584	42,140	15,711	836	187
19	TOTAL GENERAL PLT RESERVE		609,743	101,714	293,408	94,841	130,869	229,457
20	PROFORMA ADJUSTMNTS - OTHER	PLANT	219,187	33,309	190,035	56,627	81,610	165,396
21	TOTAL DEPRECIATION RESERVE		10,639,544	1,633,848	8,620,069	2,593,564	3,640,613	7,302,230
22	NET UTILITY PLANT		22,619,994	3,420,400	20,215,860	5,998,954	8,742,969	17,795,004

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF RATE BASE CON'T-6					
ADDITIONS TO NET PLANT					
WORKING CAPITAL REQUIREMENTS					
CASH WORKING CAPITAL REQ					
1	PURCHASED GAS	0	0	0	
2	OTHER O&M & TAXES	WORKCASH 1,318,416	684,703	28,449	
3	TOTAL CASH WORKING CAP	1,318,416	684,703	28,449	
MATERIALS & SUPPLIES					
4	MATERIALS AND SUPPLIES	DISTRPLT 2,191,928	953,588	40,143	
5	STORES EXPENSE UNDISTRIBUTED	DISTRPLT 229,880	100,008	4,210	
6	TOTAL MATERIALS & SUPPLIES	2,421,808	1,053,597	44,353	
7	TOTAL WORKING CAPITAL	3,740,224	1,738,299	72,802	
PREPAYMENTS					
8	PREPAYMENTS - OTHER	PLANT 0	0	0	
9	PREPAYMENTS - PENSION	EXP926 0	0	0	
10	PREPAYMENTS - OPEB	EXP926 0	0	0	
11	TOTAL PREPAYMENTS	0	0	0	
12	TOTAL ADDITIONS TO NET PLT	3,740,224	1,738,299	72,802	

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
DEVELOPMENT OF RATE BASE CONT-6								
ADDITIONS TO NET PLANT								
WORKING CAPITAL REQUIREMENTS								
CASH WORKING CAPITAL REQ								
1	PURCHASED GAS		0	0	0	0	0	0
2	OTHER O&M & TAXES	WORKCASH	228,731	37,952	153,815	46,933	52,665	85,169
3	TOTAL CASH WORKING CAP		228,731	37,952	153,815	46,933	52,665	85,169
MATERIALS & SUPPLIES								
4	MATERIALS AND SUPPLIES	DISTRPLT	347,920	52,720	306,455	91,112	131,970	268,021
5	STORES EXPENSE UNDISTRIBUTED	DISTRPLT	36,488	5,529	32,140	9,555	13,840	28,109
6	TOTAL MATERIALS & SUPPLIES		384,408	58,249	338,594	100,667	145,810	296,130
7	TOTAL WORKING CAPITAL		613,139	96,201	492,410	147,600	198,475	381,298
PREPAYMENTS								
8	PREPAYMENTS - OTHER	PLANT	0	0	0	0	0	0
9	PREPAYMENTS - PENSION	EXP926	0	0	0	0	0	0
10	PREPAYMENTS - OPEB	EXP926	0	0	0	0	0	0
11	TOTAL PREPAYMENTS		0	0	0	0	0	0
12	TOTAL ADDITIONS TO NET PLT		613,139	96,201	492,410	147,600	198,475	381,298

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF RATE BASE CON'T-7					
DEDUCTIONS TO NET PLANT					
1	CUSTOMER DEPOSITS	CUSTDEP	430,588	79,268	4,156
2	CUSTOMER ADVANCES	PLT37680	0	0	0
ACCUM DEFERRED INCOME TAX					
4	ACCEL DEP & AMORT & SETT ADJ	PLANT	17,170,966	7,562,924	322,691
5	FAS 87 / 106	EXP926	(815,487)	(395,256)	(19,138)
6	BAD DEBT	EXP904	(10,657)	(8,818)	(408)
7	PREPAID PROPERTY TAXES	PLANT	222,428	97,968	4,180
8	DEFERRED RATE CASE COSTS	REVCLAIM	17,424	8,869	433
9	UNAMORT ITC (ACCT 255)	PLANT	35,841	15,786	674
10	ACCUM NON-CURRENT	PLANT	413	182	8
11	INSURANCE CLAIM	EXP9245	(2,801)	(1,355)	(65)
12	TOTAL ACCUM DEF INCOME TAX		16,618,127	7,280,300	308,374
13	TOTAL DEDUCTIONS TO NET PLT		17,048,715	7,359,568	312,530
14	TOTAL RATE BASE		129,471,015	55,811,242	2,314,086

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
DEVELOPMENT OF RATE BASE CON'T-7								
DEDUCTIONS TO NET PLANT								
1	CUSTOMER DEPOSITS	CUSTDEP	143,967	32,651	112,209	58,338	0	0
2	CUSTOMER ADVANCES	PLT37680	0	0	0	0	0	0
ACCUM DEFERRED INCOME TAX								
4	ACCEL DEP & AMORT & SETT ADJ	PLANT	2,727,594	414,496	2,364,816	704,667	1,015,570	2,058,208
5	FAS 87 / 106	EXP926	(137,118)	(21,367)	(100,537)	(31,840)	(37,331)	(72,901)
6	BAD DEBT	EXP904	(949)	(176)	(282)	(24)	0	0
7	PREPAID PROPERTY TAXES	PLANT	35,333	5,369	30,633	9,128	13,155	26,662
8	DEFERRED RATE CASE COSTS	REVCLAIM	2,740	426	2,047	638	773	1,500
9	UNAMORT ITC (ACCT 255)	PLANT	5,693	865	4,936	1,471	2,120	4,296
10	ACCUM NON-CURRENT	PLANT	66	10	57	17	24	49
11	INSURANCE CLAIM	EXP9245	(470)	(73)	(346)	(109)	(129)	(252)
12	TOTAL ACCUM DEF INCOME TAX		2,632,887	399,550	2,301,324	683,948	994,182	2,017,562
13	TOTAL DEDUCTIONS TO NET PLT		2,776,854	432,200	2,413,532	742,286	994,182	2,017,562
14	TOTAL RATE BASE		20,456,278	3,084,400	18,294,738	5,404,269	7,947,262	16,158,741

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
REVENUES-8					
GAS OPERATING REVENUES					
1	TOTAL FIRM SALES OF GAS				
2	SPECIAL CONTRACT REVENUES	DISTR			
3	TOTAL REVENUE SALES OF GAS				
		31,713,016	15,575,217	458,590	
		1,182,788	315,078	3,747	
		32,895,803	15,890,295	462,337	
OTHER OPERATING REVENUES					
487-LATE PAYMENT CHARGES					
4	RESIDENTIAL HEATING - R-5 & R-10	C488RH	48,490	0	
5	RESIDENTIAL NON-HTG- R-6 & R-11	C488RNH	2,192	2,192	
6	C&I SMALL - LLF G40	C488G40	0	0	
7	C&I SMALL - HLF G50	C488G50	0	0	
8	C&I MEDIUM - LLF G41	C488G41	0	0	
9	C&I MEDIUM - HLF G51	C488G51	0	0	
10	C&I LARGE - LLF G42	C488G42	0	0	
11	C&I LARGE - HLF G52	C488G52	0	0	
12	TOTAL ACCOUNT 487		48,490	2,192	
488-MISC SERVICE REVENUE					
13	RECONNECT FEE	CUST488R	82,238	4,844	
14	POOL ADMINISTRATION	CUSTTRAN	0	0	
15	3RD PARTY BILLING	CUSTTRAN	0	0	
16	CUSTOMER TELEMETERING	PLT397M	0	0	
17	WTR HTR & CONV BURN RENTAL	PLT386	70,805	842	
18	EQUIP PROTECTION PLAN-COMMERCIAL	PLT380C	0	0	
19	CLEAN & CHECK REVENUE	PLT3803	9,199	539	
20	GAS LINES - RESIDENTIAL	PLT380R	15,041	881	
21	TOTAL ACCOUNT 488		177,282	7,105	
495-OTHER GAS REVENUES					
22	RENTAL INCOME - GRANITE	GENPLT	1,655	76	
23	RENTAL INCOME - USC	GENPLT	67,669	3,121	
24	TOTAL OTHER REVENUES		69,324	3,198	
25	TOTAL OTHER OPERATING REV		295,097	12,495	
25	TOTAL GAS OPERATING REVENUE		33,832,058	474,832	

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
REVENUES-8								
GAS OPERATING REVENUES								
1	TOTAL FIRM SALES OF GAS		5,403,088	930,875	4,194,953	1,190,546	1,560,463	2,399,284
2	SPECIAL CONTRACT REVENUES	DISTR	175,291	24,488	238,149	67,089	115,131	243,814
3	TOTAL REVENUE SALES OF GAS		5,578,379	955,363	4,433,102	1,257,635	1,675,594	2,643,098
OTHER OPERATING REVENUES								
487-LATE PAYMENT CHARGES								
4	RESIDENTIAL HEATING - R-5 & R-10	C488RH	0	0	0	0	0	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C488RNH	0	0	0	0	0	0
6	C&I SMALL - LLF G40	C488G40	7,407	0	0	0	0	0
7	C&I SMALL - HLF G50	C488G50	0	772	0	0	0	0
8	C&I MEDIUM - LLF G41	C488G41	0	0	2,831	0	0	0
9	C&I MEDIUM - HLF G51	C488G51	0	0	0	1,779	0	0
10	C&I LARGE - LLF G42	C488G42	0	0	0	0	721	0
11	C&I LARGE - HLF G52	C488G52	0	0	0	0	0	1,676
12	TOTAL ACCOUNT 487		7,407	772	2,831	1,779	721	1,676
488-MISC SERVICE REVENUE								
13	RECONNECT FEE	CUST488R	17,142	2,824	0	0	0	0
14	POOL ADMINISTRATION	CUSTTRAN	554	78	307	129	29	35
15	3RD PARTY BILLING	CUSTTRAN	7,033	986	3,897	1,639	372	442
16	CUSTOMER TELEMETERING	PLT397M	92	275	915	366	2,196	2,654
17	WTR HTR & CONV BURN RENTAL	PLT386	39,392	5,503	53,517	15,076	25,872	54,790
18	EQUIP PROTECTION PLAN-COMMERCIAL	PLT380C	254,724	42,105	0	0	0	0
19	CLEAN & CHECK REVENUE	PLT3803	2,396	396	779	291	135	116
20	GAS LINES - RESIDENTIAL	PLT380R	0	0	0	0	0	0
21	TOTAL ACCOUNT 488		321,333	52,166	59,415	17,501	28,605	58,037
495-OTHER GAS REVENUES								
22	RENTAL INCOME - GRANITE	GENPLT	585	90	461	142	183	363
23	RENTAL INCOME - USC	GENPLT	23,915	3,688	18,855	5,819	7,469	14,850
24	TOTAL OTHER REVENUES		24,500	3,778	19,317	5,961	7,651	15,214
25	TOTAL OTHER OPERATING REV		353,240	56,716	81,562	25,241	36,977	74,926
25	TOTAL GAS OPERATING REVENUE		5,931,619	1,012,079	4,514,664	1,282,876	1,712,571	2,718,025

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
OPER & MAINT EXPENSE-9					
OPERATION & MAINTENANCE EXPENSE					
LIQUEFIED PROPANE GAS PRODUCTION					
OPERATION EXPENSE					
1 710-SUPERVISION	TLABPO	0	0	0	
2 717-PROPANE EXPENSES	DEMLPG	0	0	0	
3 718-DISPATCHING PRODUCTION	GASCOSTS	0	0	0	
4 723-FUEL LPG GAS PROCESS	DEMLPG	0	0	0	
5 728-LIQUID PETROLEUM GAS	EGAS	0	0	0	
6 735-MISCELLANEOUS	DEMLPG	0	0	0	
7 736-RENTS	DEMLPG	0	0	0	
8 TOTAL OPERATION EXPENSE		0	0	0	
MAINTENANCE					
9 740-SUPERVISION	TLABPM	0	0	0	
10 741-MAINTENANCE OF PLANT	DEMLPG	0	0	0	
11 742-MAINT OF EQUIPMENT	DEMLPG	0	0	0	
12 743-GAS SYS PROD TRAINING	DEMLPG	0	0	0	
13 TOTAL MAINTENANCE EXPENSE		0	0	0	
14 769-MAINT OF SCADA - PRODUCT	EXP813	292	78	1	
15 TOTAL MANUF GAS PROD EXP		292	78	1	

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE							
	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE-9							
OPERATION & MAINTENANCE EXPENSE							
LIQUEFIED PROPANE GAS PRODUCTION							
OPERATION EXPENSE							
1 710-SUPERVISION	TLABPO	0	0	0	0	0	0
2 717-PROPANE EXPENSES	DEMLPG	0	0	0	0	0	0
3 718-DISPATCHING PRODUCTION	GASCOSTS	0	0	0	0	0	0
4 723-FUEL LPG GAS PROCESS	DEMLPG	0	0	0	0	0	0
5 728-LIQUID PETROLEUM GAS	EGAS	0	0	0	0	0	0
6 735-MISCELLANEOUS	DEMLPG	0	0	0	0	0	0
7 736-RENTS	DEMLPG	0	0	0	0	0	0
8 TOTAL OPERATION EXPENSE		0	0	0	0	0	0
MAINTENANCE							
9 740-SUPERVISION	TLABPM	0	0	0	0	0	0
10 741-MAINTENANCE OF PLANT	DEMLPG	0	0	0	0	0	0
11 742-MAINT OF EQUIPMENT	DEMLPG	0	0	0	0	0	0
12 743-GAS SYS PROD TRAINING	DEMLPG	0	0	0	0	0	0
13 TOTAL MAINTENANCE EXPENSE		0	0	0	0	0	0
14 769-MAINT OF SCADA - PRODUCT	EXP813	43	6	59	17	28	60
15 TOTAL MANUF GAS PROD EXP		43	6	59	17	28	60

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
OPER & MAINT EXPENSE CON'T-10					
PURCHASED GAS SUPPLY EXPENSES					
PURCHASED GAS SUPPLY					
804-PURCHASED GAS COSTS					
1	DIRECT GAS COSTS	EGAS	0	0	0
2	TOTAL DIRECT GAS COSTS		0	0	0
OTHER GAS SUPPLY					
3	813-OTHER GAS SUPPLY EXP	GASCOSTS	0	0	0
4	813-OTH GAS SUPP EXP-DEL SERV	DISTR	172,598	45,978	547
5	TOTAL GAS SUPPLY EXPENSE		172,598	45,978	547
6	TOTAL PRODUCTION EXPENSE		172,890	46,055	548
TRANSMISSION EXPENSES					
7	851-SYS CONTROL & LOAD DISTR	DISTR	337,514	89,909	1,069
8	851-SYS CNTRL & LD GAS SUPPLY	GASCOSTS	0	0	0
9	852-COMMUNICATION SYSTEM EXP	DISTR	45,325	12,074	144
10	856-MAINS EXPENSE	DISTR	0	0	0
11	857-T&D OPER MEAS & REGUL STNQ	DISTR	0	0	0
12	TOTAL TRANSMISSION EXPENSES		382,838	101,983	1,213

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
OPER & MAINT EXPENSE CON'T-10								
PURCHASED GAS SUPPLY EXPENSES								
PURCHASED GAS SUPPLY								
804-PURCHASED GAS COSTS								
1	DIRECT GAS COSTS	EGAS	0	0	0	0	0	0
2	TOTAL DIRECT GAS COSTS		0	0	0	0	0	0
OTHER GAS SUPPLY								
3	813-OTHER GAS SUPPLY EXP	GASCOSTS	0	0	0	0	0	0
4	813-OTH GAS SUPP EXP-DEL SERV	DISTR	25,579	3,573	34,752	9,790	16,800	35,579
5	TOTAL GAS SUPPLY EXPENSE		25,579	3,573	34,752	9,790	16,800	35,579
6	TOTAL PRODUCTION EXPENSE		25,623	3,579	34,811	9,806	16,829	35,639
TRANSMISSION EXPENSES								
7	851-SYS CONTROL & LOAD DISTR	DISTR	50,020	6,988	67,957	19,144	32,853	69,574
8	851-SYS CNTRL & LD GAS SUPPLY	GASCOSTS	0	0	0	0	0	0
9	852-COMMUNICATION SYSTEM EXP	DISTR	6,717	938	9,126	2,571	4,412	9,343
10	856-MAINS EXPENSE	DISTR	0	0	0	0	0	0
11	857-T&D OPER MEAS & REGUL STNQ	DISTR	0	0	0	0	0	0
12	TOTAL TRANSMISSION EXPENSES		56,737	7,926	77,083	21,715	37,265	78,917

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
OPER & MAINT EXPENSE CON'T-11					
DISTRIBUTION EXPENSES					
OPERATION EXPENSE					
1	870-SUPER & ENGINEERING	TLABDO	33,530	15,683	761
2	857-MEAS & REG STA EQUIP	PLT378	0	0	0
3	874-MAINS & SERVICE EXPENSE	PLT37680	682,358	289,700	11,540
4	875-REGULAT STATION EXPENSE	PLT378	220,978	58,865	700
5	878-METER & HOUSE REG EXP	PLT3813	995,427	560,611	32,826
6	879-CUSTOMER INSTALL EXP	PLT3803	47,743	31,710	1,857
7	880-OTHER EXPENSES	EXP8519	455,698	220,271	10,985
8	TOTAL OPERATION EXPENSE		2,435,733	1,176,840	58,669
MAINTENANCE					
9	885-SUPERVISION	TLABDM	68,515	23,263	653
10	886-MAINT STRUCT & IMPROVE	PLT375	6,369	1,697	20
11	887-MAINTENANCE OF MAINS	PLT376	93,438	24,891	296
12	889-MT OF MEAS & REG STA EQ	PLT378	31,746	8,457	101
13	890-MT OF REG EQ (INDUST)	PLT378	86	23	0
14	891-MT OF REG EQ (CITY GATE)	PLT378	26,441	7,044	84
15	891-MAIN DISTRI SCADA	EXP851	26,503	7,060	84
16	892-MAINTENANCE OF SERVICES	PLT380	120,017	84,619	4,955
17	893-MAINT METER & HOUSE REG	PLT3813	12,495	7,037	412
18	894-T&D MAINT SYSTEM EQUIP	DISTR	8,896	2,370	28
19	894-MNT WAT HTERS & CONV BURN	PLT386	151,485	40,353	480
20	894-MAINT OF RENTED CONV BURN	PLT386	11,869	3,162	38
21	TOTAL MAINTENANCE EXPENSE		557,861	209,975	7,151
22	586-INTERVAL DATA	DISTR	0	0	0
23	PAYROLL ADJUSTMENT	DISTLAB	272,507	123,914	5,820
24	TOTAL DISTRIBUTION EXPENSES		3,266,101	1,510,728	71,639

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
OPER & MAINT EXPENSE CON'T-11								
DISTRIBUTION EXPENSES								
OPERATION EXPENSE								
1	870-SUPER & ENGINEERING	TLABDO	5,733	900	4,526	1,456	1,571	2,900
2	857-MEAS & REG STA EQUIP	PLT378	0	0	0	0	0	0
3	874-MAINS & SERVICE EXPENSE	PLT37680	105,637	15,806	96,466	27,964	43,998	91,248
4	875-REGULAT STATION EXPENSE	PLT378	32,749	4,575	44,493	12,534	21,510	45,551
5	878-METER & HOUSE REG EXP	PLT3813	188,204	31,109	108,086	40,341	18,461	15,789
6	879-CUSTOMER INSTALL EXP	PLT3803	8,261	1,365	2,684	1,002	466	399
7	880-OTHER EXPENSES	EXP8519	78,392	12,374	58,932	19,160	19,767	35,816
8	TOTAL OPERATION EXPENSE		418,977	66,130	315,187	102,455	105,773	191,702
MAINTENANCE								
9	885-SUPERVISION	TLABDM	10,369	1,498	11,899	3,390	5,625	11,818
10	886-MAINT STRUCT & IMPROVE	PLT375	944	132	1,282	361	620	1,313
11	887-MAINTENANCE OF MAINS	PLT376	13,848	1,935	18,813	5,300	9,095	19,261
12	889-MT OF MEAS & REG STA EQ	PLT378	4,705	657	6,392	1,801	3,090	6,544
13	890-MT OF REG EQ (INDUST)	PLT378	13	2	17	5	8	18
14	891-MT OF REG EQ (CITY GATE)	PLT378	3,919	547	5,324	1,500	2,574	5,450
15	891-MAIN DISTRI SCADA	EXP851	3,928	549	5,336	1,503	2,580	5,463
16	892-MAINTENANCE OF SERVICES	PLT380	19,987	3,304	4,202	1,568	745	637
17	893-MAINT METER & HOUSE REG	PLT3813	2,362	391	1,357	506	232	198
18	894-T&D MAINT SYSTEM EQUIP	DISTR	1,318	184	1,791	505	866	1,834
19	894-MNT WAT HTERS & CONV BURN	PLT386	22,450	3,136	30,501	8,592	14,745	31,226
20	894-MAINT OF RENTED CONV BURN	PLT386	1,759	246	2,390	673	1,155	2,447
21	TOTAL MAINTENANCE EXPENSE		85,602	12,580	89,305	25,705	41,335	86,209
22	586-INTERVAL DATA	DISTR	0	0	0	0	0	0
23	PAYROLL ADJUSTMENT	DISTLAB	46,053	7,174	37,855	12,000	13,744	25,948
24	TOTAL DISTRIBUTION EXPENSES		550,631	85,883	442,347	140,161	160,852	303,859

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE CON'T-12					
CUSTOMER ACCOUNT					
1	901-SUPERVISION	TLABCA	0	0	0
2	902-METER READING EXPENSE	CUST902	110,170	80,316	4,703
3	903-CUST RECORDS & COLLECT	CUST903	1,462,490	971,364	57,397
904-UNCOLLECTIBLE ACCTS					
4	RESIDENTIAL HEATING - R-5 & R-10	C904RH	128,360	128,360	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C904RNH	5,936	0	5,936
6	C&I SMALL - LLF G40	C904G40	13,821	0	0
7	C&I SMALL - HLF G50	C904G50	2,561	0	0
8	C&I MEDIUM - LLF G41	C904G41	4,107	0	0
9	C&I MEDIUM - HLF G51	C904G51	344	0	0
10	C&I LARGE - LLF G42	C904G42	0	0	0
11	C&I LARGE - HLF G52	C904G52	0	0	0
12	SUBTOTAL ACCOUNT 904		155,128	128,360	5,936
13	CGA BAD DEBT EXPENSE	E904GAS	0	0	0
14	BAD DEBT EXP ADJ DELIVERY	EXP904B	89,445	74,011	3,422
15	BAD DEBT EXP ADJ COST OF GAS	E904GAS	0	0	0
16	TOTAL ACCOUNT 904		244,573	202,371	9,358
17	TOTAL CUSTOMER ACCTS EXP		1,817,234	1,254,051	71,458
CUSTOMER SERVICES & INFO EXP					
18	907-CUST SERV & INFO SUPRV	TLABSE	0	0	0
19	909-INFO & INSTRUCT ADVERTISING	CUST908	2,570	1,274	61
20	TOT CUST SERV & INFO EXP		2,570	1,274	61

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
OPER & MAINT EXPENSE CON'T-12								
CUSTOMER ACCOUNT								
1	901-SUPERVISION	TLABCA	0	0	0	0	0	0
2	902-METER READING EXPENSE	CUST902	16,797	2,863	2,640	994	862	996
3	903-CUST RECORDS & COLLECT	CUST903	278,443	44,200	70,878	28,469	5,605	6,133
904-UNCOLLECTIBLE ACCTS								
4	RESIDENTIAL HEATING - R-5 & R-10	C904RH	0	0	0	0	0	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C904RNH	0	0	0	0	0	0
6	C&I SMALL - LLF G40	C904G40	13,821	0	0	0	0	0
7	C&I SMALL - HLF G50	C904G50	0	2,561	0	0	0	0
8	C&I MEDIUM - LLF G41	C904G41	0	0	4,107	0	0	0
9	C&I MEDIUM - HLF G51	C904G51	0	0	0	344	0	0
10	C&I LARGE - LLF G42	C904G42	0	0	0	0	0	0
11	C&I LARGE - HLF G52	C904G52	0	0	0	0	0	0
12	SUBTOTAL ACCOUNT 904		13,821	2,561	4,107	344	0	0
13	CGA BAD DEBT EXPENSE	E904GAS	0	0	0	0	0	0
14	BAD DEBT EXP ADJ DELIVERY	EXP904B	7,969	1,477	2,368	198	0	0
15	BAD DEBT EXP ADJ COST OF GAS	E904GAS	0	0	0	0	0	0
16	TOTAL ACCOUNT 904		21,790	4,037	6,475	542	0	0
17	TOTAL CUSTOMER ACCTS EXP		317,030	51,100	79,993	30,005	6,466	7,130
CUSTOMER SERVICES & INFO EXP								
18	907-CUST SERV & INFO SUPRV	TLABSE	0	0	0	0	0	0
19	909-INFO & INSTRUCT ADVERTISING	CUST908	371	64	270	93	126	313
20	TOT CUST SERV & INFO EXP		371	64	270	93	126	313

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE CON'T-13					
ADMINISTRATIVE & GENERAL EXPENSE					
1	920-ADMIN & GENERAL SALARY	LABOR	11,296	5,475	265
2	921-OFFICE SUPPLIES & EXP	LABOR	196,174	95,083	4,604
3	923-OUTSIDE SERV EMPLOYED	LABOR	(173,141)	(83,919)	(4,063)
4	923-OS UNITIL SERVICE CORP	LABOR	3,289,100	1,594,182	77,188
5	923-OUTSIDE SERV IRP	EGASB	61,850	28,504	371
6	923-USC EXPS - WATER HTR PROG	PLT386	49,539	13,196	157
7	924-PROPERTY INSURANCE	PLANT	4,961	2,185	93
8	925-INJURIES & DAMAGES	LABOR	219,718	106,494	5,156
9	PROPERTY & LIABILITY INSUR ADJ	EXP9245	46,512	22,499	1,087
10	926-EMPLOYED PENSION & BENF	LABOR	1,899,960	920,885	44,588
11	928-REGULATORY COMM EXPENSE	REVCLAIM	199,126	101,353	4,945
12	PUC ASSESSMENT ADJUSTMENT	REVCLAIM	211,144	107,470	5,244
13	930-MISCELLANEOUS GENERAL EXP	LABOR	172,458	83,588	4,047
14	931-RENTS	LABOR	14,975	7,258	351
15	TOTAL OPERATION EXPENSE		6,203,672	3,004,254	144,033
MAINTENANCE					
16	932-MAINT OF GENL PLT - EQUIP SHARED	GENPLT	132,474	61,659	2,844
17	935-MAINT OF GENERAL PLT	GENPLT	10,959	5,101	235
18	POSTAGE	EXP903	4,415	2,932	173
19	O&M INFLATION ALLOWANCE	OMLAB	129,852	64,784	3,239
20	TOTAL ADMIN & GEN EXPENSE		6,481,371	3,138,729	150,525
21	TOTAL GAS O & M EXPENSE		12,123,003	6,052,820	295,443

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-13								
ADMINISTRATIVE & GENERAL EXPENSE								
1	920-ADMIN & GENERAL SALARY	LABOR	1,899	296	1,393	441	517	1,010
2	921-OFFICE SUPPLIES & EXP	LABOR	32,985	5,140	24,185	7,659	8,980	17,537
3	923-OUTSIDE SERV EMPLOYED	LABOR	(29,112)	(4,537)	(21,346)	(6,760)	(7,926)	(15,478)
4	923-OS UNITIL SERVICE CORP	LABOR	553,036	86,179	405,497	128,419	150,565	294,032
5	923-OUTSIDE SERV IRP	EGASB	13,602	2,041	10,708	2,993	2,975	657
6	923-USC EXPS - WATER HTR PROG	PLT386	7,342	1,026	9,974	2,810	4,822	10,212
7	924-PROPERTY INSURANCE	PLANT	788	120	683	204	293	595
8	925-INJURIES & DAMAGES	LABOR	36,944	5,757	27,088	8,579	10,058	19,642
9	PROPERTY & LIABILITY INSUR ADJ	EXP9245	7,811	1,217	5,749	1,818	2,143	4,189
10	926-EMPLOYED PENSION & BENF	LABOR	319,463	49,782	234,237	74,182	86,975	169,849
11	928-REGULATORY COMM EXPENSE	REVCLAIM	31,312	4,865	23,390	7,292	8,829	17,139
12	PUC ASSESSMENT ADJUSTMENT	REVCLAIM	33,202	5,158	24,802	7,732	9,362	18,174
13	930-MISCELLANEOUS GENERAL EXP	LABOR	28,997	4,519	21,261	6,733	7,895	15,417
14	931-RENTS	LABOR	2,518	392	1,846	585	685	1,339
15	TOTAL OPERATION EXPENSE		1,040,789	161,954	769,468	242,687	286,174	554,313
MAINTENANCE								
16	932-MAINT OF GENL PLT - EQUIP SHARED	GENPLT	21,791	3,361	17,181	5,302	6,805	13,531
17	935-MAINT OF GENERAL PLT	GENPLT	1,803	278	1,421	439	563	1,119
18	POSTAGE	EXP903	840	133	214	86	17	19
19	O&M INFLATION ALLOWANCE	OMLAB	22,184	3,482	15,394	4,976	5,408	10,386
20	TOTAL ADMIN & GEN EXPENSE		1,087,406	169,209	803,679	253,489	298,967	579,367
21	TOTAL GAS O & M EXPENSE		2,037,799	317,761	1,438,182	455,269	520,505	1,005,224

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEPRECIATION & AMORTIZATION-14					
DEPRECIATION & AMORTIZATION EXPENSE					
AMORTIZATION EXPENSE					
1	INTANGIBLE AMORTIZATION	PLANT	(928,921)	(409,142)	(17,457)
2	ACCT 303.2 & 303.3 COM SOFT & ADJ	PLT303	368,134	178,429	8,639
3	TRANSITION & TRANACTION AMORT	PLANT	928,921	409,142	17,457
4	AMORT INVESTMENT TAX CREDIT	PLANT	0	0	0
5	TOTAL AMORTIZATION EXPENSE		368,134	178,429	8,639
DEPRECIATION EXPENSE					
PRODUCTION PLANT EXP					
6	305-STRUCTURES	PLT305	0	0	0
7	311-LPG GAS EQUIPMENT	PLT311	0	0	0
8	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0
9	362-GAS HOLDERS	DEMLPG	0	0	0
10	PROFORMA ADJUST- PROD & STOR	PSPLT	0	0	0
11	TOTAL PRODUCTION PLANT		0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

DELIVERY SERVICE		HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)	
ALLOC								
DEPRECIATION & AMORTIZATION-14								
DEPRECIATION & AMORTIZATION EXPENSE								
AMORTIZATION EXPENSE								
1	INTANGIBLE AMORTIZATION	PLANT	(147,558)	(22,424)	(127,933)	(38,121)	(54,941)	(111,346)
2	ACCT 303.2 & 303.3 COM SOFT & ADJ	PLT303	61,899	9,646	45,385	14,373	16,852	32,910
3	TRANSITION & TRANACTION AMORT	PLANT	147,558	22,424	127,933	38,121	54,941	111,346
4	AMORT INVESTMENT TAX CREDIT	PLANT	0	0	0	0	0	0
5	TOTAL AMORTIZATION EXPENSE		61,899	9,646	45,385	14,373	16,852	32,910
DEPRECIATION EXPENSE								
PRODUCTION PLANT EXP								
6	305-STRUCTURES	PLT305	0	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0	0
8	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0	0	0	0
9	362-GAS HOLDERS	DEMLPG	0	0	0	0	0	0
10	PROFORMA ADJUST- PROD & STOR	PSPLT	0	0	0	0	0	0
11	TOTAL PRODUCTION PLANT		0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEPRECIATION & AMORTIZATION-15					
DISTRIBUTION EXPENSE					
1	375-STRUCTURES & IMPROVE	PLT375	8,818	2,349	28
2	376-MAINS	PLT376	2,931,580	780,932	9,288
3	378.2-MEAS & REG STATION EQ	PLT378	77,522	20,651	246
4	379-MEAS & REG CITY GATE	PLT379	0	0	0
5	380-SERVICES	PLT380	2,175,036	1,533,537	89,795
6	381-METERS	PLT381	77,491	43,642	2,555
7	382-METER INSTALLATION	PLT382	675,923	380,671	22,290
8	383-HOUSE REGULATORS	PLT383	16,778	9,449	553
9	386-OTHER PROP CUST PREM	PLT386	83,014	22,114	263
10	TOTAL DISTRIBUTION PLANT		6,046,162	2,793,344	125,018
GENERAL & COMMON PLANT EXP					
11	391-OFFICE EQUIPMENT	PLT391	23,589	11,433	554
12	393-STORES EQUIPMENT	PLT393	0	0	0
13	394-TOOLS, SHOP & GARAGE EQ	PLT394	45,044	19,596	825
14	396-POWER OPERATED EQUIP	PLT396	4,185	1,821	77
15	397-COMMUNICATION EQUIP	PLT397	107,248	51,981	2,517
16	397-COMM EQ METSCAN - TELEMET	PLT397M	8,663	0	0
17	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	216,430	161,315	9,446
18	TOTAL GEN & COMMON EXP		405,158	246,146	13,418
19	DEPREC EXP ANNUALIZATION ADJUST	PLANT	534,674	235,496	10,048
20	TOTAL DEPRECIATION EXPENSE		6,985,995	3,274,987	148,484
21	TOTAL DEPR & AMORT EXPENSE		7,354,128	3,453,416	157,123

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
DEPRECIATION & AMORTIZATION-15								
DISTRIBUTION EXPENSE								
1	375-STRUCTURES & IMPROVE	PLT375	1,307	183	1,775	500	858	1,818
2	376-MAINS	PLT376	434,465	60,694	590,261	166,282	285,355	604,302
3	378.2-MEAS & REG STATION EQ	PLT378	11,489	1,605	15,609	4,397	7,546	15,980
4	379-MEAS & REG CITY GATE	PLT379	0	0	0	0	0	0
5	380-SERVICES	PLT380	362,218	59,873	76,149	28,421	13,499	11,545
6	381-METERS	PLT381	14,651	2,422	8,414	3,140	1,437	1,229
7	382-METER INSTALLATION	PLT382	127,796	21,124	73,394	27,392	12,536	10,721
8	383-HOUSE REGULATORS	PLT383	3,172	524	1,822	680	311	266
9	386-OTHER PROP CUST PREM	PLT386	12,303	1,719	16,715	4,709	8,080	17,112
10	TOTAL DISTRIBUTION PLANT		967,401	148,143	784,139	235,521	329,623	662,973
GENERAL & COMMON PLANT EXP								
11	391-OFFICE EQUIPMENT	PLT391	3,966	618	2,908	921	1,080	2,109
12	393-STORES EQUIPMENT	PLT393	0	0	0	0	0	0
13	394-TOOLS, SHOP & GARAGE EQ	PLT394	7,150	1,083	6,298	1,872	2,712	5,508
14	396-POWER OPERATED EQUIP	PLT396	664	101	585	174	252	512
15	397-COMMUNICATION EQUIP	PLT397	18,033	2,810	13,222	4,187	4,909	9,587
16	397-COMM EQ METSCAN - TELEMET	PLT397M	122	366	1,220	488	2,928	3,538
17	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	33,669	5,546	4,620	1,723	92	20
18	TOTAL GEN & COMMON EXP		63,604	10,524	28,853	9,365	11,973	21,275
19	DEPREC EXP ANNUALIZATION ADJUST	PLANT	84,933	12,907	73,636	21,942	31,623	64,089
20	TOTAL DEPRECIATION EXPENSE		1,115,937	171,574	886,628	266,829	373,219	748,337
21	TOTAL DEPR & AMORT EXPENSE		1,177,836	181,220	932,013	281,202	390,071	781,246

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
STATE & FED TAXES & OTHER EXP-16					
TAXES OTHER THAN INCOME					
FEDERAL TAXES					
1	UNEMPLOYMENT	LABOR	1,879	911	44
2	FICA	LABOR	279,035	135,244	6,548
3	FICA ADJUSTMENT	LABOR	0	0	0
4	TOTAL FEDERAL TAXES		280,914	136,155	6,592
STATE TAXES					
5	UNEMPLOYMENT	LABOR	603	292	14
6	PROPERTY TAX	PLANT	4,126,189	1,817,373	77,543
7	TOTAL STATE TAXES		4,126,793	1,817,666	77,557
8	PAYROLL TAXES CAPITALIZED	LABOR	(125,241)	(60,702)	(2,939)
9	PAYROLL TAXES ADJUSTMENT	LABOR	23,911	11,589	561
10	TAXES - OTHER	PLANT	99,397	43,779	1,868
11	TOTAL TAXES OTHER THAN INC		4,405,773	1,948,487	83,639
12	TOTAL INCOME TAX EXPENSE		2,016,185	1,878,049	15,901
13	INTEREST ON CUSTOMER DEPOSITS	CUSTDEP	13,346	2,457	129
14	TOTAL EXPENSES		25,912,436	13,335,229	552,235

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
STATE & FED TAXES & OTHER EXP-16								
TAXES OTHER THAN INCOME								
FEDERAL TAXES								
1	UNEMPLOYMENT	LABOR	316	49	232	73	86	168
2	FICA	LABOR	46,917	7,311	34,401	10,895	12,773	24,945
3	FICA ADJUSTMENT	LABOR	0	0	0	0	0	0
4	TOTAL FEDERAL TAXES		47,233	7,360	34,632	10,968	12,859	25,113
STATE TAXES								
5	UNEMPLOYMENT	LABOR	101	16	74	24	28	54
6	PROPERTY TAX	PLANT	655,442	99,603	568,266	169,332	244,042	494,588
7	TOTAL STATE TAXES		655,543	99,619	568,341	169,355	244,069	494,642
8	PAYROLL TAXES CAPITALIZED	LABOR	(21,058)	(3,281)	(15,440)	(4,890)	(5,733)	(11,196)
9	PAYROLL TAXES ADJUSTMENT	LABOR	4,020	626	2,948	934	1,095	2,138
10	TAXES - OTHER	PLANT	15,789	2,399	13,689	4,079	5,879	11,914
11	TOTAL TAXES OTHER THAN INC		701,528	106,724	604,170	180,446	258,169	522,610
12	TOTAL INCOME TAX EXPENSE		503,209	123,629	65,830	1,320	(83,632)	(488,121)
13	INTEREST ON CUSTOMER DEPOSITS	CUSTDEP	4,462	1,012	3,478	1,808	0	0
14	TOTAL EXPENSES		4,424,834	730,346	3,043,674	920,046	1,085,112	1,820,960

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE				
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INCOME TAXES-17				
FEDERAL & STATE TAX CALCULAT				
1 OPERATING REVENUES		33,832,058	16,185,392	474,832
OPERATING EXPENSES				
2 OPERATION & MAINTENANCE EXP		12,123,003	6,052,820	295,443
3 DEPRECIATION & AMORTIZATION		7,354,128	3,453,416	157,123
4 TAXES OTHER THAN INCOME		4,405,773	1,948,487	83,639
5 INTEREST ON CUSTOMER DEPOSITS		13,346	2,457	129
6 PLUS: OTHER	PLANT	0	0	0
7 OPERATING INC BEFORE FED TAX		9,935,806	4,728,211	(61,503)
8 LESS: INTEREST EXPENSE		3,957,143	1,705,811	70,728
9 LESS: MISC OTHER ADJ	PLANT	0	0	0
10 NET OPERATING INC BEFORE TXS		5,978,664	3,022,401	(132,230)
PERMANENT ITEMS				
12 LOBBYING	REVCLAIM	32,116	16,347	798
13 STATE REGUL ASSET AMORT	REVCLAIM	128,374	65,341	3,188
14 UNALLOWABLE MEALS	REVCLAIM	0	0	0
15 TOTAL PERMANENT ITEMS		160,490	81,687	3,986
TEMPORARY DIFFERENCES				
16 ACCRUED REVENUE	REVCLAIM	62,286	31,703	1,547
17 BAD DEBT	EXP904	(10,452)	(8,649)	(400)
18 DEFERRED RATE CASE	REVCLAIM	53,054	27,004	1,318
19 INSURANCE CLAIM RESERVE	EXP9245	4,978	2,408	116
20 FASB 87-PENSIONS	LABOR	(223,584)	(108,368)	(5,247)
20 PNGTS REFUND	DISTR	(5,277,371)	(1,405,817)	(16,721)
21 PREPAID PROPERTY TAXES	PLANT	(128,446)	(56,574)	(2,414)
22 REMEDIATION	PLANT	(657,018)	(289,382)	(12,347)
23 PBOP SFAS 106	LABOR	258,992	125,530	6,078
24 TRANSACTION COSTS	PLANT	314,955	138,721	5,919
25 TRANSITION COSTS	PLANT	265,955	117,139	4,998
26 UTILITY PLANT DIFFERENCES	PLANT	(13,265,819)	(5,842,909)	(249,302)
27 TOTAL TEMPORARY DIFF		(18,602,470)	(7,269,193)	(266,455)
INVESTMENT TAX CREDIT AMORT				
28 UNAMORTIZED ITC	PLANT	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
INCOME TAXES-17								
FEDERAL & STATE TAX CALCULAT								
1	OPERATING REVENUES		5,931,619	1,012,079	4,514,664	1,282,876	1,712,571	2,718,025
OPERATING EXPENSES								
2	OPERATION & MAINTENANCE EXP		2,037,799	317,761	1,438,182	455,269	520,505	1,005,224
3	DEPRECIATION & AMORTIZATION		1,177,836	181,220	932,013	281,202	390,071	781,246
4	TAXES OTHER THAN INCOME		701,528	106,724	604,170	180,446	258,169	522,610
5	INTEREST ON CUSTOMER DEPOSITS		4,462	1,012	3,478	1,808	0	0
6	PLUS: OTHER	PLANT	0	0	0	0	0	0
7	OPERATING INC BEFORE FED TAX		2,009,994	405,361	1,536,821	364,151	543,826	408,944
8	LESS: INTEREST EXPENSE		625,224	94,271	559,159	165,176	242,900	493,875
9	LESS: MISC OTHER ADJ	PLANT	0	0	0	0	0	0
10	NET OPERATING INC BEFORE TXS		1,384,770	311,090	977,662	198,975	300,927	(84,931)
PERMANENT ITEMS								
12	LOBBYING	REVCLAIM	5,050	785	3,772	1,176	1,424	2,764
13	STATE REGUL ASSET AMORT	REVCLAIM	20,187	3,136	15,079	4,701	5,692	11,049
14	UNALLOWABLE MEALS	REVCLAIM	0	0	0	0	0	0
15	TOTAL PERMANENT ITEMS		25,237	3,921	18,852	5,877	7,116	13,814
TEMPORARY DIFFERENCES								
16	ACCRUED REVENUE	REVCLAIM	9,794	1,522	7,316	2,281	2,762	5,361
17	BAD DEBT	EXP904	(931)	(173)	(277)	(23)	0	0
18	DEFERRED RATE CASE	REVCLAIM	8,343	1,296	6,232	1,943	2,352	4,566
19	INSURANCE CLAIM RESERVE	EXP9245	836	130	615	195	229	448
20	FASB 87-PENSIONS	LABOR	(37,594)	(5,858)	(27,565)	(8,730)	(10,235)	(19,987)
20	PNGTS REFUND	DISTR	(782,116)	(109,261)	(1,062,576)	(299,338)	(513,691)	(1,087,853)
21	PREPAID PROPERTY TAXES	PLANT	(20,404)	(3,101)	(17,690)	(5,271)	(7,597)	(15,396)
22	REMEDIATION	PLANT	(104,367)	(15,860)	(90,486)	(26,963)	(38,859)	(78,754)
23	PBOP SFAS 106	LABOR	43,547	6,786	31,930	10,112	11,856	23,153
24	TRANSACTION COSTS	PLANT	50,030	7,603	43,376	12,925	18,628	37,752
25	TRANSITION COSTS	PLANT	42,247	6,420	36,628	10,914	15,730	31,879
26	UTILITY PLANT DIFFERENCES	PLANT	(2,107,264)	(320,228)	(1,826,993)	(544,406)	(784,601)	(1,590,116)
27	TOTAL TEMPORARY DIFF		(2,897,878)	(430,723)	(2,899,487)	(846,361)	(1,303,426)	(2,688,946)
INVESTMENT TAX CREDIT AMORT								
28	UNAMORTIZED ITC	PLANT	0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
INCOME TAXES CON'T-18					
FEDERAL AND STATE TAX DIFF					
1 TAX DEPRECIATION	PLANT	1,744,928	768,551	32,792	
2 STATE TAXABLE BASE INCOME		(10,718,389)	(3,396,554)	(361,908)	
3 ST TAX ADJ LOBBING & PENALTIES	REVCLAIM	(13,160)	(6,698)	(327)	
4 STATE BUSINESS ENTERPRISE TAX	REVCLAIM	463,171	235,749	11,503	
5 STATE INCOME TAX @ 8.20% PLUS ADJ		(428,897)	(49,467)	(18,501)	
6 FED TAX INC BEF FED & STA TAX DIFF		(10,765,822)	(3,589,534)	(355,236)	
7 LESS: FEDERAL AND STATE TAX DIFF		1,744,928	768,551	32,792	
8 FEDERAL TAXABLE INCOME BASE		(12,510,750)	(4,358,085)	(388,028)	
9 FED TAX ADJ LOBBING & PENALTIES	REVCLAIM	(44,199)	(22,497)	(1,098)	
10 FED CURRENT/DEF ADJ	REVCLAIM	6,738,299	3,429,721	167,342	
11 FEDERAL INCOME TAX @ 34.00% PLUS ADJ		2,440,445	1,925,475	34,315	
TOT DEF FEDERAL & STATE INC TAX					
12 ACCELERATED DEPRECIATION	PLANT	5,133,889	2,261,213	96,480	
13 PBOP	LABOR	(102,074)	(49,474)	(2,395)	
14 PENSION	LABOR	88,119	42,710	2,068	
15 BAD DEBTS EXPENSE	EXP904	4,119	3,409	158	
16 ACCRUED REVENUE	REVCLAIM	(24,548)	(12,495)	(610)	
17 PREPAID PROPERTY TAXES	PLANT	50,623	22,297	951	
18 DEFERRED RATE CASE	REVCLAIM	(20,910)	(10,643)	(519)	
19 REMEDIATION	PLANT	258,944	114,051	4,866	
20 TRANSITION COSTS	PLANT	(104,818)	(46,167)	(1,970)	
21 TRANSACTION COSTS	PLANT	(124,130)	(54,673)	(2,333)	
22 INSURANCE CLAIM RESERVE	EXP9245	(1,962)	(949)	(46)	
23 DEF FED & STATE FLOW THRU DIFF	DEFTAX	(5,152,615)	(2,267,239)	(96,564)	
24 TOTAL DEFERRED INCOME TAXES		4,638	2,041	87	
25 TOTAL INCOME TAX EXPENSE		2,016,185	1,878,049	15,901	
26 NET OPERATING INCOME AFTER TAX		7,919,621	2,850,163	(77,404)	
EFFECTIVE STATE TAX RATE		8.20%			
FEDERAL TAX RATE - CURRENT		34.00%			
1 - INCREMENTAL TAX RATE		0.60588			
INCREMENTAL TAX RATE		0.39412			

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
INCOME TAXES CON'T-18								
FEDERAL AND STATE TAX DIFF								
1	TAX DEPRECIATION	PLANT	277,180	42,121	240,315	71,609	103,203	209,157
2	STATE TAXABLE BASE INCOME		(1,210,691)	(73,591)	(1,662,659)	(569,900)	(892,180)	(2,550,907)
3	ST TAX ADJ LOBBING & PENALTIES	REVCLAIM	(2,069)	(322)	(1,546)	(482)	(584)	(1,133)
4	STATE BUSINESS ENTERPRISE TAX	REVCLAIM	72,833	11,316	54,406	16,961	20,537	39,866
5	STATE INCOME TAX @ 8.20% PLUS ADJ		(28,513)	4,960	(83,478)	(30,252)	(53,205)	(170,441)
6	FED TAX INC BEF FED & STA TAX DIFF		(1,257,080)	(90,188)	(1,635,133)	(557,091)	(860,096)	(2,421,464)
7	LESS: FEDERAL AND STATE TAX DIFF		277,180	42,121	240,315	71,609	103,203	209,157
8	FEDERAL TAXABLE INCOME BASE		(1,534,260)	(132,309)	(1,875,448)	(628,700)	(963,299)	(2,630,621)
9	FED TAX ADJ LOBBING & PENALTIES	REVCLAIM	(6,950)	(1,080)	(5,192)	(1,619)	(1,960)	(3,804)
10	FED CURRENT/DEF ADJ	REVCLAIM	1,059,585	164,622	791,513	246,759	298,779	579,979
11	FEDERAL INCOME TAX @ 34.00% PLUS ADJ		530,986	118,557	148,668	31,382	(30,702)	(318,237)
TOT DEF FEDERAL & STATE INC TAX								
12	ACCELERATED DEPRECIATION	PLANT	815,514	123,929	707,048	210,686	303,642	615,377
13	PBOP	LABOR	(17,163)	(2,674)	(12,584)	(3,985)	(4,673)	(9,125)
14	PENSION	LABOR	14,816	2,309	10,864	3,440	4,034	7,877
15	BAD DEBTS EXPENSE	EXP904	367	68	109	9	0	0
16	ACCRUED REVENUE	REVCLAIM	(3,860)	(600)	(2,884)	(899)	(1,088)	(2,113)
17	PREPAID PROPERTY TAXES	PLANT	8,041	1,222	6,972	2,077	2,994	6,068
18	DEFERRED RATE CASE	REVCLAIM	(3,288)	(511)	(2,456)	(766)	(927)	(1,800)
19	REMEDATION	PLANT	41,133	6,251	35,662	10,627	15,315	31,038
20	TRANSITION COSTS	PLANT	(16,650)	(2,530)	(14,436)	(4,302)	(6,199)	(12,564)
21	TRANSACTION COSTS	PLANT	(19,718)	(2,996)	(17,095)	(5,094)	(7,342)	(14,879)
22	INSURANCE CLAIM RESERVE	EXP9245	(330)	(51)	(243)	(77)	(90)	(177)
23	DEF FED & STATE FLOW THRU DIFF	DEFTAX	(818,127)	(124,303)	(710,318)	(211,527)	(305,390)	(619,146)
24	TOTAL DEFERRED INCOME TAXES		736	112	639	190	275	557
25	TOTAL INCOME TAX EXPENSE		503,209	123,629	65,830	1,320	(83,632)	(488,121)
26	NET OPERATING INCOME AFTER TAX		1,506,785	281,732	1,470,991	362,830	627,459	897,064

EFFECTIVE STATE TAX RATE
FEDERAL TAX RATE - CURRENT
1 - INCREMENTAL TAX RATE
INCREMENTAL TAX RATE

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF LABOR ALLOCATOR-19					
1 163 - STORES EXPENSE UNDISTRIBUTED	DISTRPLT	61,889	26,924	1,133	
LPG & LNG GAS PRODUCTION OPERATION					
2 710-SUPERVISION	LABPO	0	0	0	
3 717-PROPANE EXPENSES	EXP717	0	0	0	
4 718-DISPATCHING PRODUCTION	EXP718	0	0	0	
5 735-MISCELLANEOUS	EXP735	0	0	0	
6 TOTAL OPERATION LABOR		0	0	0	
MAINTENANCE					
7 740-SUPERVISION	LABPM	0	0	0	
8 741-MAINTENANCE OF PLANT	EXP741	0	0	0	
9 742-MAINTENANCE OF EQUIP	EXP742	0	0	0	
10 743-GAS SYSTEM PROD TRAINING	EXP743	0	0	0	
11 TOTAL MAINTENANCE LABOR		0	0	0	
12 TOT MANUFACTURED GAS LABOR		0	0	0	
GAS SUPPLY LABOR					
13 813-OTHER GAS SUPPLY EXP	EXP813	91,952	24,495	291	
14 TOTAL GAS SUPPLY LABOR		91,952	24,495	291	
15 TOTAL PRODUCTION LABOR		91,952	24,495	291	

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
DEVELOPMENT OF LABOR ALLOCATOR-19								
1	163 - STORES EXPENSE UNDISTRIBUTED	DISTRPLT	9,823	1,489	8,653	2,573	3,726	7,568
LPG & LNG GAS PRODUCTION OPERATION								
2	710-SUPERVISION	LABPO	0	0	0	0	0	0
3	717-PROPANE EXPENSES	EXP717	0	0	0	0	0	0
4	718-DISPATCHING PRODUCTION	EXP718	0	0	0	0	0	0
5	735-MISCELLANEOUS	EXP735	0	0	0	0	0	0
6	TOTAL OPERATION LABOR		0	0	0	0	0	0
MAINTENANCE								
7	740-SUPERVISION	LABPM	0	0	0	0	0	0
8	741-MAINTENANCE OF PLANT	EXP741	0	0	0	0	0	0
9	742-MAINTENANCE OF EQUIP	EXP742	0	0	0	0	0	0
10	743-GAS SYSTEM PROD TRAINING	EXP743	0	0	0	0	0	0
11	TOTAL MAINTENANCE LABOR		0	0	0	0	0	0
12	TOT MANUFACTURED GAS LABOR		0	0	0	0	0	0
GAS SUPPLY LABOR								
13	813-OTHER GAS SUPPLY EXP	EXP813	13,627	1,904	18,514	5,216	8,950	18,955
14	TOTAL GAS SUPPLY LABOR		13,627	1,904	18,514	5,216	8,950	18,955
15	TOTAL PRODUCTION LABOR		13,627	1,904	18,514	5,216	8,950	18,955

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
	ALLOC	TOTAL COMPANY (1)-1		
DEVEL OF LABOR ALLOCATOR CON'T-20				
TRANSMISSION & DISTRIBUTION LABOR OPERATION				
1	870-SUPER & ENGINEERING	LABDO 31,477	14,723	714
2	851-SYSTEM CONTROL & DISP	EXP851 179,911	47,926	570
3	857-MEAS & REG STATION EXP	PLT378 0	0	0
4	874-MAINS & SERVICE EXPENSE	EXP874 481,755	204,533	8,147
5	875-GAS SYSTEM T&D TRAINING	EXP875 213,949	56,993	678
6	878-METER & HOUSE REG EXP	EXP878 907,555	511,123	29,928
7	879-CUSTOMER INSTALL EXP	EXP879 48,424	32,162	1,883
8	880-OTHER EXPENSE	EXP880 251,716	121,672	6,068
9	TOTAL OPERATION LABOR	2,114,788	989,132	47,989
MAINTENANCE				
10	885-SUPERVISION	LABDM 34,505	11,716	329
11	886-MAINT STRUCT & IMPROVE	EXP886 3,279	874	10
12	887-MAINTENANCE OF MAINS	EXP887 5,982	1,594	19
13	889-MT OF MEAS & REG STA EQ	EXP889 22,786	6,070	72
14	890-MT OF REG EQ (INDUST)	EXP890 245	65	1
15	891-MT OF REG EQ (CITY GATE)	EXP891 26,470	7,051	84
16	892-MAINTENANCE OF SERVICES	EXP892 33,648	23,724	1,389
17	893-MAINT METER & HOUSE REG	EXP893 602	339	20
18	894-MAINT OF OTHER EQUIP	EXP894 111,239	29,633	352
19	TOTAL MAINTENANCE LABOR	238,756	81,064	2,277
20	TOTAL DISTRIB & TRANS LABOR	2,353,545	1,070,196	50,265
CUSTOMER ACCOUNTS LABOR				
21	901-SUPERVISION	LABCA 0	0	0
22	902-METER READING EXPENSE	EXP902 88,600	64,591	3,782
23	903-CUST RECORDS & COLLECT	EXP903 653,826	434,261	25,660
24	TOTAL CUSTOMER ACCTS LABOR	742,426	498,852	29,442

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
DEVEL OF LABOR ALLOCATOR CON'T-20								
TRANSMISSION & DISTRIBUTION LABOR OPERATION								
1	870-SUPER & ENGINEERING	LABDO	5,382	845	4,249	1,367	1,475	2,723
2	851-SYSTEM CONTROL & DISP	EXP851	26,663	3,725	36,224	10,205	17,512	37,086
3	857-MEAS & REG STATION EXP	PLT378	0	0	0	0	0	0
4	874-MAINS & SERVICE EXPENSE	EXP874	74,581	11,159	68,106	19,743	31,063	64,422
5	875-GAS SYSTEM T&D TRAINING	EXP875	31,708	4,430	43,078	12,135	20,825	44,103
6	878-METER & HOUSE REG EXP	EXP878	171,590	28,363	98,545	36,779	16,831	14,395
7	879-CUSTOMER INSTALL EXP	EXP879	8,379	1,385	2,722	1,016	473	404
8	880-OTHER EXPENSE	EXP880	43,302	6,835	32,553	10,583	10,919	19,784
9	TOTAL OPERATION LABOR		361,605	56,741	285,477	91,828	99,099	182,916
MAINTENANCE								
10	885-SUPERVISION	LABDM	5,222	754	5,993	1,707	2,833	5,952
11	886-MAINT STRUCT & IMPROVE	EXP886	486	68	660	186	319	676
12	887-MAINTENANCE OF MAINS	EXP887	887	124	1,204	339	582	1,233
13	889-MT OF MEAS & REG STA EQ	EXP889	3,377	472	4,588	1,292	2,218	4,697
14	890-MT OF REG EQ (INDUST)	EXP890	36	5	49	14	24	50
15	891-MT OF REG EQ (CITY GATE)	EXP891	3,923	548	5,330	1,501	2,577	5,456
16	892-MAINTENANCE OF SERVICES	EXP892	5,604	926	1,178	440	209	179
17	893-MAINT METER & HOUSE REG	EXP893	114	19	65	24	11	10
18	894-MAINT OF OTHER EQUIP	EXP894	16,486	2,303	22,398	6,310	10,828	22,930
19	TOTAL MAINTENANCE LABOR		36,134	5,219	41,465	11,814	19,600	41,183
20	TOTAL DISTRIB & TRANS LABOR		397,739	61,960	326,942	103,642	118,699	224,100
CUSTOMER ACCOUNTS LABOR								
21	901-SUPERVISION	LABCA	0	0	0	0	0	0
22	902-METER READING EXPENSE	EXP902	13,508	2,303	2,123	799	693	801
23	903-CUST RECORDS & COLLECT	EXP903	124,482	19,760	31,687	12,728	2,506	2,742
24	TOTAL CUSTOMER ACCTS LABOR		137,990	22,063	33,810	13,527	3,199	3,543

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVEL OF LABOR ALLOCATOR CON'T-21					
CUSTOMER SERVICES & INFO EXP					
1	907-CUST SERV & INFO SUPRV	LABSE	0	0	0
2	908-CUST ASSISTANCE EXP	EXP909	160,148	79,381	3,781
3	TOT CUST SERV & INFO EXP		160,148	79,381	3,781
ADMINISTRATIVE & GENERAL LABOR					
OPERATION LABOR					
4	920-ADMIN & GENERAL SALARY	LABORXAG	0	0	0
5	921-OFFICE SUPPLIES & EXP	LABORXAG	24,097	12,040	603
6	923-OUTSIDE SERV EMPLOYED	LABORXAG	1,788,180	893,496	44,746
7	925-INJURIES & DAMAGES	LABORXAG	0	0	0
8	926-EMPLOYED PENSION & BENF	LABORXAG	0	0	0
9	930-MISCELLANEOUS GEN EXP	LABORXAG	0	0	0
10	TOTAL OPERATION EXPENSE		1,812,276	905,536	45,349
MAINTENANCE					
11	935-MAINT OF GENERAL PLT	EXP935	0	0	0
12	TOTAL ADMIN & GEN LABOR		1,812,276	905,536	45,349
13	TOTAL GAS O & M LABOR		5,222,235	2,605,384	130,262
14	CONSTRUCTION LABOR - DISTRIBUTION	DISTRPLT	1,495,483	650,603	27,388
15	SUM OF ALLOCATED LABOR EXP		6,717,718	3,255,987	157,650

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
DEVEL OF LABOR ALLOCATOR CON'T-21								
CUSTOMER SERVICES & INFO EXP								
1	907-CUST SERV & INFO SUPRV	LABSE	0	0	0	0	0	0
2	908-CUST ASSISTANCE EXP	EXP909	23,108	3,970	16,803	5,788	7,836	19,483
3	TOT CUST SERV & INFO EXP		23,108	3,970	16,803	5,788	7,836	19,483
ADMINISTRATIVE & GENERAL LABOR								
OPERATION LABOR								
4	920-ADMIN & GENERAL SALARY	LABORXAG	0	0	0	0	0	0
5	921-OFFICE SUPPLIES & EXP	LABORXAG	4,120	647	2,851	922	998	1,915
6	923-OUTSIDE SERV EMPLOYED	LABORXAG	305,749	48,013	211,538	68,456	74,070	142,112
7	925-INJURIES & DAMAGES	LABORXAG	0	0	0	0	0	0
8	926-EMPLOYED PENSION & BENF	LABORXAG	0	0	0	0	0	0
9	930-MISCELLANEOUS GEN EXP	LABORXAG	0	0	0	0	0	0
10	TOTAL OPERATION EXPENSE		309,869	48,660	214,388	69,378	75,068	144,027
MAINTENANCE								
11	935-MAINT OF GENERAL PLT	EXP935	0	0	0	0	0	0
12	TOTAL ADMIN & GEN LABOR		309,869	48,660	214,388	69,378	75,068	144,027
13	TOTAL GAS O & M LABOR		892,157	140,045	619,110	200,123	217,478	417,674
14	CONSTRUCTION LABOR - DISTRIBUTION	DISTRPLT	237,375	35,969	209,084	62,163	90,039	182,862
15	SUM OF ALLOCATED LABOR EXP		1,129,532	176,014	828,195	262,286	307,517	600,537

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
REVENUE REQUIREMENTS-22				
PRESENT RATES				
1 RATE BASE		129,471,015	55,811,242	2,314,086
2 NET OPER INC (PRESENT RATES)		7,919,621	2,850,163	(77,404)
3 RATE OF RETURN (PRES RATES)		6.12%	5.11%	-3.34%
4 RELATIVE RATE OF RETURN		1.000	0.835	-0.547
5 SALES REVENUE (PRE RATES)		31,713,016	15,575,217	458,590
6 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
7 SALE REV \$/CCF (PRE RATES)		\$0.4536	\$0.8992	\$1.9182
CLAIMED RATE OF RETURN				
8 CLAIMED RATE OF RETURN		8.30%	8.30%	8.30%
9 RETURN REQ FOR CLAIMED ROR		10,746,094	4,632,333	192,069
10 SALES REVENUE REQ CLAIMED ROR		36,378,086	18,516,675	903,352
11 REVENUE DEFICIENCY SALES REV		4,665,071	2,941,458	444,762
12 PERCENT INCREASE REQUIRED		14.71%	18.89%	96.98%
13 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
14 SALES REV REQUIRED \$/CCF		\$0.5204	\$1.0690	\$3.7786
15 REVENUE DEFICIENCY \$/CCF		\$0.0667	\$0.1698	\$1.8604
PROPOSED REVENUES				
16 PROPOSED SALES REVENUES		36,377,649	18,374,368	535,025
17 REVENUE DEFICIENCY SALES REV		4,664,633	2,799,151	76,435
18 PERCENT INCREASE PROPOSED		14.71%	17.97%	16.67%
19 PROPOSED RATE OF RETURN		8.30%	8.15%	-1.34%
20 RETURN REQ FOR PROPOSED REV		10,745,829	4,546,112	(31,093)
21 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
22 SALES REV REQUIRED \$/CCF		\$0.5204	\$1.0608	\$2.2379
23 REVENUE DEFICIENCY \$/CCF		\$0.0667	\$0.1616	\$0.3197
WORKING SECTION				
1 TOTAL FIRM SALES OF GAS		31,713,016	15,575,217	458,590

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
REVENUE REQUIREMENTS-22							
PRESENT RATES							
1	RATE BASE	20,456,278	3,084,400	18,294,738	5,404,269	7,947,262	16,158,741
2	NET OPER INC (PRESENT RATES)	1,506,785	281,732	1,470,991	362,830	627,459	897,064
3	RATE OF RETURN (PRES RATES)	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
4	RELATIVE RATE OF RETURN	1.204	1.493	1.314	1.098	1.291	0.908
5	SALES REVENUE (PRE RATES)	5,403,088	930,875	4,194,953	1,190,546	1,560,463	2,399,284
6	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
7	SALE REV \$/CCF (PRE RATES)	\$0.5786	\$0.5538	\$0.3190	\$0.2656	\$0.2309	\$0.1416
CLAIMED RATE OF RETURN							
8	CLAIMED RATE OF RETURN	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
9	RETURN REQ FOR CLAIMED ROR	1,697,871	256,005	1,518,463	448,554	659,623	1,341,176
10	SALES REVENUE REQ CLAIMED ROR	5,718,474	888,412	4,273,306	1,332,032	1,613,549	3,132,286
11	REVENUE DEFICIENCY SALES REV	315,386	(42,462)	78,353	141,486	53,086	733,002
12	PERCENT INCREASE REQUIRED	5.84%	-4.56%	1.87%	11.88%	3.40%	30.55%
13	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
14	SALES REV REQUIRED \$/CCF	\$0.6123	\$0.5286	\$0.3250	\$0.2972	\$0.2388	\$0.1849
15	REVENUE DEFICIENCY \$/CCF	\$0.0338	-\$0.0253	\$0.0060	\$0.0316	\$0.0079	\$0.0433
PROPOSED REVENUES							
16	PROPOSED SALES REVENUES	5,797,548	973,865	4,986,927	1,286,085	1,850,040	2,573,790
17	REVENUE DEFICIENCY SALES REV	394,460	42,990	791,974	95,539	289,577	174,505
18	PERCENT INCREASE PROPOSED	7.30%	4.62%	18.88%	8.02%	18.56%	7.27%
19	PROPOSED RATE OF RETURN	8.53%	9.98%	10.66%	7.78%	10.10%	6.21%
20	RETURN REQ FOR PROPOSED REV	1,745,781	307,779	1,950,832	420,716	802,908	1,002,794
21	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
22	SALES REV REQUIRED \$/CCF	\$0.6208	\$0.5794	\$0.3792	\$0.2869	\$0.2738	\$0.1519
23	REVENUE DEFICIENCY \$/CCF	\$0.0422	\$0.0256	\$0.0602	\$0.0213	\$0.0428	\$0.0103
WORKING SECTION							
1	TOTAL FIRM SALES OF GAS	5,403,088	930,875	4,194,953	1,190,546	1,560,463	2,399,284

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE-23				
CAPACITY RELATED				
1	-----			
1	PRODUCTION ALLOCATORS			
2		358,782	170,219	1,050
3		358,782	170,219	1,050
4		358,782	170,219	1,050
5		358,782	170,219	1,050
6	LPG PRODUCTION DEMAND	DEMLPG		
7	LNG PRODUCTION DEMAND	DEMLNG		
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DISTRIBUTION ALLOCATORS				
1	-----			
1	DISTRIBUTION ALLOCATOR	DISTR	100.0000%	26.6386%
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	100.0000%	26.6386%
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

ALLOCATION FACTOR TABLE-23

CAPACITY RELATED

1	PRODUCTION ALLOCATORS						
2	DES DAY REMANNG DEMNDS - SALES	87,262	2,617	68,686	7,253	17,790	3,905
3	LPG PROD ALLOC-PROD	87,262	2,617	68,686	7,253	17,790	3,905
4	LNG PROD ALLOC-PROD	87,262	2,617	68,686	7,253	17,790	3,905
5	LPG & LNG PROD ALLOC-DISTR	87,262	2,617	68,686	7,253	17,790	3,905
6	LPG PRODUCTION DEMAND						
7	LNG PRODUCTION DEMAND						
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DISTRIBUTION ALLOCATORS

1	DISTRIBUTION ALLOCATOR	DISTR	14.8202%	2.0704%	20.1346%	5.6721%	9.7338%	20.6135%
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	14.8202%	2.0704%	20.1346%	5.6721%	9.7338%	20.6135%
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-24				
COMMODITY RELATED				
1 ANNUAL FIRM CCF SALES SENDOUT		38,065,334	17,539,649	242,092
2 ANNUAL FIRM CCF THROUGHPUT		70,790,993	17,539,649	242,092
3 DIRECT GAS COST ALLOCATOR	EGAS	20,951,307	9,655,623	125,522
4 CGA BAD DEBT ALLOCATOR	E904GAS	129,165	60,160	687
5				
6 DIRECT GAS COST - BASE DIST ALLOC	EGASB	20,951,307	9,655,623	125,522
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

ALLOCATION FACTOR TABLE CONT-24

COMMODITY RELATED

1	ANNUAL FIRM CCF SALES SENDOUT		8,020,419	1,448,898	6,474,779	2,129,031	1,764,570	445,897
2	ANNUAL FIRM CCF THROUGHPUT		9,456,738	1,702,029	13,315,558	4,538,848	6,843,423	17,152,658
3	DIRECT GAS COST ALLOCATOR	EGAS	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
4	CGA BAD DEBT ALLOCATOR	E904GAS	29,107	3,824	22,242	5,782	6,015	1,348
5								
6	DIRECT GAS COST - BASE DIST ALLOC	EGASB	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-25				
CUSTOMER RELATED				
1 ACCT 380-SERVICES	CUST380	60,250,315	42,480,267	2,487,389
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	24,390,199	13,736,229	804,311
3 ACCT 386-OTHER PROP CUST PREM	CUST386	100.0000%	26.6386%	0.3168%
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	852	0	0
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	380,337	283,482	16,599
6 CUSTOMER DEPOSITS	CUSTDEP	412,115	75,867	3,978
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	11,701	0	0
8 ACCT 902-METER READ EXP	CUST902	388,857	283,482	16,599
9 ACCT 903-CUST RECORDS & COLL	CUST903	435,636	289,343	17,097
10 ACCT 488 RECONNECT FEE	CUST488R	367,975	282,692	16,650
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	100.0000%	49.5671%	2.3608%
12 ACCT 909-INFO & INSTR ADVERT	CUST909	100.0000%	49.5671%	2.3608%
13				
14				
15				
16				
17				
18 ANNUAL NO SALES CUSTOMERS		368,478	282,692	16,650
19 ANNUAL NO OF TRANS CUSTOMERS		11,701	0	0
20 ANNUAL NUMBER GAS BILLS		388,832	289,343	17,097
21				
22 ANNUAL NO METER EXCL DAILY MET		380,337	283,482	16,599
23 ANNUAL NO METERS DAILY METERED		852	0	0
24				
25 TOTAL SALES & TRANSP CUSTOMERS		380,179	282,692	16,650
26				
27 NUMBER OF SERVICES		22,979	16,874	988
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOCATION FACTOR TABLE CONT-25							
CUSTOMER RELATED							
1 ACCT 380-SERVICES	CUST380	10,033,733	1,658,527	2,109,398	787,280	373,927	319,795
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	4,611,421	762,245	2,648,363	988,435	452,339	386,856
3 ACCT 386-OTHER PROP CUST PREM	CUST386	14.8202%	2.0704%	20.1346%	5.6721%	9.7338%	20.6135%
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	12	36	120	48	288	348
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	59,167	9,746	8,119	3,027	161	36
6 CUSTOMER DEPOSITS	CUSTDEP	137,791	31,250	107,395	55,835	0	0
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	5,727	803	3,173	1,335	303	360
8 ACCT 902-METER READ EXP	CUST902	59,287	10,106	9,319	3,507	3,041	3,516
9 ACCT 903-CUST RECORDS & COLL	CUST903	82,941	13,166	21,113	8,480	1,670	1,827
10 ACCT 488 RECONNECT FEE	CUST488R	58,925	9,708	0	0	0	0
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	14.4290%	2.4789%	10.4919%	3.6139%	4.8927%	12.1657%
12 ACCT 909-INFO & INSTR ADVERT	CUST909	14.4290%	2.4789%	10.4919%	3.6139%	4.8927%	12.1657%
13							
14							
15							
16							
17							
18 ANNUAL NO SALES CUSTOMERS		53,198	8,905	5,092	1,768	148	26
19 ANNUAL NO OF TRANS CUSTOMERS		5,727	803	3,173	1,335	303	360
20 ANNUAL NUMBER GAS BILLS		60,032	9,954	8,419	3,141	459	387
21							
22 ANNUAL NO METER EXCL DAILY MET		59,167	9,746	8,119	3,027	161	36
23 ANNUAL NO METERS DAILY METERED		12	36	120	48	288	348
24							
25 TOTAL SALES & TRANSP CUSTOMERS		58,925	9,708	8,266	3,103	450	386
26							
27 NUMBER OF SERVICES		3,523	582	687	256	37	32
28							
29							
30							
31							
32							
33							
34							
35							

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-26				
EXTERNALLY DEVELOPED				
UNCOLLECTIBLE ACCOUNTS				
1 RESID NON HTG RATE R-6 & R-11	C904RHNH	5,936	0	5,936
2 RESID HEATING RATE R-5 & R-10	C904RH	128,360	128,360	0
3 LOW LF SMALL RATE G40 & T40	C904G40	13,821	0	0
4 LOW LF MEDIUM RATE G41 & T41	C904G41	4,107	0	0
5 LOW LF LARGE RATE G42 & T42	C904G42	0	0	0
6 HIGH LF SMALL RATE G50 & T50	C904G50	2,561	0	0
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	344	0	0
8 HIGH LF LARGE RATE G52 & T52	C904G52	0	0	0
		155,128		
INTERNALLY DEVELOPED				
LATE PAYMENT CHARGES				
9 RESID NON HTG RATE R-6 & R-11	C488RHNH	1,035,566	0	903,352
10 RESID HEATING RATE R-5 & R-10	C488RH	28,836,279	18,516,675	0
11 LOW LF SMALL RATE G40 & T40	C488G40	10,662,829	0	0
12 LOW LF MEDIUM RATE G41 & T41	C488G41	8,167,565	0	0
13 LOW LF LARGE RATE G42 & T42	C488G42	2,693,545	0	0
14 HIGH LF SMALL RATE G50 & T50	C488G50	1,613,493	0	0
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	2,400,257	0	0
16 HIGH LF LARGE RATE G52 & T52	C488G51	3,370,785	0	0
17		58,780,320		
INTERNALLY DEVELOPED				
WORKING CASH				
21 TOTAL OPERATION & MAINTENANCE EXP		33,860,782	6,052,820	295,443
22 LESS: PURCHASED GAS		20,951,307	0	0
23 904-UNCOLLECTIBLE EXPENSE		448,214	202,371	9,358
24 PLUS: OTHER TAXES		4,467,456	1,948,487	83,639
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)		2,783,666	1,925,475	34,315
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		19,712,383	9,724,411	404,039
27				
28				
29				
30				

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOCATION FACTOR TABLE CONT-26							
EXTERNALLY DEVELOPED							
UNCOLLECTIBLE ACCOUNTS							
1 RESID NON HTG RATE R-6 & R-11	C904RNL	0	0	0	0	0	0
2 RESID HEATING RATE R-5 & R-10	C904RH	0	0	0	0	0	0
3 LOW LF SMALL RATE G40 & T40	C904G40	13,821	0	0	0	0	0
4 LOW LF MEDIUM RATE G41 & T41	C904G41	0	0	4,107	0	0	0
5 LOW LF LARGE RATE G42 & T42	C904G42	0	0	0	0	0	0
6 HIGH LF SMALL RATE G50 & T50	C904G50	0	2,561	0	0	0	0
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	0	0	0	344	0	0
8 HIGH LF LARGE RATE G52 & T52	C904G52	0	0	0	0	0	0
INTERNALLY DEVELOPED							
LATE PAYMENT CHARGES							
9 RESID NON HTG RATE R-6 & R-11	C488RNL	0	0	0	0	0	0
10 RESID HEATING RATE R-5 & R-10	C488RH	0	0	0	0	0	0
11 LOW LF SMALL RATE G40 & T40	C488G40	5,718,474	0	0	0	0	0
12 LOW LF MEDIUM RATE G41 & T41	C488G41	0	0	4,273,306	0	0	0
13 LOW LF LARGE RATE G42 & T42	C488G42	0	0	0	0	1,613,549	0
14 HIGH LF SMALL RATE G50 & T50	C488G50	0	888,412	0	0	0	0
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	0	0	0	1,332,032	0	0
16 HIGH LF LARGE RATE G52 & T52	C488G51	0	0	0	0	0	3,132,286
17							
18 INTERNALLY DEVELOPED							
19 WORKING CASH							
20							
21 TOTAL OPERATION & MAINTENANCE EXP		2,037,799	317,761	1,438,182	455,269	520,505	1,005,224
22 LESS: PURCHASED GAS		0	0	0	0	0	0
23 904-UNCOLLECTIBLE EXPENSE		21,790	4,037	6,475	542	0	0
24 PLUS: OTHER TAXES		701,528	106,724	604,170	180,446	258,169	522,610
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)		530,986	118,557	148,668	31,382	(30,702)	(318,237)
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		3,248,523	539,006	2,184,546	666,555	747,971	1,209,598
27							
28							
29							
30							

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED-27					
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	3,540,586	1,646,933	79,742
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	3,540,586	1,646,933	79,742
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	161,860	0	0
5	ACCT 311-LP GAS EQUIP	PLT311	0	0	0
6	ACCT 320-OTHER EQUIPMENT	PLT320	7,640	0	0
7	ACCT 321-LNG EQUIPMENT	PLT321	84,156	0	0
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0
9	ACCT 362-GAS HOLDERS	PLT362	0	0	0
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	2,910,194	775,235	9,220
12	ACCT 376-MAINS	PLT376	106,849,866	28,463,298	338,537
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	167,100,182	70,943,565	2,825,926
14	ACCT 378-MEAS & REG STATION EQ	PLT378	3,445,431	917,814	10,916
15	ACCT 379-MEAS & REG CITY GATE	PLT379	39,266	10,460	124
16	ACCT 380-SERVICES	PLT380	60,250,315	42,480,267	2,487,389
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	11,692,260	0	0
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	44,967,656	42,480,267	2,487,389
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	84,640,514	56,216,496	3,291,700
20	ACCT 381-METERS	PLT381	3,913,705	2,204,145	129,061
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	24,390,199	13,736,229	804,311
22	ACCT 382-METER INSTALLATION	PLT382	19,938,729	11,229,221	657,516
23	ACCT 383-HOUSE REGULATORS	PLT383	537,766	302,862	17,734
24	ACCT 386-OTHER PROP CUST PREM	PLT386	1,637,356	436,169	5,188
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	420,149	195,436	9,463
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	82,633	0	0
27	ACCT 393-STORES EQUIPMENT	PLT393	31,520	13,713	577
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1,173,029	510,321	21,483
29	ACCT 396-POWER OPERATED EQUIP	PLT396	75,266	32,744	1,378
30	ACCT 397-COMMUNICATION EQUIP	PLT397	1,453,181	675,959	32,729
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	112,656	0	0
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	2,936,629	2,188,800	128,163
33	TOTAL PROD & STORAGE PLANT	PSPLT	260,472	0	0
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	113,244,758	30,166,807	358,798
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	199,629,651	86,847,981	3,656,025
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	3,386,092	1,536,530	70,877
37	TOTAL GAS PLANT IN SERVICE	PLANT	212,059,660	92,220,244	3,934,807
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED-27								
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0	0	0	0
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	571,336	89,031	418,915	132,669	155,547	303,762
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	571,336	89,031	418,915	132,669	155,547	303,762
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	0	0	0	0	0	0
5	ACCT 311-LP GAS EQUIP	PLT311	0	0	0	0	0	0
6	ACCT 320-OTHER EQUIPMENT	PLT320	0	0	0	0	0	0
7	ACCT 321-LNG EQUIPMENT	PLT321	0	0	0	0	0	0
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0	0
9	ACCT 362-GAS HOLDERS	PLT362	0	0	0	0	0	0
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0	0
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	431,296	60,251	585,955	165,069	283,274	599,894
12	ACCT 376-MAINS	PLT376	15,835,343	2,212,176	21,513,751	6,060,627	10,400,593	22,025,541
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	25,869,076	3,870,703	23,623,149	6,847,907	10,774,520	22,345,336
14	ACCT 378-MEAS & REG STATION EQ	PLT378	510,619	71,333	693,722	195,428	335,373	710,225
15	ACCT 379-MEAS & REG CITY GATE	PLT379	5,819	813	7,906	2,227	3,822	8,094
16	ACCT 380-SERVICES	PLT380	10,033,733	1,658,527	2,109,398	787,280	373,927	319,795
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	10,033,733	1,658,527	0	0	0	0
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0	0	0	0	0	0
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	14,645,154	2,420,773	4,757,761	1,775,715	826,265	706,650
20	ACCT 381-METERS	PLT381	739,959	122,312	424,962	158,606	72,583	62,076
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	4,611,421	762,245	2,648,363	988,435	452,339	386,856
22	ACCT 382-METER INSTALLATION	PLT382	3,769,788	623,128	2,165,009	808,035	369,782	316,250
23	ACCT 383-HOUSE REGULATORS	PLT383	101,675	16,806	58,392	21,793	9,973	8,530
24	ACCT 386-OTHER PROP CUST PREM	PLT386	242,659	33,899	329,675	92,872	159,378	337,517
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	67,798	10,565	49,711	15,743	18,458	36,046
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	67,798	10,565	0	0	0	0
27	ACCT 393-STORES EQUIPMENT	PLT393	5,003	758	4,407	1,310	1,898	3,854
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	186,192	28,214	164,002	48,759	70,625	143,434
29	ACCT 396-POWER OPERATED EQUIP	PLT396	11,947	1,810	10,523	3,129	4,532	9,203
30	ACCT 397-COMMUNICATION EQUIP	PLT397	234,497	36,541	171,937	54,452	63,842	124,674
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	1,587	4,760	15,867	6,347	38,081	46,015
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	456,836	75,250	62,688	23,372	1,243	278
33	TOTAL PROD & STORAGE PLANT	PSPLT	0	0	0	0	0	0
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	16,783,077	2,344,573	22,801,334	6,423,351	11,023,062	23,343,755
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	31,686,752	4,801,461	27,910,318	8,298,009	12,019,122	24,409,983
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	543,027	83,746	428,142	132,122	169,588	337,197
37	TOTAL GAS PLANT IN SERVICE	PLANT	33,259,538	5,054,248	28,835,930	8,592,518	12,383,582	25,097,235
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-28				
1 ACCT 717-PROPANE EXPENSES	EXP717	9,492	0	0
2 ACCT 718-DISPATCHING PROD	EXP718	0	0	0
3 ACCT 735-MISCELLANEOUS	EXP735	12,805	0	0
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	7,688	0	0
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	7,713	0	0
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0
7 TOTAL GAS COSTS	GASCOSTS	20,951,307	0	0
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	403,550	45,978	547
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	349,400	89,909	1,069
10 ACCT 857-879 DIST OPER EXP	EXP8519	1,946,505	940,886	46,923
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0
12 ACCT 874-MAINS & SERVICE EXP	EXP874	682,358	289,700	11,540
13 ACCT 875-REGULAT STATION EXP	EXP875	220,978	58,865	700
14 ACCT 878-METER & HOUSE REG EXP	EXP878	995,427	560,611	32,826
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	47,743	31,710	1,857
16 ACCT 880-OTHER EXPENSE	EXP880	455,698	220,271	10,985
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	6,369	1,697	20
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	172,250	45,885	546
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	93,438	24,891	296
20 ACCT 889-MT OF M & R STA EQ	EXP889	31,746	8,457	101
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	86	23	0
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	53,877	14,104	168
23 ACCT 892-MAINTENANCE OF SERV	EXP892	120,017	84,619	4,955
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	12,495	7,037	412
25 ACCT 902-METER READING EXP	EXP902	110,170	80,316	4,703
26 ACCT 903-CUST RECORDS & COLL	EXP903	1,462,490	971,364	57,397
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	448,214	202,371	9,358
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	155,128	128,360	5,936
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	2,570	1,274	61
30 ACCT 920-ADMIN & GEN SALARY	EXP920	11,770	5,475	265
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	204,409	95,083	4,604
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	3,358,161	1,551,964	73,652
33 ACCT 925-INJURIES & DAMAGES	EXP925	228,942	106,494	5,156
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	233,966	108,679	5,250
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	1,979,724	920,885	44,588
36 ACCT 930-MISC GEN EXP	EXP930	179,698	83,588	4,047
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	11,240	5,101	235
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-28							
1 ACCT 717-PROPANE EXPENSES	EXP717	0	0	0	0	0	0
2 ACCT 718-DISPATCHING PROD	EXP718	0	0	0	0	0	0
3 ACCT 735-MISCELLANEOUS	EXP735	0	0	0	0	0	0
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	0	0	0	0	0	0
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	0	0	0	0	0	0
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0	0	0	0
7 TOTAL GAS COSTS	GASCOSTS	0	0	0	0	0	0
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	25,579	3,573	34,752	9,790	16,800	35,579
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	50,020	6,988	67,957	19,144	32,853	69,574
10 ACCT 857-879 DIST OPER EXP	EXP8519	334,851	52,856	251,729	81,840	84,435	152,986
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0	0	0	0
12 ACCT 874-MAINS & SERVICE EXP	EXP874	105,637	15,806	96,466	27,964	43,998	91,248
13 ACCT 875-REGULAT STATION EXP	EXP875	32,749	4,575	44,493	12,534	21,510	45,551
14 ACCT 878-METER & HOUSE REG EXP	EXP878	188,204	31,109	108,086	40,341	18,461	15,789
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	8,261	1,365	2,684	1,002	466	399
16 ACCT 880-OTHER EXPENSE	EXP880	78,392	12,374	58,932	19,160	19,767	35,816
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	944	132	1,282	361	620	1,313
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	25,528	3,566	34,682	9,770	16,767	35,507
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	13,848	1,935	18,813	5,300	9,095	19,261
20 ACCT 889-MT OF M & R STA EQ	EXP889	4,705	657	6,392	1,801	3,090	6,544
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	13	2	17	5	8	18
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	7,846	1,096	10,660	3,003	5,153	10,914
23 ACCT 892-MAINTENANCE OF SERV	EXP892	19,987	3,304	4,202	1,568	745	637
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	2,362	391	1,357	506	232	198
25 ACCT 902-METER READING EXP	EXP902	16,797	2,863	2,640	994	862	996
26 ACCT 903-CUST RECORDS & COLL	EXP903	278,443	44,200	70,878	28,469	5,605	6,133
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	21,790	4,037	6,475	542	0	0
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	13,821	2,561	4,107	344	0	0
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	371	64	270	93	126	313
30 ACCT 920-ADMIN & GEN SALARY	EXP920	1,899	296	1,393	441	517	1,010
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	32,985	5,140	24,185	7,659	8,980	17,537
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	544,868	84,709	404,833	127,462	150,436	289,423
33 ACCT 925-INJURIES & DAMAGES	EXP925	36,944	5,757	27,088	8,579	10,058	19,642
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	37,732	5,877	27,771	8,782	10,351	20,237
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	319,463	49,782	234,237	74,182	86,975	169,849
36 ACCT 930-MISC GEN EXP	EXP930	28,997	4,519	21,261	6,733	7,895	15,417
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	1,803	278	1,421	439	563	1,119
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-29				
1 GAS PROD LABOR ACCTS 717-735	LABPO	12,805	0	0
2 GAS PROD LABOR ACCTS 741-743	LABPM	15,401	0	0
3 DIST LABOR OPER ACCT 851 - 882	LABDO	2,089,647	974,409	47,275
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	204,717	69,349	1,948
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	742,426	498,852	29,442
6 CUST SERV & INFO LABOR ACCT 908	LABSE	160,148	79,381	3,781
7 TOTAL GAS PROD OPER LABOR	TLABPO	25,182	0	0
8 TOTAL GAS PROD MAINT LABOR	TLABPM	27,778	0	0
9 TOTAL DISTR OPER LABOR	TLABDO	2,121,220	989,132	47,989
10 TOTAL DISTR MAINT LABOR	TLABDM	239,302	81,064	2,277
11 TOTAL DISTRIBUTION LABOR	DISTLAB	2,360,522	1,070,196	50,265
12 TOTAL CUST ACCTS LABOR	TLABCA	742,426	498,852	29,442
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	160,148	79,381	3,781
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	3,531,047	1,672,923	83,780
15 TOTAL GAS O & M LABOR	OMLAB	5,504,256	2,605,384	130,262
16 SUM OF ALLOCATED LABOR EXP	LABOR	6,999,739	3,255,987	157,650
17				
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	5,224,984	2,269,280	96,651
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	37,970,292	18,584,390	906,764
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-29							
1 GAS PROD LABOR ACCTS 717-735	LABPO	0	0	0	0	0	0
2 GAS PROD LABOR ACCTS 741-743	LABPM	0	0	0	0	0	0
3 DIST LABOR OPER ACCT 851 - 882	LABDO	356,223	55,897	281,228	90,462	97,624	180,194
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	30,912	4,465	35,472	10,107	16,768	35,231
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	137,990	22,063	33,810	13,527	3,199	3,543
6 CUST SERV & INFO LABOR ACCT 908	LABSE	23,108	3,970	16,803	5,788	7,836	19,483
7 TOTAL GAS PROD OPER LABOR	TLABPO	0	0	0	0	0	0
8 TOTAL GAS PROD MAINT LABOR	TLABPM	0	0	0	0	0	0
9 TOTAL DISTR OPER LABOR	TLABDO	361,605	56,741	285,477	91,828	99,099	182,916
10 TOTAL DISTR MAINT LABOR	TLABDM	36,134	5,219	41,465	11,814	19,600	41,183
11 TOTAL DISTRIBUTION LABOR	DISTLAB	397,739	61,960	326,942	103,642	118,699	224,100
12 TOTAL CUST ACCTS LABOR	TLABCA	137,990	22,063	33,810	13,527	3,199	3,543
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	23,108	3,970	16,803	5,788	7,836	19,483
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	572,465	89,897	396,069	128,172	138,684	266,080
15 TOTAL GAS O & M LABOR	OMLAB	892,157	140,045	619,110	200,123	217,478	417,674
16 SUM OF ALLOCATED LABOR EXP	LABOR	1,129,532	176,014	828,195	262,286	307,517	600,537
17							
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	818,863	124,415	710,958	211,717	305,665	619,703
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	5,741,498	892,028	4,288,914	1,337,094	1,618,974	3,142,690
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-30				

REVENUES FROM GAS SALES				
1 REVENUES FIRM SALES OF GAS		54,051,875	25,844,412	589,604
2 WEATHER ADJ NET REV SALES		732,954	532,432	2,897
3 WEATHER ADJ NET REV TRANS		164,445	0	0
4 CGA REVENUES		20,951,307	9,655,623	125,522
5 BASE REVENUE SALES		24,162,798	14,762,607	453,124
6 BASE REVENUE EXTERNAL SUPPLY		6,532,260	0	0
7 PRODUCTION REVENUES		938,029	433,832	5,609
8 CGA BAD DEBT CHARGES		129,165	60,160	687
9 LOW INCOME DISCOUNT		366,440	365,071	1,368
10 CGA BAD DEBT CHARGES FROM INCR		74,476	34,688	396
11 ANNUALIZATION ADJUSTMENT		0	0	0
12 PRODUCTION REVENUE ADJUSTMENT		0	0	0
REVENUE REQUIREMENT INPUTS				

1 CLAIMED RATE OF RETURN		8.300%	8.300%	8.300%
2 ANNUAL BOOKED CCF SALES & TRANS		69,908,226	17,320,928	239,073
3 PROPOSED SALES REVENUES		36,377,649	18,374,368	535,025
4 TOTAL ANNUAL CUSTOMERS		380,179	282,692	16,650
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-30							

REVENUES FROM GAS SALES							
1 REVENUES FIRM SALES OF GAS		10,339,903	1,656,200	8,087,564	2,257,615	2,639,790	2,636,787
2 WEATHER ADJ NET REV SALES		79,255	2,370	89,128	10,134	15,716	1,022
3 WEATHER ADJ NET REV TRANS		13,733	763	86,086	6,576	33,879	23,408
4 CGA REVENUES		4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
5 BASE REVENUE SALES		4,788,047	829,300	2,200,668	613,245	433,413	82,394
6 BASE REVENUE EXTERNAL SUPPLY		601,630	93,777	1,889,572	556,906	1,095,736	2,294,638
7 PRODUCTION REVENUES		203,630	32,735	159,911	47,893	43,793	10,627
8 CGA BAD DEBT CHARGES		29,107	3,824	22,242	5,782	6,015	1,348
9 LOW INCOME DISCOUNT		0	0	0	0	0	0
10 CGA BAD DEBT CHARGES FROM INCR		16,783	2,205	12,825	3,334	3,468	777
11 ANNUALIZATION ADJUSTMENT		0	0	0	0	0	0
12 PRODUCTION REVENUE ADJUSTMENT		0	0	0	0	0	0
REVENUE REQUIREMENT INPUTS							

1 CLAIMED RATE OF RETURN		8.300%	8.300%	8.300%	8.300%	8.300%	8.300%
2 ANNUAL BOOKED CCF SALES & TRANS		9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
3 PROPOSED SALES REVENUES		5,797,548	973,865	4,986,927	1,286,085	1,850,040	2,573,790
4 TOTAL ANNUAL CUSTOMERS		58,925	9,708	8,266	3,103	450	386
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE-31				
CAPACITY RELATED				
1	-----			
1	PRODUCTION ALLOCATORS			
2		1.00000	0.47444	0.00293
3		0.00000	0.00000	0.00000
4		0.00000	0.00000	0.00000
5		1.00000	0.47444	0.00293
6	DEMLPG	0.00000	0.00000	0.00000
7	DEMLNG	0.00000	0.00000	0.00000
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DISTRIBUTION ALLOCATORS				
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1	DISTR	1.00000	0.26639	0.00317
2	DISTRMAIN	1.00000	0.26639	0.00317
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

RATIO TABLE-31

CAPACITY RELATED

1	PRODUCTION ALLOCATORS						
2	DES DAY REMANNG DEMNDS - SALES	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
3	LPG PROD ALLOC-PROD	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	LNG PROD ALLOC-PROD	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	LPG & LNG PROD ALLOC-DISTR	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
6	LPG PRODUCTION DEMAND	DEMLPG	0.00000	0.00000	0.00000	0.00000	0.00000
7	LNG PRODUCTION DEMAND	DEMLNG	0.00000	0.00000	0.00000	0.00000	0.00000

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DISTRIBUTION ALLOCATORS

1	DISTRIBUTION ALLOCATOR	DISTR	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE CONT-32				
COMMODITY RELATED				
1 ANNUAL FIRM MCF SENDOUT		0.00000	0.00000	0.00000
2 ANNUAL FIRM CCF THROUGHPUT		1.00000	0.24777	0.00342
3 DIRECT GAS COST ALLOCATOR	EGAS	0.00000	0.00000	0.00000
4 CGA BAD DEBT ALLOCATOR	E904GAS	0.00000	0.00000	0.00000
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6 DIRECT GAS COST - BASE DIST ALLOC	EGASB	1.00000	0.46086	0.00599
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

RATIO TABLE CONT-32

COMMODITY RELATED

1	ANNUAL FIRM MCF SENDOUT		0.00000	0.00000	0.00000	0.00000	0.00000
2	ANNUAL FIRM CCF THROUGHPUT		0.13359	0.02404	0.18810	0.06412	0.09667
3	DIRECT GAS COST ALLOCATOR	EGAS	0.00000	0.00000	0.00000	0.00000	0.00000
4	CGA BAD DEBT ALLOCATOR	E904GAS	0.00000	0.00000	0.00000	0.00000	0.00000
5							
6	DIRECT GAS COST - BASE DIST ALLOC	EGASB	0.21993	0.03299	0.17312	0.04839	0.04810
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE CONT-33					
CUSTOMER RELATED					
1	ACCT 380-SERVICES	CUST380	1.00000	0.70506	0.04128
2	ACCT 381-383 METERS,MET INST,REG	CUST3813	1.00000	0.56319	0.03298
3	ACCT 386-OTHER PROP CUST PREM	CUST386	1.00000	0.26639	0.00317
4	ACCT 397-COMM EQ METSCAN - TELM	CUST397M	1.00000	0.00000	0.00000
5	ACCT 397-COMM EQUIP - ITRON	CUST397I	1.00000	0.74534	0.04364
6	CUSTOMER DEPOSITS	CUSTDEP	1.00000	0.18409	0.00965
7	CUSTOMERS TRANSPORTSTION	CUSTTRAN	1.00000	0.00000	0.00000
8	ACCT 902-METER READ EXP	CUST902	1.00000	0.72901	0.04269
9	ACCT 903-CUST RECORDS & COLL	CUST903	1.00000	0.66419	0.03925
10	ACCT 488 RECONNECT FEE	CUST488R	1.00000	0.76824	0.04525
11	ACCT 908-CUST ASSISTANCE EXP	CUST908	1.00000	0.49567	0.02361
12	ACCT 909-INFO & INSTR ADVERT	CUST909	1.00000	0.49567	0.02361
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

RATIO TABLE CONT-33

CUSTOMER RELATED

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
1 ACCT 380-SERVICES	CUST380	0.16653	0.02753	0.03501	0.01307	0.00621	0.00531
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
3 ACCT 386-OTHER PROP CUST PREM	CUST386	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	0.01408	0.04225	0.14085	0.05634	0.33803	0.40845
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	0.15556	0.02562	0.02135	0.00796	0.00042	0.00009
6 CUSTOMER DEPOSITS	CUSTDEP	0.33435	0.07583	0.26059	0.13548	0.00000	0.00000
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	0.48946	0.06862	0.27121	0.11408	0.02586	0.03077
8 ACCT 902-METER READ EXP	CUST902	0.15246	0.02599	0.02397	0.00902	0.00782	0.00904
9 ACCT 903-CUST RECORDS & COLL	CUST903	0.19039	0.03022	0.04846	0.01947	0.00383	0.00419
10 ACCT 488 RECONNECT FEE	CUST488R	0.16013	0.02638	0.00000	0.00000	0.00000	0.00000
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166
12 ACCT 909-INFO & INSTR ADVERT	CUST909	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE CONT-34				
EXTERNALLY DEVELOPED				
UNCOLLECTIBLE ACCOUNTS				
1 RESID NON HTG RATE R-6 & R-11	C904RNL	1.00000	0.00000	1.00000
2 RESID HEATING RATE R-5 & R-10	C904RH	1.00000	1.00000	0.00000
3 LOW LF SMALL RATE G40 & T40	C904G40	1.00000	0.00000	0.00000
4 LOW LF MEDIUM RATE G41 & T41	C904G41	1.00000	0.00000	0.00000
5 LOW LF LARGE RATE G42 & T42	C904G42	0.00000	0.00000	0.00000
6 HIGH LF SMALL RATE G50 & T50	C904G50	1.00000	0.00000	0.00000
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	1.00000	0.00000	0.00000
8 HIGH LF LARGE RATE G52 & T52	C904G52	0.00000	0.00000	0.00000
INTERNALLY DEVELOPED				
LATE PAYMENT CHARGES				
9 RESID NON HTG RATE R-6 & R-11	C488RNL	0.87233	0.00000	0.87233
10 RESID HEATING RATE R-5 & R-10	C488RH	0.64213	0.64213	0.00000
11 LOW LF SMALL RATE G40 & T40	C488G40	0.53630	0.00000	0.00000
12 LOW LF MEDIUM RATE G41 & T41	C488G41	0.52320	0.00000	0.00000
13 LOW LF LARGE RATE G42 & T42	C488G42	0.59904	0.00000	0.00000
14 HIGH LF SMALL RATE G50 & T50	C488G50	0.55061	0.00000	0.00000
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	0.55495	0.00000	0.00000
16 HIGH LF LARGE RATE G52 & T52	C488G52	0.92925	0.00000	0.00000
17				
18 INTERNALLY DEVELOPED				
19 WORKING CASH				
20				
21 TOTAL OPERATION & MAINTENANCE EXP				
22 LESS: PURCHASED GAS				
23 904-UNCOLLECTIBLE EXPENSE				
24 PLUS: OTHER TAXES				
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)				
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		0.94989	0.49331	0.02050
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

RATIO TABLE CONT-34

EXTERNALLY DEVELOPED

UNCOLLECTIBLE ACCOUNTS

1	RESID NON HTG RATE R-6 & R-11	C904RNL	0.00000	0.00000	0.00000	0.00000	0.00000
2	RESID HEATING RATE R-5 & R-10	C904RH	0.00000	0.00000	0.00000	0.00000	0.00000
3	LOW LF SMALL RATE G40 & T40	C904G40	1.00000	0.00000	0.00000	0.00000	0.00000
4	LOW LF MEDIUM RATE G41 & T41	C904G41	0.00000	0.00000	1.00000	0.00000	0.00000
5	LOW LF LARGE RATE G42 & T42	C904G42	0.00000	0.00000	0.00000	0.00000	0.00000
6	HIGH LF SMALL RATE G50 & T50	C904G50	0.00000	1.00000	0.00000	0.00000	0.00000
7	HIGH LF MEDIUM RATE G51 & T51	C904G51	0.00000	0.00000	0.00000	1.00000	0.00000
8	HIGH LF LARGE RATE G52 & T52	C904G52	0.00000	0.00000	0.00000	0.00000	0.00000

INTERNALLY DEVELOPED
LATE PAYMENT CHARGES

9	RESID NON HTG RATE R-6 & R-11	C488RNL	0.00000	0.00000	0.00000	0.00000	0.00000
10	RESID HEATING RATE R-5 & R-10	C488RH	0.00000	0.00000	0.00000	0.00000	0.00000
11	LOW LF SMALL RATE G40 & T40	C488G40	0.53630	0.00000	0.00000	0.00000	0.00000
12	LOW LF MEDIUM RATE G41 & T41	C488G41	0.00000	0.00000	0.52320	0.00000	0.00000
13	LOW LF LARGE RATE G42 & T42	C488G42	0.00000	0.00000	0.00000	0.59904	0.00000
14	HIGH LF SMALL RATE G50 & T50	C488G50	0.00000	0.55061	0.00000	0.00000	0.00000
15	HIGH LF MEDIUM RATE G51 & T51	C488G51	0.00000	0.00000	0.00000	0.55495	0.00000
16	HIGH LF LARGE RATE G52 & T52	C488G52	0.00000	0.00000	0.00000	0.00000	0.92925

INTERNALLY DEVELOPED
WORKING CASH

21	TOTAL OPERATION & MAINTENANCE EXP						
22	LESS: PURCHASED GAS						
23	904-UNCOLLECTIBLE EXPENSE						
24	PLUS: OTHER TAXES						
25	PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)						
26	TOTAL WORKING CASH ALLOCATOR	WORKCASH	0.16480	0.02734	0.11082	0.03381	0.03794

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
INTERNALLY DEVELOPED-35					
1 ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0.00000	0.00000	0.00000	
2 ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	0.95971	0.46516	0.02252	
3 ACCT 303-MISC INTANGIBLE PLT	PLT303	0.95971	0.46516	0.02252	
4 ACCT 305-STRUCTURES & IMPROVE	PLT305	0.00000	0.00000	0.00000	
5 ACCT 311-LP GAS EQUIP	PLT311	0.00000	0.00000	0.00000	
6 ACCT 320-OTHER EQUIPMENT	PLT320	0.00000	0.00000	0.00000	
7 ACCT 321-LNG EQUIPMENT	PLT321	0.00000	0.00000	0.00000	
8 ACCT 361-STRUCTURES & IMPROVE	PLT361	0.00000	0.00000	0.00000	
9 ACCT 362-GAS HOLDERS	PLT362	0.00000	0.00000	0.00000	
10 ACCT 363-PURIFICATION EQUIPMENT	PLT363	0.00000	0.00000	0.00000	
11 ACCT 375-STRUCTURES & IMPROVE	PLT375	1.00000	0.26639	0.00317	
12 ACCT 376-MAINS	PLT376	1.00000	0.26639	0.00317	
13 ACCT 376 MAINS & 380 SERVICES	PLT37680	1.00000	0.42456	0.01691	
14 ACCT 378-MEAS & REG STATION EQ	PLT378	1.00000	0.26639	0.00317	
15 ACCT 379-MEAS & REG CITY GATE	PLT379	1.00000	0.26639	0.00317	
16 ACCT 380-SERVICES	PLT380	1.00000	0.70506	0.04128	
17 ACCT 380-SERVICES - COMMERCIAL	PLT380C	1.00000	0.00000	0.00000	
18 ACCT 380-SERVICES - RESIDENTIAL	PLT380R	1.00000	0.94468	0.05532	
19 ACCT 380-383-SERV,METRS & REGUL	PLT3803	1.00000	0.66418	0.03889	
20 ACCT 381-METERS	PLT381	1.00000	0.56319	0.03298	
21 ACCT 381 - 383 METER & HSE REGUL	PLT3813	1.00000	0.56319	0.03298	
22 ACCT 382-METER INSTALLATION	PLT382	1.00000	0.56319	0.03298	
23 ACCT 383-HOUSE REGULATORS	PLT383	1.00000	0.56319	0.03298	
24 ACCT 386-OTHER PROP CUST PREM	PLT386	1.00000	0.26639	0.00317	
25 ACCT 391-OFFICE FURN & EQUIP	PLT391	0.95971	0.46516	0.02252	
26 ACCT 392-TRANSPORTATION EQUIP	PLT392	0.94833	0.00000	0.00000	
27 ACCT 393-STORES EQUIPMENT	PLT393	1.00000	0.43505	0.01831	
28 ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1.00000	0.43505	0.01831	
29 ACCT 396-POWER OPERATED EQUIP	PLT396	1.00000	0.43505	0.01831	
30 ACCT 397-COMMUNICATION EQUIP	PLT397	0.95971	0.46516	0.02252	
31 ACCT 397-COMM EQ METSCAN - TEL	PLT397M	1.00000	0.00000	0.00000	
32 ACCT 397-COMM EQUIP - ITRON	PLT397I	1.00000	0.74534	0.04364	
33 TOTAL PROD & STORAGE PLANT	PSPLT	0.00000	0.00000	0.00000	
34 DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	1.00000	0.26639	0.00317	
35 TOTAL DISTRIBUTION PLANT	DISTRPLT	1.00000	0.43505	0.01831	
36 TOTAL GENERAL PLT EX 397M & 397I	GENPLT	0.97494	0.45378	0.02093	
37 TOTAL GAS PLANT IN SERVICE	PLANT	0.98735	0.43488	0.01856	
38					

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED-35								
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	ACCT 311-LP GAS EQUIP	PLT311	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6	ACCT 320-OTHER EQUIPMENT	PLT320	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
7	ACCT 321-LNG EQUIPMENT	PLT321	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
9	ACCT 362-GAS HOLDERS	PLT362	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
12	ACCT 376-MAINS	PLT376	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	0.15481	0.02316	0.14137	0.04098	0.06448	0.13372
14	ACCT 378-MEAS & REG STATION EQ	PLT378	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
15	ACCT 379-MEAS & REG CITY GATE	PLT379	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
16	ACCT 380-SERVICES	PLT380	0.16653	0.02753	0.03501	0.01307	0.00621	0.00531
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	0.85815	0.14185	0.00000	0.00000	0.00000	0.00000
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	0.17303	0.02860	0.05621	0.02098	0.00976	0.00835
20	ACCT 381-METERS	PLT381	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
22	ACCT 382-METER INSTALLATION	PLT382	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
23	ACCT 383-HOUSE REGULATORS	PLT383	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
24	ACCT 386-OTHER PROP CUST PREM	PLT386	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	0.82048	0.12785	0.00000	0.00000	0.00000	0.00000
27	ACCT 393-STORES EQUIPMENT	PLT393	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
29	ACCT 396-POWER OPERATED EQUIP	PLT396	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
30	ACCT 397-COMMUNICATION EQUIP	PLT397	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	0.01408	0.04225	0.14085	0.05634	0.33803	0.40845
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	0.15556	0.02562	0.02135	0.00796	0.00042	0.00009
33	TOTAL PROD & STORAGE PLANT	PSPLT	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	0.16037	0.02473	0.12644	0.03902	0.05008	0.09958
37	TOTAL GAS PLANT IN SERVICE	PLANT	0.15684	0.02383	0.13598	0.04052	0.05840	0.11835
38								

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
INTERNALLY DEVELOPED CONT-36					
1 ACCT 717-PROPANE EXPENSES	EXP717	0.00000	0.00000	0.00000	
2 ACCT 718-DISPATCHING PROD	EXP718	0.00000	0.00000	0.00000	
3 ACCT 735-MISCELLANEOUS	EXP735	0.00000	0.00000	0.00000	
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	0.00000	0.00000	0.00000	
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	0.00000	0.00000	0.00000	
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0.00000	0.00000	0.00000	
7 TOTAL GAS COSTS	GASCOSTS	0.00000	0.00000	0.00000	
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	0.42770	0.11393	0.00136	
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	0.96598	0.25732	0.00306	
10 ACCT 857-879 DIST OPER EXP	EXP8519	1.00000	0.48337	0.02411	
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0.00000	0.00000	0.00000	
12 ACCT 874-MAINS & SERVICE EXP	EXP874	1.00000	0.42456	0.01691	
13 ACCT 875-REGULAT STATION EXP	EXP875	1.00000	0.26639	0.00317	
14 ACCT 878-METER & HOUSE REG EXP	EXP878	1.00000	0.56319	0.03298	
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	1.00000	0.66418	0.03889	
16 ACCT 880-OTHER EXPENSE	EXP880	1.00000	0.48337	0.02411	
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	1.00000	0.26639	0.00317	
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	1.00000	0.26639	0.00317	
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	1.00000	0.26639	0.00317	
20 ACCT 889-MT OF M & R STA EQ	EXP889	1.00000	0.26639	0.00317	
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	1.00000	0.26639	0.00317	
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	0.98268	0.26177	0.00311	
23 ACCT 892-MAINTENANCE OF SERV	EXP892	1.00000	0.70506	0.04128	
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	1.00000	0.56319	0.03298	
25 ACCT 902-METER READING EXP	EXP902	1.00000	0.72901	0.04269	
26 ACCT 903-CUST RECORDS & COLL	EXP903	1.00000	0.66419	0.03925	
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	0.54566	0.45151	0.02088	
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	1.00000	0.82745	0.03826	
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	1.00000	0.49567	0.02361	
30 ACCT 920-ADMIN & GEN SALARY	EXP920	0.95971	0.46516	0.02252	
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	0.95971	0.46516	0.02252	
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	0.96105	0.46215	0.02193	
33 ACCT 925-INJURIES & DAMAGES	EXP925	0.95971	0.46516	0.02252	
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	0.96030	0.46451	0.02244	
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	0.95971	0.46516	0.02252	
36 ACCT 930-MISC GEN EXP	EXP930	0.95971	0.46516	0.02252	
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	0.97494	0.45378	0.02093	
38					

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-36								
1	ACCT 717-PROPANE EXPENSES	EXP717	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	ACCT 718-DISPATCHING PROD	EXP718	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	ACCT 735-MISCELLANEOUS	EXP735	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	ACCT 741-MAINTENANCE OF PLANT	EXP741	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	ACCT 742-MAINTENANCE OF EQUIP	EXP742	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6	ACCT 743-GAS SYS PROD TRAINING	EXP743	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
7	TOTAL GAS COSTS	GASCOSTS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
8	ACCT 813-OTHER GAS SUPPLY EXP	EXP813	0.06339	0.00885	0.08612	0.02426	0.04163	0.08816
9	ACCT 851-SYSTEM CONTROL & DISP	EXP851	0.14316	0.02000	0.19450	0.05479	0.09403	0.19912
10	ACCT 857-879 DIST OPER EXP	EXP8519	0.17203	0.02715	0.12932	0.04204	0.04338	0.07860
11	ACCT 857-MEAS & REG STATION EXP	EXP857	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12	ACCT 874-MAINS & SERVICE EXP	EXP874	0.15481	0.02316	0.14137	0.04098	0.06448	0.13372
13	ACCT 875-REGULAT STATION EXP	EXP875	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
14	ACCT 878-METER & HOUSE REG EXP	EXP878	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
15	ACCT 879-CUSTOMER INSTALL EXP	EXP879	0.17303	0.02860	0.05621	0.02098	0.00976	0.00835
16	ACCT 880-OTHER EXPENSE	EXP880	0.17203	0.02715	0.12932	0.04204	0.04338	0.07860
17	ACCT 886-MAINT STRUCT & IMPROV	EXP886	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
18	ACCT 894-MAINT OF OTHER EQUIP	EXP894	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
19	ACCT 887-MAINTENANCE OF MAINS	EXP887	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
20	ACCT 889-MT OF M & R STA EQ	EXP889	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
21	ACCT 890-MT OF REG EQ (INDUST)	EXP890	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
22	ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	0.14563	0.02034	0.19786	0.05574	0.09565	0.20256
23	ACCT 892-MAINTENANCE OF SERV	EXP892	0.16653	0.02753	0.03501	0.01307	0.00621	0.00531
24	ACCT 893-MAINT MET & HOUSE REG	EXP893	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
25	ACCT 902-METER READING EXP	EXP902	0.15246	0.02599	0.02397	0.00902	0.00782	0.00904
26	ACCT 903-CUST RECORDS & COLL	EXP903	0.19039	0.03022	0.04846	0.01947	0.00383	0.00419
27	ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	0.04862	0.00901	0.01445	0.00121	0.00000	0.00000
28	ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	0.08909	0.01651	0.02647	0.00222	0.00000	0.00000
29	ACCT 909-INFO & INSTRUCT ADVERT	EXP909	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166
30	ACCT 920-ADMIN & GEN SALARY	EXP920	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
31	ACCT 921-OFFICE SUPPLIES & EXP	EXP921	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
32	ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	0.16225	0.02522	0.12055	0.03796	0.04480	0.08618
33	ACCT 925-INJURIES & DAMAGES	EXP925	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
34	ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	0.16127	0.02512	0.11870	0.03754	0.04424	0.08649
35	ACCT 926-EMPLOY PENSION & BENF	EXP926	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
36	ACCT 930-MISC GEN EXP	EXP930	0.16137	0.02515	0.11832	0.03747	0.04393	0.08579
37	ACCT 935-MAINT OF GENERAL PLT	EXP935	0.16037	0.02473	0.12644	0.03902	0.05008	0.09958
38								

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-37				
1 GAS PROD LABOR ACCTS 717-735	LABPO	0.00000	0.00000	0.00000
2 GAS PROD LABOR ACCTS 741-743	LABPM	0.00000	0.00000	0.00000
3 DIST LABOR OPER ACCT 851 - 882	LABDO	0.99697	0.46630	0.02262
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	0.99772	0.33875	0.00951
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	1.00000	0.67192	0.03966
6 CUST SERV & INFO LABOR ACCT 908	LABSE	1.00000	0.49567	0.02361
7 TOTAL GAS PROD OPER LABOR	TLABPO	0.00000	0.00000	0.00000
8 TOTAL GAS PROD MAINT LABOR	TLABPM	0.00000	0.00000	0.00000
9 TOTAL DISTR OPER LABOR	TLABDO	0.99697	0.46630	0.02262
10 TOTAL DISTR MAINT LABOR	TLABDM	0.99772	0.33875	0.00951
11 TOTAL DISTRIBUTION LABOR	DISTLAB	0.99704	0.45337	0.02129
12 TOTAL CUST ACCTS LABOR	TLABCA	1.00000	0.67192	0.03966
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	1.00000	0.49567	0.02361
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	0.94818	0.47378	0.02373
15 TOTAL GAS O & M LABOR	OMLAB	0.94876	0.47334	0.02367
16 SUM OF ALLOCATED LABOR EXP	LABOR	0.95971	0.46516	0.02252
17				
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	0.98704	0.43431	0.01850
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	0.96160	0.48945	0.02388
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-37							
1	GAS PROD LABOR ACCTS 717-735	LABPO	0.00000	0.00000	0.00000	0.00000	0.00000
2	GAS PROD LABOR ACCTS 741-743	LABPM	0.00000	0.00000	0.00000	0.00000	0.00000
3	DIST LABOR OPER ACCT 851 - 882	LABDO	0.17047	0.02675	0.13458	0.04329	0.08623
4	DIST LABOR MAINT ACCT 886 - 894	LABDM	0.15100	0.02181	0.17327	0.04937	0.17210
5	CUST ACCTS LABOR ACCT 902 - 903	LABCA	0.18586	0.02972	0.04554	0.01822	0.00431
6	CUST SERV & INFO LABOR ACCT 908	LABSE	0.14429	0.02479	0.10492	0.03614	0.04893
7	TOTAL GAS PROD OPER LABOR	TLABPO	0.00000	0.00000	0.00000	0.00000	0.00000
8	TOTAL GAS PROD MAINT LABOR	TLABPM	0.00000	0.00000	0.00000	0.00000	0.00000
9	TOTAL DISTR OPER LABOR	TLABDO	0.17047	0.02675	0.13458	0.04329	0.08623
10	TOTAL DISTR MAINT LABOR	TLABDM	0.15100	0.02181	0.17327	0.04937	0.17210
11	TOTAL DISTRIBUTION LABOR	DISTLAB	0.16850	0.02625	0.13850	0.04391	0.05029
12	TOTAL CUST ACCTS LABOR	TLABCA	0.18586	0.02972	0.04554	0.01822	0.00431
13	CUSTOMER SERVICE & INFO LABOR	TLABSE	0.14429	0.02479	0.10492	0.03614	0.04893
14	TOTAL GAS LABOR EXCL A&G	LABORXAG	0.16212	0.02546	0.11217	0.03630	0.03928
15	TOTAL GAS O & M LABOR	OMLAB	0.16208	0.02544	0.11248	0.03636	0.03951
16	SUM OF ALLOCATED LABOR EXP	LABOR	0.16137	0.02515	0.11832	0.03747	0.04393
17							
18	DEFERRED INCOME TAXES PRELIM	DEFTAX	0.15672	0.02381	0.13607	0.04052	0.05850
19	REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	0.15121	0.02349	0.11295	0.03521	0.04264
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-38				
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

DELIVERY SERVICE

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

INTERNALLY DEVELOPED CONT-38

1						
2	REVENUES FROM GAS SALES					
3	REVENUES FIRM SALES OF GAS	0.19130	0.03064	0.14963	0.04177	0.04884
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Schedule DLG/PMN-1G-4

Total Production Only Cost of Service Study

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP				
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
SUMMARY OF RESULTS-1				
RATE BASE				
1 GAS PLANT IN SERVICE		2,519,896	1,195,530	7,372
2 LESS: DEPREC & AMORT RES		438,927	208,243	1,284
3 NET UTILITY PLANT IN SERVICE		2,080,968	987,287	6,088
ADD:				
4 WORKING CASH REQUIREMENT		21,324	9,685	43
5 MATERIALS & SUPPLIES		0	0	0
6 PREPAYMENTS		0	0	0
DEDUCT:				
7 CUSTOMER DEPOSITS		0	0	0
8 CUSTOMER ADVANCES		0	0	0
9 DEFERRED TAXES		200,085	94,928	585
10 RATE BASE		1,902,207	902,045	5,545
DEVELOPMENT OF RETURN				
11 SALES OF GAS TO ULTIMATE CUST		483,353	209,693	518
12 OTHER OPERATING REVENUES		2,059	1,199	7
13 TOTAL GAS OPERATING REVENUES		485,412	210,892	525
LESS:				
14 PURCHASED GAS COSTS		0	0	0
15 OTHER OPER & MAINT EXPENSE		150,417	71,359	440
16 DEPRECIATION AND AMORTIZATION EXPENSE		51,098	24,243	149
17 OTHER TAXES		53,045	25,166	155
18 INCOME TAXES		109,132	44,059	(34)
19 INTEREST ON CUSTOMER DEPOSITS		0	0	0
20 TOTAL OPERATING EXPENSE		363,692	164,827	710
21 NET OPERATING INCOME		121,719	46,066	(185)
22 RATE OF RETURN		6.40%	5.11%	-3.34%
23 RELATIVE RATE OF RETURN		1.000	0.798	-0.523

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
SUMMARY OF RESULTS-1								
RATE BASE								
1	GAS PLANT IN SERVICE		612,881	18,380	482,414	50,944	124,945	27,429
2	LESS: DEPREC & AMORT RES		106,754	3,202	84,029	8,874	21,764	4,778
3	NET UTILITY PLANT IN SERVICE		506,126	15,178	398,385	42,071	103,182	22,651
ADD:								
4	WORKING CASH REQUIREMENT		5,351	169	4,304	436	1,110	226
5	MATERIALS & SUPPLIES		0	0	0	0	0	0
6	PREPAYMENTS		0	0	0	0	0	0
DEDUCT:								
7	CUSTOMER DEPOSITS		0	0	0	0	0	0
8	CUSTOMER ADVANCES		0	0	0	0	0	0
9	DEFERRED TAXES		48,664	1,459	38,305	4,045	9,921	2,178
10	RATE BASE		462,813	13,889	364,384	38,461	94,370	20,699
DEVELOPMENT OF RETURN								
11	SALES OF GAS TO ULTIMATE CUST		125,059	4,160	102,606	9,979	26,357	4,982
12	OTHER OPERATING REVENUES		441	12	281	37	67	15
13	TOTAL GAS OPERATING REVENUES		125,499	4,171	102,887	10,016	26,424	4,997
LESS:								
14	PURCHASED GAS COSTS		0	0	0	0	0	0
15	OTHER OPER & MAINT EXPENSE		36,585	1,097	28,799	3,041	7,459	1,637
16	DEPRECIATION AND AMORTIZATION EXPENSE		12,428	373	9,782	1,033	2,534	556
17	OTHER TAXES		12,901	387	10,155	1,072	2,630	577
18	INCOME TAXES		29,495	1,046	24,853	2,288	6,350	1,077
19	INTEREST ON CUSTOMER DEPOSITS		0	0	0	0	0	0
20	TOTAL OPERATING EXPENSE		91,409	2,903	73,589	7,434	18,973	3,848
21	NET OPERATING INCOME		34,090	1,269	29,298	2,582	7,451	1,149
22	RATE OF RETURN		7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
23	RELATIVE RATE OF RETURN		1.151	1.427	1.257	1.049	1.234	0.868

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE-2					
GAS PLANT IN SERVICE					
INTANGIBLE PLANT					
1	303.2-INTANGIBLE SOFTWARE - 10YR	LABOR	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	LABOR	41,288	19,589	121
3	TOTAL INTANGIBLE PLANT		41,288	19,589	121
PRODUCTION PLANT					
4	304-LAND	DEMLPG	6,816	3,234	20
5	305-STRUCTURES	DEMLPG	161,860	76,792	474
6	310-LAND & LAND RIGHTS	DEMLPG	0	0	0
7	311-LPG GAS EQUIPMENT	DEMLPG	0	0	0
8	320-OTHER EQUIPMENT	DEMLPG	7,640	3,625	22
9	321-LNG EQUIPMENT	DEMLPG	84,156	39,926	246
10	TOTAL PRODUCTION PLANT		260,472	123,577	762
OTHER STORAGE PLANT					
11	360-LAND	DEMLNG	0	0	0
12	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0
13	362-GAS HOLDERS	DEMLPG	0	0	0
14	363-PURIFICATION EQUIPMENT	DEMLPG	0	0	0
15	TOTAL OTHER STORAGE PLANT		0	0	0
16	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	2,193,573	1,040,711	6,417

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE-2								
GAS PLANT IN SERVICE								
INTANGIBLE PLANT								
1	303.2-INTANGIBLE SOFTWARE - 10YR	LABOR	0	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	LABOR	10,042	301	7,904	835	2,047	449
3	TOTAL INTANGIBLE PLANT		10,042	301	7,904	835	2,047	449
PRODUCTION PLANT								
4	304-LAND	DEMLPG	1,658	50	1,305	138	338	74
5	305-STRUCTURES	DEMLPG	39,367	1,181	30,987	3,272	8,026	1,762
6	310-LAND & LAND RIGHTS	DEMLPG	0	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	DEMLPG	0	0	0	0	0	0
8	320-OTHER EQUIPMENT	DEMLPG	1,858	56	1,463	154	379	83
9	321-LNG EQUIPMENT	DEMLPG	20,468	614	16,111	1,701	4,173	916
10	TOTAL PRODUCTION PLANT		63,351	1,900	49,865	5,266	12,915	2,835
OTHER STORAGE PLANT								
11	360-LAND	DEMLNG	0	0	0	0	0	0
12	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0	0	0	0
13	362-GAS HOLDERS	DEMLPG	0	0	0	0	0	0
14	363-PURIFICATION EQUIPMENT	DEMLPG	0	0	0	0	0	0
15	TOTAL OTHER STORAGE PLANT		0	0	0	0	0	0
16	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	533,514	16,000	419,942	44,347	108,765	23,877

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF RATE BASE CON'T-3					
DISTRIBUTION PLANT					
1	374.4-LAND RIGHTS	DISTOTH	0	0	0
2	374.5-RIGHT OF WAY	DISTRMAIN	0	0	0
3	375-STRUCTURES & IMPROVE	DISTR	0	0	0
4	376-MAINS	DISTRMAIN	0	0	0
5	378-MEAS & REG STATION EQ	DISTR	0	0	0
6	379-MEAS & REG CITY GATE	DISTR	0	0	0
7	380-SERVICES	CUST380	0	0	0
8	381-METERS	CUST3813	0	0	0
9	382-METER INSTALLATION	CUST3813	0	0	0
10	383-HOUSE REGULATORS	CUST3813	0	0	0
11	386-CONV BURNERS & WAT HEATER	CUST386	0	0	0
12	TOTAL DISTRIBUTION PLANT		0	0	0
GENERAL & COMMON PLANT					
13	389.1-LAND	LABOR	2,716	1,289	8
14	391-OFFICE EQUIPMENT	LABOR	4,900	2,325	14
15	392-TRANSPORTATION EQUIP	LABOR	0	0	0
16	393-STORES EQUIPMENT	DISTRPLT	0	0	0
17	394-TOOLS, SHOP & GARAGE EQ	DISTRPLT	0	0	0
18	396-POWER OPERATED EQUIP	DISTRPLT	0	0	0
19	397-COMMUNICATION EQUIP	LABOR	16,946	8,040	50
20	397-COMM EQ METSCAN - TELEMET	CUST397M	0	0	0
21	397-COMM EQ - ERT AUTO RDG DEV-G	CUST397I	0	0	0
22	TOT GENERAL & COMMON PLT		24,562	11,653	72
23	TOTAL GAS PLANT IN SERVICE		2,519,896	1,195,530	7,372

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-3								
DISTRIBUTION PLANT								
1	374.4-LAND RIGHTS	DISTOTH	0	0	0	0	0	0
2	374.5-RIGHT OF WAY	DISTRMAIN	0	0	0	0	0	0
3	375-STRUCTURES & IMPROVE	DISTR	0	0	0	0	0	0
4	376-MAINS	DISTRMAIN	0	0	0	0	0	0
5	378-MEAS & REG STATION EQ	DISTR	0	0	0	0	0	0
6	379-MEAS & REG CITY GATE	DISTR	0	0	0	0	0	0
7	380-SERVICES	CUST380	0	0	0	0	0	0
8	381-METERS	CUST3813	0	0	0	0	0	0
9	382-METER INSTALLATION	CUST3813	0	0	0	0	0	0
10	383-HOUSE REGULATORS	CUST3813	0	0	0	0	0	0
11	386-CONV BURNERS & WAT HEATER	CUST386	0	0	0	0	0	0
12	TOTAL DISTRIBUTION PLANT		0	0	0	0	0	0
GENERAL & COMMON PLANT								
13	389.1-LAND	LABOR	661	20	520	55	135	30
14	391-OFFICE EQUIPMENT	LABOR	1,192	36	938	99	243	53
15	392-TRANSPORTATION EQUIP	LABOR	0	0	0	0	0	0
16	393-STORES EQUIPMENT	DISTRPLT	0	0	0	0	0	0
17	394-TOOLS, SHOP & GARAGE EQ	DISTRPLT	0	0	0	0	0	0
18	396-POWER OPERATED EQUIP	DISTRPLT	0	0	0	0	0	0
19	397-COMMUNICATION EQUIP	LABOR	4,122	124	3,244	343	840	184
20	397-COMM EQ METSCAN - TELEMET	CUST397M	0	0	0	0	0	0
21	397-COMM EQ - ERT AUTO RDG DEV-G	CUST397I	0	0	0	0	0	0
22	TOT GENERAL & COMMON PLT		5,974	179	4,702	497	1,218	267
23	TOTAL GAS PLANT IN SERVICE		612,881	18,380	482,414	50,944	124,945	27,429

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF RATE BASE CON'T-4					
DEPRECIATION & AMORTIZATION RESERVE					
INTANGIBLE PLANT RESERVE					
1	303.2-INTANGIBLE SOFTWARE - 10YR	PLT303.2	0	0	
2	303.3-INT PLT- MISC SOFTWARE	PLT303.3	30,243	14,348	88
3	TOT INTANGIBLE PLT RESERVE		30,243	14,348	88
PRODUCTION PLANT RESERVE					
4	305-STRUCTURES	PLT305	129,465	61,423	379
5	311-LPG GAS EQUIPMENT	PLT311	0	0	0
6	320-OTHER EQUIPMENT	PLT320	2,756	1,307	8
7	321-LNG EQUIPMENT	PLT321	56,611	26,858	166
8	TOTAL PRODUCTION RESERVE		188,832	89,589	552
9	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	188,832	89,589	552
OTHER STORAGE PLANT					
10	361-STRUCTURES & IMPROVE	PLT361	0	0	0
11	362-GAS HOLDERS	PLT362	0	0	0
12	363-PURIFICATION EQUIPMENT	PLT363	0	0	0
13	TOTAL OTHER STORAGE PLANT		0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-4								
DEPRECIATION & AMORTIZATION RESERVE								
INTANGIBLE PLANT RESERVE								
1	303.2-INTANGIBLE SOFTWARE - 10YR	PLT303.2	0	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	PLT303.3	7,356	221	5,790	611	1,500	329
3	TOT INTANGIBLE PLT RESERVE		7,356	221	5,790	611	1,500	329
PRODUCTION PLANT RESERVE								
4	305-STRUCTURES	PLT305	31,488	944	24,785	2,617	6,419	1,409
5	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0	0
6	320-OTHER EQUIPMENT	PLT320	670	20	528	56	137	30
7	321-LNG EQUIPMENT	PLT321	13,769	413	10,838	1,145	2,807	616
8	TOTAL PRODUCTION RESERVE		45,927	1,377	36,150	3,818	9,363	2,055
9	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	45,927	1,377	36,150	3,818	9,363	2,055
OTHER STORAGE PLANT								
10	361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0	0
11	362-GAS HOLDERS	PLT362	0	0	0	0	0	0
12	363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0	0
13	TOTAL OTHER STORAGE PLANT		0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-5					
DISTRIBUTION PLANT RESERVE					
1	375-STRUCTURES & IMPROVE	PLT375	0	0	0
2	376-MAINS	PLT376	0	0	0
3	378-MEAS & REG STATION EQ	PLT378	0	0	0
4	379-MEAS & REG CITY GATE	PLT379	0	0	0
5	380-SERVICES	PLT380	0	0	0
6	381-METERS	PLT381	0	0	0
7	382-METER INSTALLATION	PLT382	0	0	0
8	383-HOUSE REGULATORS	PLT383	0	0	0
9	386-CONV BURNERS & WAT HEATER	PLT386	0	0	0
10	TOTAL DISTRIBUTION PLANT		0	0	0
GENERAL & COMMON PLT RESERVE					
11	391-OFFICE EQUIPMENT	PLT391	1,873	889	5
12	392-TRANSPORTATION EQUIP	PLT392	0	0	0
13	393-STORES EQUIPMENT	PLT393	0	0	0
14	394-TOOLS, SHOP & GARAGE EQ	PLT394	0	0	0
15	396-POWER OPERATED EQUIP	PLT396	0	0	0
16	397-COMMUNICATION EQUIP	PLT397	12,540	5,950	37
17	397-COMM EQ METSCAN - TELEMET	PLT397M	0	0	0
18	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	0	0	0
19	TOTAL GENERAL PLT RESERVE		14,413	6,838	42
20	PROFORMA ADJUSTMNTS - OTHER	PLANT	16,607	7,879	49
21	TOTAL DEPRECIATION RESERVE		438,927	208,243	1,284
22	NET UTILITY PLANT		2,080,968	987,287	6,088

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-5								
DISTRIBUTION PLANT RESERVE								
1	375-STRUCTURES & IMPROVE	PLT375	0	0	0	0	0	0
2	376-MAINS	PLT376	0	0	0	0	0	0
3	378-MEAS & REG STATION EQ	PLT378	0	0	0	0	0	0
4	379-MEAS & REG CITY GATE	PLT379	0	0	0	0	0	0
5	380-SERVICES	PLT380	0	0	0	0	0	0
6	381-METERS	PLT381	0	0	0	0	0	0
7	382-METER INSTALLATION	PLT382	0	0	0	0	0	0
8	383-HOUSE REGULATORS	PLT383	0	0	0	0	0	0
9	386-CONV BURNERS & WAT HEATER	PLT386	0	0	0	0	0	0
10	TOTAL DISTRIBUTION PLANT		0	0	0	0	0	0
GENERAL & COMMON PLT RESERVE								
11	391-OFFICE EQUIPMENT	PLT391	455	14	359	38	93	20
12	392-TRANSPORTATION EQUIP	PLT392	0	0	0	0	0	0
13	393-STORES EQUIPMENT	PLT393	0	0	0	0	0	0
14	394-TOOLS, SHOP & GARAGE EQ	PLT394	0	0	0	0	0	0
15	396-POWER OPERATED EQUIP	PLT396	0	0	0	0	0	0
16	397-COMMUNICATION EQUIP	PLT397	3,050	91	2,401	254	622	137
17	397-COMM EQ METSCAN - TELEMET	PLT397M	0	0	0	0	0	0
18	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	0	0	0	0	0	0
19	TOTAL GENERAL PLT RESERVE		3,506	105	2,759	291	715	157
20	PROFORMA ADJUSTMNTS - OTHER	PLANT	4,039	121	3,179	336	823	181
21	TOTAL DEPRECIATION RESERVE		106,754	3,202	84,029	8,874	21,764	4,778
22	NET UTILITY PLANT		506,126	15,178	398,385	42,071	103,182	22,651

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF RATE BASE CON'T-6					
ADDITIONS TO NET PLANT					
WORKING CAPITAL REQUIREMENTS					
CASH WORKING CAPITAL REQ					
1	PURCHASED GAS	0	0	0	
2	OTHER O&M & TAXES	21,324	9,685	43	
3	TOTAL CASH WORKING CAP	21,324	9,685	43	
MATERIALS & SUPPLIES					
4	MATERIALS AND SUPPLIES	0	0	0	
5	STORES EXPENSE UNDISTRIBUTED	0	0	0	
6	TOTAL MATERIALS & SUPPLIES	0	0	0	
7	TOTAL WORKING CAPITAL	21,324	9,685	43	
PREPAYMENTS					
8	PREPAYMENTS - OTHER	0	0	0	
9	PREPAYMENTS - PENSION	0	0	0	
10	PREPAYMENTS - OPEB	0	0	0	
11	TOTAL PREPAYMENTS	0	0	0	
12	TOTAL ADDITIONS TO NET PLT	21,324	9,685	43	

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
DEVELOPMENT OF RATE BASE CONT-6								
ADDITIONS TO NET PLANT								
WORKING CAPITAL REQUIREMENTS								
CASH WORKING CAPITAL REQ								
1	PURCHASED GAS		0	0	0	0	0	0
2	OTHER O&M & TAXES	WORKCASH	5,351	169	4,304	436	1,110	226
3	TOTAL CASH WORKING CAP		5,351	169	4,304	436	1,110	226
MATERIALS & SUPPLIES								
4	MATERIALS AND SUPPLIES	DISTRPLT	0	0	0	0	0	0
5	STORES EXPENSE UNDISTRIBUTED	DISTRPLT	0	0	0	0	0	0
6	TOTAL MATERIALS & SUPPLIES		0	0	0	0	0	0
7	TOTAL WORKING CAPITAL		5,351	169	4,304	436	1,110	226
PREPAYMENTS								
8	PREPAYMENTS - OTHER	PLANT	0	0	0	0	0	0
9	PREPAYMENTS - PENSION	EXP926	0	0	0	0	0	0
10	PREPAYMENTS - OPEB	EXP926	0	0	0	0	0	0
11	TOTAL PREPAYMENTS		0	0	0	0	0	0
12	TOTAL ADDITIONS TO NET PLT		5,351	169	4,304	436	1,110	226

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF RATE BASE CON'T-7					
DEDUCTIONS TO NET PLANT					
1	CUSTOMER DEPOSITS	CUSTDEP	0	0	0
2	CUSTOMER ADVANCES	PLT37680	0	0	0
ACCUM DEFERRED INCOME TAX					
4	ACCEL DEP & AMORT & SETT ADJ	PLANT	206,655	98,045	605
5	FAS 87 / 106	EXP926	(9,909)	(4,701)	(29)
6	BAD DEBT	EXP904	0	0	0
7	PREPAID PROPERTY TAXES	PLANT	2,677	1,270	8
8	DEFERRED RATE CASE COSTS	REVCLAIM	260	123	1
9	UNAMORT ITC (ACCT 255)	PLANT	431	205	1
10	ACCUM NON-CURRENT	PLANT	5	2	0
11	INSURANCE CLAIM	EXP9245	(34)	(16)	(0)
12	TOTAL ACCUM DEF INCOME TAX		200,085	94,928	585
13	TOTAL DEDUCTIONS TO NET PLT		200,085	94,928	585
14	TOTAL RATE BASE		1,902,207	902,045	5,545

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CON'T-7		ALLOC						
DEDUCTIONS TO NET PLANT								
1	CUSTOMER DEPOSITS	CUSTDEP	0	0	0	0	0	0
2	CUSTOMER ADVANCES	PLT37680	0	0	0	0	0	0
ACCUM DEFERRED INCOME TAX								
4	ACCEL DEP & AMORT & SETT ADJ	PLANT	50,262	1,507	39,562	4,178	10,247	2,249
5	FAS 87 / 106	EXP926	(2,410)	(72)	(1,897)	(200)	(491)	(108)
6	BAD DEBT	EXP904	0	0	0	0	0	0
7	PREPAID PROPERTY TAXES	PLANT	651	20	512	54	133	29
8	DEFERRED RATE CASE COSTS	REVCLAIM	63	2	50	5	13	3
9	UNAMORT ITC (ACCT 255)	PLANT	105	3	83	9	21	5
10	ACCUM NON-CURRENT	PLANT	1	0	1	0	0	0
11	INSURANCE CLAIM	EXP9245	(8)	(0)	(7)	(1)	(2)	(0)
12	TOTAL ACCUM DEF INCOME TAX		48,664	1,459	38,305	4,045	9,921	2,178
13	TOTAL DEDUCTIONS TO NET PLT		48,664	1,459	38,305	4,045	9,921	2,178
14	TOTAL RATE BASE		462,813	13,889	364,384	38,461	94,370	20,699

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
REVENUES-8					
GAS OPERATING REVENUES					
1	TOTAL FIRM SALES OF GAS		483,353	209,693	518
2	SPECIAL CONTRACT REVENUES	DISTR	0	0	0
3	TOTAL REVENUE SALES OF GAS		483,353	209,693	518
OTHER OPERATING REVENUES					
487-LATE PAYMENT CHARGES					
4	RESIDENTIAL HEATING - R-5 & R-10	C488RH	674	674	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C488RNH	4	0	4
6	C&I SMALL - LLF G40	C488G40	171	0	0
7	C&I SMALL - HLF G50	C488G50	3	0	0
8	C&I MEDIUM - LLF G41	C488G41	69	0	0
9	C&I MEDIUM - HLF G51	C488G51	15	0	0
10	C&I LARGE - LLF G42	C488G42	12	0	0
11	C&I LARGE - HLF G52	C488G52	3	0	0
12	TOTAL ACCOUNT 487		951	674	4
488-MISC SERVICE REVENUE					
13	RECONNECT FEE	CUST488R	0	0	0
14	POOL ADMINISTRATION	CUSTTRAN	0	0	0
15	3RD PARTY BILLING	CUSTTRAN	0	0	0
16	CUSTOMER TELEMETERING	PLT397M	0	0	0
17	WTR HTR & CONV BURN RENTAL	PLT386	0	0	0
18	EQUIP PROTECTION PLAN-COMMERCIAL	PLT380C	0	0	0
19	CLEAN & CHECK REVENUE	PLT3803	0	0	0
20	GAS LINES - RESIDENTIAL	PLT380R	0	0	0
21	TOTAL ACCOUNT 488		0	0	0
495-OTHER GAS REVENUES					
22	RENTAL INCOME - GRANITE	GENPLT	26	13	0
23	RENTAL INCOME - USC	GENPLT	1,082	513	3
24	TOTAL OTHER REVENUES		1,108	526	3
25	TOTAL OTHER OPERATING REV		2,059	1,199	7
25	TOTAL GAS OPERATING REVENUE		485,412	210,892	525

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
REVENUES-8		ALLOC						
GAS OPERATING REVENUES								
1	TOTAL FIRM SALES OF GAS		125,059	4,160	102,606	9,979	26,357	4,982
2	SPECIAL CONTRACT REVENUES	DISTR	0	0	0	0	0	0
3	TOTAL REVENUE SALES OF GAS		125,059	4,160	102,606	9,979	26,357	4,982
OTHER OPERATING REVENUES								
487-LATE PAYMENT CHARGES								
4	RESIDENTIAL HEATING - R-5 & R-10	C488RH	0	0	0	0	0	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C488RNH	0	0	0	0	0	0
6	C&I SMALL - LLF G40	C488G40	171	0	0	0	0	0
7	C&I SMALL - HLF G50	C488G50	0	3	0	0	0	0
8	C&I MEDIUM - LLF G41	C488G41	0	0	69	0	0	0
9	C&I MEDIUM - HLF G51	C488G51	0	0	0	15	0	0
10	C&I LARGE - LLF G42	C488G42	0	0	0	0	12	0
11	C&I LARGE - HLF G52	C488G52	0	0	0	0	0	3
12	TOTAL ACCOUNT 487		171	3	69	15	12	3
488-MISC SERVICE REVENUE								
13	RECONNECT FEE	CUST488R	0	0	0	0	0	0
14	POOL ADMINISTRATION	CUSTTRAN	0	0	0	0	0	0
15	3RD PARTY BILLING	CUSTTRAN	0	0	0	0	0	0
16	CUSTOMER TELEMETERING	PLT397M	0	0	0	0	0	0
17	WTR HTR & CONV BURN RENTAL	PLT386	0	0	0	0	0	0
18	EQUIP PROTECTION PLAN-COMMERCIAL	PLT380C	0	0	0	0	0	0
19	CLEAN & CHECK REVENUE	PLT3803	0	0	0	0	0	0
20	GAS LINES - RESIDENTIAL	PLT380R	0	0	0	0	0	0
21	TOTAL ACCOUNT 488		0	0	0	0	0	0
495-OTHER GAS REVENUES								
22	RENTAL INCOME - GRANITE	GENPLT	6	0	5	1	1	0
23	RENTAL INCOME - USC	GENPLT	263	8	207	22	54	12
24	TOTAL OTHER REVENUES		270	8	212	22	55	12
25	TOTAL OTHER OPERATING REV		441	12	281	37	67	15
25	TOTAL GAS OPERATING REVENUE		125,499	4,171	102,887	10,016	26,424	4,997

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
OPER & MAINT EXPENSE-9					
OPERATION & MAINTENANCE EXPENSE					
LIQUEFIED PROPANE GAS PRODUCTION					
OPERATION EXPENSE					
1	710-SUPERVISION	TLABPO	12,377	5,872	36
2	717-PROPANE EXPENSES	DEMLPG	9,492	4,503	28
3	718-DISPATCHING PRODUCTION	GASCOSTS	0	0	0
4	723-FUEL LPG GAS PROCESS	DEMLPG	9,702	4,603	28
5	728-LIQUID PETROLEUM GAS	EGAS	0	0	0
6	735-MISCELLANEOUS	DEMLPG	12,805	6,075	37
7	736-RENTS	DEMLPG	0	0	0
8	TOTAL OPERATION EXPENSE		44,377	21,054	130
MAINTENANCE					
9	740-SUPERVISION	TLABPM	12,377	5,872	36
10	741-MAINTENANCE OF PLANT	DEMLPG	7,688	3,648	22
11	742-MAINT OF EQUIPMENT	DEMLPG	7,713	3,659	23
12	743-GAS SYS PROD TRAINING	DEMLPG	0	0	0
13	TOTAL MAINTENANCE EXPENSE		27,778	13,179	81
14	769-MAINT OF SCADA - PRODUCT	EXP813	0	0	0
15	TOTAL MANUF GAS PROD EXP		72,154	34,233	211

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
OPER & MAINT EXPENSE-9								
OPERATION & MAINTENANCE EXPENSE								
LIQUEFIED PROPANE GAS PRODUCTION								
OPERATION EXPENSE								
1	710-SUPERVISION	TLABPO	3,010	90	2,369	250	614	135
2	717-PROPANE EXPENSES	DEMLPG	2,309	69	1,817	192	471	103
3	718-DISPATCHING PRODUCTION	GASCOSTS	0	0	0	0	0	0
4	723-FUEL LPG GAS PROCESS	DEMLPG	2,360	71	1,857	196	481	106
5	728-LIQUID PETROLEUM GAS	EGAS	0	0	0	0	0	0
6	735-MISCELLANEOUS	DEMLPG	3,115	93	2,452	259	635	139
7	736-RENTS	DEMLPG	0	0	0	0	0	0
8	TOTAL OPERATION EXPENSE		10,793	324	8,496	897	2,200	483
MAINTENANCE								
9	740-SUPERVISION	TLABPM	3,010	90	2,369	250	614	135
10	741-MAINTENANCE OF PLANT	DEMLPG	1,870	56	1,472	155	381	84
11	742-MAINT OF EQUIPMENT	DEMLPG	1,876	56	1,477	156	382	84
12	743-GAS SYS PROD TRAINING	DEMLPG	0	0	0	0	0	0
13	TOTAL MAINTENANCE EXPENSE		6,756	203	5,318	562	1,377	302
14	769-MAINT OF SCADA - PRODUCT	EXP813	0	0	0	0	0	0
15	TOTAL MANUF GAS PROD EXP		17,549	526	13,813	1,459	3,578	785

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
OPER & MAINT EXPENSE CON'T-10					
PURCHASED GAS SUPPLY EXPENSES					
PURCHASED GAS SUPPLY					
804-PURCHASED GAS COSTS					
1	DIRECT GAS COSTS	EGAS	0	0	0
2	TOTAL DIRECT GAS COSTS		0	0	0
OTHER GAS SUPPLY					
3	813-OTHER GAS SUPPLY EXP	GASCOSTS	0	0	0
4	813-OTH GAS SUPP EXP-DEL SERV	DISTR	0	0	0
5	TOTAL GAS SUPPLY EXPENSE		0	0	0
6	TOTAL PRODUCTION EXPENSE		72,154	34,233	211
TRANSMISSION EXPENSES					
7	851-SYS CONTROL & LOAD DISTR	DISTR	0	0	0
8	851-SYS CNTRL & LD GAS SUPPLY	GASCOSTS	0	0	0
9	852-COMMUNICATION SYSTEM EXP	DISTR	0	0	0
10	856-MAINS EXPENSE	DISTR	0	0	0
11	857-T&D OPER MEAS & REGUL STNQ	DISTR	0	0	0
12	TOTAL TRANSMISSION EXPENSES		0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
OPER & MAINT EXPENSE CON'T-10								
PURCHASED GAS SUPPLY EXPENSES								
PURCHASED GAS SUPPLY								
804-PURCHASED GAS COSTS								
1	DIRECT GAS COSTS	EGAS	0	0	0	0	0	0
2	TOTAL DIRECT GAS COSTS		0	0	0	0	0	0
OTHER GAS SUPPLY								
3	813-OTHER GAS SUPPLY EXP	GASCOSTS	0	0	0	0	0	0
4	813-OTH GAS SUPP EXP-DEL SERV	DISTR	0	0	0	0	0	0
5	TOTAL GAS SUPPLY EXPENSE		0	0	0	0	0	0
6	TOTAL PRODUCTION EXPENSE		17,549	526	13,813	1,459	3,578	785
TRANSMISSION EXPENSES								
7	851-SYS CONTROL & LOAD DISTR	DISTR	0	0	0	0	0	0
8	851-SYS CNTRL & LD GAS SUPPLY	GASCOSTS	0	0	0	0	0	0
9	852-COMMUNICATION SYSTEM EXP	DISTR	0	0	0	0	0	0
10	856-MAINS EXPENSE	DISTR	0	0	0	0	0	0
11	857-T&D OPER MEAS & REGUL STNQ	DISTR	0	0	0	0	0	0
12	TOTAL TRANSMISSION EXPENSES		0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
OPER & MAINT EXPENSE CON'T-11					
DISTRIBUTION EXPENSES					
OPERATION EXPENSE					
1	870-SUPER & ENGINEERING	TLABDO	0	0	0
2	857-MEAS & REG STA EQUIP	PLT378	0	0	0
3	874-MAINS & SERVICE EXPENSE	PLT37680	0	0	0
4	875-REGULAT STATION EXPENSE	PLT378	0	0	0
5	878-METER & HOUSE REG EXP	PLT3813	0	0	0
6	879-CUSTOMER INSTALL EXP	PLT3803	0	0	0
7	880-OTHER EXPENSES	EXP8519	0	0	0
8	TOTAL OPERATION EXPENSE	0	0	0	0
MAINTENANCE					
9	885-SUPERVISION	TLABDM	0	0	0
10	886-MAINT STRUCT & IMPROVE	PLT375	0	0	0
11	887-MAINTENANCE OF MAINS	PLT376	0	0	0
12	889-MT OF MEAS & REG STA EQ	PLT378	0	0	0
13	890-MT OF REG EQ (INDUST)	PLT378	0	0	0
14	891-MT OF REG EQ (CITY GATE)	PLT378	0	0	0
15	891-MAIN DISTRI SCADA	EXP851	0	0	0
16	892-MAINTENANCE OF SERVICES	PLT380	0	0	0
17	893-MAINT METER & HOUSE REG	PLT3813	0	0	0
18	894-T&D MAINT SYSTEM EQUIP	DISTR	0	0	0
19	894-MNT WAT HTERS & CONV BURN	PLT386	0	0	0
20	894-MAINT OF RENTED CONV BURN	PLT386	0	0	0
21	TOTAL MAINTENANCE EXPENSE	0	0	0	0
22	586-INTERVAL DATA	DISTR	0	0	0
23	PAYROLL ADJUSTMENT	DISTLAB	0	0	0
24	TOTAL DISTRIBUTION EXPENSES	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-11								
DISTRIBUTION EXPENSES								
OPERATION EXPENSE								
1	870-SUPER & ENGINEERING	TLABDO	0	0	0	0	0	0
2	857-MEAS & REG STA EQUIP	PLT378	0	0	0	0	0	0
3	874-MAINS & SERVICE EXPENSE	PLT37680	0	0	0	0	0	0
4	875-REGULAT STATION EXPENSE	PLT378	0	0	0	0	0	0
5	878-METER & HOUSE REG EXP	PLT3813	0	0	0	0	0	0
6	879-CUSTOMER INSTALL EXP	PLT3803	0	0	0	0	0	0
7	880-OTHER EXPENSES	EXP8519	0	0	0	0	0	0
8	TOTAL OPERATION EXPENSE		0	0	0	0	0	0
MAINTENANCE								
9	885-SUPERVISION	TLABDM	0	0	0	0	0	0
10	886-MAINT STRUCT & IMPROVE	PLT375	0	0	0	0	0	0
11	887-MAINTENANCE OF MAINS	PLT376	0	0	0	0	0	0
12	889-MT OF MEAS & REG STA EQ	PLT378	0	0	0	0	0	0
13	890-MT OF REG EQ (INDUST)	PLT378	0	0	0	0	0	0
14	891-MT OF REG EQ (CITY GATE)	PLT378	0	0	0	0	0	0
15	891-MAIN DISTRI SCADA	EXP851	0	0	0	0	0	0
16	892-MAINTENANCE OF SERVICES	PLT380	0	0	0	0	0	0
17	893-MAINT METER & HOUSE REG	PLT3813	0	0	0	0	0	0
18	894-T&D MAINT SYSTEM EQUIP	DISTR	0	0	0	0	0	0
19	894-MNT WAT HTERS & CONV BURN	PLT386	0	0	0	0	0	0
20	894-MAINT OF RENTED CONV BURN	PLT386	0	0	0	0	0	0
21	TOTAL MAINTENANCE EXPENSE		0	0	0	0	0	0
22	586-INTERVAL DATA	DISTR	0	0	0	0	0	0
23	PAYROLL ADJUSTMENT	DISTLAB	0	0	0	0	0	0
24	TOTAL DISTRIBUTION EXPENSES		0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE CON'T-12					
CUSTOMER ACCOUNT					
1	901-SUPERVISION	TLABCA	0	0	0
2	902-METER READING EXPENSE	CUST902	0	0	0
3	903-CUST RECORDS & COLLECT	CUST903	0	0	0
904-UNCOLLECTIBLE ACCTS					
4	RESIDENTIAL HEATING - R-5 & R-10	C904RH	0	0	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C904RNH	0	0	0
6	C&I SMALL - LLF G40	C904G40	0	0	0
7	C&I SMALL - HLF G50	C904G50	0	0	0
8	C&I MEDIUM - LLF G41	C904G41	0	0	0
9	C&I MEDIUM - HLF G51	C904G51	0	0	0
10	C&I LARGE - LLF G42	C904G42	0	0	0
11	C&I LARGE - HLF G52	C904G52	0	0	0
12	SUBTOTAL ACCOUNT 904		0	0	0
13	CGA BAD DEBT EXPENSE	E904GAS	0	0	0
14	BAD DEBT EXP ADJ DELIVERY	EXP904B	0	0	0
15	BAD DEBT EXP ADJ COST OF GAS	E904GAS	0	0	0
16	TOTAL ACCOUNT 904		0	0	0
17	TOTAL CUSTOMER ACCTS EXP		0	0	0
CUSTOMER SERVICES & INFO EXP					
18	907-CUST SERV & INFO SUPRV	TLABSE	0	0	0
19	909-INFO & INSTRUCT ADVERTISING	CUST908	0	0	0
20	TOT CUST SERV & INFO EXP		0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-12								
CUSTOMER ACCOUNT								
1	901-SUPERVISION	TLABCA	0	0	0	0	0	0
2	902-METER READING EXPENSE	CUST902	0	0	0	0	0	0
3	903-CUST RECORDS & COLLECT	CUST903	0	0	0	0	0	0
904-UNCOLLECTIBLE ACCTS								
4	RESIDENTIAL HEATING - R-5 & R-10	C904RH	0	0	0	0	0	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C904RNH	0	0	0	0	0	0
6	C&I SMALL - LLF G40	C904G40	0	0	0	0	0	0
7	C&I SMALL - HLF G50	C904G50	0	0	0	0	0	0
8	C&I MEDIUM - LLF G41	C904G41	0	0	0	0	0	0
9	C&I MEDIUM - HLF G51	C904G51	0	0	0	0	0	0
10	C&I LARGE - LLF G42	C904G42	0	0	0	0	0	0
11	C&I LARGE - HLF G52	C904G52	0	0	0	0	0	0
12	SUBTOTAL ACCOUNT 904		0	0	0	0	0	0
13	CGA BAD DEBT EXPENSE	E904GAS	0	0	0	0	0	0
14	BAD DEBT EXP ADJ DELIVERY	EXP904B	0	0	0	0	0	0
15	BAD DEBT EXP ADJ COST OF GAS	E904GAS	0	0	0	0	0	0
16	TOTAL ACCOUNT 904		0	0	0	0	0	0
17	TOTAL CUSTOMER ACCTS EXP		0	0	0	0	0	0
CUSTOMER SERVICES & INFO EXP								
18	907-CUST SERV & INFO SUPRV	TLABSE	0	0	0	0	0	0
19	909-INFO & INSTRUCT ADVERTISING	CUST908	0	0	0	0	0	0
20	TOT CUST SERV & INFO EXP		0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE CON'T-13					
ADMINISTRATIVE & GENERAL EXPENSE					
1	920-ADMIN & GENERAL SALARY	LABOR	137	65	0
2	921-OFFICE SUPPLIES & EXP	LABOR	2,384	1,131	7
3	923-OUTSIDE SERV EMPLOYED	LABOR	(2,104)	(998)	(6)
4	923-OS UNITIL SERVICE CORP	LABOR	39,966	18,961	117
5	923-OUTSIDE SERV IRP	EGASB	0	0	0
6	923-USC EXPS - WATER HTR PROG	PLT386	0	0	0
7	924-PROPERTY INSURANCE	PLANT	60	28	0
8	925-INJURIES & DAMAGES	LABOR	2,670	1,267	8
9	PROPERTY & LIABILITY INSUR ADJ	EXP9245	565	268	2
10	926-EMPLOYED PENSION & BENF	LABOR	23,086	10,953	68
11	928-REGULATORY COMM EXPENSE	REVCLAIM	2,973	1,408	9
12	PUC ASSESSMENT ADJUSTMENT	REVCLAIM	3,152	1,493	9
13	930-MISCELLANEOUS GENERAL EXP	LABOR	2,096	994	6
14	931-RENTS	LABOR	182	86	1
15	TOTAL OPERATION EXPENSE		75,166	35,657	220
MAINTENANCE					
16	932-MAINT OF GENL PLT - EQUIP SHARED	GENPLT	986	468	3
17	935-MAINT OF GENERAL PLT	GENPLT	82	39	0
18	POSTAGE	EXP903	0	0	0
19	O&M INFLATION ALLOWANCE	OMLAB	2,030	963	6
20	TOTAL ADMIN & GEN EXPENSE		78,263	37,126	229
21	TOTAL GAS O & M EXPENSE		150,417	71,359	440

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-13								
ADMINISTRATIVE & GENERAL EXPENSE								
1	920-ADMIN & GENERAL SALARY	LABOR	33	1	26	3	7	1
2	921-OFFICE SUPPLIES & EXP	LABOR	580	17	456	48	118	26
3	923-OUTSIDE SERV EMPLOYED	LABOR	(512)	(15)	(403)	(43)	(104)	(23)
4	923-OS UNITIL SERVICE CORP	LABOR	9,720	292	7,651	808	1,982	435
5	923-OUTSIDE SERV IRP	EGASB	0	0	0	0	0	0
6	923-USC EXPS - WATER HTR PROG	PLT386	0	0	0	0	0	0
7	924-PROPERTY INSURANCE	PLANT	15	0	11	1	3	1
8	925-INJURIES & DAMAGES	LABOR	649	19	511	54	132	29
9	PROPERTY & LIABILITY INSUR ADJ	EXP9245	137	4	108	11	28	6
10	926-EMPLOYED PENSION & BENF	LABOR	5,615	168	4,420	467	1,145	251
11	928-REGULATORY COMM EXPENSE	REVCLAIM	724	22	570	60	148	32
12	PUC ASSESSMENT ADJUSTMENT	REVCLAIM	767	23	605	64	157	34
13	930-MISCELLANEOUS GENERAL EXP	LABOR	510	15	401	42	104	23
14	931-RENTS	LABOR	44	1	35	4	9	2
15	TOTAL OPERATION EXPENSE		18,283	548	14,392	1,520	3,728	818
MAINTENANCE								
16	932-MAINT OF GENL PLT - EQUIP SHARED	GENPLT	240	7	189	20	49	11
17	935-MAINT OF GENERAL PLT	GENPLT	20	1	16	2	4	1
18	POSTAGE	EXP903	0	0	0	0	0	0
19	O&M INFLATION ALLOWANCE	OMLAB	494	15	389	41	101	22
20	TOTAL ADMIN & GEN EXPENSE		19,036	571	14,985	1,582	3,881	852
21	TOTAL GAS O & M EXPENSE		36,585	1,097	28,799	3,041	7,459	1,637

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEPRECIATION & AMORTIZATION-14					
DEPRECIATION & AMORTIZATION EXPENSE					
AMORTIZATION EXPENSE					
1	INTANGIBLE AMORTIZATION	PLANT	(11,180)	(5,304)	(33)
2	ACCT 303.2 & 303.3 COM SOFT & ADJ	PLT303	4,473	2,122	13
3	TRANSITION & TRANACTION AMORT	PLANT	11,180	5,304	33
4	AMORT INVESTMENT TAX CREDIT	PLANT	0	0	0
5	TOTAL AMORTIZATION EXPENSE		4,473	2,122	13
DEPRECIATION EXPENSE					
PRODUCTION PLANT EXP					
6	305-STRUCTURES	PLT305	0	0	0
7	311-LPG GAS EQUIPMENT	PLT311	0	0	0
8	361-STRUCTURES & IMPROVE	DEMLPG	5,119	2,428	15
9	362-GAS HOLDERS	DEMLPG	33,481	15,885	98
10	PROFORMA ADJUST- PROD & STOR	PSPLT	0	0	0
11	TOTAL PRODUCTION PLANT		38,600	18,313	113

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEPRECIATION & AMORTIZATION-14								
DEPRECIATION & AMORTIZATION EXPENSE								
AMORTIZATION EXPENSE								
1	INTANGIBLE AMORTIZATION	PLANT	(2,719)	(82)	(2,140)	(226)	(554)	(122)
2	ACCT 303.2 & 303.3 COM SOFT & ADJ	PLT303	1,088	33	856	90	222	49
3	TRANSITION & TRANSACTION AMORT	PLANT	2,719	82	2,140	226	554	122
4	AMORT INVESTMENT TAX CREDIT	PLANT	0	0	0	0	0	0
5	TOTAL AMORTIZATION EXPENSE		1,088	33	856	90	222	49
DEPRECIATION EXPENSE								
PRODUCTION PLANT EXP								
6	305-STRUCTURES	PLT305	0	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0	0
8	361-STRUCTURES & IMPROVE	DEMLPG	1,245	37	980	103	254	56
9	362-GAS HOLDERS	DEMLPG	8,143	244	6,410	677	1,660	364
10	PROFORMA ADJUST- PROD & STOR	PSPLT	0	0	0	0	0	0
11	TOTAL PRODUCTION PLANT		9,388	282	7,390	780	1,914	420

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEPRECIATION & AMORTIZATION-15					
DISTRIBUTION EXPENSE					
1	375-STRUCTURES & IMPROVE	PLT375	0	0	0
2	376-MAINS	PLT376	0	0	0
3	378.2-MEAS & REG STATION EQ	PLT378	0	0	0
4	379-MEAS & REG CITY GATE	PLT379	0	0	0
5	380-SERVICES	PLT380	0	0	0
6	381-METERS	PLT381	0	0	0
7	382-METER INSTALLATION	PLT382	0	0	0
8	383-HOUSE REGULATORS	PLT383	0	0	0
9	386-OTHER PROP CUST PREM	PLT386	0	0	0
10	TOTAL DISTRIBUTION PLANT		0	0	0
GENERAL & COMMON PLANT EXP					
11	391-OFFICE EQUIPMENT	PLT391	287	136	1
12	393-STORES EQUIPMENT	PLT393	0	0	0
13	394-TOOLS, SHOP & GARAGE EQ	PLT394	0	0	0
14	396-POWER OPERATED EQUIP	PLT396	0	0	0
15	397-COMMUNICATION EQUIP	PLT397	1,303	618	4
16	397-COMM EQ METSCAN - TELEMET	PLT397M	0	0	0
17	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	0	0	0
18	TOTAL GEN & COMMON EXP		1,590	754	5
19	DEPREC EXP ANNUALIZATION ADJUST	PLANT	6,435	3,053	19
20	TOTAL DEPRECIATION EXPENSE		46,625	22,120	136
21	TOTAL DEPR & AMORT EXPENSE		51,098	24,243	149

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEPRECIATION & AMORTIZATION-15								
DISTRIBUTION EXPENSE								
1	375-STRUCTURES & IMPROVE	PLT375	0	0	0	0	0	0
2	376-MAINS	PLT376	0	0	0	0	0	0
3	378.2-MEAS & REG STATION EQ	PLT378	0	0	0	0	0	0
4	379-MEAS & REG CITY GATE	PLT379	0	0	0	0	0	0
5	380-SERVICES	PLT380	0	0	0	0	0	0
6	381-METERS	PLT381	0	0	0	0	0	0
7	382-METER INSTALLATION	PLT382	0	0	0	0	0	0
8	383-HOUSE REGULATORS	PLT383	0	0	0	0	0	0
9	386-OTHER PROP CUST PREM	PLT386	0	0	0	0	0	0
10	TOTAL DISTRIBUTION PLANT		0	0	0	0	0	0
GENERAL & COMMON PLANT EXP								
11	391-OFFICE EQUIPMENT	PLT391	70	2	55	6	14	3
12	393-STORES EQUIPMENT	PLT393	0	0	0	0	0	0
13	394-TOOLS, SHOP & GARAGE EQ	PLT394	0	0	0	0	0	0
14	396-POWER OPERATED EQUIP	PLT396	0	0	0	0	0	0
15	397-COMMUNICATION EQUIP	PLT397	317	10	249	26	65	14
16	397-COMM EQ METSCAN - TELEMET	PLT397M	0	0	0	0	0	0
17	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	0	0	0	0	0	0
18	TOTAL GEN & COMMON EXP		387	12	304	32	79	17
19	DEPREC EXP ANNUALIZATION ADJUST	PLANT	1,565	47	1,232	130	319	70
20	TOTAL DEPRECIATION EXPENSE		11,340	340	8,926	943	2,312	508
21	TOTAL DEPR & AMORT EXPENSE		12,428	373	9,782	1,033	2,534	556

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
STATE & FED TAXES & OTHER EXP-16					
TAXES OTHER THAN INCOME					
FEDERAL TAXES					
1	UNEMPLOYMENT	LABOR	23	11	0
2	FICA	LABOR	3,391	1,609	10
3	FICA ADJUSTMENT	LABOR	0	0	0
4	TOTAL FEDERAL TAXES		3,413	1,619	10
STATE TAXES					
5	UNEMPLOYMENT	LABOR	7	3	0
6	PROPERTY TAX	PLANT	49,659	23,560	145
7	TOTAL STATE TAXES		49,667	23,564	145
8	PAYROLL TAXES CAPITALIZED	LABOR	(1,522)	(722)	(4)
9	PAYROLL TAXES ADJUSTMENT	LABOR	291	138	1
10	TAXES - OTHER	PLANT	1,196	568	3
11	TOTAL TAXES OTHER THAN INC		53,045	25,166	155
12	TOTAL INCOME TAX EXPENSE		109,132	44,059	(34)
13	INTEREST ON CUSTOMER DEPOSITS	CUSTDEP	0	0	0
14	TOTAL EXPENSES		363,692	164,827	710

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
STATE & FED TAXES & OTHER EXP-16		ALLOC						
TAXES OTHER THAN INCOME								
FEDERAL TAXES								
1	UNEMPLOYMENT	LABOR	6	0	4	0	1	0
2	FICA	LABOR	825	25	649	69	168	37
3	FICA ADJUSTMENT	LABOR	0	0	0	0	0	0
4	TOTAL FEDERAL TAXES		830	25	653	69	169	37
STATE TAXES								
5	UNEMPLOYMENT	LABOR	2	0	1	0	0	0
6	PROPERTY TAX	PLANT	12,078	362	9,507	1,004	2,462	541
7	TOTAL STATE TAXES		12,080	362	9,508	1,004	2,463	541
8	PAYROLL TAXES CAPITALIZED	LABOR	(370)	(11)	(291)	(31)	(75)	(17)
9	PAYROLL TAXES ADJUSTMENT	LABOR	71	2	56	6	14	3
10	TAXES - OTHER	PLANT	291	9	229	24	59	13
11	TOTAL TAXES OTHER THAN INC		12,901	387	10,155	1,072	2,630	577
12	TOTAL INCOME TAX EXPENSE		29,495	1,046	24,853	2,288	6,350	1,077
13	INTEREST ON CUSTOMER DEPOSITS	CUSTDEP	0	0	0	0	0	0
14	TOTAL EXPENSES		91,409	2,903	73,589	7,434	18,973	3,848

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP				
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INCOME TAXES-17				
FEDERAL & STATE TAX CALCULAT				
1	OPERATING REVENUES	485,412	210,892	525
OPERATING EXPENSES				
2	OPERATION & MAINTENANCE EXP	150,417	71,359	440
3	DEPRECIATION & AMORTIZATION	51,098	24,243	149
4	TAXES OTHER THAN INCOME	53,045	25,166	155
5	INTEREST ON CUSTOMER DEPOSITS	0	0	0
6	PLUS: OTHER PLANT	0	0	0
7	OPERATING INC BEFORE FED TAX	230,852	90,124	(220)
8	LESS: INTEREST EXPENSE	58,139	27,570	169
9	LESS: MISC OTHER ADJ PLANT	0	0	0
10	NET OPERATING INC BEFORE TXS	172,713	62,554	(389)
PERMANENT ITEMS				
12	LOBBYING REVCLAIM	479	227	1
13	STATE REGUL ASSET AMORT REVCLAIM	1,916	908	6
14	UNALLOWABLE MEALS REVCLAIM	0	0	0
15	TOTAL PERMANENT ITEMS	2,396	1,135	7
TEMPORARY DIFFERENCES				
16	ACCRUED REVENUE REVCLAIM	930	440	3
17	BAD DEBT EXP904	0	0	0
18	DEFERRED RATE CASE REVCLAIM	792	375	2
19	INSURANCE CLAIM RESERVE EXP9245	60	29	0
20	FASB 87-PENSIONS LABOR	(2,717)	(1,289)	(8)
20	PNGTS REFUND DISTR	0	0	0
21	PREPAID PROPERTY TAXES PLANT	(1,546)	(733)	(5)
22	REMEDIATION PLANT	(7,907)	(3,752)	(23)
23	PBOP SFAS 106 LABOR	3,147	1,493	9
24	TRANSACTION COSTS PLANT	3,791	1,798	11
25	TRANSITION COSTS PLANT	3,201	1,519	9
26	UTILITY PLANT DIFFERENCES PLANT	(159,656)	(75,747)	(467)
27	TOTAL TEMPORARY DIFF	(159,905)	(75,866)	(468)
INVESTMENT TAX CREDIT AMORT				
28	UNAMORTIZED ITC PLANT	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
INCOME TAXES-17								
FEDERAL & STATE TAX CALCULAT								
1	OPERATING REVENUES		125,499	4,171	102,887	10,016	26,424	4,997
OPERATING EXPENSES								
2	OPERATION & MAINTENANCE EXP		36,585	1,097	28,799	3,041	7,459	1,637
3	DEPRECIATION & AMORTIZATION		12,428	373	9,782	1,033	2,534	556
4	TAXES OTHER THAN INCOME		12,901	387	10,155	1,072	2,630	577
5	INTEREST ON CUSTOMER DEPOSITS		0	0	0	0	0	0
6	PLUS: OTHER	PLANT	0	0	0	0	0	0
7	OPERATING INC BEFORE FED TAX		63,585	2,314	54,151	4,870	13,801	2,226
8	LESS: INTEREST EXPENSE		14,145	424	11,137	1,176	2,884	633
9	LESS: MISC OTHER ADJ	PLANT	0	0	0	0	0	0
10	NET OPERATING INC BEFORE TXS		49,439	1,890	43,014	3,694	10,917	1,593
PERMANENT ITEMS								
12	LOBBYING	REVCLAIM	117	4	92	10	24	5
13	STATE REGUL ASSET AMORT	REVCLAIM	467	14	368	39	95	21
14	UNALLOWABLE MEALS	REVCLAIM	0	0	0	0	0	0
15	TOTAL PERMANENT ITEMS		583	18	460	48	119	26
TEMPORARY DIFFERENCES								
16	ACCRUED REVENUE	REVCLAIM	226	7	178	19	46	10
17	BAD DEBT	EXP904	0	0	0	0	0	0
18	DEFERRED RATE CASE	REVCLAIM	193	6	152	16	39	9
19	INSURANCE CLAIM RESERVE	EXP9245	15	0	12	1	3	1
20	FASB 87-PENSIONS	LABOR	(661)	(20)	(520)	(55)	(135)	(30)
20	PNGTS REFUND	DISTR	0	0	0	0	0	0
21	PREPAID PROPERTY TAXES	PLANT	(376)	(11)	(296)	(31)	(77)	(17)
22	REMEDATION	PLANT	(1,923)	(58)	(1,514)	(160)	(392)	(86)
23	PBOP SFAS 106	LABOR	765	23	602	64	156	34
24	TRANSACTION COSTS	PLANT	922	28	726	77	188	41
25	TRANSITION COSTS	PLANT	778	23	613	65	159	35
26	UTILITY PLANT DIFFERENCES	PLANT	(38,831)	(1,165)	(30,565)	(3,228)	(7,916)	(1,738)
27	TOTAL TEMPORARY DIFF		(38,891)	(1,166)	(30,612)	(3,233)	(7,928)	(1,741)
INVESTMENT TAX CREDIT AMORT								
28	UNAMORTIZED ITC	PLANT	0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
INCOME TAXES CON'T-18					
1	FEDERAL AND STATE TAX DIFF TAX DEPRECIATION	PLANT	21,000	9,963	61
2	STATE TAXABLE BASE INCOME		36,204	(2,214)	(789)
3	ST TAX ADJ LOBBING & PENALTIES	REVCLAIM	(196)	(93)	(1)
4	STATE BUSINESS ENTERPRISE TAX	REVCLAIM	6,914	3,275	20
5	STATE INCOME TAX @ 8.20% PLUS ADJ		9,687	3,001	(45)
6	FED TAX INC BEF FED & STA TAX DIFF		19,406	(8,583)	(764)
7	LESS: FEDERAL AND STATE TAX DIFF		21,000	9,963	61
8	FEDERAL TAXABLE INCOME BASE		(1,594)	(18,546)	(826)
9	FED TAX ADJ LOBBING & PENALTIES	REVCLAIM	(660)	(313)	(2)
10	FED CURRENT/DEF ADJ	REVCLAIM	100,592	47,650	293
11	FEDERAL INCOME TAX @ 34.00% PLUS ADJ		99,390	41,032	11
TOT DEF FEDERAL & STATE INC TAX					
12	ACCELERATED DEPRECIATION	PLANT	61,787	29,314	181
13	PBOP	LABOR	(1,240)	(588)	(4)
14	PENSION	LABOR	1,071	508	3
15	BAD DEBTS EXPENSE	EXP904	0	0	0
16	ACCRUED REVENUE	REVCLAIM	(366)	(174)	(1)
17	PREPAID PROPERTY TAXES	PLANT	609	289	2
18	DEFERRED RATE CASE	REVCLAIM	(312)	(148)	(1)
19	REMEDATION	PLANT	3,116	1,479	9
20	TRANSITION COSTS	PLANT	(1,262)	(599)	(4)
21	TRANSACTION COSTS	PLANT	(1,494)	(709)	(4)
22	INSURANCE CLAIM RESERVE	EXP9245	(24)	(11)	(0)
23	DEF FED & STATE FLOW THRU DIFF	DEFTAX	(61,830)	(29,335)	(181)
24	TOTAL DEFERRED INCOME TAXES		56	26	0
25	TOTAL INCOME TAX EXPENSE		109,132	44,059	(34)
26	NET OPERATING INCOME AFTER TAX		121,719	46,066	(185)
EFFECTIVE STATE TAX RATE					
		8.20%			
FEDERAL TAX RATE - CURRENT		34.00%			
1 - INCREMENTAL TAX RATE		0.60588			
INCREMENTAL TAX RATE		0.39412			

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOC								
INCOME TAXES CON'T-18								
FEDERAL AND STATE TAX DIFF								
1	TAX DEPRECIATION	PLANT	5,108	153	4,020	425	1,041	229
2	STATE TAXABLE BASE INCOME		16,239	894	16,882	935	4,148	107
3	ST TAX ADJ LOBBING & PENALTIES	REVCLAIM	(48)	(1)	(38)	(4)	(10)	(2)
4	STATE BUSINESS ENTERPRISE TAX	REVCLAIM	1,683	51	1,326	140	344	75
5	STATE INCOME TAX @ 8.20% PLUS ADJ		2,967	122	2,673	213	674	82
6	FED TAX INC BEF FED & STA TAX DIFF		11,541	720	12,845	578	3,121	(52)
7	LESS: FEDERAL AND STATE TAX DIFF		5,108	153	4,020	425	1,041	229
8	FEDERAL TAXABLE INCOME BASE		6,433	567	8,825	154	2,080	(281)
9	FED TAX ADJ LOBBING & PENALTIES	REVCLAIM	(161)	(5)	(127)	(13)	(33)	(7)
10	FED CURRENT/DEF ADJ	REVCLAIM	24,487	735	19,296	2,035	4,999	1,097
11	FEDERAL INCOME TAX @ 34.00% PLUS ADJ		26,514	923	22,169	2,074	5,673	994
TOT DEF FEDERAL & STATE INC TAX								
12	ACCELERATED DEPRECIATION	PLANT	15,028	451	11,829	1,249	3,064	673
13	PBOP	LABOR	(302)	(9)	(237)	(25)	(61)	(14)
14	PENSION	LABOR	260	8	205	22	53	12
15	BAD DEBTS EXPENSE	EXP904	0	0	0	0	0	0
16	ACCRUED REVENUE	REVCLAIM	(89)	(3)	(70)	(7)	(18)	(4)
17	PREPAID PROPERTY TAXES	PLANT	148	4	117	12	30	7
18	DEFERRED RATE CASE	REVCLAIM	(76)	(2)	(60)	(6)	(16)	(3)
19	REMEDATION	PLANT	758	23	597	63	155	34
20	TRANSITION COSTS	PLANT	(307)	(9)	(242)	(26)	(63)	(14)
21	TRANSACTION COSTS	PLANT	(363)	(11)	(286)	(30)	(74)	(16)
22	INSURANCE CLAIM RESERVE	EXP9245	(6)	(0)	(5)	(0)	(1)	(0)
23	DEF FED & STATE FLOW THRU DIFF	DEFTAX	(15,038)	(451)	(11,837)	(1,250)	(3,066)	(673)
24	TOTAL DEFERRED INCOME TAXES		14	0	11	1	3	1
25	TOTAL INCOME TAX EXPENSE		29,495	1,046	24,853	2,288	6,350	1,077
26	NET OPERATING INCOME AFTER TAX		34,090	1,269	29,298	2,582	7,451	1,149

EFFECTIVE STATE TAX RATE
FEDERAL TAX RATE - CURRENT
1 - INCREMENTAL TAX RATE
INCREMENTAL TAX RATE

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVELOPMENT OF LABOR ALLOCATOR-19					
1 163 - STORES EXPENSE UNDISTRIBUTED	DISTRPLT	0	0	0	
LPG & LNG GAS PRODUCTION OPERATION					
2 710-SUPERVISION	LABPO	12,377	5,872	36	
3 717-PROPANE EXPENSES	EXP717	0	0	0	
4 718-DISPATCHING PRODUCTION	EXP718	0	0	0	
5 735-MISCELLANEOUS	EXP735	12,805	6,075	37	
6 TOTAL OPERATION LABOR		25,182	11,947	74	
MAINTENANCE					
7 740-SUPERVISION	LABPM	12,377	5,872	36	
8 741-MAINTENANCE OF PLANT	EXP741	7,688	3,648	22	
9 742-MAINTENANCE OF EQUIP	EXP742	7,713	3,659	23	
10 743-GAS SYSTEM PROD TRAINING	EXP743	0	0	0	
11 TOTAL MAINTENANCE LABOR		27,778	13,179	81	
12 TOT MANUFACTURED GAS LABOR		52,960	25,126	155	
GAS SUPPLY LABOR					
13 813-OTHER GAS SUPPLY EXP	EXP813	0	0	0	
14 TOTAL GAS SUPPLY LABOR		0	0	0	
15 TOTAL PRODUCTION LABOR		52,960	25,126	155	

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF LABOR ALLOCATOR-19								
1	163 - STORES EXPENSE UNDISTRIBUTED	DISTRPLT	0	0	0	0	0	0
LPG & LNG GAS PRODUCTION OPERATION								
2	710-SUPERVISION	LABPO	3,010	90	2,369	250	614	135
3	717-PROPANE EXPENSES	EXP717	0	0	0	0	0	0
4	718-DISPATCHING PRODUCTION	EXP718	0	0	0	0	0	0
5	735-MISCELLANEOUS	EXP735	3,115	93	2,452	259	635	139
6	TOTAL OPERATION LABOR		6,125	184	4,821	509	1,249	274
MAINTENANCE								
7	740-SUPERVISION	LABPM	3,010	90	2,369	250	614	135
8	741-MAINTENANCE OF PLANT	EXP741	1,870	56	1,472	155	381	84
9	742-MAINTENANCE OF EQUIP	EXP742	1,876	56	1,477	156	382	84
10	743-GAS SYSTEM PROD TRAINING	EXP743	0	0	0	0	0	0
11	TOTAL MAINTENANCE LABOR		6,756	203	5,318	562	1,377	302
12	TOT MANUFACTURED GAS LABOR		12,881	386	10,139	1,071	2,626	576
GAS SUPPLY LABOR								
13	813-OTHER GAS SUPPLY EXP	EXP813	0	0	0	0	0	0
14	TOTAL GAS SUPPLY LABOR		0	0	0	0	0	0
15	TOTAL PRODUCTION LABOR		12,881	386	10,139	1,071	2,626	576

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVEL OF LABOR ALLOCATOR CON'T-20					
TRANSMISSION & DISTRIBUTION LABOR OPERATION					
1	870-SUPER & ENGINEERING	LABDO	0	0	0
2	851-SYSTEM CONTROL & DISP	EXP851	0	0	0
3	857-MEAS & REG STATION EXP	PLT378	0	0	0
4	874-MAINS & SERVICE EXPENSE	EXP874	0	0	0
5	875-GAS SYSTEM T&D TRAINING	EXP875	0	0	0
6	878-METER & HOUSE REG EXP	EXP878	0	0	0
7	879-CUSTOMER INSTALL EXP	EXP879	0	0	0
8	880-OTHER EXPENSE	EXP880	0	0	0
9	TOTAL OPERATION LABOR	0	0	0	0
MAINTENANCE					
10	885-SUPERVISION	LABDM	0	0	0
11	886-MAINT STRUCT & IMPROVE	EXP886	0	0	0
12	887-MAINTENANCE OF MAINS	EXP887	0	0	0
13	889-MT OF MEAS & REG STA EQ	EXP889	0	0	0
14	890-MT OF REG EQ (INDUST)	EXP890	0	0	0
15	891-MT OF REG EQ (CITY GATE)	EXP891	0	0	0
16	892-MAINTENANCE OF SERVICES	EXP892	0	0	0
17	893-MAINT METER & HOUSE REG	EXP893	0	0	0
18	894-MAINT OF OTHER EQUIP	EXP894	0	0	0
19	TOTAL MAINTENANCE LABOR	0	0	0	0
20	TOTAL DISTRIB & TRANS LABOR	0	0	0	0
CUSTOMER ACCOUNTS LABOR					
21	901-SUPERVISION	LABCA	0	0	0
22	902-METER READING EXPENSE	EXP902	0	0	0
23	903-CUST RECORDS & COLLECT	EXP903	0	0	0
24	TOTAL CUSTOMER ACCTS LABOR	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVEL OF LABOR ALLOCATOR CON'T-20			ALLOC					
TRANSMISSION & DISTRIBUTION LABOR OPERATION								
1	870-SUPER & ENGINEERING	LABDO		0	0	0	0	0
2	851-SYSTEM CONTROL & DISP	EXP851		0	0	0	0	0
3	857-MEAS & REG STATION EXP	PLT378		0	0	0	0	0
4	874-MAINS & SERVICE EXPENSE	EXP874		0	0	0	0	0
5	875-GAS SYSTEM T&D TRAINING	EXP875		0	0	0	0	0
6	878-METER & HOUSE REG EXP	EXP878		0	0	0	0	0
7	879-CUSTOMER INSTALL EXP	EXP879		0	0	0	0	0
8	880-OTHER EXPENSE	EXP880		0	0	0	0	0
9	TOTAL OPERATION LABOR			0	0	0	0	0
MAINTENANCE								
10	885-SUPERVISION	LABDM		0	0	0	0	0
11	886-MAINT STRUCT & IMPROVE	EXP886		0	0	0	0	0
12	887-MAINTENANCE OF MAINS	EXP887		0	0	0	0	0
13	889-MT OF MEAS & REG STA EQ	EXP889		0	0	0	0	0
14	890-MT OF REG EQ (INDUST)	EXP890		0	0	0	0	0
15	891-MT OF REG EQ (CITY GATE)	EXP891		0	0	0	0	0
16	892-MAINTENANCE OF SERVICES	EXP892		0	0	0	0	0
17	893-MAINT METER & HOUSE REG	EXP893		0	0	0	0	0
18	894-MAINT OF OTHER EQUIP	EXP894		0	0	0	0	0
19	TOTAL MAINTENANCE LABOR			0	0	0	0	0
20	TOTAL DISTRIB & TRANS LABOR			0	0	0	0	0
CUSTOMER ACCOUNTS LABOR								
21	901-SUPERVISION	LABCA		0	0	0	0	0
22	902-METER READING EXPENSE	EXP902		0	0	0	0	0
23	903-CUST RECORDS & COLLECT	EXP903		0	0	0	0	0
24	TOTAL CUSTOMER ACCTS LABOR			0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEVEL OF LABOR ALLOCATOR CON'T-21					
CUSTOMER SERVICES & INFO EXP					
1	907-CUST SERV & INFO SUPRV	LABSE	0	0	0
2	908-CUST ASSISTANCE EXP	EXP909	0	0	0
3	TOT CUST SERV & INFO EXP		0	0	0
ADMINISTRATIVE & GENERAL LABOR					
OPERATION LABOR					
4	920-ADMIN & GENERAL SALARY	LABORXAG	0	0	0
5	921-OFFICE SUPPLIES & EXP	LABORXAG	381	181	1
6	923-OUTSIDE SERV EMPLOYED	LABORXAG	28,286	13,420	83
7	925-INJURIES & DAMAGES	LABORXAG	0	0	0
8	926-EMPLOYED PENSION & BENF	LABORXAG	0	0	0
9	930-MISCELLANEOUS GEN EXP	LABORXAG	0	0	0
10	TOTAL OPERATION EXPENSE		28,667	13,601	84
MAINTENANCE					
11	935-MAINT OF GENERAL PLT	EXP935	0	0	0
12	TOTAL ADMIN & GEN LABOR		28,667	13,601	84
13	TOTAL GAS O & M LABOR		81,627	38,727	239
14	CONSTRUCTION LABOR - DISTRIBUTION	DISTRPLT	0	0	0
15	SUM OF ALLOCATED LABOR EXP		81,627	38,727	239

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVEL OF LABOR ALLOCATOR CON'T-21		ALLOC						
CUSTOMER SERVICES & INFO EXP								
1	907-CUST SERV & INFO SUPRV	LABSE	0	0	0	0	0	0
2	908-CUST ASSISTANCE EXP	EXP909	0	0	0	0	0	0
3	TOT CUST SERV & INFO EXP		0	0	0	0	0	0
ADMINISTRATIVE & GENERAL LABOR								
OPERATION LABOR								
4	920-ADMIN & GENERAL SALARY	LABORXAG	0	0	0	0	0	0
5	921-OFFICE SUPPLIES & EXP	LABORXAG	93	3	73	8	19	4
6	923-OUTSIDE SERV EMPLOYED	LABORXAG	6,880	206	5,415	572	1,402	308
7	925-INJURIES & DAMAGES	LABORXAG	0	0	0	0	0	0
8	926-EMPLOYED PENSION & BENF	LABORXAG	0	0	0	0	0	0
9	930-MISCELLANEOUS GEN EXP	LABORXAG	0	0	0	0	0	0
10	TOTAL OPERATION EXPENSE		6,972	209	5,488	580	1,421	312
MAINTENANCE								
11	935-MAINT OF GENERAL PLT	EXP935	0	0	0	0	0	0
12	TOTAL ADMIN & GEN LABOR		6,972	209	5,488	580	1,421	312
13	TOTAL GAS O & M LABOR		19,853	595	15,627	1,650	4,047	889
14	CONSTRUCTION LABOR - DISTRIBUTION	DISTRPLT	0	0	0	0	0	0
15	SUM OF ALLOCATED LABOR EXP		19,853	595	15,627	1,650	4,047	889

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
REVENUE REQUIREMENTS-22				
PRESENT RATES				
1 RATE BASE		1,902,207	902,045	5,545
2 NET OPER INC (PRESENT RATES)		121,719	46,066	(185)
3 RATE OF RETURN (PRES RATES)		6.40%	5.11%	-3.34%
4 RELATIVE RATE OF RETURN		1.000	0.798	-0.523
5 SALES REVENUE (PRE RATES)		483,353	209,693	518
6 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
7 SALE REV \$/CCF (PRE RATES)		\$0.0069	\$0.0121	\$0.0022
CLAIMED RATE OF RETURN				
8 CLAIMED RATE OF RETURN		8.30%	8.30%	8.30%
9 RETURN REQ FOR CLAIMED ROR		157,883	74,870	460
10 SALES REVENUE REQ CLAIMED ROR		543,041	257,234	1,584
11 REVENUE DEFICIENCY SALES REV		59,688	47,541	1,066
12 PERCENT INCREASE REQUIRED		12.35%	22.67%	205.79%
13 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
14 SALES REV REQUIRED \$/CCF		\$0.0078	\$0.0149	\$0.0066
15 REVENUE DEFICIENCY \$/CCF		\$0.0009	\$0.0027	\$0.0045

WORKING SECTION

1 TOTAL FIRM SALES OF GAS		483,353	209,693	518

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

REVENUE REQUIREMENTS-22

PRESENT RATES

1	RATE BASE	462,813	13,889	364,384	38,461	94,370	20,699
2	NET OPER INC (PRESENT RATES)	34,090	1,269	29,298	2,582	7,451	1,149
3	RATE OF RETURN (PRES RATES)	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
4	RELATIVE RATE OF RETURN	1.151	1.427	1.257	1.049	1.234	0.868
5	SALES REVENUE (PRE RATES)	125,059	4,160	102,606	9,979	26,357	4,982
6	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
7	SALE REV \$/CCF (PRE RATES)	\$0.0134	\$0.0025	\$0.0078	\$0.0022	\$0.0039	\$0.0003

CLAIMED RATE OF RETURN

8	CLAIMED RATE OF RETURN	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
9	RETURN REQ FOR CLAIMED ROR	38,414	1,153	30,244	3,192	7,833	1,718
10	SALES REVENUE REQ CLAIMED ROR	132,194	3,968	104,167	10,986	26,987	5,921
11	REVENUE DEFICIENCY SALES REV	7,135	(191)	1,561	1,007	630	939
12	PERCENT INCREASE REQUIRED	5.71%	-4.60%	1.52%	10.09%	2.39%	18.85%
13	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
14	SALES REV REQUIRED \$/CCF	\$0.0142	\$0.0024	\$0.0079	\$0.0025	\$0.0040	\$0.0003
15	REVENUE DEFICIENCY \$/CCF	\$0.0008	-\$0.0001	\$0.0001	\$0.0002	\$0.0001	\$0.0001

WORKING SECTION

1	TOTAL FIRM SALES OF GAS	125,059	4,160	102,606	9,979	26,357	4,982

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE-23				
CAPACITY RELATED				
1	-----			
1	PRODUCTION ALLOCATORS			
2		358,782	170,219	1,050
3		358,782	170,219	1,050
4		358,782	170,219	1,050
5		358,782	170,219	1,050
6		358,782	170,219	1,050
6	LPG PRODUCTION DEMAND			
7	LNG PRODUCTION DEMAND			
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DISTRIBUTION ALLOCATORS				
1	-----			
1	DISTRIBUTION ALLOCATOR	DISTR	100.0000%	26.6386%
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	100.0000%	26.6386%
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

ALLOCATION FACTOR TABLE-23

CAPACITY RELATED

1	PRODUCTION ALLOCATORS						
2	DES DAY REMANNG DEMNDS - SALES	87,262	2,617	68,686	7,253	17,790	3,905
3	LPG PROD ALLOC-PROD	87,262	2,617	68,686	7,253	17,790	3,905
4	LNG PROD ALLOC-PROD	87,262	2,617	68,686	7,253	17,790	3,905
5	LPG & LNG PROD ALLOC-DISTR	87,262	2,617	68,686	7,253	17,790	3,905
6	LPG PRODUCTION DEMAND						
7	LNG PRODUCTION DEMAND						
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DISTRIBUTION ALLOCATORS

1	DISTRIBUTION ALLOCATOR	DISTR	14.8202%	2.0704%	20.1346%	5.6721%	9.7338%	20.6135%
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	14.8202%	2.0704%	20.1346%	5.6721%	9.7338%	20.6135%
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)

ALLOCATION FACTOR TABLE CONT-24

COMMODITY RELATED

1	ANNUAL FIRM CCF SALES SENDOUT		38,065,334	17,539,649	242,092
2	ANNUAL FIRM CCF THROUGHPUT		70,790,993	17,539,649	242,092
3	DIRECT GAS COST ALLOCATOR	EGAS	20,951,307	9,655,623	125,522
4	CGA BAD DEBT ALLOCATOR	E904GAS	129,165	60,160	687
5					
6	DIRECT GAS COST - BASE DIST ALLOC	EGASB	20,951,307	9,655,623	125,522
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

ALLOCATION FACTOR TABLE CONT-24

COMMODITY RELATED

1	ANNUAL FIRM CCF SALES SENDOUT		8,020,419	1,448,898	6,474,779	2,129,031	1,764,570	445,897
2	ANNUAL FIRM CCF THROUGHPUT		9,456,738	1,702,029	13,315,558	4,538,848	6,843,423	17,152,658
3	DIRECT GAS COST ALLOCATOR	EGAS	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
4	CGA BAD DEBT ALLOCATOR	E904GAS	29,107	3,824	22,242	5,782	6,015	1,348
5								
6	DIRECT GAS COST - BASE DIST ALLOC	EGASB	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-25				
CUSTOMER RELATED				
1 ACCT 380-SERVICES	CUST380	60,250,315	42,480,267	2,487,389
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	24,390,199	13,736,229	804,311
3 ACCT 386-OTHER PROP CUST PREM	CUST386	100.0000%	26.6386%	0.3168%
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	852	0	0
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	380,337	283,482	16,599
6 CUSTOMER DEPOSITS	CUSTDEP	412,115	75,867	3,978
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	11,701	0	0
8 ACCT 902-METER READ EXP	CUST902	388,857	283,482	16,599
9 ACCT 903-CUST RECORDS & COLL	CUST903	435,636	289,343	17,097
10 ACCT 488 RECONNECT FEE	CUST488R	367,975	282,692	16,650
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	100.0000%	49.5671%	2.3608%
12 ACCT 909-INFO & INSTR ADVERT	CUST909	100.0000%	49.5671%	2.3608%
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14				
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17				
18 ANNUAL NO SALES CUSTOMERS		368,478	282,692	16,650
19 ANNUAL NO OF TRANS CUSTOMERS		11,701	0	0
20 ANNUAL NUMBER GAS BILLS		388,832	289,343	17,097
21				
22 ANNUAL NO METER EXCL DAILY MET		380,337	283,482	16,599
23 ANNUAL NO METERS DAILY METERED		852	0	0
24				
25 TOTAL SALES & TRANSP CUSTOMERS		380,179	282,692	16,650
26				
27 NUMBER OF SERVICES		22,979	16,874	988
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOCATION FACTOR TABLE CONT-25							
CUSTOMER RELATED							
1 ACCT 380-SERVICES	CUST380	10,033,733	1,658,527	2,109,398	787,280	373,927	319,795
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	4,611,421	762,245	2,648,363	988,435	452,339	386,856
3 ACCT 386-OTHER PROP CUST PREM	CUST386	14.8202%	2.0704%	20.1346%	5.6721%	9.7338%	20.6135%
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	12	36	120	48	288	348
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	59,167	9,746	8,119	3,027	161	36
6 CUSTOMER DEPOSITS	CUSTDEP	137,791	31,250	107,395	55,835	0	0
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	5,727	803	3,173	1,335	303	360
8 ACCT 902-METER READ EXP	CUST902	59,287	10,106	9,319	3,507	3,041	3,516
9 ACCT 903-CUST RECORDS & COLL	CUST903	82,941	13,166	21,113	8,480	1,670	1,827
10 ACCT 488 RECONNECT FEE	CUST488R	58,925	9,708	0	0	0	0
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	14.4290%	2.4789%	10.4919%	3.6139%	4.8927%	12.1657%
12 ACCT 909-INFO & INSTR ADVERT	CUST909	14.4290%	2.4789%	10.4919%	3.6139%	4.8927%	12.1657%
13							
14							
15							
16							
17							
18 ANNUAL NO SALES CUSTOMERS		53,198	8,905	5,092	1,768	148	26
19 ANNUAL NO OF TRANS CUSTOMERS		5,727	803	3,173	1,335	303	360
20 ANNUAL NUMBER GAS BILLS		60,032	9,954	8,419	3,141	459	387
21							
22 ANNUAL NO METER EXCL DAILY MET		59,167	9,746	8,119	3,027	161	36
23 ANNUAL NO METERS DAILY METERED		12	36	120	48	288	348
24							
25 TOTAL SALES & TRANSP CUSTOMERS		58,925	9,708	8,266	3,103	450	386
26							
27 NUMBER OF SERVICES		3,523	582	687	256	37	32
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-26				
EXTERNALLY DEVELOPED				
UNCOLLECTIBLE ACCOUNTS				
1 RESID NON HTG RATE R-6 & R-11	C904RNH	5,936	0	5,936
2 RESID HEATING RATE R-5 & R-10	C904RH	128,360	128,360	0
3 LOW LF SMALL RATE G40 & T40	C904G40	13,821	0	0
4 LOW LF MEDIUM RATE G41 & T41	C904G41	4,107	0	0
5 LOW LF LARGE RATE G42 & T42	C904G42	0	0	0
6 HIGH LF SMALL RATE G50 & T50	C904G50	2,561	0	0
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	344	0	0
8 HIGH LF LARGE RATE G52 & T52	C904G52	0	0	0
		155,128		
INTERNALLY DEVELOPED				
LATE PAYMENT CHARGES				
9 RESID NON HTG RATE R-6 & R-11	C488RNH	1,035,566	0	1,584
10 RESID HEATING RATE R-5 & R-10	C488RH	28,836,279	257,234	0
11 LOW LF SMALL RATE G40 & T40	C488G40	10,662,829	0	0
12 LOW LF MEDIUM RATE G41 & T41	C488G41	8,167,565	0	0
13 LOW LF LARGE RATE G42 & T42	C488G42	2,693,545	0	0
14 HIGH LF SMALL RATE G50 & T50	C488G50	1,613,493	0	0
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	2,400,257	0	0
16 HIGH LF LARGE RATE G52 & T52	C488G51	3,370,785	0	0
17		58,780,320		
18 INTERNALLY DEVELOPED				
19 WORKING CASH				
20				
21 TOTAL OPERATION & MAINTENANCE EXP		33,860,782	71,359	440
22 LESS: PURCHASED GAS		20,951,307	0	0
23 904-UNCOLLECTIBLE EXPENSE		448,214	0	0
24 PLUS: OTHER TAXES		4,467,456	25,166	155
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)		2,783,666	41,032	11
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		19,712,383	137,557	606
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30				

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

ALLOCATION FACTOR TABLE CONT-26

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

EXTERNALLY DEVELOPED

UNCOLLECTIBLE ACCOUNTS

1	RESID NON HTG RATE R-6 & R-11	C904RHNH	0	0	0	0	0	0
2	RESID HEATING RATE R-5 & R-10	C904RH	0	0	0	0	0	0
3	LOW LF SMALL RATE G40 & T40	C904G40	13,821	0	0	0	0	0
4	LOW LF MEDIUM RATE G41 & T41	C904G41	0	0	4,107	0	0	0
5	LOW LF LARGE RATE G42 & T42	C904G42	0	0	0	0	0	0
6	HIGH LF SMALL RATE G50 & T50	C904G50	0	2,561	0	0	0	0
7	HIGH LF MEDIUM RATE G51 & T51	C904G51	0	0	0	344	0	0
8	HIGH LF LARGE RATE G52 & T52	C904G52	0	0	0	0	0	0

INTERNALLY DEVELOPED

LATE PAYMENT CHARGES

9	RESID NON HTG RATE R-6 & R-11	C488RHNH	0	0	0	0	0	0
10	RESID HEATING RATE R-5 & R-10	C488RH	0	0	0	0	0	0
11	LOW LF SMALL RATE G40 & T40	C488G40	132,194	0	0	0	0	0
12	LOW LF MEDIUM RATE G41 & T41	C488G41	0	0	104,167	0	0	0
13	LOW LF LARGE RATE G42 & T42	C488G42	0	0	0	26,987	0	0
14	HIGH LF SMALL RATE G50 & T50	C488G50	0	3,968	0	0	0	0
15	HIGH LF MEDIUM RATE G51 & T51	C488G51	0	0	0	10,986	0	0
16	HIGH LF LARGE RATE G52 & T52	C488G51	0	0	0	0	0	5,921

INTERNALLY DEVELOPED

WORKING CASH

21	TOTAL OPERATION & MAINTENANCE EXP		36,585	1,097	28,799	3,041	7,459	1,637
22	LESS: PURCHASED GAS		0	0	0	0	0	0
23	904-UNCOLLECTIBLE EXPENSE		0	0	0	0	0	0
24	PLUS: OTHER TAXES		12,901	387	10,155	1,072	2,630	577
25	PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)		26,514	923	22,169	2,074	5,673	994
26	TOTAL WORKING CASH ALLOCATOR WORKCASH		76,001	2,407	61,123	6,187	15,762	3,209

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED-27					
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	3,540,586	19,589	121
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	3,540,586	19,589	121
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	161,860	76,792	474
5	ACCT 311-LP GAS EQUIP	PLT311	0	0	0
6	ACCT 320-OTHER EQUIPMENT	PLT320	7,640	3,625	22
7	ACCT 321-LNG EQUIPMENT	PLT321	84,156	39,926	246
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0
9	ACCT 362-GAS HOLDERS	PLT362	0	0	0
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	2,910,194	0	0
12	ACCT 376-MAINS	PLT376	106,849,866	0	0
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	167,100,182	0	0
14	ACCT 378-MEAS & REG STATION EQ	PLT378	3,445,431	0	0
15	ACCT 379-MEAS & REG CITY GATE	PLT379	39,266	0	0
16	ACCT 380-SERVICES	PLT380	60,250,315	0	0
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	11,692,260	0	0
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	44,967,656	0	0
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	84,640,514	0	0
20	ACCT 381-METERS	PLT381	3,913,705	0	0
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	24,390,199	0	0
22	ACCT 382-METER INSTALLATION	PLT382	19,938,729	0	0
23	ACCT 383-HOUSE REGULATORS	PLT383	537,766	0	0
24	ACCT 386-OTHER PROP CUST PREM	PLT386	1,637,356	0	0
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	420,149	2,325	14
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	82,633	0	0
27	ACCT 393-STORES EQUIPMENT	PLT393	31,520	0	0
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1,173,029	0	0
29	ACCT 396-POWER OPERATED EQUIP	PLT396	75,266	0	0
30	ACCT 397-COMMUNICATION EQUIP	PLT397	1,453,181	8,040	50
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	112,656	0	0
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	2,936,629	0	0
33	TOTAL PROD & STORAGE PLANT	PSPLT	260,472	123,577	762
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	113,244,758	0	0
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	199,629,651	0	0
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	3,386,092	11,653	72
37	TOTAL GAS PLANT IN SERVICE	PLANT	212,059,660	1,195,530	7,372
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED-27								
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0	0	0	0
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	10,042	301	7,904	835	2,047	449
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	10,042	301	7,904	835	2,047	449
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	39,367	1,181	30,987	3,272	8,026	1,762
5	ACCT 311-LP GAS EQUIP	PLT311	0	0	0	0	0	0
6	ACCT 320-OTHER EQUIPMENT	PLT320	1,858	56	1,463	154	379	83
7	ACCT 321-LNG EQUIPMENT	PLT321	20,468	614	16,111	1,701	4,173	916
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0	0
9	ACCT 362-GAS HOLDERS	PLT362	0	0	0	0	0	0
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0	0
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	0	0	0	0	0	0
12	ACCT 376-MAINS	PLT376	0	0	0	0	0	0
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	0	0	0	0	0	0
14	ACCT 378-MEAS & REG STATION EQ	PLT378	0	0	0	0	0	0
15	ACCT 379-MEAS & REG CITY GATE	PLT379	0	0	0	0	0	0
16	ACCT 380-SERVICES	PLT380	0	0	0	0	0	0
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	0	0	0	0	0	0
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0	0	0	0	0	0
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	0	0	0	0	0	0
20	ACCT 381-METERS	PLT381	0	0	0	0	0	0
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	0	0	0	0	0	0
22	ACCT 382-METER INSTALLATION	PLT382	0	0	0	0	0	0
23	ACCT 383-HOUSE REGULATORS	PLT383	0	0	0	0	0	0
24	ACCT 386-OTHER PROP CUST PREM	PLT386	0	0	0	0	0	0
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	1,192	36	938	99	243	53
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	1,192	36	0	0	0	0
27	ACCT 393-STORES EQUIPMENT	PLT393	0	0	0	0	0	0
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	0	0	0	0	0	0
29	ACCT 396-POWER OPERATED EQUIP	PLT396	0	0	0	0	0	0
30	ACCT 397-COMMUNICATION EQUIP	PLT397	4,122	124	3,244	343	840	184
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	0	0	0	0	0	0
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	0	0	0	0	0	0
33	TOTAL PROD & STORAGE PLANT	PSPLT	63,351	1,900	49,865	5,266	12,915	2,835
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	0	0	0	0	0	0
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	0	0	0	0	0	0
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	5,974	179	4,702	497	1,218	267
37	TOTAL GAS PLANT IN SERVICE	PLANT	612,881	18,380	482,414	50,944	124,945	27,429
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-28				
1 ACCT 717-PROPANE EXPENSES	EXP717	9,492	4,503	28
2 ACCT 718-DISPATCHING PROD	EXP718	0	0	0
3 ACCT 735-MISCELLANEOUS	EXP735	12,805	6,075	37
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	7,688	3,648	22
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	7,713	3,659	23
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0
7 TOTAL GAS COSTS	GASCOSTS	20,951,307	0	0
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	403,550	0	0
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	349,400	0	0
10 ACCT 857-879 DIST OPER EXP	EXP8519	1,946,505	0	0
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0
12 ACCT 874-MAINS & SERVICE EXP	EXP874	682,358	0	0
13 ACCT 875-REGULAT STATION EXP	EXP875	220,978	0	0
14 ACCT 878-METER & HOUSE REG EXP	EXP878	995,427	0	0
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	47,743	0	0
16 ACCT 880-OTHER EXPENSE	EXP880	455,698	0	0
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	6,369	0	0
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	172,250	0	0
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	93,438	0	0
20 ACCT 889-MT OF M & R STA EQ	EXP889	31,746	0	0
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	86	0	0
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	53,877	0	0
23 ACCT 892-MAINTENANCE OF SERV	EXP892	120,017	0	0
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	12,495	0	0
25 ACCT 902-METER READING EXP	EXP902	110,170	0	0
26 ACCT 903-CUST RECORDS & COLL	EXP903	1,462,490	0	0
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	448,214	0	0
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	155,128	0	0
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	2,570	0	0
30 ACCT 920-ADMIN & GEN SALARY	EXP920	11,770	65	0
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	204,409	1,131	7
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	3,358,161	17,963	111
33 ACCT 925-INJURIES & DAMAGES	EXP925	228,942	1,267	8
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	233,966	1,295	8
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	1,979,724	10,953	68
36 ACCT 930-MISC GEN EXP	EXP930	179,698	994	6
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	11,240	39	0
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-28								
1	ACCT 717-PROPANE EXPENSES	EXP717	2,309	69	1,817	192	471	103
2	ACCT 718-DISPATCHING PROD	EXP718	0	0	0	0	0	0
3	ACCT 735-MISCELLANEOUS	EXP735	3,115	93	2,452	259	635	139
4	ACCT 741-MAINTENANCE OF PLANT	EXP741	1,870	56	1,472	155	381	84
5	ACCT 742-MAINTENANCE OF EQUIP	EXP742	1,876	56	1,477	156	382	84
6	ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0	0	0	0
7	TOTAL GAS COSTS	GASCOSTS	0	0	0	0	0	0
8	ACCT 813-OTHER GAS SUPPLY EXP	EXP813	0	0	0	0	0	0
9	ACCT 851-SYSTEM CONTROL & DISP	EXP851	0	0	0	0	0	0
10	ACCT 857-879 DIST OPER EXP	EXP8519	0	0	0	0	0	0
11	ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0	0	0	0
12	ACCT 874-MAINS & SERVICE EXP	EXP874	0	0	0	0	0	0
13	ACCT 875-REGULAT STATION EXP	EXP875	0	0	0	0	0	0
14	ACCT 878-METER & HOUSE REG EXP	EXP878	0	0	0	0	0	0
15	ACCT 879-CUSTOMER INSTALL EXP	EXP879	0	0	0	0	0	0
16	ACCT 880-OTHER EXPENSE	EXP880	0	0	0	0	0	0
17	ACCT 886-MAINT STRUCT & IMPROV	EXP886	0	0	0	0	0	0
18	ACCT 894-MAINT OF OTHER EQUIP	EXP894	0	0	0	0	0	0
19	ACCT 887-MAINTENANCE OF MAINS	EXP887	0	0	0	0	0	0
20	ACCT 889-MT OF M & R STA EQ	EXP889	0	0	0	0	0	0
21	ACCT 890-MT OF REG EQ (INDUST)	EXP890	0	0	0	0	0	0
22	ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	0	0	0	0	0	0
23	ACCT 892-MAINTENANCE OF SERV	EXP892	0	0	0	0	0	0
24	ACCT 893-MAINT MET & HOUSE REG	EXP893	0	0	0	0	0	0
25	ACCT 902-METER READING EXP	EXP902	0	0	0	0	0	0
26	ACCT 903-CUST RECORDS & COLL	EXP903	0	0	0	0	0	0
27	ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	0	0	0	0	0	0
28	ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	0	0	0	0	0	0
29	ACCT 909-INFO & INSTRUCT ADVERT	EXP909	0	0	0	0	0	0
30	ACCT 920-ADMIN & GEN SALARY	EXP920	33	1	26	3	7	1
31	ACCT 921-OFFICE SUPPLIES & EXP	EXP921	580	17	456	48	118	26
32	ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	9,209	276	7,248	765	1,877	412
33	ACCT 925-INJURIES & DAMAGES	EXP925	649	19	511	54	132	29
34	ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	664	20	523	55	135	30
35	ACCT 926-EMPLOY PENSION & BENF	EXP926	5,615	168	4,420	467	1,145	251
36	ACCT 930-MISC GEN EXP	EXP930	510	15	401	42	104	23
37	ACCT 935-MAINT OF GENERAL PLT	EXP935	20	1	16	2	4	1
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-29				
1 GAS PROD LABOR ACCTS 717-735	LABPO	12,805	6,075	37
2 GAS PROD LABOR ACCTS 741-743	LABPM	15,401	7,307	45
3 DIST LABOR OPER ACCT 851 - 882	LABDO	2,089,647	0	0
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	204,717	0	0
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	742,426	0	0
6 CUST SERV & INFO LABOR ACCT 908	LABSE	160,148	0	0
7 TOTAL GAS PROD OPER LABOR	TLABPO	25,182	11,947	74
8 TOTAL GAS PROD MAINT LABOR	TLABPM	27,778	13,179	81
9 TOTAL DISTR OPER LABOR	TLABDO	2,121,220	0	0
10 TOTAL DISTR MAINT LABOR	TLABDM	239,302	0	0
11 TOTAL DISTRIBUTION LABOR	DISTLAB	2,360,522	0	0
12 TOTAL CUST ACCTS LABOR	TLABCA	742,426	0	0
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	160,148	0	0
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	3,531,047	25,126	155
15 TOTAL GAS O & M LABOR	OMLAB	5,504,256	38,727	239
16 SUM OF ALLOCATED LABOR EXP	LABOR	6,999,739	38,727	239
17				
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	5,224,984	29,361	181
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	37,970,292	258,197	1,590
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

		HIGH WINTER	LOW WINTER	HIGH WINTER	LOW WINTER	HIGH WINTER	LOW WINTER	
		SMALL	SMALL	MEDIUM	MEDIUM	LARGE	LARGE	
ALLOC		G-40 & T-40	G-50 & T-50	G-41 & T-41	G-51 & T-51	G-42 & T-42	G-52 & T-52	
		(4)-2	(5)	(6)	(7)	(8)	(9)	
INTERNALLY DEVELOPED CONT-29								
1	GAS PROD LABOR ACCTS 717-735	LABPO	3,115	93	2,452	259	635	139
2	GAS PROD LABOR ACCTS 741-743	LABPM	3,746	112	2,948	311	764	168
3	DIST LABOR OPER ACCT 851 - 882	LABDO	0	0	0	0	0	0
4	DIST LABOR MAINT ACCT 886 - 894	LABDM	0	0	0	0	0	0
5	CUST ACCTS LABOR ACCT 902 - 903	LABCA	0	0	0	0	0	0
6	CUST SERV & INFO LABOR ACCT 908	LABSE	0	0	0	0	0	0
7	TOTAL GAS PROD OPER LABOR	TLABPO	6,125	184	4,821	509	1,249	274
8	TOTAL GAS PROD MAINT LABOR	TLABPM	6,756	203	5,318	562	1,377	302
9	TOTAL DISTR OPER LABOR	TLABDO	0	0	0	0	0	0
10	TOTAL DISTR MAINT LABOR	TLABDM	0	0	0	0	0	0
11	TOTAL DISTRIBUTION LABOR	DISTLAB	0	0	0	0	0	0
12	TOTAL CUST ACCTS LABOR	TLABCA	0	0	0	0	0	0
13	CUSTOMER SERVICE & INFO LABOR	TLABSE	0	0	0	0	0	0
14	TOTAL GAS LABOR EXCL A&G	LABORXAG	12,881	386	10,139	1,071	2,626	576
15	TOTAL GAS O & M LABOR	OMLAB	19,853	595	15,627	1,650	4,047	889
16	SUM OF ALLOCATED LABOR EXP	LABOR	19,853	595	15,627	1,650	4,047	889
17								
18	DEFERRED INCOME TAXES PRELIM	DEFTAX	15,051	451	11,847	1,251	3,068	674
19	REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	132,688	3,983	104,555	11,027	27,088	5,943
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-30				

REVENUES FROM GAS SALES				
1 REVENUES FIRM SALES OF GAS		54,051,875	25,844,412	589,604
2 WEATHER ADJ NET REV SALES		732,954	532,432	2,897
3 WEATHER ADJ NET REV TRANS		164,445	0	0
4 CGA REVENUES		20,951,307	9,655,623	125,522
5 BASE REVENUE SALES		24,162,798	14,762,607	453,124
6 BASE REVENUE EXTERNAL SUPPLY		6,532,260	0	0
7 PRODUCTION REVENUES		938,029	433,832	5,609
8 CGA BAD DEBT CHARGES		129,165	60,160	687
9 LOW INCOME DISCOUNT		366,440	365,071	1,368
10 CGA BAD DEBT CHARGES FROM INCR		74,476	34,688	396
11 ANNUALIZATION ADJUSTMENT		0	0	0
12 PRODUCTION REVENUE ADJUSTMENT		0	0	0
REVENUE REQUIREMENT INPUTS				

1 CLAIMED RATE OF RETURN		8.300%	8.300%	8.300%
2 ANNUAL BOOKED CCF SALES & TRANS		69,908,226	17,320,928	239,073
3 PROPOSED SALES REVENUES		543,041	257,234	1,584
4 TOTAL ANNUAL CUSTOMERS		380,179	282,692	16,650
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-30							

REVENUES FROM GAS SALES							
1 REVENUES FIRM SALES OF GAS		10,339,903	1,656,200	8,087,564	2,257,615	2,639,790	2,636,787
2 WEATHER ADJ NET REV SALES		79,255	2,370	89,128	10,134	15,716	1,022
3 WEATHER ADJ NET REV TRANS		13,733	763	86,086	6,576	33,879	23,408
4 CGA REVENUES		4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
5 BASE REVENUE SALES		4,788,047	829,300	2,200,668	613,245	433,413	82,394
6 BASE REVENUE EXTERNAL SUPPLY		601,630	93,777	1,889,572	556,906	1,095,736	2,294,638
7 PRODUCTION REVENUES		203,630	32,735	159,911	47,893	43,793	10,627
8 CGA BAD DEBT CHARGES		29,107	3,824	22,242	5,782	6,015	1,348
9 LOW INCOME DISCOUNT		0	0	0	0	0	0
10 CGA BAD DEBT CHARGES FROM INCR		16,783	2,205	12,825	3,334	3,468	777
11 ANNUALIZATION ADJUSTMENT		0	0	0	0	0	0
12 PRODUCTION REVENUE ADJUSTMENT		0	0	0	0	0	0

REVENUE REQUIREMENT INPUTS

1 CLAIMED RATE OF RETURN		8.300%	8.300%	8.300%	8.300%	8.300%	8.300%
2 ANNUAL BOOKED CCF SALES & TRANS		9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
3 PROPOSED SALES REVENUES		132,194	3,968	104,167	10,986	26,987	5,921
4 TOTAL ANNUAL CUSTOMERS		58,925	9,708	8,266	3,103	450	386
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE-31				
CAPACITY RELATED				
1	-----			
1	PRODUCTION ALLOCATORS			
2		1.00000	0.47444	0.00293
3		1.00000	0.47444	0.00293
4		1.00000	0.47444	0.00293
5		0.00000	0.00000	0.00000
6	DEMLPG	1.00000	0.47444	0.00293
7	DEMLNG	1.00000	0.47444	0.00293
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DISTRIBUTION ALLOCATORS				
1	-----			
1	DISTR	0.00000	0.00000	0.00000
2	DISTRMAIN	0.00000	0.00000	0.00000
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

RATIO TABLE-31

CAPACITY RELATED

1	PRODUCTION ALLOCATORS						
2	DES DAY REMANNG DEMNDS - SALES	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
3	LPG PROD ALLOC-PROD	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
4	LNG PROD ALLOC-PROD	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
5	LPG & LNG PROD ALLOC-DISTR	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6	LPG PRODUCTION DEMAND	DEMLPG 0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
7	LNG PRODUCTION DEMAND	DEMLNG 0.24322	0.00729	0.19144	0.02022	0.04958	0.01088

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DISTRIBUTION ALLOCATORS

1	DISTRIBUTION ALLOCATOR	DISTR	0.00000	0.00000	0.00000	0.00000	0.00000
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	0.00000	0.00000	0.00000	0.00000	0.00000

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE CONT-32				
COMMODITY RELATED				
1 ANNUAL FIRM MCF SENDOUT		0.00000	0.00000	0.00000
2 ANNUAL FIRM CCF THROUGHPUT		1.00000	0.24777	0.00342
3 DIRECT GAS COST ALLOCATOR	EGAS	0.00000	0.00000	0.00000
4 CGA BAD DEBT ALLOCATOR	E904GAS	0.00000	0.00000	0.00000
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6 DIRECT GAS COST - BASE DIST ALLOC	EGASB	0.00000	0.00000	0.00000
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

RATIO TABLE CONT-32

COMMODITY RELATED

1	ANNUAL FIRM MCF SENDOUT		0.00000	0.00000	0.00000	0.00000	0.00000
2	ANNUAL FIRM CCF THROUGHPUT		0.13359	0.02404	0.18810	0.06412	0.09667
3	DIRECT GAS COST ALLOCATOR	EGAS	0.00000	0.00000	0.00000	0.00000	0.00000
4	CGA BAD DEBT ALLOCATOR	E904GAS	0.00000	0.00000	0.00000	0.00000	0.00000
5							
6	DIRECT GAS COST - BASE DIST ALLOC	EGASB	0.00000	0.00000	0.00000	0.00000	0.00000
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

		TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOC				
RATIO TABLE CONT-33				
CUSTOMER RELATED				
1	ACCT 380-SERVICES	CUST380	0.00000	0.00000
2	ACCT 381-383 METERS,MET INST,REG	CUST3813	0.00000	0.00000
3	ACCT 386-OTHER PROP CUST PREM	CUST386	0.00000	0.00000
4	ACCT 397-COMM EQ METSCAN - TELM	CUST397M	0.00000	0.00000
5	ACCT 397-COMM EQUIP - ITRON	CUST397I	0.00000	0.00000
6	CUSTOMER DEPOSITS	CUSTDEP	0.00000	0.00000
7	CUSTOMERS TRANSPORTSTION	CUSTTRAN	0.00000	0.00000
8	ACCT 902-METER READ EXP	CUST902	0.00000	0.00000
9	ACCT 903-CUST RECORDS & COLL	CUST903	0.00000	0.00000
10	ACCT 488 RECONNECT FEE	CUST488R	0.00000	0.00000
11	ACCT 908-CUST ASSISTANCE EXP	CUST908	0.00000	0.00000
12	ACCT 909-INFO & INSTR ADVERT	CUST909	0.00000	0.00000
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

RATIO TABLE CONT-33

CUSTOMER RELATED

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
1 ACCT 380-SERVICES	CUST380	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3 ACCT 386-OTHER PROP CUST PREM	CUST386	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6 CUSTOMER DEPOSITS	CUSTDEP	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
8 ACCT 902-METER READ EXP	CUST902	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
9 ACCT 903-CUST RECORDS & COLL	CUST903	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10 ACCT 488 RECONNECT FEE	CUST488R	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12 ACCT 909-INFO & INSTR ADVERT	CUST909	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE CONT-34				
EXTERNALLY DEVELOPED				
UNCOLLECTIBLE ACCOUNTS				
1 RESID NON HTG RATE R-6 & R-11	C904RNL	0.00000	0.00000	0.00000
2 RESID HEATING RATE R-5 & R-10	C904RH	0.00000	0.00000	0.00000
3 LOW LF SMALL RATE G40 & T40	C904G40	0.00000	0.00000	0.00000
4 LOW LF MEDIUM RATE G41 & T41	C904G41	0.00000	0.00000	0.00000
5 LOW LF LARGE RATE G42 & T42	C904G42	0.00000	0.00000	0.00000
6 HIGH LF SMALL RATE G50 & T50	C904G50	0.00000	0.00000	0.00000
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	0.00000	0.00000	0.00000
8 HIGH LF LARGE RATE G52 & T52	C904G52	0.00000	0.00000	0.00000
INTERNALLY DEVELOPED				
LATE PAYMENT CHARGES				
9 RESID NON HTG RATE R-6 & R-11	C488RNL	0.00153	0.00000	0.00153
10 RESID HEATING RATE R-5 & R-10	C488RH	0.00892	0.00892	0.00000
11 LOW LF SMALL RATE G40 & T40	C488G40	0.01240	0.00000	0.00000
12 LOW LF MEDIUM RATE G41 & T41	C488G41	0.01275	0.00000	0.00000
13 LOW LF LARGE RATE G42 & T42	C488G42	0.01002	0.00000	0.00000
14 HIGH LF SMALL RATE G50 & T50	C488G50	0.00246	0.00000	0.00000
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	0.00458	0.00000	0.00000
16 HIGH LF LARGE RATE G52 & T52	C488G52	0.00176	0.00000	0.00000
17				
18 INTERNALLY DEVELOPED				
19 WORKING CASH				
20				
21 TOTAL OPERATION & MAINTENANCE EXP				
22 LESS: PURCHASED GAS				
23 904-UNCOLLECTIBLE EXPENSE				
24 PLUS: OTHER TAXES				
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)				
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		0.01536	0.00698	0.00003
27				
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

RATIO TABLE CONT-34

EXTERNALLY DEVELOPED

UNCOLLECTIBLE ACCOUNTS

1	RESID NON HTG RATE R-6 & R-11	C904RNL	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	RESID HEATING RATE R-5 & R-10	C904RH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	LOW LF SMALL RATE G40 & T40	C904G40	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	LOW LF MEDIUM RATE G41 & T41	C904G41	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	LOW LF LARGE RATE G42 & T42	C904G42	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6	HIGH LF SMALL RATE G50 & T50	C904G50	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
7	HIGH LF MEDIUM RATE G51 & T51	C904G51	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
8	HIGH LF LARGE RATE G52 & T52	C904G52	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

INTERNALLY DEVELOPED

LATE PAYMENT CHARGES

9	RESID NON HTG RATE R-6 & R-11	C488RNL	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10	RESID HEATING RATE R-5 & R-10	C488RH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11	LOW LF SMALL RATE G40 & T40	C488G40	0.01240	0.00000	0.00000	0.00000	0.00000	0.00000
12	LOW LF MEDIUM RATE G41 & T41	C488G41	0.00000	0.00000	0.01275	0.00000	0.00000	0.00000
13	LOW LF LARGE RATE G42 & T42	C488G42	0.00000	0.00000	0.00000	0.00000	0.01002	0.00000
14	HIGH LF SMALL RATE G50 & T50	C488G50	0.00000	0.00246	0.00000	0.00000	0.00000	0.00000
15	HIGH LF MEDIUM RATE G51 & T51	C488G51	0.00000	0.00000	0.00000	0.00458	0.00000	0.00000
16	HIGH LF LARGE RATE G52 & T52	C488G52	0.00000	0.00000	0.00000	0.00000	0.00000	0.00176

INTERNALLY DEVELOPED

WORKING CASH

21	TOTAL OPERATION & MAINTENANCE EXP							
22	LESS: PURCHASED GAS							
23	904-UNCOLLECTIBLE EXPENSE							
24	PLUS: OTHER TAXES							
25	PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)							
26	TOTAL WORKING CASH ALLOCATOR	WORKCASH	0.00386	0.00012	0.00310	0.00031	0.00080	0.00016

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP					
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
INTERNALLY DEVELOPED-35					
1 ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0.00000	0.00000	0.00000	
2 ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	0.01166	0.00553	0.00003	
3 ACCT 303-MISC INTANGIBLE PLT	PLT303	0.01166	0.00553	0.00003	
4 ACCT 305-STRUCTURES & IMPROVE	PLT305	1.00000	0.47444	0.00293	
5 ACCT 311-LP GAS EQUIP	PLT311	0.00000	0.00000	0.00000	
6 ACCT 320-OTHER EQUIPMENT	PLT320	1.00000	0.47444	0.00293	
7 ACCT 321-LNG EQUIPMENT	PLT321	1.00000	0.47444	0.00293	
8 ACCT 361-STRUCTURES & IMPROVE	PLT361	0.00000	0.00000	0.00000	
9 ACCT 362-GAS HOLDERS	PLT362	0.00000	0.00000	0.00000	
10 ACCT 363-PURIFICATION EQUIPMENT	PLT363	0.00000	0.00000	0.00000	
11 ACCT 375-STRUCTURES & IMPROVE	PLT375	0.00000	0.00000	0.00000	
12 ACCT 376-MAINS	PLT376	0.00000	0.00000	0.00000	
13 ACCT 376 MAINS & 380 SERVICES	PLT37680	0.00000	0.00000	0.00000	
14 ACCT 378-MEAS & REG STATION EQ	PLT378	0.00000	0.00000	0.00000	
15 ACCT 379-MEAS & REG CITY GATE	PLT379	0.00000	0.00000	0.00000	
16 ACCT 380-SERVICES	PLT380	0.00000	0.00000	0.00000	
17 ACCT 380-SERVICES - COMMERCIAL	PLT380C	0.00000	0.00000	0.00000	
18 ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0.00000	0.00000	0.00000	
19 ACCT 380-383-SERV,METRS & REGUL	PLT3803	0.00000	0.00000	0.00000	
20 ACCT 381-METERS	PLT381	0.00000	0.00000	0.00000	
21 ACCT 381 - 383 METER & HSE REGUL	PLT3813	0.00000	0.00000	0.00000	
22 ACCT 382-METER INSTALLATION	PLT382	0.00000	0.00000	0.00000	
23 ACCT 383-HOUSE REGULATORS	PLT383	0.00000	0.00000	0.00000	
24 ACCT 386-OTHER PROP CUST PREM	PLT386	0.00000	0.00000	0.00000	
25 ACCT 391-OFFICE FURN & EQUIP	PLT391	0.01166	0.00553	0.00003	
26 ACCT 392-TRANSPORTATION EQUIP	PLT392	0.01485	0.00000	0.00000	
27 ACCT 393-STORES EQUIPMENT	PLT393	0.00000	0.00000	0.00000	
28 ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	0.00000	0.00000	0.00000	
29 ACCT 396-POWER OPERATED EQUIP	PLT396	0.00000	0.00000	0.00000	
30 ACCT 397-COMMUNICATION EQUIP	PLT397	0.01166	0.00553	0.00003	
31 ACCT 397-COMM EQ METSCAN - TEL	PLT397M	0.00000	0.00000	0.00000	
32 ACCT 397-COMM EQUIP - ITRON	PLT397I	0.00000	0.00000	0.00000	
33 TOTAL PROD & STORAGE PLANT	PSPLT	1.00000	0.47444	0.00293	
34 DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	0.00000	0.00000	0.00000	
35 TOTAL DISTRIBUTION PLANT	DISTRPLT	0.00000	0.00000	0.00000	
36 TOTAL GENERAL PLT EX 397M & 397I	GENPLT	0.00725	0.00344	0.00002	
37 TOTAL GAS PLANT IN SERVICE	PLANT	0.01188	0.00564	0.00003	
38					

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED-35								
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
5	ACCT 311-LP GAS EQUIP	PLT311	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6	ACCT 320-OTHER EQUIPMENT	PLT320	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
7	ACCT 321-LNG EQUIPMENT	PLT321	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
9	ACCT 362-GAS HOLDERS	PLT362	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12	ACCT 376-MAINS	PLT376	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
14	ACCT 378-MEAS & REG STATION EQ	PLT378	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
15	ACCT 379-MEAS & REG CITY GATE	PLT379	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
16	ACCT 380-SERVICES	PLT380	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
20	ACCT 381-METERS	PLT381	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
22	ACCT 382-METER INSTALLATION	PLT382	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
23	ACCT 383-HOUSE REGULATORS	PLT383	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
24	ACCT 386-OTHER PROP CUST PREM	PLT386	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	0.01442	0.00043	0.00000	0.00000	0.00000	0.00000
27	ACCT 393-STORES EQUIPMENT	PLT393	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
29	ACCT 396-POWER OPERATED EQUIP	PLT396	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
30	ACCT 397-COMMUNICATION EQUIP	PLT397	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
33	TOTAL PROD & STORAGE PLANT	PSPLT	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	0.00176	0.00005	0.00139	0.00015	0.00036	0.00008
37	TOTAL GAS PLANT IN SERVICE	PLANT	0.00289	0.00009	0.00227	0.00024	0.00059	0.00013
38								

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP				
	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-36				
1 ACCT 717-PROPANE EXPENSES	EXP717	1.00000	0.47444	0.00293
2 ACCT 718-DISPATCHING PROD	EXP718	0.00000	0.00000	0.00000
3 ACCT 735-MISCELLANEOUS	EXP735	1.00000	0.47444	0.00293
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	1.00000	0.47444	0.00293
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	1.00000	0.47444	0.00293
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0.00000	0.00000	0.00000
7 TOTAL GAS COSTS	GASCOSTS	0.00000	0.00000	0.00000
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	0.00000	0.00000	0.00000
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	0.00000	0.00000	0.00000
10 ACCT 857-879 DIST OPER EXP	EXP8519	0.00000	0.00000	0.00000
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0.00000	0.00000	0.00000
12 ACCT 874-MAINS & SERVICE EXP	EXP874	0.00000	0.00000	0.00000
13 ACCT 875-REGULAT STATION EXP	EXP875	0.00000	0.00000	0.00000
14 ACCT 878-METER & HOUSE REG EXP	EXP878	0.00000	0.00000	0.00000
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	0.00000	0.00000	0.00000
16 ACCT 880-OTHER EXPENSE	EXP880	0.00000	0.00000	0.00000
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	0.00000	0.00000	0.00000
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	0.00000	0.00000	0.00000
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	0.00000	0.00000	0.00000
20 ACCT 889-MT OF M & R STA EQ	EXP889	0.00000	0.00000	0.00000
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	0.00000	0.00000	0.00000
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	0.00000	0.00000	0.00000
23 ACCT 892-MAINTENANCE OF SERV	EXP892	0.00000	0.00000	0.00000
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	0.00000	0.00000	0.00000
25 ACCT 902-METER READING EXP	EXP902	0.00000	0.00000	0.00000
26 ACCT 903-CUST RECORDS & COLL	EXP903	0.00000	0.00000	0.00000
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	0.00000	0.00000	0.00000
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	0.00000	0.00000	0.00000
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	0.00000	0.00000	0.00000
30 ACCT 920-ADMIN & GEN SALARY	EXP920	0.01166	0.00553	0.00003
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	0.01166	0.00553	0.00003
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	0.01127	0.00535	0.00003
33 ACCT 925-INJURIES & DAMAGES	EXP925	0.01166	0.00553	0.00003
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	0.01167	0.00553	0.00003
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	0.01166	0.00553	0.00003
36 ACCT 930-MISC GEN EXP	EXP930	0.01166	0.00553	0.00003
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	0.00725	0.00344	0.00002
38				

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-36								
1	ACCT 717-PROPANE EXPENSES	EXP717	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
2	ACCT 718-DISPATCHING PROD	EXP718	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3	ACCT 735-MISCELLANEOUS	EXP735	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
4	ACCT 741-MAINTENANCE OF PLANT	EXP741	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
5	ACCT 742-MAINTENANCE OF EQUIP	EXP742	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
6	ACCT 743-GAS SYS PROD TRAINING	EXP743	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
7	TOTAL GAS COSTS	GASCOSTS	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
8	ACCT 813-OTHER GAS SUPPLY EXP	EXP813	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
9	ACCT 851-SYSTEM CONTROL & DISP	EXP851	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10	ACCT 857-879 DIST OPER EXP	EXP8519	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11	ACCT 857-MEAS & REG STATION EXP	EXP857	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12	ACCT 874-MAINS & SERVICE EXP	EXP874	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
13	ACCT 875-REGULAT STATION EXP	EXP875	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
14	ACCT 878-METER & HOUSE REG EXP	EXP878	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
15	ACCT 879-CUSTOMER INSTALL EXP	EXP879	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
16	ACCT 880-OTHER EXPENSE	EXP880	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
17	ACCT 886-MAINT STRUCT & IMPROV	EXP886	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
18	ACCT 894-MAINT OF OTHER EQUIP	EXP894	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
19	ACCT 887-MAINTENANCE OF MAINS	EXP887	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
20	ACCT 889-MT OF M & R STA EQ	EXP889	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
21	ACCT 890-MT OF REG EQ (INDUST)	EXP890	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
22	ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
23	ACCT 892-MAINTENANCE OF SERV	EXP892	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
24	ACCT 893-MAINT MET & HOUSE REG	EXP893	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
25	ACCT 902-METER READING EXP	EXP902	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
26	ACCT 903-CUST RECORDS & COLL	EXP903	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
27	ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
28	ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
29	ACCT 909-INFO & INSTRUCT ADVERT	EXP909	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
30	ACCT 920-ADMIN & GEN SALARY	EXP920	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
31	ACCT 921-OFFICE SUPPLIES & EXP	EXP921	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
32	ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	0.00274	0.00008	0.00216	0.00023	0.00056	0.00012
33	ACCT 925-INJURIES & DAMAGES	EXP925	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
34	ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
35	ACCT 926-EMPLOY PENSION & BENF	EXP926	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
36	ACCT 930-MISC GEN EXP	EXP930	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
37	ACCT 935-MAINT OF GENERAL PLT	EXP935	0.00176	0.00005	0.00139	0.00015	0.00036	0.00008
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-37				
1 GAS PROD LABOR ACCTS 717-735	LABPO	1.00000	0.47444	0.00293
2 GAS PROD LABOR ACCTS 741-743	LABPM	1.00000	0.47444	0.00293
3 DIST LABOR OPER ACCT 851 - 882	LABDO	0.00000	0.00000	0.00000
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	0.00000	0.00000	0.00000
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	0.00000	0.00000	0.00000
6 CUST SERV & INFO LABOR ACCT 908	LABSE	0.00000	0.00000	0.00000
7 TOTAL GAS PROD OPER LABOR	TLABPO	1.00000	0.47444	0.00293
8 TOTAL GAS PROD MAINT LABOR	TLABPM	1.00000	0.47444	0.00293
9 TOTAL DISTR OPER LABOR	TLABDO	0.00000	0.00000	0.00000
10 TOTAL DISTR MAINT LABOR	TLABDM	0.00000	0.00000	0.00000
11 TOTAL DISTRIBUTION LABOR	DISTLAB	0.00000	0.00000	0.00000
12 TOTAL CUST ACCTS LABOR	TLABCA	0.00000	0.00000	0.00000
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	0.00000	0.00000	0.00000
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	0.01500	0.00712	0.00004
15 TOTAL GAS O & M LABOR	OMLAB	0.01483	0.00704	0.00004
16 SUM OF ALLOCATED LABOR EXP	LABOR	0.01166	0.00553	0.00003
17				
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	0.01184	0.00562	0.00003
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	0.01436	0.00680	0.00004
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

		HIGH WINTER	LOW WINTER	HIGH WINTER	LOW WINTER	HIGH WINTER	LOW WINTER	
		SMALL	SMALL	MEDIUM	MEDIUM	LARGE	LARGE	
ALLOC		G-40 & T-40	G-50 & T-50	G-41 & T-41	G-51 & T-51	G-42 & T-42	G-52 & T-52	
		(4)-2	(5)	(6)	(7)	(8)	(9)	
INTERNALLY DEVELOPED CONT-37								
1	GAS PROD LABOR ACCTS 717-735	LABPO	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
2	GAS PROD LABOR ACCTS 741-743	LABPM	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
3	DIST LABOR OPER ACCT 851 - 882	LABDO	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4	DIST LABOR MAINT ACCT 886 - 894	LABDM	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
5	CUST ACCTS LABOR ACCT 902 - 903	LABCA	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6	CUST SERV & INFO LABOR ACCT 908	LABSE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
7	TOTAL GAS PROD OPER LABOR	TLABPO	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
8	TOTAL GAS PROD MAINT LABOR	TLABPM	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
9	TOTAL DISTR OPER LABOR	TLABDO	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10	TOTAL DISTR MAINT LABOR	TLABDM	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11	TOTAL DISTRIBUTION LABOR	DISTLAB	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12	TOTAL CUST ACCTS LABOR	TLABCA	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
13	CUSTOMER SERVICE & INFO LABOR	TLABSE	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
14	TOTAL GAS LABOR EXCL A&G	LABORXAG	0.00365	0.00011	0.00287	0.00030	0.00074	0.00016
15	TOTAL GAS O & M LABOR	OMLAB	0.00361	0.00011	0.00284	0.00030	0.00074	0.00016
16	SUM OF ALLOCATED LABOR EXP	LABOR	0.00284	0.00009	0.00223	0.00024	0.00058	0.00013
17								
18	DEFERRED INCOME TAXES PRELIM	DEFTAX	0.00288	0.00009	0.00227	0.00024	0.00059	0.00013
19	REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	0.00349	0.00010	0.00275	0.00029	0.00071	0.00016
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-38				
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

PRODUCTION DEMAND COMP

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)

INTERNALLY DEVELOPED CONT-38

1						
2	REVENUES FROM GAS SALES					
3	REVENUES FIRM SALES OF GAS	0.19130	0.03064	0.14963	0.04177	0.04884
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Schedule DLG/PMN-1G-5

Total Functional Cost of Service Study

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
SUMMARY OF RESULTS-1					
RATE BASE					
1 GAS PLANT IN SERVICE	212,059,660	2,681,559	209,378,101	2,681,559	209,378,101
2 LESS: DEPREC & AMORT RES	67,148,218	549,623	66,598,595	549,623	66,598,595
3 NET UTILITY PLANT IN SERVICE	144,911,442	2,131,935	142,779,506	2,131,935	142,779,506
ADD:					
4 WORKING CASH REQUIREMENT	1,387,963	69,547	1,318,416	69,547	1,318,416
5 MATERIALS & SUPPLIES	2,421,808	0	2,421,808	0	2,421,808
6 PREPAYMENTS	0	0	0	0	0
DEDUCT:					
7 CUSTOMER DEPOSITS	430,588	0	430,588	0	430,588
8 CUSTOMER ADVANCES	0	0	0	0	0
9 DEFERRED TAXES	16,798,824	180,697	16,618,127	180,697	16,618,127
10 RATE BASE	131,491,801	2,020,785	129,471,015	2,020,785	129,471,015
DEVELOPMENT OF RETURN					
11 SALES OF GAS TO ULTIMATE CUST	55,234,662	22,338,859	32,895,803	1,183,911	32,895,803
12 OTHER OPERATING REVENUES	979,079	42,825	936,254	42,825	936,254
13 TOTAL GAS OPERATING REVENUES	56,213,741	22,381,684	33,832,058	1,226,735	33,832,058
LESS:					
14 PURCHASED GAS COSTS	20,951,307	20,951,307	0	0	0
15 OTHER OPER & MAINT EXPENSE	12,909,475	786,472	12,123,003	582,831	12,123,003
16 DEPRECIATION AND AMORTIZATION EXPENSE	7,420,524	66,395	7,354,128	66,395	7,354,128
17 OTHER TAXES	4,467,456	61,683	4,405,773	61,683	4,405,773
18 INCOME TAXES	2,402,684	386,499	2,016,185	386,499	2,016,185
19 INTEREST ON CUSTOMER DEPOSITS	13,346	0	13,346	0	13,346
20 TOTAL OPERATING EXPENSE	48,164,792	22,252,356	25,912,436	1,097,408	25,912,436
21 NET OPERATING INCOME	8,048,949	129,328	7,919,621	129,328	7,919,621
22 RATE OF RETURN	6.12%	6.40%	6.12%	6.40%	6.12%
23 RELATIVE RATE OF RETURN	1.000	1.000	1.000	1.000	0.956

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVELOPMENT OF RATE BASE-2							
GAS PLANT IN SERVICE							
INTANGIBLE PLANT							
1	303.2-INTANGIBLE SOFTWARE - 10YR	LABOR	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	LABOR	3,540,586	142,651	3,397,935	142,651	3,397,935
3	TOTAL INTANGIBLE PLANT		3,540,586	142,651	3,397,935	142,651	3,397,935
PRODUCTION PLANT							
4	304-LAND	DEMLPG	6,816	6,816	0	6,816	0
5	305-STRUCTURES	DEMLPG	161,860	161,860	0	161,860	0
6	310-LAND & LAND RIGHTS	DEMLPG	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	DEMLPG	0	0	0	0	0
8	320-OTHER EQUIPMENT	DEMLPG	7,640	7,640	0	7,640	0
9	321-LNG EQUIPMENT	DEMLPG	84,156	84,156	0	84,156	0
10	TOTAL PRODUCTION PLANT		260,472	260,472	0	260,472	0
OTHER STORAGE PLANT							
11	360-LAND	DEMLNG	0	0	0	0	0
12	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0	0	0
13	362-GAS HOLDERS	DEMLPG	0	0	0	0	0
14	363-PURIFICATION EQUIPMENT	DEMLPG	0	0	0	0	0
15	TOTAL OTHER STORAGE PLANT		0	0	0	0	0
16	PROFORMA ADJUSTMNTS - PROD & STO	DEMLPG	2,193,573	2,193,573	0	2,193,573	0

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVELOPMENT OF RATE BASE CON'T-3							
DISTRIBUTION PLANT							
1	374.4-LAND RIGHTS	DISTOTH	89,111	0	89,111	0	89,111
2	374.5-RIGHT OF WAY	DISTRMAIN	17,911	0	17,911	0	17,911
3	375-STRUCTURES & IMPROVE	DISTR	2,910,194	0	2,910,194	0	2,910,194
4	376-MAINS	DISTRMAIN	106,849,866	0	106,849,866	0	106,849,866
5	378-MEAS & REG STATION EQ	DISTR	3,445,431	0	3,445,431	0	3,445,431
6	379-MEAS & REG CITY GATE	DISTR	39,266	0	39,266	0	39,266
7	380-SERVICES	CUST380	60,250,315	0	60,250,315	0	60,250,315
8	381-METERS	CUST3813	3,913,705	0	3,913,705	0	3,913,705
9	382-METER INSTALLATION	CUST3813	19,938,729	0	19,938,729	0	19,938,729
10	383-HOUSE REGULATORS	CUST3813	537,766	0	537,766	0	537,766
11	386-CONV BURNERS & WAT HEATER	CUST386	1,637,356	0	1,637,356	0	1,637,356
12	TOTAL DISTRIBUTION PLANT		199,629,651	0	199,629,651	0	199,629,651
GENERAL & COMMON PLANT							
13	389.1-LAND	LABOR	232,947	9,385	223,561	9,385	223,561
14	391-OFFICE EQUIPMENT	LABOR	420,149	16,928	403,221	16,928	403,221
15	392-TRANSPORTATION EQUIP	LABOR	0	0	0	0	0
16	393-STORES EQUIPMENT	DISTRPLT	31,520	0	31,520	0	31,520
17	394-TOOLS, SHOP & GARAGE EQ	DISTRPLT	1,173,029	0	1,173,029	0	1,173,029
18	396-POWER OPERATED EQUIP	DISTRPLT	75,266	0	75,266	0	75,266
19	397-COMMUNICATION EQUIP	LABOR	1,453,181	58,549	1,394,632	58,549	1,394,632
20	397-COMM EQ METSCAN - TELEMET	CUST397M	112,656	0	112,656	0	112,656
21	397-COMM EQ - ERT AUTO RDG DEV-G	CUST397I	2,936,629	0	2,936,629	0	2,936,629
22	TOT GENERAL & COMMON PLT		6,435,378	84,862	6,350,516	84,862	6,350,516
23	TOTAL GAS PLANT IN SERVICE		212,059,660	2,681,559	209,378,101	2,681,559	209,378,101

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVELOPMENT OF RATE BASE CON'T-4							
DEPRECIATION & AMORTIZATION RESERVE							
INTANGIBLE PLANT RESERVE							
1	303.2-INTANGIBLE SOFTWARE - 10YR	PLT303.2	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	PLT303.3	2,593,404	104,489	2,488,916	104,489	2,488,916
3	TOT INTANGIBLE PLT RESERVE		2,593,404	104,489	2,488,916	104,489	2,488,916
PRODUCTION PLANT RESERVE							
4	305-STRUCTURES	PLT305	129,465	129,465	0	129,465	0
5	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0
6	320-OTHER EQUIPMENT	PLT320	2,756	2,756	0	2,756	0
7	321-LNG EQUIPMENT	PLT321	56,611	56,611	0	56,611	0
8	TOTAL PRODUCTION RESERVE		188,832	188,832	0	188,832	0
9	PROFORMA ADJUSTMNTS - PROD & STO DEMLPG		188,832	188,832	0	188,832	0
OTHER STORAGE PLANT							
10	361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0
11	362-GAS HOLDERS	PLT362	0	0	0	0	0
12	363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0
13	TOTAL OTHER STORAGE PLANT		0	0	0	0	0

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVELOPMENT OF RATE BASE CON'T-5							
DISTRIBUTION PLANT RESERVE							
1	375-STRUCTURES & IMPROVE	PLT375	742,822	0	742,822	0	742,822
2	376-MAINS	PLT376	29,105,074	0	29,105,074	0	29,105,074
3	378-MEAS & REG STATION EQ	PLT378	707,635	0	707,635	0	707,635
4	379-MEAS & REG CITY GATE	PLT379	1,589	0	1,589	0	1,589
5	380-SERVICES	PLT380	19,892,215	0	19,892,215	0	19,892,215
6	381-METERS	PLT381	1,541,268	0	1,541,268	0	1,541,268
7	382-METER INSTALLATION	PLT382	5,924,107	0	5,924,107	0	5,924,107
8	383-HOUSE REGULATORS	PLT383	128,575	0	128,575	0	128,575
9	386-CONV BURNERS & WAT HEATER	PLT386	775,908	0	775,908	0	775,908
10	TOTAL DISTRIBUTION PLANT		58,819,193	0	58,819,193	0	58,819,193
GENERAL & COMMON PLT RESERVE							
11	391-OFFICE EQUIPMENT	PLT391	160,599	6,471	154,128	6,471	154,128
12	392-TRANSPORTATION EQUIP	PLT392	0	0	0	0	0
13	393-STORES EQUIPMENT	PLT393	31,511	0	31,511	0	31,511
14	394-TOOLS, SHOP & GARAGE EQ	PLT394	539,019	0	539,019	0	539,019
15	396-POWER OPERATED EQUIP	PLT396	69,923	0	69,923	0	69,923
16	397-COMMUNICATION EQUIP	PLT397	1,075,375	43,327	1,032,048	43,327	1,032,048
17	397-COMM EQ METSCAN - TELEMET	PLT397M	109,973	0	109,973	0	109,973
18	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	1,974,038	0	1,974,038	0	1,974,038
19	TOTAL GENERAL PLT RESERVE		3,960,437	49,798	3,910,640	49,798	3,910,640
20	PROFORMA ADJUSTMNTS - OTHER	PLANT	1,397,518	17,672	1,379,846	17,672	1,379,846
21	TOTAL DEPRECIATION RESERVE		67,148,218	549,623	66,598,595	549,623	66,598,595
22	NET UTILITY PLANT		144,911,442	2,131,935	142,779,506	2,131,935	142,779,506

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVELOPMENT OF RATE BASE CON'T-6						
ADDITIONS TO NET PLANT						
WORKING CAPITAL REQUIREMENTS						
CASH WORKING CAPITAL REQ						
1	PURCHASED GAS	0	0	0	0	0
2	OTHER O&M & TAXES	1,387,963	69,547	1,318,416	69,547	1,318,416
3	TOTAL CASH WORKING CAP	1,387,963	69,547	1,318,416	69,547	1,318,416
MATERIALS & SUPPLIES						
4	MATERIALS AND SUPPLIES	2,191,928	0	2,191,928	0	2,191,928
5	STORES EXPENSE UNDISTRIBUTED	229,880	0	229,880	0	229,880
6	TOTAL MATERIALS & SUPPLIES	2,421,808	0	2,421,808	0	2,421,808
7	TOTAL WORKING CAPITAL	3,809,771	69,547	3,740,224	69,547	3,740,224
PREPAYMENTS						
8	PREPAYMENTS - OTHER	0	0	0	0	0
9	PREPAYMENTS - PENSION	0	0	0	0	0
10	PREPAYMENTS - OPEB	0	0	0	0	0
11	TOTAL PREPAYMENTS	0	0	0	0	0
12	TOTAL ADDITIONS TO NET PLT	3,809,771	69,547	3,740,224	69,547	3,740,224

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVELOPMENT OF RATE BASE CON'T-7							
DEDUCTIONS TO NET PLANT							
1	CUSTOMER DEPOSITS	CUSTDEP	430,588	0	430,588	0	430,588
2	CUSTOMER ADVANCES	PLT37680	0	0	0	0	0
						0	0
ACCUM DEFERRED INCOME TAX							
4	ACCEL DEP & AMORT & SETT ADJ	PLANT	17,390,879	219,913	17,170,966		
5	FAS 87 / 106	EXP926	(849,723)	(34,236)	(815,487)	(34,236)	(815,487)
6	BAD DEBT	EXP904	(19,530)	(8,873)	(10,657)	(8,873)	(10,657)
7	PREPAID PROPERTY TAXES	PLANT	225,277	2,849	222,428	2,849	222,428
8	DEFERRED RATE CASE COSTS	REVCLAIM	18,120	696	17,424	696	17,424
9	UNAMORT ITC (ACCT 255)	PLANT	36,300	459	35,841	459	35,841
10	ACCUM NON-CURRENT	PLANT	418	5	413	5	413
11	INSURANCE CLAIM	EXP9245	(2,917)	(116)	(2,801)	(116)	(2,801)
12	TOTAL ACCUM DEF INCOME TAX		16,798,824	180,697	16,618,127	180,697	16,618,127
13	TOTAL DEDUCTIONS TO NET PLT		17,229,412	180,697	17,048,715	180,697	17,048,715
14	TOTAL RATE BASE		131,491,801	2,020,785	129,471,015	2,020,785	129,471,015

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY	
REVENUES-8								
GAS OPERATING REVENUES								
1	TOTAL FIRM SALES OF GAS		54,051,875	22,338,859	31,713,016	1,183,911	31,713,016	
2	SPECIAL CONTRACT REVENUES	DISTR	1,182,788	0	1,182,788	0	1,182,788	
3	TOTAL REVENUE SALES OF GAS		55,234,662	22,338,859	32,895,803	1,183,911	32,895,803	
OTHER OPERATING REVENUES								
487-LATE PAYMENT CHARGES								
4	RESIDENTIAL HEATING - R-5 & R-10	C488RH	75,514	27,024	48,490	27,024	48,490	
5	RESIDENTIAL NON-HTG- R-6 & R-11	C488RNH	2,513	321	2,192	321	2,192	
6	C&I SMALL - LLF G40	C488G40	13,812	6,405	7,407	6,405	7,407	
7	C&I SMALL - HLF G50	C488G50	1,401	630	772	630	772	
8	C&I MEDIUM - LLF G41	C488G41	5,410	2,580	2,831	2,580	2,831	
9	C&I MEDIUM - HLF G51	C488G51	3,206	1,427	1,779	1,427	1,779	
10	C&I LARGE - LLF G42	C488G42	1,204	483	721	483	721	
11	C&I LARGE - HLF G52	C488G52	1,804	128	1,676	128	1,676	
12	TOTAL ACCOUNT 487		104,863	38,996	65,867	38,996	65,867	
488-MISC SERVICE REVENUE								
13	RECONNECT FEE	CUST488R	107,048	0	107,048	0	107,048	
14	POOL ADMINISTRATION	CUSTTRAN	1,132	0	1,132	0	1,132	
15	3RD PARTY BILLING	CUSTTRAN	14,369	0	14,369	0	14,369	
16	CUSTOMER TELEMETERING	PLT397M	6,497	0	6,497	0	6,497	
17	WTR HTR & CONV BURN RENTAL	PLT386	265,798	0	265,798	0	265,798	
18	EQUIP PROTECTION PLAN-COMMERCIAL	PLT380C	296,829	0	296,829	0	296,829	
19	CLEAN & CHECK REVENUE	PLT3803	13,850	0	13,850	0	13,850	
20	GAS LINES - RESIDENTIAL	PLT380R	15,922	0	15,922	0	15,922	
21	TOTAL ACCOUNT 488		721,444	0	721,444	0	721,444	
495-OTHER GAS REVENUES								
22	RENTAL INCOME - GRANITE	GENPLT	3,648	91	3,557	91	3,557	
23	RENTAL INCOME - USC	GENPLT	149,124	3,737	145,387	3,737	145,387	
24	TOTAL OTHER REVENUES		152,772	3,829	148,943	3,829	148,943	
25	TOTAL OTHER OPERATING REV		979,079	42,825	936,254	42,825	936,254	Removed Direct Gas Costs
25	TOTAL GAS OPERATING REVENUE		56,213,741	22,381,684	33,832,058	1,226,735	33,832,058	

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
OPER & MAINT EXPENSE-9							
OPERATION & MAINTENANCE EXPENSE							
LIQUEFIED PROPANE GAS PRODUCTION							
OPERATION EXPENSE							
1	710-SUPERVISION	TLABPO	12,377	12,377	0	12,377	0
2	717-PROPANE EXPENSES	DEMLPG	9,492	9,492	0	9,492	0
3	718-DISPATCHING PRODUCTION	GASCOSTS	0	0	0	0	0
4	723-FUEL LPG GAS PROCESS	DEMLPG	9,702	9,702	0	9,702	0
5	728-LIQUID PETROLEUM GAS	EGAS	0	0	0	0	0
6	735-MISCELLANEOUS	DEMLPG	12,805	12,805	0	12,805	0
7	736-RENTS	DEMLPG	0	0	0	0	0
8	TOTAL OPERATION EXPENSE		44,377	44,377	0	44,377	0
MAINTENANCE							
9	740-SUPERVISION	TLABPM	12,377	12,377	0	12,377	0
10	741-MAINTENANCE OF PLANT	DEMLPG	7,688	7,688	0	7,688	0
11	742-MAINT OF EQUIPMENT	DEMLPG	7,713	7,713	0	7,713	0
12	743-GAS SYS PROD TRAINING	DEMLPG	0	0	0	0	0
13	TOTAL MAINTENANCE EXPENSE		27,778	27,778	0	27,778	0
14	769-MAINT OF SCADA - PRODUCT	EXP813	683	391	292	391	292
15	TOTAL MANUF GAS PROD EXP		72,838	72,546	292	72,546	292

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
OPER & MAINT EXPENSE CON'T-10							
PURCHASED GAS SUPPLY EXPENSES							
PURCHASED GAS SUPPLY							
804-PURCHASED GAS COSTS							
1	DIRECT GAS COSTS	EGAS	20,951,307	20,951,307	0	0	0
2	TOTAL DIRECT GAS COSTS		20,951,307	20,951,307	0	0	0
OTHER GAS SUPPLY							
3	813-OTHER GAS SUPPLY EXP	GASCOSTS	230,952	230,952	0	230,952	0
4	813-OTH GAS SUPP EXP-DEL SERV	DISTR	172,598	0	172,598	0	172,598
5	TOTAL GAS SUPPLY EXPENSE		21,354,857	21,182,260	172,598	230,952	172,598
6	TOTAL PRODUCTION EXPENSE		21,427,695	21,254,805	172,890	303,498	172,890
TRANSMISSION EXPENSES							
7	851-SYS CONTROL & LOAD DISTR	DISTR	337,514	0	337,514	0	337,514
8	851-SYS CNTRL & LD GAS SUPPLY	GASCOSTS	11,886	11,886	0	11,886	0
9	852-COMMUNICATION SYSTEM EXP	DISTR	45,325	0	45,325	0	45,325
10	856-MAINS EXPENSE	DISTR	0	0	0	0	0
11	857-T&D OPER MEAS & REGUL STNQ	DISTR	0	0	0	0	0
12	TOTAL TRANSMISSION EXPENSES		394,724	11,886	382,838	11,886	382,838

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
OPER & MAINT EXPENSE CON'T-11							
DISTRIBUTION EXPENSES							
OPERATION EXPENSE							
1	870-SUPER & ENGINEERING	TLABDO	33,632	102	33,530	102	33,530
2	857-MEAS & REG STA EQUIP	PLT378	0	0	0	0	0
3	874-MAINS & SERVICE EXPENSE	PLT37680	682,358	0	682,358	0	682,358
4	875-REGULAT STATION EXPENSE	PLT378	220,978	0	220,978	0	220,978
5	878-METER & HOUSE REG EXP	PLT3813	995,427	0	995,427	0	995,427
6	879-CUSTOMER INSTALL EXP	PLT3803	47,743	0	47,743	0	47,743
7	880-OTHER EXPENSES	EXP8519	455,698	0	455,698	0	455,698
8	TOTAL OPERATION EXPENSE		2,435,835	102	2,435,733	102	2,435,733
MAINTENANCE							
9	885-SUPERVISION	TLABDM	68,672	157	68,515	157	68,515
10	886-MAINT STRUCT & IMPROVE	PLT375	6,369	0	6,369	0	6,369
11	887-MAINTENANCE OF MAINS	PLT376	93,438	0	93,438	0	93,438
12	889-MT OF MEAS & REG STA EQ	PLT378	31,746	0	31,746	0	31,746
13	890-MT OF REG EQ (INDUST)	PLT378	86	0	86	0	86
14	891-MT OF REG EQ (CITY GATE)	PLT378	26,441	0	26,441	0	26,441
15	891-MAIN DISTRI SCADA	EXP851	27,436	933	26,503	933	26,503
16	892-MAINTENANCE OF SERVICES	PLT380	120,017	0	120,017	0	120,017
17	893-MAINT METER & HOUSE REG	PLT3813	12,495	0	12,495	0	12,495
18	894-T&D MAINT SYSTEM EQUIP	DISTR	8,896	0	8,896	0	8,896
19	894-MNT WAT HTERS & CONV BURN	PLT386	151,485	0	151,485	0	151,485
20	894-MAINT OF RENTED CONV BURN	PLT386	11,869	0	11,869	0	11,869
21	TOTAL MAINTENANCE EXPENSE		558,951	1,090	557,861	1,090	557,861
22	586-INTERVAL DATA	DISTR	0	0	0	0	0
23	PAYROLL ADJUSTMENT	DISTLAB	273,315	808	272,507	808	272,507
24	TOTAL DISTRIBUTION EXPENSES		3,268,101	2,000	3,266,101	2,000	3,266,101

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
OPER & MAINT EXPENSE CON'T-12							
CUSTOMER ACCOUNT							
1	901-SUPERVISION	TLABCA	0	0	0	0	0
2	902-METER READING EXPENSE	CUST902	110,170	0	110,170	0	110,170
3	903-CUST RECORDS & COLLECT	CUST903	1,462,490	0	1,462,490	0	1,462,490
904-UNCOLLECTIBLE ACCTS							
4	RESIDENTIAL HEATING - R-5 & R-10	C904RH	128,360	0	128,360	0	128,360
5	RESIDENTIAL NON-HTG- R-6 & R-11	C904RNH	5,936	0	5,936	0	5,936
6	C&I SMALL - LLF G40	C904G40	13,821	0	13,821	0	13,821
7	C&I SMALL - HLF G50	C904G50	2,561	0	2,561	0	2,561
8	C&I MEDIUM - LLF G41	C904G41	4,107	0	4,107	0	4,107
9	C&I MEDIUM - HLF G51	C904G51	344	0	344	0	344
10	C&I LARGE - LLF G42	C904G42	0	0	0	0	0
11	C&I LARGE - HLF G52	C904G52	0	0	0	0	0
12	SUBTOTAL ACCOUNT 904		155,128	0	155,128	0	155,128
13	CGA BAD DEBT EXPENSE	E904GAS	129,165	129,165	0	0	0
14	BAD DEBT EXP ADJ DELIVERY	EXP904B	89,445	0	89,445	0	89,445
15	BAD DEBT EXP ADJ COST OF GAS	E904GAS	74,476	74,476	0	0	0
16	TOTAL ACCOUNT 904		448,214	203,641	244,573	0	244,573
17	TOTAL CUSTOMER ACCTS EXP		2,020,874	203,641	1,817,234	0	1,817,234
CUSTOMER SERVICES & INFO EXP							
18	907-CUST SERV & INFO SUPRV	TLABSE	0	0	0	0	0
19	909-INFO & INSTRUCT ADVERTISING	CUST908	2,570	0	2,570	0	2,570
20	TOT CUST SERV & INFO EXP		2,570	0	2,570	0	2,570

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
OPER & MAINT EXPENSE CON'T-13							
ADMINISTRATIVE & GENERAL EXPENSE							
1	920-ADMIN & GENERAL SALARY	LABOR	11,770	474	11,296	474	11,296
2	921-OFFICE SUPPLIES & EXP	LABOR	204,409	8,236	196,174	8,236	196,174
3	923-OUTSIDE SERV EMPLOYED	LABOR	(180,410)	(7,269)	(173,141)	(7,269)	(173,141)
4	923-OS UNITIL SERVICE CORP	LABOR	3,427,182	138,082	3,289,100	138,082	3,289,100
5	923-OUTSIDE SERV IRP	EGASB	61,850	0	61,850	0	61,850
6	923-USC EXPS - WATER HTR PROG	PLT386	49,539	0	49,539	0	49,539
7	924-PROPERTY INSURANCE	PLANT	5,024	64	4,961	64	4,961
8	925-INJURIES & DAMAGES	LABOR	228,942	9,224	219,718	9,224	219,718
9	PROPERTY & LIABILITY INSUR ADJ	EXP9245	48,435	1,923	46,512	1,923	46,512
10	926-EMPLOYED PENSION & BENF	LABOR	1,979,724	79,763	1,899,960	79,763	1,899,960
11	928-REGULATORY COMM EXPENSE	REVCLAIM	207,077	7,951	199,126	7,951	199,126
12	PUC ASSESSMENT ADJUSTMENT	REVCLAIM	219,575	8,431	211,144	8,431	211,144
13	930-MISCELLANEOUS GENERAL EXP	LABOR	179,698	7,240	172,458	7,240	172,458
14	931-RENTS	LABOR	15,603	629	14,975	629	14,975
15	TOTAL OPERATION EXPENSE		6,458,419	254,748	6,203,672	254,748	6,203,672
MAINTENANCE							
16	932-MAINT OF GENL PLT - EQUIP SHARE	GENPLT	135,879	3,405	132,474	3,405	132,474
17	935-MAINT OF GENERAL PLT	GENPLT	11,240	282	10,959	282	10,959
18	POSTAGE	EXP903	4,415	0	4,415	0	4,415
19	O&M INFLATION ALLOWANCE	OMLAB	136,865	7,013	129,852	7,013	129,852
20	TOTAL ADMIN & GEN EXPENSE		6,746,818	265,447	6,481,371	265,447	6,481,371
21	TOTAL GAS O & M EXPENSE		33,860,782	21,737,779	12,123,003	582,831	12,123,003

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEPRECIATION & AMORTIZATION-14							
DEPRECIATION & AMORTIZATION EXPENSE							
AMORTIZATION EXPENSE							
1	INTANGIBLE AMORTIZATION	PLANT	(940,818)	(11,897)	(928,921)	(11,897)	(928,921)
2	ACCT 303.2 & 303.3 COM SOFT & ADJ	PLT303	383,589	15,455	368,134	15,455	368,134
3	TRANSITION & TRANACTION AMORT	PLANT	940,818	11,897	928,921	11,897	928,921
4	AMORT INVESTMENT TAX CREDIT	PLANT	0	0	0	0	0
5	TOTAL AMORTIZATION EXPENSE		383,589	15,455	368,134	15,455	368,134
DEPRECIATION EXPENSE							
PRODUCTION PLANT EXP							
6	305-STRUCTURES	PLT305	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0
8	361-STRUCTURES & IMPROVE	DEMLPG	5,119	5,119	0	5,119	0
9	362-GAS HOLDERS	DEMLPG	33,481	33,481	0	33,481	0
10	PROFORMA ADJUST- PROD & STOR	PSPLT	0	0	0	0	0
11	TOTAL PRODUCTION PLANT		38,600	38,600	0	38,600	0

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEPRECIATION & AMORTIZATION-15							
	DISTRIBUTION EXPENSE						
1	375-STRUCTURES & IMPROVE	PLT375	8,818	0	8,818	0	8,818
2	376-MAINS	PLT376	2,931,580	0	2,931,580	0	2,931,580
3	378.2-MEAS & REG STATION EQ	PLT378	77,522	0	77,522	0	77,522
4	379-MEAS & REG CITY GATE	PLT379	0	0	0	0	0
5	380-SERVICES	PLT380	2,175,036	0	2,175,036	0	2,175,036
6	381-METERS	PLT381	77,491	0	77,491	0	77,491
7	382-METER INSTALLATION	PLT382	675,923	0	675,923	0	675,923
8	383-HOUSE REGULATORS	PLT383	16,778	0	16,778	0	16,778
9	386-OTHER PROP CUST PREM	PLT386	83,014	0	83,014	0	83,014
10	TOTAL DISTRIBUTION PLANT		6,046,162	0	6,046,162	0	6,046,162
	GENERAL & COMMON PLANT EXP						
11	391-OFFICE EQUIPMENT	PLT391	24,579	990	23,589	990	23,589
12	393-STORES EQUIPMENT	PLT393	0	0	0	0	0
13	394-TOOLS, SHOP & GARAGE EQ	PLT394	45,044	0	45,044	0	45,044
14	396-POWER OPERATED EQUIP	PLT396	4,185	0	4,185	0	4,185
15	397-COMMUNICATION EQUIP	PLT397	111,750	4,502	107,248	4,502	107,248
16	397-COMM EQ METSCAN - TELEMET	PLT397M	8,663	0	8,663	0	8,663
17	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	216,430	0	216,430	0	216,430
18	TOTAL GEN & COMMON EXP		410,651	5,493	405,158	5,493	405,158
19	DEPREC EXP ANNUALIZATION ADJUST	PLANT	541,522	6,848	534,674	6,848	534,674
20	TOTAL DEPRECIATION EXPENSE		7,036,935	50,940	6,985,995	50,940	6,985,995
21	TOTAL DEPR & AMORT EXPENSE		7,420,524	66,395	7,354,128	66,395	7,354,128

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
STATE & FED TAXES & OTHER EXP-16							
TAXES OTHER THAN INCOME							
FEDERAL TAXES							
1	UNEMPLOYMENT	LABOR	1,958	79	1,879	79	1,879
2	FICA	LABOR	290,749	11,714	279,035	11,714	279,035
3	FICA ADJUSTMENT	LABOR	0	0	0	0	0
4	TOTAL FEDERAL TAXES		292,707	11,793	280,914	11,793	280,914
STATE TAXES							
5	UNEMPLOYMENT	LABOR	629	25	603	25	603
6	PROPERTY TAX	PLANT	4,179,034	52,845	4,126,189	52,845	4,126,189
7	TOTAL STATE TAXES		4,179,663	52,870	4,126,793	52,870	4,126,793
8	PAYROLL TAXES CAPITALIZED	LABOR	(130,498)	(5,258)	(125,241)	(5,258)	(125,241)
9	PAYROLL TAXES ADJUSTMENT	LABOR	24,915	1,004	23,911	1,004	23,911
10	TAXES - OTHER	PLANT	100,670	1,273	99,397	1,273	99,397
11	TOTAL TAXES OTHER THAN INC		4,467,456	61,683	4,405,773	61,683	4,405,773
12	TOTAL INCOME TAX EXPENSE		2,402,684	386,499	2,016,185	386,499	2,016,185
13	INTEREST ON CUSTOMER DEPOSITS	CUSTDEP	13,346	0	13,346	0	13,346
14	TOTAL EXPENSES		48,164,792	22,252,356	25,912,436	1,081,953	25,544,302

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INCOME TAXES-17						
FEDERAL & STATE TAX CALCULAT						
1	OPERATING REVENUES	56,213,741	22,381,684	33,832,058	1,226,735	33,832,058
OPERATING EXPENSES						
2	OPERATION & MAINTENANCE EXP	33,860,782	21,737,779	12,123,003	582,831	12,123,003
3	DEPRECIATION & AMORTIZATION	7,420,524	66,395	7,354,128	66,395	7,354,128
4	TAXES OTHER THAN INCOME	4,467,456	61,683	4,405,773	61,683	4,405,773
5	INTEREST ON CUSTOMER DEPOSITS	13,346	0	13,346	0	13,346
6	PLUS: OTHER PLANT	0	0	0	0	0
7	OPERATING INC BEFORE FED TAX	10,451,633	515,827	9,935,806	515,827	9,935,806
8	LESS: INTEREST EXPENSE	4,018,906	61,763	3,957,143	61,763	3,957,143
9	LESS: MISC OTHER ADJ PLANT	0	0	0	0	0
10	NET OPERATING INC BEFORE TXS	6,432,727	454,064	5,978,664	454,064	5,978,664
PERMANENT ITEMS						
12	LOBBYING REVCLAIM	33,398	1,282	32,116	1,282	32,116
13	STATE REGUL ASSET AMORT REVCLAIM	133,500	5,126	128,374	5,126	128,374
14	UNALLOWABLE MEALS REVCLAIM	0	0	0	0	0
15	TOTAL PERMANENT ITEMS	166,898	6,408	160,490	6,408	160,490
TEMPORARY DIFFERENCES						
16	ACCRUED REVENUE REVCLAIM	64,773	2,487	62,286	2,487	62,286
17	BAD DEBT EXP904	(19,155)	(8,703)	(10,452)	(8,703)	(10,452)
18	DEFERRED RATE CASE REVCLAIM	55,173	2,118	53,054	2,118	53,054
19	INSURANCE CLAIM RESERVE EXP9245	5,184	206	4,978	206	4,978
20	FASB 87-PENSIONS LABOR	(232,970)	(9,386)	(223,584)	(9,386)	(223,584)
20	PNGTS REFUND DISTR	(5,277,371)	0	(5,277,371)	0	(5,277,371)
21	PREPAID PROPERTY TAXES PLANT	(130,091)	(1,645)	(128,446)	(1,645)	(128,446)
22	REMEDICATION PLANT	(665,432)	(8,415)	(657,018)	(8,415)	(657,018)
23	PBOP SFAS 106 LABOR	269,865	10,873	258,992	10,873	258,992
24	TRANSACTION COSTS PLANT	318,988	4,034	314,955	4,034	314,955
25	TRANSITION COSTS PLANT	269,361	3,406	265,955	3,406	265,955
26	UTILITY PLANT DIFFERENCES PLANT	(13,435,718)	(169,899)	(13,265,819)	(169,899)	(13,265,819)
27	TOTAL TEMPORARY DIFF	(18,777,394)	(174,924)	(18,602,470)	(174,924)	(18,602,470)
INVESTMENT TAX CREDIT AMORT						
28	UNAMORTIZED ITC PLANT	0	0	0	0	0

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INCOME TAXES CONT-18						
1	FEDERAL AND STATE TAX DIFF TAX DEPRECIATION					
	PLANT	1,767,276	22,348	1,744,928	22,348	1,744,928
2	STATE TAXABLE BASE INCOME	(10,410,493)	307,896	(10,718,389)	307,896	(10,718,389)
3	ST TAX ADJ LOBBING & PENALTIES	(13,686)	(525)	(13,160)	(525)	(13,160)
4	STATE BUSINESS ENTERPRISE TAX	481,665	18,494	463,171	18,494	463,171
5	STATE INCOME TAX @ 8.20% PLUS ADJ	(385,681)	43,216	(428,897)	43,216	(428,897)
6	FED TAX INC BEF FED & STA TAX DIFF	(10,520,162)	245,660	(10,765,822)	245,660	(10,765,822)
7	LESS: FEDERAL AND STATE TAX DIFF	1,767,276	22,348	1,744,928	22,348	1,744,928
8	FEDERAL TAXABLE INCOME BASE	(12,287,438)	223,312	(12,510,750)	223,312	(12,510,750)
9	FED TAX ADJ LOBBING & PENALTIES	(45,964)	(1,765)	(44,199)	(1,765)	(44,199)
10	FED CURRENT/DEF ADJ	7,007,359	269,060	6,738,299	269,060	6,738,299
11	FEDERAL INCOME TAX @ 34.00% PLUS ADJ	2,783,666	343,222	2,440,445	343,222	2,440,445
TOT DEF FEDERAL & STATE INC TAX						
12	ACCELERATED DEPRECIATION	5,199,640	65,751	5,133,889	65,751	5,133,889
13	PBOP	(106,359)	(4,285)	(102,074)	(4,285)	(102,074)
14	PENSION	91,818	3,699	88,119	3,699	88,119
15	BAD DEBTS EXPENSE	7,549	3,430	4,119	3,430	4,119
16	ACCRUED REVENUE	(25,528)	(980)	(24,548)	(980)	(24,548)
17	PREPAID PROPERTY TAXES	51,272	648	50,623	648	50,623
18	DEFERRED RATE CASE	(21,745)	(835)	(20,910)	(835)	(20,910)
19	REMEDICATION	262,260	3,316	258,944	3,316	258,944
20	TRANSITION COSTS	(106,161)	(1,342)	(104,818)	(1,342)	(104,818)
21	TRANSACTION COSTS	(125,720)	(1,590)	(124,130)	(1,590)	(124,130)
22	INSURANCE CLAIM RESERVE	(2,043)	(81)	(1,962)	(81)	(1,962)
23	DEF FED & STATE FLOW THRU DIFF	(5,220,285)	(67,670)	(5,152,615)	(67,670)	(5,152,615)
24	TOTAL DEFERRED INCOME TAXES	4,699	61	4,638	61	4,638
25	TOTAL INCOME TAX EXPENSE	2,402,684	386,499	2,016,185	386,499	2,016,185
26	NET OPERATING INCOME AFTER TAX	8,048,949	129,328	7,919,621	144,783	8,287,755
EFFECTIVE STATE TAX RATE						
		8.20%	8.20%	8.20%		
FEDERAL TAX RATE - CURRENT						
		34.00%	34.00%	34.00%		
1 - INCREMENTAL TAX RATE						
		0.60588	0.60588	0.60588		
INCREMENTAL TAX RATE						
		0.39412	0.39412	0.39412		

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVELOPMENT OF LABOR ALLOCATOR-19						
1	163 - STORES EXPENSE UNDISTRIBUTED DISTRPLT	61,889	0	61,889	0	61,889
	LPG & LNG GAS PRODUCTION OPERATION					
2	710-SUPERVISION LABPO	12,377	12,377	0	12,377	0
3	717-PROPANE EXPENSES EXP717	0	0	0	0	0
4	718-DISPATCHING PRODUCTION EXP718	0	0	0	0	0
5	735-MISCELLANEOUS EXP735	12,805	12,805	0	12,805	0
6	TOTAL OPERATION LABOR	25,182	25,182	0	25,182	0
	MAINTENANCE					
7	740-SUPERVISION LABPM	12,377	12,377	0	12,377	0
8	741-MAINTENANCE OF PLANT EXP741	7,688	7,688	0	7,688	0
9	742-MAINTENANCE OF EQUIP EXP742	7,713	7,713	0	7,713	0
10	743-GAS SYSTEM PROD TRAINING EXP743	0	0	0	0	0
11	TOTAL MAINTENANCE LABOR	27,778	27,778	0	27,778	0
12	TOT MANUFACTURED GAS LABOR	52,960	52,960	0	52,960	0
	GAS SUPPLY LABOR					
13	813-OTHER GAS SUPPLY EXP EXP813	214,992	123,040	91,952	123,040	91,952
14	TOTAL GAS SUPPLY LABOR	214,992	123,040	91,952	123,040	91,952
15	TOTAL PRODUCTION LABOR	267,952	176,000	91,952	176,000	91,952

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVEL OF LABOR ALLOCATOR CON'T-20							
TRANSMISSION & DISTRIBUTION LABOR OPERATION							
1	870-SUPER & ENGINEERING	LABDO	31,573	96	31,477	96	31,477
2	851-SYSTEM CONTROL & DISP	EXP851	186,247	6,336	179,911	6,336	179,911
3	857-MEAS & REG STATION EXP	PLT378	0	0	0	0	0
4	874-MAINS & SERVICE EXPENSE	EXP874	481,755	0	481,755	0	481,755
5	875-GAS SYSTEM T&D TRAINING	EXP875	213,949	0	213,949	0	213,949
6	878-METER & HOUSE REG EXP	EXP878	907,555	0	907,555	0	907,555
7	879-CUSTOMER INSTALL EXP	EXP879	48,424	0	48,424	0	48,424
8	880-OTHER EXPENSE	EXP880	251,716	0	251,716	0	251,716
9	TOTAL OPERATION LABOR		2,121,220	6,432	2,114,788	6,432	2,114,788
MAINTENANCE							
10	885-SUPERVISION	LABDM	34,584	79	34,505	79	34,505
11	886-MAINT STRUCT & IMPROVE	EXP886	3,279	0	3,279	0	3,279
12	887-MAINTENANCE OF MAINS	EXP887	5,982	0	5,982	0	5,982
13	889-MT OF MEAS & REG STA EQ	EXP889	22,786	0	22,786	0	22,786
14	890-MT OF REG EQ (INDUST)	EXP890	245	0	245	0	245
15	891-MT OF REG EQ (CITY GATE)	EXP891	26,937	467	26,470	467	26,470
16	892-MAINTENANCE OF SERVICES	EXP892	33,648	0	33,648	0	33,648
17	893-MAINT METER & HOUSE REG	EXP893	602	0	602	0	602
18	894-MAINT OF OTHER EQUIP	EXP894	111,239	0	111,239	0	111,239
19	TOTAL MAINTENANCE LABOR		239,302	545	238,756	545	238,756
20	TOTAL DISTRIB & TRANS LABOR		2,360,522	6,977	2,353,545	6,977	2,353,545
CUSTOMER ACCOUNTS LABOR							
21	901-SUPERVISION	LABCA	0	0	0	0	0
22	902-METER READING EXPENSE	EXP902	88,600	0	88,600	0	88,600
23	903-CUST RECORDS & COLLECT	EXP903	653,826	0	653,826	0	653,826
24	TOTAL CUSTOMER ACCTS LABOR		742,426	0	742,426	0	742,426

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
DEVEL OF LABOR ALLOCATOR CON'T-21							
CUSTOMER SERVICES & INFO EXP							
1	907-CUST SERV & INFO SUPRV	LABSE	0	0	0	0	0
2	908-CUST ASSISTANCE EXP	EXP909	160,148	0	160,148	0	160,148
3	TOT CUST SERV & INFO EXP		160,148	0	160,148	0	160,148
ADMINISTRATIVE & GENERAL LABOR							
OPERATION LABOR							
4	920-ADMIN & GENERAL SALARY	LABORXAG	0	0	0	0	0
5	921-OFFICE SUPPLIES & EXP	LABORXAG	25,414	1,317	24,097	1,317	24,097
6	923-OUTSIDE SERV EMPLOYED	LABORXAG	1,885,906	97,727	1,788,180	97,727	1,788,180
7	925-INJURIES & DAMAGES	LABORXAG	0	0	0	0	0
8	926-EMPLOYED PENSION & BENF	LABORXAG	0	0	0	0	0
9	930-MISCELLANEOUS GEN EXP	LABORXAG	0	0	0	0	0
10	TOTAL OPERATION EXPENSE		1,911,320	99,044	1,812,276	99,044	1,812,276
MAINTENANCE							
11	935-MAINT OF GENERAL PLT	EXP935	0	0	0	0	0
12	TOTAL ADMIN & GEN LABOR		1,911,320	99,044	1,812,276	99,044	1,812,276
13	TOTAL GAS O & M LABOR		5,504,256	282,021	5,222,235	282,021	5,222,235
14	CONSTRUCTION LABOR - DISTRIBUTION	DISTRPLT	1,495,483	0	1,495,483	0	1,495,483
15	SUM OF ALLOCATED LABOR EXP		6,999,739	282,021	6,717,718	282,021	6,717,718

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
REVENUE REQUIREMENTS-22					
PRESENT RATES					
1 RATE BASE	131,491,801	2,020,785	129,471,015	2,020,785	129,471,015
2 NET OPER INC (PRESENT RATES)	8,048,949	129,328	7,919,621	129,328	7,919,621
3 RATE OF RETURN (PRES RATES)	6.12%	6.40%	6.12%	6.40%	6.12%
4 RELATIVE RATE OF RETURN	1.000	1.000	1.000	1.000	0.956
5 SALES REVENUE (PRE RATES)	54,051,875	22,338,859	31,713,016	1,183,911	31,713,016
6 ANNUAL BOOKED CCF SALES	69,908,226	69,908,226	69,908,226	69,908,226	69,908,226
7 SALE REV \$/CCF (PRE RATES)	\$0.7732	\$0.3195	\$0.4536	\$0.0169	\$0.4536
CLAIMED RATE OF RETURN					
8 CLAIMED RATE OF RETURN	8.30%	8.30%	8.30%	8.30%	8.30%
9 RETURN REQ FOR CLAIMED ROR	10,913,819	167,725	10,746,094	167,725	10,746,094
10 SALES REVENUE REQ CLAIMED ROR	58,780,320	22,402,234	36,378,086	1,247,286	36,378,086
11 REVENUE DEFICIENCY SALES REV	4,728,445	63,375	4,665,071	63,375	4,665,071
12 PERCENT INCREASE REQUIRED	8.75%	0.28%	14.71%	5.35%	14.71%
13 ANNUAL BOOKED CCF SALES	69,908,226	69,908,226	69,908,226	69,908,226	69,908,226
14 SALES REV REQUIRED \$/CCF	\$0.8408	\$0.3205	\$0.5204	\$0.0178	\$0.5204
15 REVENUE DEFICIENCY \$/CCF	\$0.0676	\$0.0009	\$0.0667	\$0.0009	\$0.0667
PROPOSED REVENUES					
16 PROPOSED SALES REVENUES	58,780,320				
17 REVENUE DEFICIENCY SALES REV	4,728,445				
18 PERCENT INCREASE PROPOSED	8.75%				
19 PROPOSED RATE OF RETURN	8.30%				
20 RETURN REQ FOR PROPOSED REV	10,913,819				
21 ANNUAL BOOKED CCF SALES	69,908,226				
22 SALES REV REQUIRED \$/CCF	\$0.8408				
23 REVENUE DEFICIENCY \$/CCF	\$0.0676				
WORKING SECTION					
1 TOTAL FIRM SALES OF GAS	54,051,875	22,338,859	31,713,016		

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

ALLOCATION FACTOR TABLE-23			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
CAPACITY RELATED							
1	PRODUCTION ALLOCATORS						
2	DES DAY REMANNG DEMNDS - SALES		358,782	358,782	358,782		
3	LPG PROD ALLOC-PROD		358,782	358,782	358,782		
4	LNG PROD ALLOC-PROD		358,782	358,782	358,782		
5	LPG & LNG PROD ALLOC-DISTR		358,782	358,782	358,782		
6	LPG PRODUCTION DEMAND	DEMLPG					
7	LNG PRODUCTION DEMAND	DEMLNG					
8							
9							
10							
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15							
16							
17							
18							
DISTRIBUTION ALLOCATORS							
1	DISTRIBUTION ALLOCATOR	DISTR	100.0000%	100.0000%	100.0000%		
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	100.0000%	100.0000%	100.0000%		
3							
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

ALLOCATION FACTOR TABLE CONT-24		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
COMMODITY RELATED						
1	ANNUAL FIRM CCF SALES SENDOUT	38,065,334	38,065,334	38,065,334		
2	ANNUAL FIRM CCF THROUGHPUT	70,790.993	70,790.993	70,790.993		
3	DIRECT GAS COST ALLOCATOR EGAS	20,951,307	20,951,307	20,951,307		
4	CGA BAD DEBT ALLOCATOR E904GAS	129,165	129,165	129,165		
5						
6	DIRECT GAS COST - BASE DIST ALLOC EGASB	20,951,307	20,951,307	20,951,307		
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

ALLOCATION FACTOR TABLE CONT-25		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
CUSTOMER RELATED						
1	ACCT 380-SERVICES	CUST380	60,250,315	60,250,315	60,250,315	
2	ACCT 381-383 METERS,MET INST,REG	CUST3813	24,390,199	24,390,199	24,390,199	
3	ACCT 386-OTHER PROP CUST PREM	CUST386	100.0000%	100.0000%	100.0000%	
4	ACCT 397-COMM EQ METSCAN - TELM	CUST397M	852	852	852	
5	ACCT 397-COMM EQUIP - ITRON	CUST397I	380,337	380,337	380,337	
6	CUSTOMER DEPOSITS	CUSTDEP	412,115	412,115	412,115	
7	CUSTOMERS TRANSPORTSTION	CUSTTRAN	11,701	11,701	11,701	
8	ACCT 902-METER READ EXP	CUST902	388,857	388,857	388,857	
9	ACCT 903-CUST RECORDS & COLL	CUST903	435,636	435,636	435,636	
10	ACCT 488 RECONNECT FEE	CUST488R	367,975	367,975	367,975	
11	ACCT 908-CUST ASSISTANCE EXP	CUST908	100.0000%	100.0000%	100.0000%	
12	ACCT 909-INFO & INSTR ADVERT	CUST909	100.0000%	100.0000%	100.0000%	
13						
14						
15						
16						
17						
18	ANNUAL NO SALES CUSTOMERS		368,478	368,478	368,478	
19	ANNUAL NO OF TRANS CUSTOMERS		11,701	11,701	11,701	
20	ANNUAL NUMBER GAS BILLS		388,832	388,832	388,832	
21						
22	ANNUAL NO METER EXCL DAILY MET		380,337	380,337	380,337	
23	ANNUAL NO METERS DAILY METERED		852	852	852	
24						
25	TOTAL SALES & TRANSP CUSTOMERS		380,179	380,179	380,179	
26						
27	NUMBER OF SERVICES		22,979	22,979	22,979	
28						
29						
30						
31						
32						
33						
34						
35						

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
ALLOCATION FACTOR TABLE CONT-26						
EXTERNALLY DEVELOPED						
UNCOLLECTIBLE ACCOUNTS						
1	RESID NON HTG RATE R-6 & R-11	C904RHNH	5,936	5,936	5,936	
2	RESID HEATING RATE R-5 & R-10	C904RH	128,360	128,360	128,360	
3	LOW LF SMALL RATE G40 & T40	C904G40	13,821	13,821	13,821	
4	LOW LF MEDIUM RATE G41 & T41	C904G41	4,107	4,107	4,107	
5	LOW LF LARGE RATE G42 & T42	C904G42	0	0	0	
6	HIGH LF SMALL RATE G50 & T50	C904G50	2,561	2,561	2,561	
7	HIGH LF MEDIUM RATE G51 & T51	C904G51	344	344	344	
8	HIGH LF LARGE RATE G52 & T52	C904G52	0	0	0	
			155,128	155,128	155,128	
INTERNALLY DEVELOPED						
LATE PAYMENT CHARGES						
9	RESID NON HTG RATE R-6 & R-11	C488RHNH	1,035,566	1,035,566	1,035,566	
10	RESID HEATING RATE R-5 & R-10	C488RH	28,836,279	28,836,279	28,836,279	
11	LOW LF SMALL RATE G40 & T40	C488G40	10,662,829	10,662,829	10,662,829	
12	LOW LF MEDIUM RATE G41 & T41	C488G41	8,167,565	8,167,565	8,167,565	
13	LOW LF LARGE RATE G42 & T42	C488G42	2,693,545	2,693,545	2,693,545	
14	HIGH LF SMALL RATE G50 & T50	C488G50	1,613,493	1,613,493	1,613,493	
15	HIGH LF MEDIUM RATE G51 & T51	C488G51	2,400,257	2,400,257	2,400,257	
16	HIGH LF LARGE RATE G52 & T52	C488G51	3,370,785	3,370,785	3,370,785	
17			58,780,320	58,780,320	58,780,320	
18	INTERNALLY DEVELOPED					
19	WORKING CASH					
20						
21	TOTAL OPERATION & MAINTENANCE EXP		33,860,782	33,860,782	33,860,782	
22	LESS: PURCHASED GAS		20,951,307	20,951,307	20,951,307	
23	904-UNCOLLECTIBLE EXPENSE		448,214	448,214	448,214	
24	PLUS: OTHER TAXES		4,467,456	4,467,456	4,467,456	
25	PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)		2,783,666	2,783,666	2,783,666	
26	TOTAL WORKING CASH ALLOCATOR WORKCASH		19,712,383	19,712,383	19,712,383	
27						
28						
29						
30						

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED-27						
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0	
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	3,540,586	3,540,586	3,540,586	
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	3,540,586	3,540,586	3,540,586	
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	161,860	161,860	161,860	
5	ACCT 311-LP GAS EQUIP	PLT311	0	0	0	
6	ACCT 320-OTHER EQUIPMENT	PLT320	7,640	7,640	7,640	
7	ACCT 321-LNG EQUIPMENT	PLT321	84,156	84,156	84,156	
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0	
9	ACCT 362-GAS HOLDERS	PLT362	0	0	0	
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0	
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	2,910,194	2,910,194	2,910,194	
12	ACCT 376-MAINS	PLT376	106,849,866	106,849,866	106,849,866	
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	167,100,182	167,100,182	167,100,182	
14	ACCT 378-MEAS & REG STATION EQ	PLT378	3,445,431	3,445,431	3,445,431	
15	ACCT 379-MEAS & REG CITY GATE	PLT379	39,266	39,266	39,266	
16	ACCT 380-SERVICES	PLT380	60,250,315	60,250,315	60,250,315	
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	11,692,260	11,692,260	11,692,260	
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	44,967,656	44,967,656	44,967,656	
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	84,640,514	84,640,514	84,640,514	
20	ACCT 381-METERS	PLT381	3,913,705	3,913,705	3,913,705	
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	24,390,199	24,390,199	24,390,199	
22	ACCT 382-METER INSTALLATION	PLT382	19,938,729	19,938,729	19,938,729	
23	ACCT 383-HOUSE REGULATORS	PLT383	537,766	537,766	537,766	
24	ACCT 386-OTHER PROP CUST PREM	PLT386	1,637,356	1,637,356	1,637,356	
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	420,149	420,149	420,149	
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	82,633	82,633	82,633	
27	ACCT 393-STORES EQUIPMENT	PLT393	31,520	31,520	31,520	
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1,173,029	1,173,029	1,173,029	
29	ACCT 396-POWER OPERATED EQUIP	PLT396	75,266	75,266	75,266	
30	ACCT 397-COMMUNICATION EQUIP	PLT397	1,453,181	1,453,181	1,453,181	
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	112,656	112,656	112,656	
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	2,936,629	2,936,629	2,936,629	
33	TOTAL PROD & STORAGE PLANT	PSPLT	260,472	260,472	260,472	
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	113,244,758	113,244,758	113,244,758	
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	199,629,651	199,629,651	199,629,651	
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	3,386,092	3,386,092	3,386,092	
37	TOTAL GAS PLANT IN SERVICE	PLANT	212,059,660	212,059,660	212,059,660	
38						

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED CONT-28						
1	ACCT 717-PROPANE EXPENSES	EXP717	9,492	9,492	9,492	
2	ACCT 718-DISPATCHING PROD	EXP718	0	0	0	
3	ACCT 735-MISCELLANEOUS	EXP735	12,805	12,805	12,805	
4	ACCT 741-MAINTENANCE OF PLANT	EXP741	7,688	7,688	7,688	
5	ACCT 742-MAINTENANCE OF EQUIP	EXP742	7,713	7,713	7,713	
6	ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0	
7	TOTAL GAS COSTS	GASCOSTS	20,951,307	20,951,307	20,951,307	
8	ACCT 813-OTHER GAS SUPPLY EXP	EXP813	403,550	403,550	403,550	
9	ACCT 851-SYSTEM CONTROL & DISP	EXP851	349,400	349,400	349,400	
10	ACCT 857-879 DIST OPER EXP	EXP8519	1,946,505	1,946,505	1,946,505	
11	ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0	
12	ACCT 874-MAINS & SERVICE EXP	EXP874	682,358	682,358	682,358	
13	ACCT 875-REGULAT STATION EXP	EXP875	220,978	220,978	220,978	
14	ACCT 878-METER & HOUSE REG EXP	EXP878	995,427	995,427	995,427	
15	ACCT 879-CUSTOMER INSTALL EXP	EXP879	47,743	47,743	47,743	
16	ACCT 880-OTHER EXPENSE	EXP880	455,698	455,698	455,698	
17	ACCT 886-MAINT STRUCT & IMPROV	EXP886	6,369	6,369	6,369	
18	ACCT 894-MAINT OF OTHER EQUIP	EXP894	172,250	172,250	172,250	
19	ACCT 887-MAINTENANCE OF MAINS	EXP887	93,438	93,438	93,438	
20	ACCT 889-MT OF M & R STA EQ	EXP889	31,746	31,746	31,746	
21	ACCT 890-MT OF REG EQ (INDUST)	EXP890	86	86	86	
22	ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	53,877	53,877	53,877	
23	ACCT 892-MAINTENANCE OF SERV	EXP892	120,017	120,017	120,017	
24	ACCT 893-MAINT MET & HOUSE REG	EXP893	12,495	12,495	12,495	
25	ACCT 902-METER READING EXP	EXP902	110,170	110,170	110,170	
26	ACCT 903-CUST RECORDS & COLL	EXP903	1,462,490	1,462,490	1,462,490	
27	ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	448,214	448,214	448,214	
28	ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	155,128	155,128	155,128	
29	ACCT 909-INFO & INSTRUCT ADVERT	EXP909	2,570	2,570	2,570	
30	ACCT 920-ADMIN & GEN SALARY	EXP920	11,770	11,770	11,770	
31	ACCT 921-OFFICE SUPPLIES & EXP	EXP921	204,409	204,409	204,409	
32	ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	3,358,161	3,358,161	3,358,161	
33	ACCT 925-INJURIES & DAMAGES	EXP925	228,942	228,942	228,942	
34	ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	233,966	233,966	233,966	
35	ACCT 926-EMPLOY PENSION & BENF	EXP926	1,979,724	1,979,724	1,979,724	
36	ACCT 930-MISC GEN EXP	EXP930	179,698	179,698	179,698	
37	ACCT 935-MAINT OF GENERAL PLT	EXP935	11,240	11,240	11,240	
38						

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED CONT-29						
1	GAS PROD LABOR ACCTS 717-735	LABPO	12,805	12,805	12,805	
2	GAS PROD LABOR ACCTS 741-743	LABPM	15,401	15,401	15,401	
3	DIST LABOR OPER ACCT 851 - 882	LABDO	2,089,647	2,089,647	2,089,647	
4	DIST LABOR MAINT ACCT 886 - 894	LABDM	204,717	204,717	204,717	
5	CUST ACCTS LABOR ACCT 902 - 903	LABCA	742,426	742,426	742,426	
6	CUST SERV & INFO LABOR ACCT 908	LABSE	160,148	160,148	160,148	
7	TOTAL GAS PROD OPER LABOR	TLABPO	25,182	25,182	25,182	
8	TOTAL GAS PROD MAINT LABOR	TLABPM	27,778	27,778	27,778	
9	TOTAL DISTR OPER LABOR	TLABDO	2,121,220	2,121,220	2,121,220	
10	TOTAL DISTR MAINT LABOR	TLABDM	239,302	239,302	239,302	
11	TOTAL DISTRIBUTION LABOR	DISTLAB	2,360,522	2,360,522	2,360,522	
12	TOTAL CUST ACCTS LABOR	TLABCA	742,426	742,426	742,426	
13	CUSTOMER SERVICE & INFO LABOR	TLABSE	160,148	160,148	160,148	
14	TOTAL GAS LABOR EXCL A&G	LABORXAG	3,531,047	3,531,047	3,531,047	
15	TOTAL GAS O & M LABOR	OMLAB	5,504,256	5,504,256	5,504,256	
16	SUM OF ALLOCATED LABOR EXP	LABOR	6,999,739	6,999,739	6,999,739	
17						
18	DEFERRED INCOME TAXES PRELIM	DEFTAX	5,224,984	5,224,984	5,224,984	
19	REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	37,970,292	37,970,292	37,970,292	
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED CONT-30					

REVENUES FROM GAS SALES					
1 REVENUES FIRM SALES OF GAS	54,051,875	54,051,875	54,051,875		
2 WEATHER ADJ NET REV SALES	732,954	732,954	732,954		
3 WEATHER ADJ NET REV TRANS	164,445	164,445	164,445		
4 CGA REVENUES	20,951,307	20,951,307	20,951,307		
5 BASE REVENUE SALES	24,162,798	24,162,798	24,162,798		
6 BASE REVENUE EXTERNAL SUPPLY	6,532,260	6,532,260	6,532,260		
7 PRODUCTION REVENUES	938,029	938,029	938,029		
8 CGA BAD DEBT CHARGES	129,165	129,165	129,165		
9 LOW INCOME DISCOUNT	366,440	366,440	366,440		
10 CGA BAD DEBT CHARGES FROM INCR	74,476	74,476	74,476		
11 ANNUALIZATION ADJUSTMENT	0	0	0		
12 PRODUCTION REVENUE ADJUSTMENT	0	0	0		
REVENUE REQUIREMENT INPUTS					

1 CLAIMED RATE OF RETURN	8.300%	8.300%	8.300%		
2 ANNUAL BOOKED CCF SALES & TRANS	69,908,226	69,908,226	69,908,226		
3 PROPOSED SALES REVENUES	58,780,320	22,402,234	36,378,086		
4 TOTAL ANNUAL CUSTOMERS	380,179	380,179	380,179		
5					

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE-31

CAPACITY RELATED

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
1	PRODUCTION ALLOCATORS					
2	DES DAY REMANNG DEMNDS - SALES	1.00000	1.00000	1.00000		
3	LPG PROD ALLOC-PROD	1.00000	1.00000	0.00000		
4	LNG PROD ALLOC-PROD	1.00000	1.00000	0.00000		
5	LPG & LNG PROD ALLOC-DISTR	1.00000	0.00000	1.00000		
6	LPG PRODUCTION DEMAND	1.00000	1.00000	0.00000		
7	LNG PRODUCTION DEMAND	1.00000	1.00000	0.00000		

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DISTRIBUTION ALLOCATORS

1	DISTRIBUTION ALLOCATOR	DISTR	1.00000	0.00000	1.00000
2	DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	1.00000	0.00000	1.00000

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE CONT-32		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
COMMODITY RELATED						
1	ANNUAL FIRM MCF SENDOUT	1.00000	1.00000	0.00000		
2	ANNUAL FIRM CCF THROUGHPUT	1.00000	1.00000	1.00000		
3	DIRECT GAS COST ALLOCATOR EGAS	1.00000	1.00000	0.00000		
4	CGA BAD DEBT ALLOCATOR E904GAS	1.00000	1.00000	0.00000		
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6	DIRECT GAS COST - BASE DIST ALLOC EGASB	1.00000	0.00000	1.00000		
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE CONT-33		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
CUSTOMER RELATED						
1	ACCT 380-SERVICES	CUST380	1.00000	0.00000	1.00000	
2	ACCT 381-383 METERS,MET INST,REG	CUST3813	1.00000	0.00000	1.00000	
3	ACCT 386-OTHER PROP CUST PREM	CUST386	1.00000	0.00000	1.00000	
4	ACCT 397-COMM EQ METSCAN - TELM	CUST397M	1.00000	0.00000	1.00000	
5	ACCT 397-COMM EQUIP - ITRON	CUST397I	1.00000	0.00000	1.00000	
6	CUSTOMER DEPOSITS	CUSTDEP	1.00000	0.00000	1.00000	
7	CUSTOMERS TRANSPORTSTION	CUSTTRAN	1.00000	0.00000	1.00000	
8	ACCT 902-METER READ EXP	CUST902	1.00000	0.00000	1.00000	
9	ACCT 903-CUST RECORDS & COLL	CUST903	1.00000	0.00000	1.00000	
10	ACCT 488 RECONNECT FEE	CUST488R	1.00000	0.00000	1.00000	
11	ACCT 908-CUST ASSISTANCE EXP	CUST908	1.00000	0.00000	1.00000	
12	ACCT 909-INFO & INSTR ADVERT	CUST909	1.00000	0.00000	1.00000	
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
RATIO TABLE CONT-34						
EXTERNALLY DEVELOPED						
UNCOLLECTIBLE ACCOUNTS						
1	RESID NON HTG RATE R-6 & R-11	C904RANH	1.00000	0.00000	1.00000	
2	RESID HEATING RATE R-5 & R-10	C904RH	1.00000	0.00000	1.00000	
3	LOW LF SMALL RATE G40 & T40	C904G40	1.00000	0.00000	1.00000	
4	LOW LF MEDIUM RATE G41 & T41	C904G41	1.00000	0.00000	1.00000	
5	LOW LF LARGE RATE G42 & T42	C904G42	0.00000	0.00000	0.00000	
6	HIGH LF SMALL RATE G50 & T50	C904G50	1.00000	0.00000	1.00000	
7	HIGH LF MEDIUM RATE G51 & T51	C904G51	1.00000	0.00000	1.00000	
8	HIGH LF LARGE RATE G52 & T52	C904G52	0.00000	0.00000	0.00000	
INTERNALLY DEVELOPED						
LATE PAYMENT CHARGES						
9	RESID NON HTG RATE R-6 & R-11	C488RANH	1.00000	0.12767	0.87233	
10	RESID HEATING RATE R-5 & R-10	C488RH	1.00000	0.35787	0.64213	
11	LOW LF SMALL RATE G40 & T40	C488G40	1.00000	0.46370	0.53630	
12	LOW LF MEDIUM RATE G41 & T41	C488G41	1.00000	0.47680	0.52320	
13	LOW LF LARGE RATE G42 & T42	C488G42	1.00000	0.40096	0.59904	
14	HIGH LF SMALL RATE G50 & T50	C488G50	1.00000	0.44939	0.55061	
15	HIGH LF MEDIUM RATE G51 & T51	C488G51	1.00000	0.44505	0.55495	
16	HIGH LF LARGE RATE G52 & T52	C488G52	1.00000	0.07075	0.92925	
17						
18	INTERNALLY DEVELOPED					
19	WORKING CASH					
20						
21	TOTAL OPERATION & MAINTENANCE EXP					
22	LESS: PURCHASED GAS					
23	904-UNCOLLECTIBLE EXPENSE					
24	PLUS: OTHER TAXES					
25	PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)					
26	TOTAL WORKING CASH ALLOCATOR WORKCASH	1.00000	0.05011	0.94989		
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED-35							
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0.00000	0.00000	0.00000		
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	1.00000	0.04029	0.95971		
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	1.00000	0.04029	0.95971		
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	1.00000	1.00000	0.00000		
5	ACCT 311-LP GAS EQUIP	PLT311	0.00000	0.00000	0.00000		
6	ACCT 320-OTHER EQUIPMENT	PLT320	1.00000	1.00000	0.00000		
7	ACCT 321-LNG EQUIPMENT	PLT321	1.00000	1.00000	0.00000		
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0.00000	0.00000	0.00000		
9	ACCT 362-GAS HOLDERS	PLT362	0.00000	0.00000	0.00000		
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0.00000	0.00000	0.00000		
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	1.00000	0.00000	1.00000		
12	ACCT 376-MAINS	PLT376	1.00000	0.00000	1.00000		
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	1.00000	0.00000	1.00000		
14	ACCT 378-MEAS & REG STATION EQ	PLT378	1.00000	0.00000	1.00000		
15	ACCT 379-MEAS & REG CITY GATE	PLT379	1.00000	0.00000	1.00000		
16	ACCT 380-SERVICES	PLT380	1.00000	0.00000	1.00000		
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	1.00000	0.00000	1.00000		
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	1.00000	0.00000	1.00000		
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	1.00000	0.00000	1.00000		
20	ACCT 381-METERS	PLT381	1.00000	0.00000	1.00000		
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	1.00000	0.00000	1.00000		
22	ACCT 382-METER INSTALLATION	PLT382	1.00000	0.00000	1.00000		
23	ACCT 383-HOUSE REGULATORS	PLT383	1.00000	0.00000	1.00000		
24	ACCT 386-OTHER PROP CUST PREM	PLT386	1.00000	0.00000	1.00000		
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	1.00000	0.04029	0.95971		
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	1.00000	0.05167	0.94833		
27	ACCT 393-STORES EQUIPMENT	PLT393	1.00000	0.00000	1.00000		
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1.00000	0.00000	1.00000		
29	ACCT 396-POWER OPERATED EQUIP	PLT396	1.00000	0.00000	1.00000		
30	ACCT 397-COMMUNICATION EQUIP	PLT397	1.00000	0.04029	0.95971		
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	1.00000	0.00000	1.00000		
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	1.00000	0.00000	1.00000		
33	TOTAL PROD & STORAGE PLANT	PSPLT	1.00000	1.00000	0.00000		
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	1.00000	0.00000	1.00000		
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	1.00000	0.00000	1.00000		
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	1.00000	0.02506	0.97494		
37	TOTAL GAS PLANT IN SERVICE	PLANT	1.00000	0.01265	0.98735		
38							

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED CONT-36						
1	ACCT 717-PROPANE EXPENSES EXP717	1.00000	1.00000	0.00000		
2	ACCT 718-DISPATCHING PROD EXP718	0.00000	0.00000	0.00000		
3	ACCT 735-MISCELLANEOUS EXP735	1.00000	1.00000	0.00000		
4	ACCT 741-MAINTENANCE OF PLANT EXP741	1.00000	1.00000	0.00000		
5	ACCT 742-MAINTENANCE OF EQUIP EXP742	1.00000	1.00000	0.00000		
6	ACCT 743-GAS SYS PROD TRAINING EXP743	0.00000	0.00000	0.00000		
7	TOTAL GAS COSTS GASCOSTS	1.00000	1.00000	0.00000		
8	ACCT 813-OTHER GAS SUPPLY EXP EXP813	1.00000	0.57230	0.42770		
9	ACCT 851-SYSTEM CONTROL & DISP EXP851	1.00000	0.03402	0.96598		
10	ACCT 857-879 DIST OPER EXP EXP8519	1.00000	0.00000	1.00000		
11	ACCT 857-MEAS & REG STATION EXP EXP857	0.00000	0.00000	0.00000		
12	ACCT 874-MAINS & SERVICE EXP EXP874	1.00000	0.00000	1.00000		
13	ACCT 875-REGULAT STATION EXP EXP875	1.00000	0.00000	1.00000		
14	ACCT 878-METER & HOUSE REG EXP EXP878	1.00000	0.00000	1.00000		
15	ACCT 879-CUSTOMER INSTALL EXP EXP879	1.00000	0.00000	1.00000		
16	ACCT 880-OTHER EXPENSE EXP880	1.00000	0.00000	1.00000		
17	ACCT 886-MAINT STRUCT & IMPROV EXP886	1.00000	0.00000	1.00000		
18	ACCT 894-MAINT OF OTHER EQUIP EXP894	1.00000	0.00000	1.00000		
19	ACCT 887-MAINTENANCE OF MAINS EXP887	1.00000	0.00000	1.00000		
20	ACCT 889-MT OF M & R STA EQ EXP889	1.00000	0.00000	1.00000		
21	ACCT 890-MT OF REG EQ (INDUST) EXP890	1.00000	0.00000	1.00000		
22	ACCT 891-MT OF REG EQ (CITY GATE) EXP891	1.00000	0.01732	0.98268		
23	ACCT 892-MAINTENANCE OF SERV EXP892	1.00000	0.00000	1.00000		
24	ACCT 893-MAINT MET & HOUSE REG EXP893	1.00000	0.00000	1.00000		
25	ACCT 902-METER READING EXP EXP902	1.00000	0.00000	1.00000		
26	ACCT 903-CUST RECORDS & COLL EXP903	1.00000	0.00000	1.00000		
27	ACCT 904-UNCOLLECTIBLE ACCTS EXP904	1.00000	0.45434	0.54566		
28	ACCT 904-UNCOLL ACCTS EXP BASE EXP904B	1.00000	0.00000	1.00000		
29	ACCT 909-INFO & INSTRUCT ADVERT EXP909	1.00000	0.00000	1.00000		
30	ACCT 920-ADMIN & GEN SALARY EXP920	1.00000	0.04029	0.95971		
31	ACCT 921-OFFICE SUPPLIES & EXP EXP921	1.00000	0.04029	0.95971		
32	ACCT 923-OUTSIDE SERV EMPLOYED EXP923	1.00000	0.03895	0.96105		
33	ACCT 925-INJURIES & DAMAGES EXP925	1.00000	0.04029	0.95971		
34	ACCT 924 & 925 PROP & LIABILITY INS EXP9245	1.00000	0.03970	0.96030		
35	ACCT 926-EMPLOY PENSION & BENF EXP926	1.00000	0.04029	0.95971		
36	ACCT 930-MISC GEN EXP EXP930	1.00000	0.04029	0.95971		
37	ACCT 935-MAINT OF GENERAL PLT EXP935	1.00000	0.02506	0.97494		
38						

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED CONT-37						
1	GAS PROD LABOR ACCTS 717-735	LABPO	1.00000	1.00000	0.00000	
2	GAS PROD LABOR ACCTS 741-743	LABPM	1.00000	1.00000	0.00000	
3	DIST LABOR OPER ACCT 851 - 882	LABDO	1.00000	0.00303	0.99697	
4	DIST LABOR MAINT ACCT 886 - 894	LABDM	1.00000	0.00228	0.99772	
5	CUST ACCTS LABOR ACCT 902 - 903	LABCA	1.00000	0.00000	1.00000	
6	CUST SERV & INFO LABOR ACCT 908	LABSE	1.00000	0.00000	1.00000	
7	TOTAL GAS PROD OPER LABOR	TLABPO	1.00000	1.00000	0.00000	
8	TOTAL GAS PROD MAINT LABOR	TLABPM	1.00000	1.00000	0.00000	
9	TOTAL DISTR OPER LABOR	TLABDO	1.00000	0.00303	0.99697	
10	TOTAL DISTR MAINT LABOR	TLABDM	1.00000	0.00228	0.99772	
11	TOTAL DISTRIBUTION LABOR	DISTLAB	1.00000	0.00296	0.99704	
12	TOTAL CUST ACCTS LABOR	TLABCA	1.00000	0.00000	1.00000	
13	CUSTOMER SERVICE & INFO LABOR	TLABSE	1.00000	0.00000	1.00000	
14	TOTAL GAS LABOR EXCL A&G	LABORXAG	1.00000	0.05182	0.94818	
15	TOTAL GAS O & M LABOR	OMLAB	1.00000	0.05124	0.94876	
16	SUM OF ALLOCATED LABOR EXP	LABOR	1.00000	0.04029	0.95971	
17						
18	DEFERRED INCOME TAXES PRELIM	DEFTAX	1.00000	0.01296	0.98704	
19	REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	1.00000	0.03840	0.96160	
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	TOTAL COMPANY	TOTAL PRODUCTION	TOTAL DELIVERY	PRODUCTION LESS DIRECT GAS & GAS UNCOLL	TOTAL DELIVERY
INTERNALLY DEVELOPED CONT-38					
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Schedule DLG/PMN-1G-6

Total Class Unbundled Revenue Requirements and Unit Cost Results at Existing and Uniform Proposed Rate of Return

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
PRESENT RATE OF RETURN SUMMARY SCHEDULE - COMPONENT FORMAT			
RATE OF RETURN	6.12%	5.11%	-3.34%
REVENUES REQUIRED			
1 CAPACITY COMPONENTS	11,796,862	2,738,936	(2,660)
2 DEMAND PRODUCTION	483,353	209,693	518
3 PRODUCTION LPG & LNG	483,353	209,693	518
4 DEMAND DISTRIBUTION	11,313,509	2,529,243	(3,178)
5 DISTRIBUTION MAINS	14,647,571	3,445,104	9,767
6 DISTRIBUTION M&R & OTHER	(3,334,062)	(915,861)	(12,946)
7 COMMODITY COMPONENTS	21,855,506	10,059,502	130,497
8 GAS COSTS	21,855,506	10,059,502	130,497
9 CUSTOMER COMPONENTS	19,954,238	12,711,570	447,807
10 CUSTOMER SERVICES	7,698,805	5,608,687	119,120
11 CUSTOMER METERS	8,069,731	4,343,021	170,878
12 CUSTOMER OTHER	(204,707)	(127,549)	(6,875)
13 CUSTOMER METER READING	365,841	266,404	15,211
14 CUST RECORDS & COLLECT	3,654,655	2,438,526	141,108
15 CUSTOMER INFORMATION	369,914	182,481	8,366
16 GAS COSTS - BASE DISTRIBUTION	92,251	42,398	546
17 UNCOLLECTIBLE BASE COMPONENTS	353,017	292,006	13,415
18 TOTAL COMPANY	54,051,875	25,844,412	589,604
	54,051,875		
19 TOTAL PRODUCTION	22,338,859	10,269,195	131,015
20 TOTAL DELIVERY SERVICE	31,713,016	15,575,217	458,590
21 DISTRIBUTION COMPONENT \$/CCF	\$0.1682	\$0.1653	\$0.0451
22 CUSTOMER COMPONENT \$/MO/CUST	\$52.49	\$44.97	\$26.89
23 TOTAL THRUPUT CCF	69,908,226	17,320,928	239,073
24 TOTAL ANNUAL CUSTOMERS	380,179	282,692	16,650

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
PRESENT RATE OF RETURN SUMMARY SCHEDULE -							
RATE OF RETURN		7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
REVENUES REQUIRED							
1	CAPACITY COMPONENTS	1,953,732	305,533	2,759,203	663,651	1,293,425	2,085,041
2	DEMAND PRODUCTION	125,059	4,160	102,606	9,979	26,357	4,982
3	PRODUCTION LPG & LNG	125,059	4,160	102,606	9,979	26,357	4,982
4	DEMAND DISTRIBUTION	1,828,674	301,374	2,656,597	653,672	1,267,068	2,080,059
5	DISTRIBUTION MAINS	2,313,409	366,315	3,305,311	842,027	1,581,869	2,783,768
6	DISTRIBUTION M&R & OTHER	(484,735)	(64,942)	(648,714)	(188,355)	(314,801)	(703,709)
7	COMMODITY COMPONENTS	4,811,757	721,166	3,790,004	1,057,090	1,052,970	232,521
8	GAS COSTS	4,811,757	721,166	3,790,004	1,057,090	1,052,970	232,521
9	CUSTOMER COMPONENTS	3,522,530	620,585	1,512,939	531,621	288,942	318,244
10	CUSTOMER SERVICES	1,182,185	224,877	342,517	117,252	60,193	43,974
11	CUSTOMER METERS	1,578,924	274,801	962,699	334,286	193,943	211,178
12	CUSTOMER OTHER	(41,621)	(8,830)	(13,900)	(5,932)	0	0
13	CUSTOMER METER READING	56,202	9,637	8,860	3,318	2,891	3,319
14	CUST RECORDS & COLLECT	693,075	110,785	173,515	69,271	13,619	14,755
15	CUSTOMER INFORMATION	53,764	9,315	39,248	13,426	18,297	45,018
16	GAS COSTS - BASE DISTRIBUTION	20,323	3,057	16,025	4,468	4,453	981
17	UNCOLLECTIBLE BASE COMPONENTS	31,561	5,860	9,392	785	0	0
18	TOTAL COMPANY	54,051,875 54,051,875	10,339,903	1,656,200	8,087,564	2,257,615	2,639,790
19	TOTAL PRODUCTION	4,936,815	725,325	3,892,610	1,067,069	1,079,327	237,503
20	TOTAL DELIVERY SERVICE	5,403,088	930,875	4,194,953	1,190,546	1,560,463	2,399,284
21	DISTRIBUTION COMPONENT \$/CCF	\$0.2014	\$0.1846	\$0.2040	\$0.1470	\$0.1881	\$0.1229
22	CUSTOMER COMPONENT \$/MO/CUST	\$59.78	\$63.93	\$183.04	\$171.33	\$641.90	\$825.54
23	TOTAL THRUPUT CCF	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
24	TOTAL ANNUAL CUSTOMERS	58,925	9,708	8,266	3,103	450	386

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
PRESENT RATE OF RETURN SUMMARY SCHEDULE - FUNCTION FORMAT			
RATE OF RETURN	6.12%	5.11%	-3.34%
\$ / CCF			
1 CAPACITY COMPONENTS	0.1687	0.1581	(0.0111)
2 DEMAND PRODUCTION	0.0069	0.0121	0.0022
3 PRODUCTION LPG & LNG	0.0069	0.0121	0.0022
4 DEMAND DISTRIBUTION	0.1618	0.1460	(0.0133)
5 DISTRIBUTION MAINS	0.2095	0.1989	0.0409
6 DISTRIBUTION M&R & OTHER	(0.0477)	(0.0529)	(0.0541)
7 COMMODITY COMPONENTS	0.3126	0.5808	0.5458
8 GAS COSTS	0.3126	0.5808	0.5458
9 CUSTOMER COMPONENTS	0.2854	0.7339	1.8731
10 CUSTOMER SERVICES	0.1101	0.3238	0.4983
11 CUSTOMER METERS	0.1154	0.2507	0.7148
12 CUSTOMER OTHER	(0.0029)	(0.0074)	(0.0288)
13 CUSTOMER METER READING	0.0052	0.0154	0.0636
14 CUST RECORDS & COLLECT	0.0523	0.1408	0.5902
15 CUSTOMER INFORMATION	0.0053	0.0105	0.0350
16 GAS COSTS - BASE DISTRIBUTION	0.0013	0.0024	0.0023
17 UNCOLLECTIBLE BASE COMPONENTS	0.0050	0.0169	0.0561
18 TOTAL COMPANY	0.7732 0.7732	1.4921	2.4662
\$ / MO / CUST			
19 CUSTOMER COMPONENTS	\$52.49	\$44.97	\$26.89
20 CUSTOMER SERVICES	\$20.25	\$19.84	\$7.15
21 CUSTOMER METERS	\$21.23	\$15.36	\$10.26
22 CUSTOMER OTHER	-\$0.54	-\$0.45	-\$0.41
23 CUSTOMER METER READING	\$0.96	\$0.94	\$0.91
24 CUST RECORDS & COLLECT	\$9.61	\$8.63	\$8.47
25 CUSTOMER INFORMATION	\$0.97	\$0.65	\$0.50

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
PRESENT RATE OF RETURN SUMMARY SCHEDULE -						
RATE OF RETURN	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
\$ / CCF						
1 CAPACITY COMPONENTS	0.2092	0.1818	0.2098	0.1481	0.1914	0.1231
2 DEMAND PRODUCTION	0.0134	0.0025	0.0078	0.0022	0.0039	0.0003
3 PRODUCTION LPG & LNG	0.0134	0.0025	0.0078	0.0022	0.0039	0.0003
4 DEMAND DISTRIBUTION	0.1958	0.1793	0.2020	0.1458	0.1875	0.1228
5 DISTRIBUTION MAINS	0.2477	0.2179	0.2514	0.1879	0.2341	0.1643
6 DISTRIBUTION M&R & OTHER	(0.0519)	(0.0386)	(0.0493)	(0.0420)	(0.0466)	(0.0415)
7 COMMODITY COMPONENTS	0.5152	0.4291	0.2882	0.2358	0.1558	0.0137
8 GAS COSTS	0.5152	0.4291	0.2882	0.2358	0.1558	0.0137
9 CUSTOMER COMPONENTS	0.3772	0.3692	0.1151	0.1186	0.0428	0.0188
10 CUSTOMER SERVICES	0.1266	0.1338	0.0260	0.0262	0.0089	0.0026
11 CUSTOMER METERS	0.1691	0.1635	0.0732	0.0746	0.0287	0.0125
12 CUSTOMER OTHER	(0.0045)	(0.0053)	(0.0011)	(0.0013)	0.0000	0.0000
13 CUSTOMER METER READING	0.0060	0.0057	0.0007	0.0007	0.0004	0.0002
14 CUST RECORDS & COLLECT	0.0742	0.0659	0.0132	0.0155	0.0020	0.0009
15 CUSTOMER INFORMATION	0.0058	0.0055	0.0030	0.0030	0.0027	0.0027
16 GAS COSTS - BASE DISTRIBUTION	0.0022	0.0018	0.0012	0.0010	0.0007	0.0001
17 UNCOLLECTIBLE BASE COMPONENTS	0.0034	0.0035	0.0007	0.0002	0.0000	0.0000
18 TOTAL COMPANY	0.7732	0.9854	0.6150	0.5037	0.3906	0.1557
	0.7732					
\$ / MO / CUST						
19 CUSTOMER COMPONENTS	\$59.78	\$63.93	\$183.04	\$171.33	\$641.90	\$825.54
20 CUSTOMER SERVICES	\$20.06	\$23.17	\$41.44	\$37.79	\$133.72	\$114.07
21 CUSTOMER METERS	\$26.80	\$28.31	\$116.47	\$107.74	\$430.86	\$547.80
22 CUSTOMER OTHER	-\$0.71	-\$0.91	-\$1.68	-\$1.91	\$0.00	\$0.00
23 CUSTOMER METER READING	\$0.95	\$0.99	\$1.07	\$1.07	\$6.42	\$8.61
24 CUST RECORDS & COLLECT	\$11.76	\$11.41	\$20.99	\$22.33	\$30.25	\$38.28
25 CUSTOMER INFORMATION	\$0.91	\$0.96	\$4.75	\$4.33	\$40.65	\$116.78

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

CLAIMED RATE OF RETURN SUMMARY SCHEDULE - COMPONENT FORMAT				TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATE OF RETURN				8.30%	8.30%	8.30%
REVENUES REQUIRED						
1	CAPACITY COMPONENTS			14,040,724	3,843,868	44,128
2	DEMAND PRODUCTION			543,041	257,234	1,584
3	PRODUCTION LPG			543,041	257,234	1,584
4	DEMAND DISTRIBUTION	13,497,684		13,497,684	3,586,634	42,544
5	DISTRIBUTION MAINS			16,697,204	4,437,360	52,673
6	DISTRIBUTION M&R & OTHER			(3,199,521)	(850,726)	(10,129)
7	COMMODITY COMPONENTS			21,859,193	10,062,371	130,630
8	GAS COSTS			21,859,193	10,062,371	130,630
9	CUSTOMER COMPONENTS			22,434,040	14,594,735	846,713
10	CUSTOMER SERVICES			9,446,104	6,960,463	406,882
11	CUSTOMER METERS			8,778,554	4,854,248	277,702
12	CUSTOMER OTHER			(213,650)	(131,867)	(7,701)
13	CUSTOMER METER READING			369,101	268,940	15,750
14	CUST RECORDS & COLLECT			3,680,053	2,457,866	145,263
15	CUSTOMER INFORMATION			373,879	185,085	8,817
16	GAS COSTS - BASE DISTRIBUTION			92,444	42,548	553
17	UNCOLLECTIBLE BASE COMPONENTS			353,919	292,758	13,541
18	TOTAL COMPANY	58,780,320	58,780,320	58,780,320	28,836,279	1,035,566
19	TOTAL PRODUCTION			22,402,234	10,319,605	132,214
20	TOTAL DELIVERY SERVICE			36,378,086	18,516,675	903,352
21	DISTRIBUTION COMPONENT \$/CCF			\$0.1995	\$0.2264	\$0.2369
22	CUSTOMER COMPONENT \$/MO/CUST			\$59.01	\$51.63	\$50.85
23	TOTAL THRUPUT CCF			69,908,226	17,320,928	239,073
24	TOTAL ANNUAL CUSTOMERS			380,179	282,692	16,650

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
CLAIMED RATE OF RETURN SUMMARY SCHEDULE -							
RATE OF RETURN		8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
REVENUES REQUIRED							
1	CAPACITY COMPONENTS	2,133,100	283,844	2,825,780	776,567	1,343,076	2,790,363
2	DEMAND PRODUCTION	132,194	3,968	104,167	10,986	26,987	5,921
3	PRODUCTION LPG	132,194	3,968	104,167	10,986	26,987	5,921
4	DEMAND DISTRIBUTION	13,497,684	2,000,905	2,721,613	765,581	1,316,089	2,784,442
5	DISTRIBUTION MAINS	2,475,032	346,141	3,366,322	947,042	1,627,870	3,444,763
6	DISTRIBUTION M&R & OTHER	(474,126)	(66,266)	(644,709)	(181,461)	(311,782)	(660,321)
7	COMMODITY COMPONENTS	4,812,161	721,112	3,790,093	1,057,239	1,053,009	232,579
8	GAS COSTS	4,812,161	721,112	3,790,093	1,057,239	1,053,009	232,579
9	CUSTOMER COMPONENTS	3,665,640	599,627	1,526,269	561,191	293,006	346,860
10	CUSTOMER SERVICES	1,275,552	211,088	347,977	129,704	61,703	52,735
11	CUSTOMER METERS	1,628,906	267,468	970,885	352,546	196,446	230,352
12	CUSTOMER OTHER	(43,857)	(8,378)	(14,382)	(7,465)	0	0
13	CUSTOMER METER READING	56,357	9,613	8,867	3,333	2,894	3,346
14	CUST RECORDS & COLLECT	694,696	110,555	173,629	69,552	13,633	14,860
15	CUSTOMER INFORMATION	53,986	9,281	39,293	13,520	18,329	45,568
16	GAS COSTS - BASE DISTRIBUTION	20,344	3,054	16,030	4,476	4,455	984
17	UNCOLLECTIBLE BASE COMPONENTS	31,585	5,856	9,394	786	0	0
18	TOTAL COMPANY	58,780,320 58,780,320	10,662,829	1,613,493	8,167,565	2,400,257	2,693,545
19	TOTAL PRODUCTION	4,944,355	725,081	3,894,259	1,068,225	1,079,995	238,499
20	TOTAL DELIVERY SERVICE	5,718,474	888,412	4,273,306	1,332,032	1,613,549	3,132,286
21	DISTRIBUTION COMPONENT \$/CCF	\$0.2198	\$0.1718	\$0.2089	\$0.1720	\$0.1954	\$0.1644
22	CUSTOMER COMPONENT \$/MO/CUST	\$62.21	\$61.77	\$184.66	\$180.86	\$650.93	\$899.77
23	TOTAL THRUPUT CCF	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
24	TOTAL ANNUAL CUSTOMERS	58,925	9,708	8,266	3,103	450	386

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
CLAIMED RATE OF RETURN SUMMARY SCHEDULE - FUNCTION FORMAT			
RATE OF RETURN	8.30%	8.30%	8.30%
\$ / CCF			
1 CAPACITY COMPONENTS	0.2008	0.2219	0.1846
2 DEMAND PRODUCTION	0.0078	0.0149	0.0066
3 PRODUCTION LPG & LNG	0.0078	0.0149	0.0066
4 DEMAND DISTRIBUTION	0.1931	0.2071	0.1780
5 DISTRIBUTION MAINS	0.2388	0.2562	0.2203
6 DISTRIBUTION M&R & OTHER	(0.0458)	(0.0491)	(0.0424)
7 COMMODITY COMPONENTS	0.3127	0.5809	0.5464
8 GAS COSTS	0.3127	0.5809	0.5464
9 CUSTOMER COMPONENTS	0.3209	0.8426	3.5417
10 CUSTOMER SERVICES	0.1351	0.4019	1.7019
11 CUSTOMER METERS	0.1256	0.2803	1.1616
12 CUSTOMER OTHER	(0.0031)	(0.0076)	(0.0322)
13 CUSTOMER METER READING	0.0053	0.0155	0.0659
14 CUST RECORDS & COLLECT	0.0526	0.1419	0.6076
15 CUSTOMER INFORMATION	0.0053	0.0107	0.0369
16 GAS COSTS - BASE DISTRIBUTION	0.0013	0.0025	0.0023
17 UNCOLLECTIBLE BASE COMPONENTS	0.0051	0.0169	0.0566
18 TOTAL COMPANY	0.8408 0.8408	1.6648	4.3316
\$ / MO / CUST			
19 CUSTOMER COMPONENTS	\$59.01	\$51.63	\$50.85
20 CUSTOMER SERVICES	\$24.85	\$24.62	\$24.44
21 CUSTOMER METERS	\$23.09	\$17.17	\$16.68
22 CUSTOMER OTHER	-\$0.56	-\$0.47	-\$0.46
23 CUSTOMER METER READING	\$0.97	\$0.95	\$0.95
24 CUST RECORDS & COLLECT	\$9.68	\$8.69	\$8.72
25 CUSTOMER INFORMATION	\$0.98	\$0.65	\$0.53

NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
CLAIMED RATE OF RETURN SUMMARY SCHEDULE -							
RATE OF RETURN		8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
\$/CCF							
1	CAPACITY COMPONENTS	0.2284	0.1689	0.2149	0.1733	0.1987	0.1647
2	DEMAND PRODUCTION	0.0142	0.0024	0.0079	0.0025	0.0040	0.0003
3	PRODUCTION LPG & LNG	0.0142	0.0024	0.0079	0.0025	0.0040	0.0003
4	DEMAND DISTRIBUTION	0.2143	0.1665	0.2070	0.1708	0.1947	0.1644
5	DISTRIBUTION MAINS	0.2650	0.2059	0.2560	0.2113	0.2409	0.2034
6	DISTRIBUTION M&R & OTHER	(0.0508)	(0.0394)	(0.0490)	(0.0405)	(0.0461)	(0.0390)
7	COMMODITY COMPONENTS	0.5153	0.4290	0.2882	0.2359	0.1558	0.0137
8	GAS COSTS	0.5153	0.4290	0.2882	0.2359	0.1558	0.0137
9	CUSTOMER COMPONENTS	0.3925	0.3568	0.1161	0.1252	0.0434	0.0205
10	CUSTOMER SERVICES	0.1366	0.1256	0.0265	0.0289	0.0091	0.0031
11	CUSTOMER METERS	0.1744	0.1591	0.0738	0.0787	0.0291	0.0136
12	CUSTOMER OTHER	(0.0047)	(0.0050)	(0.0011)	(0.0017)	0.0000	0.0000
13	CUSTOMER METER READING	0.0060	0.0057	0.0007	0.0007	0.0004	0.0002
14	CUST RECORDS & COLLECT	0.0744	0.0658	0.0132	0.0155	0.0020	0.0009
15	CUSTOMER INFORMATION	0.0058	0.0055	0.0030	0.0030	0.0027	0.0027
16	GAS COSTS - BASE DISTRIBUTION	0.0022	0.0018	0.0012	0.0010	0.0007	0.0001
17	UNCOLLECTIBLE BASE COMPONENTS	0.0034	0.0035	0.0007	0.0002	0.0000	0.0000
18	TOTAL COMPANY	0.8408	0.8408	0.6211	0.5355	0.3986	0.1990
\$/MO/CUST							
19	CUSTOMER COMPONENTS	\$62.21	\$61.77	\$184.66	\$180.86	\$650.93	\$899.77
20	CUSTOMER SERVICES	\$21.65	\$21.74	\$42.10	\$41.80	\$137.08	\$136.80
21	CUSTOMER METERS	\$27.64	\$27.55	\$117.46	\$113.62	\$436.42	\$597.54
22	CUSTOMER OTHER	-\$0.74	-\$0.86	-\$1.74	-\$2.41	\$0.00	\$0.00
23	CUSTOMER METER READING	\$0.96	\$0.99	\$1.07	\$1.07	\$6.43	\$8.68
24	CUST RECORDS & COLLECT	\$11.79	\$11.39	\$21.01	\$22.42	\$30.29	\$38.55
25	CUSTOMER INFORMATION	\$0.92	\$0.96	\$4.75	\$4.36	\$40.72	\$118.20

Schedule DLG/PMN-1G-7

Tabulation of External and Internal Allocators

(See Also Workpapers Supporting Cost of Service Study)

The listing of all allocation factors and ratio tables are in Pages 45 to 76 of Schedule PMN-1-3, Schedule PMN-1-4 and Pages 45 to 76 of the Gas Cost of Service Workpapers.

Description of Allocation Factors
(See Also Workpapers Supporting Cost of Service Study)

NOTE: All page references below are COS page numbering.

External Allocators, Page 23

1. DEMLPG – LPG Production Allocator (Page 31, line 6)
 The ratio for LPG Production Allocator on Page 31, line 3, is based on
 Remaining Design Day Demands (Page 23, line 3). (See supporting
 Workpapers.)
2. DEMLNG – LNG Production Allocator (Page 31, line 7)
 The ratio for LNG Production Allocator on Page 31, line 4, is based on
 Remaining Design Day Demands (Page 23, line 4). (See supporting
 Workpapers.)
3. DISTR – Distribution Allocator – Distribution Other Function
 This allocator is based on a 12-month proportional responsibility
 allocation factor developed for each rate using total annual throughput.
 Allocator Ratio is on Page 31, line 1, second section.
4. DISTRMAIN – Distribution Allocator – Distribution Mains Function
 This allocator is based on a 12-month proportional responsibility
 allocation factor developed for each rate using total annual throughput.
 Allocator ratio is on Page 31, line 2, second section.

(See Also Workpapers Supporting Cost of Service Study)

External Allocators, Page 24

1. EGAS – Commodity-Related Direct Gas Cost Allocator
This allocator is used to allocate Direct Gas Costs to customer classes based on the Direct Gas Cost Revenues billed by rate class. The allocator is the sum of revenues by class on Page 30, line 4. Allocator Ratio is on Page 32, line 3.
2. E904GAS – CGA Bad Debt – Gas Costs
This allocator is used to allocate the Gas Costs portion of Acct 904 – Uncollectible Accounts. The allocator is based on the sum of the CGA Bad Debt Charges by class on Page 30, line 8. Allocator Ratio is on Page 32, line 4.
3. EGASB – Distribution-Related IRP Cost Allocator
This allocator is used to allocate IRP costs to customer classes based on the Direct Gas Cost Revenues billed by rate class. The allocator is the sum of revenues by class on Page 30, line 4. Allocator Ratio is on Page 32, line 6.

(See Also Workpapers Supporting Cost of Service Study)

External Allocators, Page 25

1. CUST380 – Acct 380 Gas Services – Customer Services Function
This allocator represents the direct assignment of Plant Acct 380 – Gas Services to the customer classes. See Workpaper for details. Allocation Ratio is on Page 33, line 1.
2. CUST3813 – Acct 381 to Acct 383 Gas Meters – Customer Meters Function
This allocator represents the direct assignment of Plant Acct 381 to 383 – Gas Meters, Meter Installations, and Regulators to the customer classes. See Workpapers for detail. Allocation Ratio is on Page 33, line 2.
3. CUST386 – This allocator is used to allocate Acct 386 Conversion Burners and Water Heaters. The allocator is based on the proportional responsibility allocation factor on Page 23, line 1, second section.
4. CUST397M – Acct 397 – Communications Equipment METSCAN – Telemetry
This allocator is based on the annual number of telemetry meters. See Workpapers for detail. Allocation Ratio is on Page 33, line 4.
5. CUST397I – Acct 397 – Communications Equipment ITRON
This allocator is based on the annual number of meters excluding the telemetry. See Workpapers for detail. Allocation Ratio is on Page 33, line 5.
6. CUSTDEP – Customer Deposits – Customer Deposits Function
This allocator represents the assignment of customer deposits to customer classes. See Workpapers for detail. Allocation Ratio is on Page 33, line 6.
7. CUSTTRAN– This allocator is used to allocate Acct 488 Miscellaneous Service Revenues related to Transportation customers (Page 25, line 19). See Page 8, lines 14 and 15. This allocator is based on the number of transportation customers. Allocation Ratio is on Page 33, line 7.
8. CUST902 – Acct 902 Meter Reading Expense – Customer Meter Reading Function
This allocator was developed internally in the cost study based on the number of meters (Page 25, lines 22 and 23). Estimates of weighting factors were made for the allocation of meter reading expense. All meter reads were given a weighting of 1 except for the daily read transportation customers (Page 25, line 22) to which a weighting factor of 10 was applied to the number of meters read. Allocation Ratio is on Page 33, line 8.

(See Also Workpapers Supporting Cost of Service Study)

External Allocators, Page 25, continued

9. CUST903 – Acct 903 Customer Records & Collection Expense – Customer Records & Collection Function
This allocator is for Customer Records and Collection expenses. The allocator is developed internally in the cost of service program. The allocator is based on the number of bills (Page 25, lines 19 and 20) with an additional weighting factor of 4 added for transportation customers (Page 25, line 18). Allocation Ratio is on Page 33, line 9.
10. CUST488R – Acct 488 – Reconnection Fees
This allocator is used to allocate reconnection fees and is developed internally in the cost of service study based on the number of residential and small commercial customers (Page 25, line 25). Allocation Ratio is on Page 33, line 10.
11. CUST908 – Customer Assistance Expenses – Customer Information Function
This allocator was developed internally in the cost of service model. Since these costs are not totally related to the total number of customers or the amount of sales, a weighted allocation factor was developed. The allocator is based on a 50% weighting on the annual number of customers (Page 25, lines 17 and 18) and a 50% weighting on the total annual throughput (Page 24, line 2). Allocation Ratio is on Page 33, line 11.
12. CUST909 – Allocator is developed in the same manner as Acct 908 but was not used in the study because there were no Acct 908 Information and Advertising expenses in the revenue requirements. Allocation ratio is on Page 33, line 12.

External Allocators, Page 26

1. C904RNH Uncollectible Base Accounts Allocator
C904RH These allocators directly assign the base uncollectible amounts to rate
C904G40 classes based on the actual base rate write-offs for 2016. See Workpaper
C904G41 for details. The allocation to customer classes is on Page 12, lines 4 to 11.
C904G42 Allocation Ratios are on Page 34, lines 1 to 8.
C904G50
C904G51
C904G52

(Noted – See Allocator Descriptions)

Internal Allocators, Page 26

1.	C488RNH	Late Payment Charges
	C488RH	The functionalization of each rate class assignment of Late Payment
	C488G40	Charges is based on claimed revenues, Page 22, line 10. The allocation to
	C488G41	rate classes, Page 8, lines 4 to 11, is based on Company records. See
	C488G42	Workpapers for details. Allocation Ratios are on Page 34, lines 9 to 16.
	C488G50	
	C488G51	
	C488G52	

Reference for Internal Allocators Not Shown in Allocation Factor Table
(Noted – See Allocator Descriptions)

Internal Allocators Page 29

1. REVCLAIM – Claimed Revenues less Gas Costs (Page 29, line 19)
This allocator is computed using the bottom up approach starting with rate of return times rate base plus expenses. Ratio is on Page 37, line 19. The formula is as follows:

$$\text{Plus } (((1 * 2) - (3 * 2)) / 4) + (3 * 2))$$

Where 1 = Page 30, line 1 (bottom) – Claimed Rate of Return
2 = Page 7, line 14 – Rate Base
3 = Page 1, line 22 – Actual Rate of Return
4 = 1 – Incremental Tax Rate = 0.60588 – Page 18

Plus Page 9, lines 1, 2, 4, 6, 7, 13 and 14
Page 10, lines 3, 4 and 12
Page 11, line 24
Page 12, lines 17 and 20
Page 13, lines 18, 19 and 20
Page 15, line 21
Page 16, lines 11 to 13

Less Page 8, lines 2 and 24

Internal Allocators, Page 26

2. WORKCASH– Total Operation & Maintenance Expense less Purchased Gas Costs, less Uncollectible Accounts Expense, plus Other Taxes (Page 26, line 27). The internal allocator formula is below. Ratio is on Page 34, line 27.

Plus Page 13, line 21

Less Page 10, line 2
Page 12, line 16

Plus Page 16, line 11

Plus Page 18, line 11

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Page and Line Locations****Other Internal Allocators****Pages 27, 28, and 29**

The source of data for all Other allocators developed internally in the cost of service study on Pages 27, 28, and 29 are noted in Sub-Page 3 in the following allocation factor pages from the cost of service study. These formulas are also the same for all functional cost of service schedules.

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

1:

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)
INTERNALLY DEVELOPED-27						
1 ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0	0	0
2 ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	3,540,586	1,713,236	80,470	603,670	92,676
3 ACCT 303-MISC INTANGIBLE PLT	PLT303	3,540,586	1,713,236	80,470	603,670	92,676
4 ACCT 305-STRUCTURES & IMPROVE	PLT305	161,860	76,792	474	39,367	1,181
5 ACCT 311-LP GAS EQUIP	PLT311	0	0	0	0	0
6 ACCT 320-OTHER EQUIPMENT	PLT320	7,640	3,625	22	1,858	56
7 ACCT 321-LNG EQUIPMENT	PLT321	84,156	39,926	246	20,468	614
8 ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0
9 ACCT 362-GAS HOLDERS	PLT362	0	0	0	0	0
10 ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0
11 ACCT 375-STRUCTURES & IMPROVE	PLT375	2,910,194	775,235	9,220	431,296	60,251
12 ACCT 376-MAINS	PLT376	106,849,866	28,463,298	338,537	15,835,343	2,212,176
13 ACCT 376 MAINS & 380 SERVICES	PLT37680	167,100,182	70,943,565	2,825,926	25,869,076	3,870,703
14 ACCT 378-MEAS & REG STATION EQ	PLT378	3,445,431	917,814	10,916	510,619	71,333
15 ACCT 379-MEAS & REG CITY GATE	PLT379	39,266	10,460	124	5,819	813
16 ACCT 380-SERVICES	PLT380	60,250,315	42,480,267	2,487,389	10,033,733	1,658,527
17 ACCT 380-SERVICES - COMMERCIAL	PLT380C	11,692,260	0	0	10,033,733	1,658,527
18 ACCT 380-SERVICES - RESIDENTIAL	PLT380R	44,967,656	42,480,267	2,487,389	0	0
19 ACCT 380-383-SERV,METRS & REGUL	PLT3803	84,640,514	56,216,496	3,291,700	14,645,154	2,420,773
20 ACCT 381-METERS	PLT381	3,913,705	2,204,145	129,061	739,959	122,312
21 ACCT 381 - 383 METER & HSE REGUL	PLT3813	24,390,199	13,736,229	804,311	4,611,421	762,245
22 ACCT 382-METER INSTALLATION	PLT382	19,938,729	11,229,221	657,516	3,769,788	623,128
23 ACCT 383-HOUSE REGULATORS	PLT383	537,766	302,862	17,734	101,675	16,806
24 ACCT 386-OTHER PROP CUST PREM	PLT386	1,637,356	436,169	5,188	242,659	33,899
25 ACCT 391-OFFICE FURN & EQUIP	PLT391	420,149	203,304	9,549	71,635	10,998
26 ACCT 392-TRANSPORTATION EQUIP	PLT392	82,633	0	0	71,635	10,998
27 ACCT 393-STORES EQUIPMENT	PLT393	31,520	13,713	577	5,003	758
28 ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1,173,029	510,321	21,483	186,192	28,214
29 ACCT 396-POWER OPERATED EQUIP	PLT396	75,266	32,744	1,378	11,947	1,810
30 ACCT 397-COMMUNICATION EQUIP	PLT397	1,453,181	703,172	33,028	247,768	38,038
31 ACCT 397-COMM EQ METSCAN - TEL	PLT397M	112,656	0	0	1,587	4,760
32 ACCT 397-COMM EQUIP - ITRON	PLT397I	2,936,629	2,188,800	128,163	456,836	75,250
33 TOTAL PROD & STORAGE PLANT	PSPLT	260,472	123,577	762	63,351	1,900
34 DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	113,244,758	30,166,807	358,798	16,783,077	2,344,573
35 TOTAL DISTRIBUTION PLANT	DISTRPLT	199,629,651	86,847,981	3,656,025	31,686,752	4,801,461
36 TOTAL GENERAL PLT EX 397M & 397I	GENPLT	3,386,092	1,575,973	71,310	562,263	85,915
37 TOTAL GAS PLANT IN SERVICE	PLANT	212,059,660	93,490,278	3,943,147	33,907,972	5,077,961
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GAS COST OF SERVICE STUDY
2 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)	SOURCE
INTERNALLY DEVELOPED-27						
1 ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0	0	Page 2 Line 1
2 ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	444,367	138,408	162,470	305,288	Page 2 Line 2
3 ACCT 303-MISC INTANGIBLE PLT	PLT303	444,367	138,408	162,470	305,288	Page 2 Line 3
4 ACCT 305-STRUCTURES & IMPROVE	PLT305	30,987	3,272	8,026	1,762	Page 2 Line 5
5 ACCT 311-LP GAS EQUIP	PLT311	0	0	0	0	Page 2 Line 7
6 ACCT 320-OTHER EQUIPMENT	PLT320	1,463	154	379	83	Page 2 Line 8
7 ACCT 321-LNG EQUIPMENT	PLT321	16,111	1,701	4,173	916	Page 2 Line 9
8 ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	Page 2 Line 12
9 ACCT 362-GAS HOLDERS	PLT362	0	0	0	0	Page 2 Line 13
10 ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	Page 2 Line 14
11 ACCT 375-STRUCTURES & IMPROVE	PLT375	585,955	165,069	283,274	599,894	Page 3 Line 3
12 ACCT 376-MAINS	PLT376	21,513,751	6,060,627	10,400,593	22,025,541	Page 3 Line 4
13 ACCT 376 MAINS & 380 SERVICES	PLT37680	23,623,149	6,847,907	10,774,520	22,345,336	Page 3 Lines 4 & 7
14 ACCT 378-MEAS & REG STATION EQ	PLT378	693,722	195,428	335,373	710,225	Page 3 Line 5
15 ACCT 379-MEAS & REG CITY GATE	PLT379	7,906	2,227	3,822	8,094	Page 3 Line 6
16 ACCT 380-SERVICES	PLT380	2,109,398	787,280	373,927	319,795	Page 3 Line 7
17 ACCT 380-SERVICES - COMMERCIAL	PLT380C	0	0	0	0	Page 3 Line 7, Small Commercial Only
18 ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0	0	0	0	Page 3 Line 7 - Residential Only
19 ACCT 380-383-SERV,METRS & REGUL	PLT3803	4,757,761	1,775,715	826,265	706,650	Page 3 Lines 7 to 10
20 ACCT 381-METERS	PLT381	424,962	158,606	72,583	62,076	Page 3 Line 8
21 ACCT 381 - 383 METER & HSE REGUL	PLT3813	2,648,363	988,435	452,339	386,856	Page 3 Lines 8 to 10
22 ACCT 382-METER INSTALLATION	PLT382	2,165,009	808,035	369,782	316,250	Page 3 Line 9
23 ACCT 383-HOUSE REGULATORS	PLT383	58,392	21,793	9,973	8,530	Page 3 Line 10
24 ACCT 386-OTHER PROP CUST PREM	PLT386	329,675	92,872	159,378	337,517	Page 3 Line 11
25 ACCT 391-OFFICE FURN & EQUIP	PLT391	52,732	16,424	19,280	36,227	Page 3 Line 14
26 ACCT 392-TRANSPORTATION EQUIP	PLT392	0	0	0	0	Page 3 Line 15
27 ACCT 393-STORES EQUIPMENT	PLT393	4,407	1,310	1,898	3,854	Page 3 Line 16
28 ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	164,002	48,759	70,625	143,434	Page 3 Line 17
29 ACCT 396-POWER OPERATED EQUIP	PLT396	10,523	3,129	4,532	9,203	Page 3 Line 18
30 ACCT 397-COMMUNICATION EQUIP	PLT397	182,384	56,807	66,683	125,301	Page 3 Line 19
31 ACCT 397-COMM EQ METSCAN - TEL	PLT397M	15,867	6,347	38,081	46,015	Page 3 Line 20
32 ACCT 397-COMM EQUIP - ITRON	PLT397I	62,688	23,372	1,243	278	Page 3 Line 21
33 TOTAL PROD & STORAGE PLANT	PSPLT	49,865	5,266	12,915	2,835	Page 2 Lines 10 & 15
34 DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	22,801,334	6,423,351	11,023,062	23,343,755	Page 3 Lines 3 to 6
35 TOTAL DISTRIBUTION PLANT	DISTRPLT	27,910,318	8,298,009	12,019,122	24,409,983	Page 3 Line 12
36 TOTAL GENERAL PLT EX 397M & 397I	GENPLT	443,283	135,536	173,707	338,105	Page 3 Lines 18 to 26
37 TOTAL GAS PLANT IN SERVICE	PLANT	29,346,331	8,651,285	12,516,303	25,126,381	Page 3 Line 23
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

1:

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)
INTERNALLY DEVELOPED CONT-28						
1 ACCT 717-PROPANE EXPENSES	EXP717	9,492	4,503	28	2,309	69
2 ACCT 718-DISPATCHING PROD	EXP718	0	0	0	0	0
3 ACCT 735-MISCELLANEOUS	EXP735	12,805	6,075	37	3,115	93
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	7,688	3,648	22	1,870	56
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	7,713	3,659	23	1,876	56
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0	0	0
7 TOTAL GAS COSTS	GASCOSTS	20,951,307	9,655,623	125,522	4,607,719	691,226
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	403,550	152,414	1,931	76,371	11,193
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	349,400	95,387	1,141	52,634	7,380
10 ACCT 857-879 DIST OPER EXP	EXP8519	1,946,505	940,886	46,923	334,851	52,856
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0	0	0
12 ACCT 874-MAINS & SERVICE EXP	EXP874	682,358	289,700	11,540	105,637	15,806
13 ACCT 875-REGULAT STATION EXP	EXP875	220,978	58,865	700	32,749	4,575
14 ACCT 878-METER & HOUSE REG EXP	EXP878	995,427	560,611	32,826	188,204	31,109
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	47,743	31,710	1,857	8,261	1,365
16 ACCT 880-OTHER EXPENSE	EXP880	455,698	220,271	10,985	78,392	12,374
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	6,369	1,697	20	944	132
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	172,250	45,885	546	25,528	3,566
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	93,438	24,891	296	13,848	1,935
20 ACCT 889-MT OF M & R STA EQ	EXP889	31,746	8,457	101	4,705	657
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	86	23	0	13	2
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	53,877	14,534	173	8,052	1,127
23 ACCT 892-MAINTENANCE OF SERV	EXP892	120,017	84,619	4,955	19,987	3,304
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	12,495	7,037	412	2,362	391
25 ACCT 902-METER READING EXP	EXP902	110,170	80,316	4,703	16,797	2,863
26 ACCT 903-CUST RECORDS & COLL	EXP903	1,462,490	971,364	57,397	278,443	44,200
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	448,214	297,218	10,442	67,680	10,065
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	155,128	128,360	5,936	13,821	2,561
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	2,570	1,274	61	371	64
30 ACCT 920-ADMIN & GEN SALARY	EXP920	11,770	5,695	268	2,007	308
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	204,409	98,911	4,646	34,852	5,351
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	3,358,161	1,612,765	74,320	574,519	88,052
33 ACCT 925-INJURIES & DAMAGES	EXP925	228,942	110,782	5,203	39,035	5,993
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	233,966	112,997	5,297	39,838	6,113
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	1,979,724	957,958	44,995	337,543	51,820
36 ACCT 930-MISC GEN EXP	EXP930	179,698	86,953	4,084	30,638	4,704
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	11,240	5,232	237	1,866	285
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GAS COST OF SERVICE STUDY
2 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)	SOURCE
INTERNALLY DEVELOPED CONT-28						
1 ACCT 717-PROPANE EXPENSES	EXP717	1,817	192	471	103	Page 9 Line 2
2 ACCT 718-DISPATCHING PROD	EXP718	0	0	0	0	Page 9 Line 3
3 ACCT 735-MISCELLANEOUS	EXP735	2,452	259	635	139	Page 9 Line 6
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	1,472	155	381	84	Page 9 Line 10
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	1,477	156	382	84	Page 9 Line 11
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0	0	Page 9 Line 12
7 TOTAL GAS COSTS	GASCOSTS	3,627,131	1,013,744	1,007,770	222,573	Page 10 Line 2
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	74,735	20,965	27,909	38,032	Page 10 Lines 3 & 4
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	70,015	19,719	33,425	69,700	Page 10 Lines 7 & 8
10 ACCT 857-879 DIST OPER EXP	EXP8519	251,729	81,840	84,435	152,986	Page 11 Lines 2 to 6
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0	0	Page 11 Line 2
12 ACCT 874-MAINS & SERVICE EXP	EXP874	96,466	27,964	43,998	91,248	Page 11 Line 3
13 ACCT 875-REGULAT STATION EXP	EXP875	44,493	12,534	21,510	45,551	Page 11 Line 4
14 ACCT 878-METER & HOUSE REG EXP	EXP878	108,086	40,341	18,461	15,789	Page 11 Line 5
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	2,684	1,002	466	399	Page 11 Line 6
16 ACCT 880-OTHER EXPENSE	EXP880	58,932	19,160	19,767	35,816	Page 11 Line 7
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	1,282	361	620	1,313	Page 11 Line 10
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	34,682	9,770	16,767	35,507	Page 11 Lines 18 to 20
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	18,813	5,300	9,095	19,261	Page 11 Line 11
20 ACCT 889-MT OF M & R STA EQ	EXP889	6,392	1,801	3,090	6,544	Page 11 Line 12
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	17	5	8	18	Page 11 Line 13
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	10,822	3,048	5,198	10,924	Page 11 Lines 14 & 15
23 ACCT 892-MAINTENANCE OF SERV	EXP892	4,202	1,568	745	637	Page 11 Line 16
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	1,357	506	232	198	Page 11 Line 17
25 ACCT 902-METER READING EXP	EXP902	2,640	994	862	996	Page 12 Line 2
26 ACCT 903-CUST RECORDS & COLL	EXP903	70,878	28,469	5,605	6,133	Page 12 Line 3
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	41,542	9,658	9,484	2,126	Page 12 Line 16
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	4,107	344	0	0	Page 12 Lines 4 to 11
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	270	93	126	313	Page 12 Line 19
30 ACCT 920-ADMIN & GEN SALARY	EXP920	1,477	460	540	1,015	Page 13 Line 1
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	25,655	7,991	9,380	17,625	Page 13 Line 2
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	428,174	132,725	156,785	290,822	Page 13 Lines 3 to 6
33 ACCT 925-INJURIES & DAMAGES	EXP925	28,734	8,950	10,506	19,741	Page 13 Line 8
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	29,429	9,155	10,802	20,336	Page 13 Lines 7 & 8
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	248,469	77,391	90,845	170,702	Page 13 Line 10
36 ACCT 930-MISC GEN EXP	EXP930	22,553	7,025	8,246	15,494	Page 13 Line 13
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	1,472	450	577	1,122	Page 13 Line 17
38						

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

1:

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)
INTERNALLY DEVELOPED CONT-29						
1 GAS PROD LABOR ACCTS 717-735	LABPO	12,805	6,075	37	3,115	93
2 GAS PROD LABOR ACCTS 741-743	LABPM	15,401	7,307	45	3,746	112
3 DIST LABOR OPER ACCT 851 - 882	LABDO	2,089,647	977,329	47,312	357,616	56,106
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	204,717	69,564	1,950	31,014	4,480
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	742,426	498,852	29,442	137,990	22,063
6 CUST SERV & INFO LABOR ACCT 908	LABSE	160,148	79,381	3,781	23,108	3,970
7 TOTAL GAS PROD OPER LABOR	TLABPO	25,182	11,947	74	6,125	184
8 TOTAL GAS PROD MAINT LABOR	TLABPM	27,778	13,179	81	6,756	203
9 TOTAL DISTR OPER LABOR	TLABDO	2,121,220	992,096	48,027	363,020	56,954
10 TOTAL DISTR MAINT LABOR	TLABDM	239,302	81,316	2,280	36,254	5,237
11 TOTAL DISTRIBUTION LABOR	DISTLAB	2,360,522	1,073,411	50,307	399,274	62,190
12 TOTAL CUST ACCTS LABOR	TLABCA	742,426	498,852	29,442	137,990	22,063
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	160,148	79,381	3,781	23,108	3,970
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	3,531,047	1,757,969	84,714	613,939	94,572
15 TOTAL GAS O & M LABOR	OMLAB	5,504,256	2,736,465	131,702	956,082	147,252
16 SUM OF ALLOCATED LABOR EXP	LABOR	6,999,739	3,387,068	159,090	1,193,456	183,221
17						
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	5,224,984	2,301,366	96,865	835,213	125,048
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	37,970,292	19,251,632	913,492	6,079,724	926,061
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GAS COST OF SERVICE STUDY
2 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)	SOURCE
INTERNALLY DEVELOPED CONT-29						
1 GAS PROD LABOR ACCTS 717-735	LABPO	2,452	259	635	139	Page 19 Lines 3 to 5
2 GAS PROD LABOR ACCTS 741-743	LABPM	2,948	311	764	168	Page 19 Lines 8 & 9
3 DIST LABOR OPER ACCT 851 - 882	LABDO	282,325	90,768	97,929	180,261	Page 20 Lines 2 to 9
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	35,553	10,129	16,790	35,236	Page 20 Lines 12 to 19
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	33,810	13,527	3,199	3,543	Page 20 Lines 23 & 24
6 CUST SERV & INFO LABOR ACCT 908	LABSE	16,803	5,788	7,836	19,483	Page 21 Line 2
7 TOTAL GAS PROD OPER LABOR	TLABPO	4,821	509	1,249	274	Page 19 Line 6
8 TOTAL GAS PROD MAINT LABOR	TLABPM	5,318	562	1,377	302	Page 19 Line 11
9 TOTAL DISTR OPER LABOR	TLABDO	286,591	92,140	99,408	182,985	Page 20 Line 10
10 TOTAL DISTR MAINT LABOR	TLABDM	41,559	11,840	19,627	41,189	Page 20 Line 20
11 TOTAL DISTRIBUTION LABOR	DISTLAB	328,150	103,980	119,035	224,174	Page 20 Line 21
12 TOTAL CUST ACCTS LABOR	TLABCA	33,810	13,527	3,199	3,543	Page 20 Line 25
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	16,803	5,788	7,836	19,483	Page 21 Line 3
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	428,717	135,534	147,564	268,038	Page 19 Line 5 + Page 20 Lines 20+24 + Page 21 L
15 TOTAL GAS O & M LABOR	OMLAB	669,430	211,469	231,165	420,692	Page 21 Line 13
16 SUM OF ALLOCATED LABOR EXP	LABOR	878,514	273,632	321,203	603,554	Page 21 Line 15
17						
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	723,807	213,239	309,008	620,438	Page 18 Lines 12 to 23
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	4,557,294	1,391,857	1,691,540	3,158,691	See allocator descriptions
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ALLOCATORS, Page 23

Demand-Related Production Allocators:

1.	DEMLPG	LPG Production Demand
	Ratio	Page 31 Line 6 (top section)
		<u>Items Allocated</u>
		Page 2 Lines 4, 5, 6, 7, 8, 9, 12, 13, 14, 16
		Page 4 Line 9
		Page 9 Lines 2, 4, 6, 7, 10, 11, 12
		Page 14 Lines 8, 9
2.	DEMLNG	LNG Production Demand
	Ratio	Page 31 Line 7 (top section)
		<u>Items Allocated</u>
		Page 2 Line 11

Demand-Related Distribution Allocator:

3.	DISTR	Distribution Allocator
	Ratio	Page 31 Line 1 (bottom section)
		<u>Items Allocated</u>
		Page 3 Lines 3, 5, 6
		Page 8 Line 2
		Page 10 Lines 4, 7, 9, 10, 11
		Page 11 Lines 18, 22
		Page 17 Line 20
4.	DISTRMAIN	Distribution Mains Allocator
	Ratio	Page 31 Line 2 (bottom section)
		<u>Items Allocated</u>
		Page 3 Lines 2, 4

ALLOCATORS, Page 24

Commodity-Related Allocators:

1.	EGAS	Direct Gas Cost Allocator
	Ratio	Page 32 Line 3
		<u>Items Allocated</u>
		Page 9 Line 5
		Page 10 Line 1

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

2.	E904GAS	CGA Bad Debt Allocator
	Ratio	Page 32 Line 4
		<u>Items Allocated</u>
		Page 12 Lines 13, 15
-
3.	EGASB	Direct Gas Cost – Base Distribution Allocator
	Ratio	Page 32 Line 6
		<u>Items Allocated</u>
		Page 13 Line 5

ALLOCATORS, Page 25**Customer-Related Allocators:**

1.	CUST380	Acct 380 – Services
	Ratio	Page 33 Line 1
		<u>Items Allocated</u>
		Page 3 Line 7
-
2.	CUST3813	Acct 381-383 – Meters, Meter Inst, Reg
	Ratio	Page 33 Line 2
		<u>Items Allocated</u>
		Page 3 Lines 8, 9, 10
-
3.	CUST386	Acct 386 – Other Property Customer Premises
	Ratio	Page 33 Line 3
		<u>Items Allocated</u>
		Page 3 Line 11
-
4.	CUST397M	Acct 397 – Communications Equipment METSCAN – Telm
	Ratio	Page 33 Line 4
		<u>Items Allocated</u>
		Page 3 Line 20
-
5.	CUST397I	Acct 397 – Communications Equipment – ITRON
	Ratio	Page 33 Line 5
		<u>Items Allocated</u>
		Page 3 Line 21
-
6.	CUSTDEP	Customer Deposits
	Ratio	Page 33 Line 6
		<u>Items Allocated</u>
		Page 7 Line 1
		Page 16 Line 13

Northern Utilities – New Hampshire Division
Description of Gas Allocation Factors
Items Allocated
All Allocators

7.	CUSTTRAN	Customers Transportation
	Ratio	Page 33 Line 7
		<u>Items Allocated</u>
		Page 8 Lines 14, 15
8.	CUST902	Acct 902 – Meter Read Expense
	Ratio	Page 33 Line 8
		<u>Items Allocated</u>
		Page 12 Line 2
9.	CUST903	Acct 903 – Customer Records & Collections
	Ratio	Page 33 Line 9
		<u>Items Allocated</u>
		Page 12 Line 3
10.	CUST488R	Acct 488 – Reconnect Fee
	Ratio	Page 33 Line 10
		<u>Items Allocated</u>
		Page 8 Line 13
11.	CUST908	Acct 908 – Customer Assistance Expense
	Ratio	Page 33 Line 11
		<u>Items Allocated</u>
		Page 12 Line 19
12.	CUST909	Acct 909 – Information & Instruction Advertising
	Ratio	Page 33 Line 12
		<u>Items Allocated</u>
		Not Used

ALLOCATORS, Page 26

Externally Developed Uncollectible Accounts Allocators:

1.	C904RNH	Residential Non-Heating Rate R-6 & R-11
	Ratio	Page 34 Line 1
		<u>Items Allocated</u>
		Page 12 Line 5

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

2.	C904RH	Residential Heating Rate R-5 & R-10
	Ratio	Page 34 Line 2
		<u>Items Allocated</u>
		Page 12 Line 4
3.	C904G40	Low Load Factor Small Rate G40 & T40
	Ratio	Page 34 Line 3
		<u>Items Allocated</u>
		Page 12 Line 6
4.	C904G41	Low Load Factor Medium Rate G41 & T41
	Ratio	Page 34 Line 4
		<u>Items Allocated</u>
		Page 12 Line 8
5.	C904G42	Low Load Factor Large Rate G42 & T42
	Ratio	Page 34 Line 5
		<u>Items Allocated</u>
		Page 12 Line 10
6.	C904G50	High Load Factor Small Rate G50 & T50
	Ratio	Page 34 Line 6
		<u>Items Allocated</u>
		Page 12 Line 7
7.	C904G51	High Load Factor Medium Rate G51 & T51
	Ratio	Page 34 Line 7
		<u>Items Allocated</u>
		Page 12 Line 9
8.	C904G52	High Load Factor Large Rate G52 & T52
	Ratio	Page 34 Line 8
		<u>Items Allocated</u>
		Page 12 Line 11

Internally Developed Late Payment Charges Allocators:

9.	C488RNH	Residential Non-Heating Rate R-6 & R-11
	Ratio	Page 34 Line 9
		<u>Items Allocated</u>
		Page 8 Line 5

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

10.	C488RH	Residential Heating Rate R-5 & R-10
	Ratio	Page 34 Line 10
		<u>Items Allocated</u>
		Page 8 Line 4
11.	C488G40	Low Load Factor Small Rate G40 & T40
	Ratio	Page 34 Line 11
		<u>Items Allocated</u>
		Page 8 Line 6
12.	C488G41	Low Load Factor Medium Rate G41 & T41
	Ratio	Page 34 Line 12
		<u>Items Allocated</u>
		Page 8 Line 8
13.	C488G42	Low Load Factor Large Rate G42 & T42
	Ratio	Page 34 Line 13
		<u>Items Allocated</u>
		Page 8 Line 10
14.	C488G50	High Load Factor Small Rate G50 & T50
	Ratio	Page 34 Line 14
		<u>Items Allocated</u>
		Page 8 Line 7
15.	C488G51	High Load Factor Medium Rate G51 & T51
	Ratio	Page 34 Line 15
		<u>Items Allocated</u>
		Page 8 Line 9
16.	C488G52	High Load Factor Large Rate G52 & T52
	Ratio	Page 34 Line 16
		<u>Items Allocated</u>
		Page 8 Line 11

Internally Developed Working Cash:

17.	WORKCASH	Total Working Cash Allocator
	Ratio	Page 34 Line 26
		<u>Items Allocated</u>
		Page 6 Line 2

ALLOCATORS, Page 27

Internally Developed Allocators:

1. PLT303.2 Acct 303.2 – Intangible Software – 10 Yr
 Ratio Page 35 Line 1
 Items Allocated
 Page 4 Line 1

2. PLT303.3 Acct 303.3 – Intangible Plant – Misc. Software
 Ratio Page 35 Line 2
 Items Allocated
 Page 4 Line 2

3. PLT303 Acct 303 – Miscellaneous Intangible Plant
 Ratio Page 35 Line 3
 Items Allocated
 Page 14 Line 2

4. PLT305 Acct 305 – Structures & Improvements
 Ratio Page 35 Line 4
 Items Allocated
 Page 4 Line 4
 Page 14 Line 6

5. PLT311 Acct 311 – LP Gas Equipment
 Ratio Page 35 Line 5
 Items Allocated
 Page 4 Line 5
 Page 14 Line 7

6. PLT320 Acct 320 – Other Equipment
 Ratio Page 35 Line 6
 Items Allocated
 Page 4 Line 6

7. PLT321 Acct 321 – LNG Equipment
 Ratio Page 35 Line 7
 Items Allocated
 Page 4 Line 7

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

8.	PLT361	Acct 361 – Structures and Improvements
	Ratio	Page 35 Line 8
		<u>Items Allocated</u>
		Page 4 Line 10
9.	PLT362	Acct 362 – Gas Holders
	Ratio	Page 35 Line 9
		<u>Items Allocated</u>
		Page 4 Line 11
10.	PLT363	Acct 363 – Purification Equipment
	Ratio	Page 35 Line 10
		<u>Items Allocated</u>
		Page 4 Line 12
11.	PLT375	Acct 375 – Structures and Improvements
	Ratio	Page 35 Line 11
		<u>Items Allocated</u>
		Page 5 Line 1
		Page 11 Line 10
		Page 15 Line 1
12.	PLT376	Acct 376 – Mains
	Ratio	Page 35 Line 12
		<u>Items Allocated</u>
		Page 5 Line 2
		Page 11 Line 11
		Page 15 Line 2
13.	PLT37680	Acct 376 – Mains & 380 – Services
	Ratio	Page 35 Line 13
		<u>Items Allocated</u>
		Page 7 Line 2
		Page 11 Line 3
14.	PLT378	Acct 378 – Measuring and Regulating Station Equipment
	Ratio	Page 35 Line 14
		<u>Items Allocated</u>
		Page 5 Line 3
		Page 11 Lines 2, 4, 12, 13, 14
		Page 15 Line 3
		Page 20 Line 3

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

15.	PLT379	Acct 379 – Measuring & Regulating City Gate
	Ratio	Page 35 Line 15
		<u>Items Allocated</u>
		Page 5 Line 4
		Page 15 Line 4
16.	PLT380	Acct 380 - Services
	Ratio	Page 35 Line 16
		<u>Items Allocated</u>
		Page 5 Line 5
		Page 11 Line 16
		Page 15 Line 5
17.	PLT380C	Acct 380 – Services – Commercial
	Ratio	Page 35 Line 17
		<u>Items Allocated</u>
		Page 8 Line 18
18.	PLT380R	Acct 380 – Services – Residential
	Ratio	Page 35 Line 18
		<u>Items Allocated</u>
		Page 8 Line 20
19.	PLT3803	Acct. 380-383 – Services, Meters and Regulators
	Ratio	Page 35 Line 19
		<u>Items Allocated</u>
		Page 8 Line 19
		Page 11 Line 6
20.	PLT381	Acct 381 – Meters
	Ratio	Page 35 Line 20
		<u>Items Allocated</u>
		Page 5 Line 6
		Page 15 Line 6
21.	PLT3813	Acct 381-383 – Meter & House Regulators
	Ratio	Page 35 Line 21
		<u>Items Allocated</u>
		Page 11 Lines 5, 17

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

22.	PLT382	Acct 382 – Meter Installation
	Ratio	Page 35 Line 22
		<u>Items Allocated</u>
		Page 5 Line 7
		Page 15 Line 7
23.	PLT383	Acct 383 – House Regulators
	Ratio	Page 35 Line 23
		<u>Items Allocated</u>
		Page 5 Line 8
		Page 15 Line 8
24.	PLT386	Acct 386 – Other Property Customer Premises
	Ratio	Page 35 Line 24
		<u>Items Allocated</u>
		Page 5 Line 9
		Page 8 Line 17
		Page 11 Lines 19, 20
		Page 13 Line 6
		Page 15 Line 9
25.	PLT391	Acct 391 – Office Furniture & Equipment
	Ratio	Page 35 Line 25
		<u>Items Allocated</u>
		Page 5 Line 11
		Page 15 Line 11
26.	PLT392	Acct 392 – Transportation Equipment
	Ratio	Page 35 Line 26
		<u>Items Allocated</u>
		Page 5 Line 12
27.	PLT393	Acct 393 – Stores Equipment
	Ratio	Page 35 Line 27
		<u>Items Allocated</u>
		Page 5 Line 13
		Page 15 Line 12
28.	PLT394	Acct 394 – Tools, Shop & Garage Equipment
	Ratio	Page 35 Line 28
		<u>Items Allocated</u>
		Page 5 Line 14
		Page 15 Line 13

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

29.	PLT396	Acct 396 – Power Operated Equipment
	Ratio	Page 35 Line 29
		<u>Items Allocated</u>
		Page 5 Line 15
		Page 15 Line 14
30.	PLT397	Acct 397 – Communications Equipment
	Ratio	Page 35 Line 30
		<u>Items Allocated</u>
		Page 5 Line 16
		Page 15 Line 15
31.	PLT397M	Acct 397 – Communication Equipment METSCAN – Tele
	Ratio	Page 35 Line 31
		<u>Items Allocated</u>
		Page 5 Line 17
		Page 8 Line 16
		Page 15 Line 16
32.	PLT397I	Acct 397 – Communication Equipment – ITRON
	Ratio	Page 35 Line 32
		<u>Items Allocated</u>
		Page 5 Line 18
		Page 15 Line 18
33.	PSPLT	Total Production and Storage Plant
	Ratio	Page 35 Line 33
		<u>Items Allocated</u>
		Page 14 Line 10
34.	DISTOTH	Distribution Structures, Mains and M&R
	Ratio	Page 35 Line 34
		<u>Items Allocated</u>
		Page 3 Line 1
35.	DISTRPLT	Total Distribution Plant
	Ratio	Page 35 Line 35
		<u>Items Allocated</u>
		Page 3 Lines 16, 17, 18
		Page 6 Lines 4, 5
		Page 19 Line 1
		Page 21 Line 14

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Northern Utilities – New Hampshire Division
Description of Gas Allocation Factors
Items Allocated
All Allocators

36. GENPLT Total General Plant Excluding 397M & 397I
Ratio Page 35 Line 36
 Items Allocated
 Page 8 Lines 22, 23
 Page 13 Lines 16, 17
37. PLANT Total Gas Plant in Service
Ratio Page 35 Line 37
 Items Allocated
 Page 5 Line 20
 Page 6 Line 8
 Page 7 Lines 4, 7, 9, 10
 Page 13 Line 7
 Page 14 Lines 1, 3, 4
 Page 15 Line 19
 Page 16 Lines 6, 10
 Page 17 Lines 6, 9, 21, 22, 24, 25, 26, 28
 Page 18 Lines 1, 12, 17, 19, 20, 21

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Internally Developed Allocators:

1. EXP717 Acct 717 – Propane Expenses
Ratio Page 36 Line 1
 Items Allocated
 Page 19 Line 3
2. EXP718 Acct 718 – Dispatching Production
Ratio Page 36 Line 2
 Items Allocated
 Page 19 Line 4
3. EXP735 Acct 735 – Miscellaneous
Ratio Page 36 Line 3
 Items Allocated
 Page 19 Line 5
4. EXP741 Acct 741 – Maintenance of Plant
Ratio Page 36 Line 4
 Items Allocated
 Page 19 Line 8

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

5.	EXP742	Acct 742 – Maintenance of Equipment
	Ratio	Page 36 Line 5
		<u>Items Allocated</u>
		Page 19 Line 9
6.	EXP743	Acct 743 – Gas System Production Training
	Ratio	Page 36 Line 6
		<u>Items Allocated</u>
		Page 19 Line 10
7.	GASCOSTS	Total Gas Costs
	Ratio	Page 36 Line 7
		<u>Items Allocated</u>
		Page 9 Line 3
		Page 10 Lines 3, 8
8.	EXP813	Acct 813 – Other Gas Supply Expense
	Ratio	Page 36 Line 8
		<u>Items Allocated</u>
		Page 9 Line 14
		Page 19 Line 13
9.	EXP851	Acct 851 – System Control & Dispatch
	Ratio	Page 36 Line 9
		<u>Items Allocated</u>
		Page 11 Line 15
		Page 20 Line 2
10.	EXP8519	Acct 857-879 – Distribution Operating Expense
	Ratio	Page 36 Line 10
		<u>Items Allocated</u>
		Page 11 Line 7
11.	EXP857	Acct 857 – Measuring & Regulating Station Expense
	Ratio	Page 36 Line 11
		<u>Items Allocated</u>
		Not Used
12.	EXP874	Acct 874 – Mains & Service Expense
	Ratio	Page 36 Line 12
		<u>Items Allocated</u>
		Page 20 Line 4

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Northern Utilities – New Hampshire Division
Description of Gas Allocation Factors
Items Allocated
All Allocators

13.	EXP875	Ratio	Acct 875 – Regulating Station Equipment Page 36 Line 13 <u>Items Allocated</u> Page 20 Line 5
14.	EXP878	Ratio	Acct 878 – Meter & House Regulator Expense Page 36 Line 14 <u>Items Allocated</u> Page 20 Line 6
15.	EXP879	Ratio	Acct 879 – Customer Installation Expense Page 36 Line 15 <u>Items Allocated</u> Page 20 Line 7
16.	EXP880	Ratio	Acct 880 – Other Expense Page 36 Line 16 <u>Items Allocated</u> Page 20 Line 8
17.	EXP886	Ratio	Acct. 886 – Maintenance Structures and Improvements Page 36 Line 17 <u>Items Allocated</u> Page 20 Line 11
18.	EXP894	Ratio	Acct. 894 – Maintenance of Other Equipment Page 36 Line 18 <u>Items Allocated</u> Page 20 Line 18
19.	EXP887	Ratio	Acct 887 – Maintenance of Mains Page 36 Line 19 <u>Items Allocated</u> Page 20 Line 12
20.	EXP889	Ratio	Acct 889 – Maintenance of M&R Station Equipment Page 36 Line 20 <u>Items Allocated</u> Page 20 Line 13
21.	EXP890	Ratio	Acct 890 – Maintenance of Regulating Equipment (Industrial) Page 36 Line 21 <u>Items Allocated</u> Page 20 Line 14

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Description of Gas Allocation Factors
Items Allocated
All Allocators

22.	EXP891	Acct 891 – Maintenance of Regulating Equipment (City Gate)
	Ratio	Page 36 Line 22
		<u>Items Allocated</u>
		Page 20 Line 15
23.	EXP892	Acct 892 – Maintenance of Services
	Ratio	Page 36 Line 23
		<u>Items Allocated</u>
		Page 20 Line 16
24.	EXP893	Acct 893 – Maintenance of Meters & House Regulators
	Ratio	Page 36 Line 24
		<u>Items Allocated</u>
		Page 20 Line 17
25.	EXP902	Acct 902 – Meter Reading Expense
	Ratio	Page 36 Line 25
		<u>Items Allocated</u>
		Page 20 Line 22
26.	EXP903	Acct 903 – Customer Records & Collections
	Ratio	Page 36 Line 26
		<u>Items Allocated</u>
		Page 13 Line 18
		Page 20 Line 23
27.	EXP904	Acct 904 – Uncollectible Accounts
	Ratio	Page 36 Line 27
		<u>Items Allocated</u>
		Page 7 Line 6
		Page 17 Line 17
		Page 18 Line 15
28.	EXP904B	Acct 904 – Uncollectible Accounts Expense Base
	Ratio	Page 36 Line 28
		<u>Items Allocated</u>
		Page 12 Line 14
29.	EXP909	Acct 909 – Info & Instructional Advertising
	Ratio	Page 36 Line 29
		<u>Items Allocated</u>
		Page 21 Line 2

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

30.	EXP920	Acct 920 – Administrative & General Salary
	Ratio	Page 36 Line 30
		<u>Items Allocated</u>
		Not Used
31.	EXP921	Acct. 921 – Office Supplies and Expense
	Ratio	Page 36 Line 31
		<u>Items Allocated</u>
		Not Used
32.	EXP923	Acct 923 – Outside Services Employed
	Ratio	Page 36 Line 32
		<u>Items Allocated</u>
		Not Used
33.	EXP925	Acct. 925 – Injuries and Damages
	Ratio	Page 36 Line 33
		<u>Items Allocated</u>
		Not Used
34.	EXP9245	Acct. 924 & 925 Property and Liability Insurance
	Ratio	Page 36 Line 34
		<u>Items Allocated</u>
		Page 7 Line 11
		Page 13 Line 9
		Page 17 Line 19
		Page 18 Line 22
35.	EXP926	Acct. 926 – Employee Pension and Benefits
	Ratio	Page 36 Line 35
		<u>Items Allocated</u>
		Page 6 Lines 9, 10
		Page 7 Line 5
36.	EXP930	Acct 930 – Miscellaneous General Expense
	Ratio	Page 36 Line 36
		<u>Items Allocated</u>
		Not Used
37.	EXP935	Acct 935 – Maintenance of General Plant
	Ratio	Page 36 Line 37
		<u>Items Allocated</u>
		Page 21 Line 11

Northern Utilities – New Hampshire Division
Description of Gas Allocation Factors
Items Allocated
All Allocators

Northern Utilities New Hampshire Division
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ALLOCATORS, Page 29

Internally Developed Allocators:

1. LABPO	Gas Production Labor Accts 717-735
Ratio	Page 37 Line 1
	<u>Items Allocated</u>
	Page 19 Line 2
2. LABPM	Gas Production Labor Accts 741-743
Ratio	Page 37 Line 2
	<u>Items Allocated</u>
	Page 19 Line 7
3. LABDO	Distribution Labor Operating Accts 851-882
Ratio	Page 37 Line 3
	<u>Items Allocated</u>
	Page 20 Line 1
4. LABDM	Distribution Labor Maintenance Accts 886-894
Ratio	Page 37 Line 4
	<u>Items Allocated</u>
	Page 20 Line 10
5. LABCA	Customer Accounts Labor Accts 902-903
Ratio	Page 37 Line 5
	<u>Items Allocated</u>
	Page 20 Line 21
6. LABSE	Customer Service & Information Acct 908
Ratio	Page 37 Line 6
	<u>Items Allocated</u>
	Page 21 Line 1
7. TLABPO	Total Gas Production Operation Labor
Ratio	Page 37 Line 7
	<u>Items Allocated</u>
	Page 9 Line 1
8. TLABPM	Total Gas Production Maintenance Labor
Ratio	Page 37 Line 8
	<u>Items Allocated</u>
	Page 9 Line 9

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

9.	TLABDO Ratio	Total Distribution Operation Labor Page 37 Line 9 <u>Items Allocated</u> Page 11 Line 1
10.	TLABDM Ratio	Total Distribution Maintenance Labor Page 37 Line 10 <u>Items Allocated</u> Page 11 Line 9
11.	DISTLAB Ratio	Total Distribution Labor Page 37 Line 11 <u>Items Allocated</u> Page 11 Line 23
12.	TLABCA Ratio	Total Customer Accounts Labor Page 37 Line 12 <u>Items Allocated</u> Page 12 Line 1
13.	TLABSE Ratio	Customer Service & Information Labor Page 37 Line 13 <u>Items Allocated</u> Page 12 Line 18
14.	LABORXAG Ratio	Total Gas Labor Excluding A&G Page 37 Line 14 <u>Items Allocated</u> Page 21 Lines 4, 5, 6, 7, 8, 9
15.	OMLAB Ratio	Total Gas O&M Labor Page 37 Line 15 <u>Items Allocated</u> Page 13 Line 19
16.	LABOR Ratio	Sum of Allocated Labor Expense Page 37 Line 16 <u>Items Allocated</u> Page 2 Lines 1, 2 Page 3 Lines 13, 14, 15, 19 Page 13 Lines 1, 2, 3, 4, 8, 10, 13, 14 Page 16 Lines 1, 2, 3, 5, 8, 9 Page 17 Lines 20, 23 Page 18 Lines 13, 14

Northern Utilities – New Hampshire Division**Description of Gas Allocation Factors****Items Allocated****All Allocators**

17. Intentionally blank

18. DEFTAX Deferred Income Taxes Preliminary

Ratio Page 37 Line 18

Items Allocated

Page 18 Line 23

19. REVCLAIM Revenue Claimed ROR Less Gas Costs

Ratio Page 37 Line 19

Items Allocated

Page 7 Line 8

Page 13 Lines 11, 12

Page 17 Lines 12, 13, 14, 16, 18

Page 18 Lines 3, 4, 9, 10, 16, 18

Schedule DLG/PMN-1G-8

Rate Design Summary

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
CONFIDENTIAL

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
			Existing	Weather Normalized Sales			Existing Blocking		Winter Blocks		Summer Blocks	
		Annual	Customer	Winter	Summer	Total	Winter	Summer	First	Second	First	Second
	CURRENT RATES (excl Special Contract)	Customers	Charges	(Therms)	(Therms)	Therms	Therms	Therms	Therms	Therms	Therms	Therms
7	R-5 Residential, Heating	270,640	\$21.36	13,629,443	3,024,302	16,653,745	50	50	5,789,680	7,839,764	2,642,288	382,014
8	R-10 Residential Heating, Low Income	12,052	\$21.36	550,183	117,000	667,183	50	50	267,004	283,179	108,201	8,800
9	Total Heating	282,692		14,179,626	3,141,302	17,320,928			6,056,684	8,122,942	2,750,488	390,814
10				81.86%	18.14%	100.00%			42.71%	57.29%	87.56%	12.44%
12	R-6 Residential, Non-Heating	16,602	\$21.36	149,417	89,014	238,432	10	10	54,848	94,570	55,551	33,463
13	R-11 Residential Non-Heating, Low Income	48	\$21.36	258	384	641	10	10	168	90	253	131
14	Total Non-Heating	16,650		149,675	89,398	239,073			55,015	94,660	55,804	33,594
15				62.61%	37.39%	100.00%			36.76%	63.24%	62.42%	37.58%
17	G-40/T-40 Low Annual, High Winter Use	58,925	\$67.45	8,032,954	1,305,858	9,338,812	75	75	1,839,901	6,193,053	729,110	576,749
18				86.02%	13.98%	100.00%			22.90%	77.10%	55.83%	44.17%
19	G-50/T-50 Low Annual, Low Winter Use	9,708	\$67.45	915,888	764,917	1,680,805	75	75	218,399	697,489	219,197	545,720
20				54.49%	45.51%	100.00%			23.85%	76.15%	28.66%	71.34%
21	Total Low Annual Use	68,633		8,948,841	2,070,775	11,019,617			2,058,299	6,890,542	948,307	1,122,468
24	G-41/T-41 Medium Annual, High Winter Use	8,266	\$196.73	10,640,539	2,508,973	13,149,512			10,640,539		2,508,973	
25				80.92%	19.08%	100.00%			100.00%		100.00%	
26	G-51/T-51 Medium Annual, Low Winter Use	3,103	\$196.73	2,611,047	1,871,201	4,482,248	1,300	1,000	1,631,320	979,727	1,234,616	636,585
27				58.25%	41.75%	100.00%			62.48%	37.52%	65.98%	34.02%
28	Total Medium Annual Use	11,368		13,251,586	4,380,174	17,631,760			12,271,859	979,727	3,743,590	636,585
31	G-42/T-42 High Annual, High Winter Use	450	\$1,124.19	5,047,220	1,710,865	6,758,085			5,047,220		1,710,865	
32				74.68%	25.32%	100.00%			100.00%		100.00%	
33	G-52/T-52 High Annual, Low Winter Use	386	\$1,124.19	9,238,799	7,699,964	16,938,763			9,238,799		7,699,964	
34				54.54%	45.46%	100.00%			100.00%		100.00%	
35	Total Large Annual Use	836		14,286,019	9,410,829	23,696,848			14,286,019		9,410,829	
38	Total	380,179		50,815,747	19,092,478	69,908,226			34,727,877	16,087,870	16,909,018	2,183,460
39				72.69%	27.31%	100.00%			68.34%	31.66%	88.56%	11.44%

Notes: Therm Percentage Seasonal to Annual Total Therm Block Percentages to Seasonal Total
Annual Customr, Existing Customer Charges, Therm Rate Charges, and Weather Normalized Therms are included in the Rate Design Workpapers

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
CONFIDENTIAL

		(A)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)
1							Marginal Cost of Service Results						
2			Existing Dist Charges Per Therm				Existing		Equalized	Revenue	Percent	Proposed	
3		CURRENT RATES	Winter		Summer		Cust Charge	Existing	Existing	ROR	Increase	Increase	Increases
4		(excl Special Contract)	First	Second	First	Second	Revenues	Revenues	ROR	8.3% Rev Req	to Equalize	Equal ROR	Capped @
5													17.23%
6													
7	R-5	Residential, Heating	\$0.6239	\$0.5103	\$0.5449	\$0.5449	\$5,780,863	\$15,041,618					
8	R-10	Residential Heating, Low Income	\$0.6239	\$0.5103	\$0.5449	\$0.5449	\$257,439	\$632,282					
9		Total Heating	\$0.6239	\$0.5103	\$0.5449	\$0.5449	\$6,038,302	\$15,673,900	5.11%	\$18,463,533	\$2,789,633	17.80%	\$2,700,343
10							38.52%						
11													
12	R-6	Residential, Non-Heating	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$354,628	\$455,103					
13	R-11	Residential Non-Heating, Low Income	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$1,022	\$1,293					
14		Total Non-Heating	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$355,651	\$456,396	-3.34%	\$773,798	\$317,402	69.55%	\$78,629
15							77.93%	\$948					
16													
17	G-40/T-40	Low Annual, High Winter Use	\$0.1615	\$0.1615	\$0.1615	\$0.1615	\$3,974,496	\$5,482,714	7.37%	\$6,051,323	\$568,608	10.37%	\$944,577
18							72.49%						
19	G-50/T-50	Low Annual, Low Winter Use	\$0.1615	\$0.1615	\$0.1615	\$0.1615	\$654,774	\$926,224	9.13%	\$763,063	(\$163,161)	-17.62%	\$159,572
20							70.69%						
21		Total Low Annual Use						\$6,408,938		\$6,814,385	\$405,447		\$1,104,149
22													
23													
24	G-41/T-41	Medium Annual, High Winter Use	\$0.2098		\$0.1622		\$1,626,074	\$4,265,414	8.04%	\$5,145,582	\$880,168	20.63%	\$734,857
25							38.12%						
26	G-51/T-51	Medium Annual, Low Winter Use	\$0.1520	\$0.1238	\$0.1183	\$0.0958	\$610,423	\$1,186,714	6.71%	\$1,093,864	(\$92,850)	-7.82%	\$204,450
27							51.44%						
28		Total Medium Annual Use						\$5,452,129		6,239,446	\$787,317		\$939,308
29													
30													
31	G-42/T-42	High Annual, High Winter Use	\$0.1764		\$0.1066		\$506,035	\$1,578,743	7.90%	\$1,877,664	\$298,920	18.93%	\$271,990
32							32.05%						
33	G-52/T-52	High Annual, Low Winter Use	\$0.1541		\$0.0707		\$433,375	\$2,401,462	5.55%	\$2,209,261	(\$192,200)	-8.00%	\$413,730
34							18.05%						
35		Total Large Annual Use						\$3,980,205		\$4,086,925	\$106,720		\$685,721
36													
37													
38		Total					\$14,199,130	\$31,971,567	6.12%	\$36,378,086	\$4,406,520	13.78%	\$5,508,149
39						Existing \$	44.41%			125% cap	1.25		-\$1,101,630
40						Proposed \$	39.03%			Capped Incr. on Base \$	17.23%	\$ Rev shortfall	due to cap
41													
42												10.00%	

Notes:

- (1) Column (R) includes a weather adjustment - see Workpapers
(2) Column (S) Page 3 of 8, Column (AE)

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
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	(A)	(X)	(Y)	(Z)	(AA)	(AB)	(AC)	(AD)	(AE)	(AF)	(AG)
1											
2											
3		Shortfall \$		Class %		Initial	Final	Embedded COS Results			
4		Allocation	Class	Increase to	Target Rev	Base	Base	Using Marginal Revenues			
5		<u>To Equal ROR</u>	<u>Increase</u>	<u>Total Dollars</u>	<u>Req for Class</u>	<u>Percent</u>	<u>Percent</u>	Proposed	Existing		
6								<u>Rate of Returns</u>			
7											
8	R-5	Residential, Heating									
9	R-10	Residential Heating, Low Income									
10		Total Heating	\$2,700,343	61.28%	\$18,374,242	17.23%	17.23%	8.15%	5.11%		
11											
12	R-6	Residential, Non-Heating									
13	R-11	Residential Non-Heating, Low Income									
14		Total Non-Heating	\$78,629	1.78%	\$535,025	17.23%	17.23%	-1.34%	-3.34%		
15											
16											
17	G-40/T-40	Low Annual, High Winter Use	(\$658,889)	\$285,688	6.48%	\$5,768,402	5.21%	8.53%	7.37%		
18											
19	G-50/T-50	Low Annual, Low Winter Use	(\$83,085)	\$76,487	1.74%	\$1,002,711	8.26%	9.98%	9.13%		
20											
21		Total Low Annual Use	\$362,175	8.22%	\$6,771,113		5.66%				
22											
23											
24	G-41/T-41	Medium Annual, High Winter Use		\$734,857	16.68%	\$5,000,272	17.23%	10.66%	8.04%		
25											
26	G-51/T-51	Medium Annual, Low Winter Use	(\$119,104)	\$85,347	1.94%	\$1,272,061	7.19%	7.78%	6.71%		
27											
28		Total Medium Annual Use	\$820,204	18.61%	\$6,272,333		15.06%				
29											
30											
31	G-42/T-42	High Annual, High Winter Use		\$271,990	6.17%	\$1,850,733	17.23%	10.10%	7.90%		
32											
33	G-52/T-52	High Annual, Low Winter Use	(\$240,552)	\$173,178	3.93%	\$2,574,640	7.21%	6.21%	5.55%		
34											
35		Total Large Annual Use	\$445,169	10.10%	\$4,425,373		11.15%				
36											
37											
38		Total	(\$1,101,630)	\$4,406,520	100.00%	\$36,378,086	13.78%	13.78%	8.30%	6.12%	
39											
40			\$4,406,520								
41		Notes:									
42		(1) Column (Y) = Page 2 of 8 Columns (W) + Page 3 of 8 Column (X))									
43		(2) Column (AA) = Page 2 of 8 Column (R) + Page 3 of 8 Column (Y)									
44		(3) Column (AB) = Page 3 of 8 Column (Y) / Page 2 of 8 Column (R)									
45		(4) Column (AC) Page 6 of 8 Column (AE)									
46		(5) Column (AD) Schedule DLG/PMN-1G-3, Pages 43 and 44, Line 19									
47		(6) Column (AE) Schedule DLG/PMN-1G-2, Pages 1 and 2, Line 22									

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
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	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	
48			Marginal Cost Study										
49	CURRENT & PROPOSED RATES (excl Special Contract)			Existing	@ Company	Proposed	Proposed	Existing Dist Charges Per Therm				Existing	
50			Annual	Customer	ROR	Customer	Cust Chg	Winter		Summer		Block Differential	
51			<u>Customers ⁽¹⁾</u>	<u>Charge</u>	<u>Cust \$ ⁽²⁾</u>	<u>Charges</u>	<u>Increase</u>	<u>First</u>	<u>Second</u>	<u>First</u>	<u>Second</u>	<u>Winter</u>	<u>Summer</u>
52													
53	R-5	Residential, Heating	270,640	\$21.36		\$25.00	17.04%	\$0.6239	\$0.5103	\$0.5449	\$0.5449	\$0.1136	\$0.0000
54	R-10	Residential Heating, Low Income	12,052	\$21.36		\$25.00	17.04%	\$0.6239	\$0.5103	\$0.5449	\$0.5449	\$0.1136	\$0.0000
55		Total Heating	282,692		\$52.45	\$25.00		\$0.6239	\$0.5103	\$0.5449	\$0.5449		
56													
57													
58	R-6	Residential, Non-Heating	16,602	\$21.36		\$25.00	17.04%	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.0000	\$0.0000
59	R-11	Residential Non-Heating, Low Income	48	\$21.36		\$25.00	17.04%	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.0000	\$0.0000
60		Total Non-Heating	16,650		\$50.24	\$25.00		\$0.4214	\$0.4214	\$0.4214	\$0.4214		
61							67.54%						
62													
63	G-40/T-40	Low Annual, High Winter Use	58,925	\$67.45	\$62.61	\$77.50	14.90%	\$0.1615	\$0.1615	\$0.1615	\$0.1615	\$0.0000	\$0.0000
64													
65	G-50/T-50	Low Annual, Low Winter Use	9,708	\$67.45	\$61.59	\$77.50	14.90%	\$0.1615	\$0.1615	\$0.1615	\$0.1615	\$0.0000	\$0.0000
66													
67		Total Low Annual Use	68,633										
68													
69													
70	G-41/T-41	Medium Annual, High Winter Use	8,266	\$196.73	\$148.22	\$225.00	14.37%	\$0.2098		\$0.1622		W/S DIFF	\$0.0476
71													
72	G-51/T-51	Medium Annual, Low Winter Use	3,103	\$196.73	\$137.84	\$225.00	14.37%	\$0.1520	\$0.1238	\$0.1183	\$0.0958	\$0.0282	\$0.0225
73													
74		Total Medium Annual Use	11,368										
75													
76													
77	G-42/T-42	High Annual, High Winter Use	450	\$1,124.19	\$348.98	\$1,290.00	14.75%	\$0.1764		\$0.1066		\$0.0698	
78													
79	G-52/T-52	High Annual, Low Winter Use	386	\$1,124.19	\$288.12	\$1,290.00	14.75%	\$0.1541		\$0.0707		\$0.0834	
80													
81		Total Large Annual Use	836										
82													
83													
84		Total	380,179										

Note:

(1) Page 1 of 8, Column (B)

(2) Schedule DLG/PMN-2G-2, Table 14, Page 2 of 2, Line 9

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
CONFIDENTIAL

	(A)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)
48												
49	CURRENT & PROPOSED RATES	Proposed Charges					Proposed	Proposed		Existing		
50	(excl Special Contract)						Average	Block Differential		Block Differential		
51		Winter		Summer			Rate	Winter	Summer	Winter	Summer	
52		<u>First</u>	<u>Second</u>	<u>First</u>	<u>Second</u>							
53	R-5 Residential, Heating	\$0.7204	\$0.6068	\$0.6414	\$0.6414			\$0.1136	\$0.0000	\$0.1136	\$0.0000	
54	R-10 Residential Heating, Low Income	\$0.7204	\$0.6068	\$0.6414	\$0.6414			\$0.1136	\$0.0000	\$0.1136	\$0.0000	
55	Total Heating	\$0.7204	\$0.6068	\$0.6414	\$0.6414		\$0.6528					
56		15.47%	18.91%	17.71%	17.71%							
57												
58	R-6 Residential, Non-Heating	\$0.4968	\$0.4968	\$0.4968	\$0.4968			\$0.0000	\$0.0000	\$0.0000	\$0.0000	
59	R-11 Residential Non-Heating, Low Income	\$0.4968	\$0.4968	\$0.4968	\$0.4968			\$0.0000	\$0.0000	\$0.0000	\$0.0000	
60	Total Non-Heating	\$0.4968	\$0.4968	\$0.4968	\$0.4968		\$0.4968					
61		17.89%	17.89%	17.89%	17.89%							
62												
63	G-40/T-40 Low Annual, High Winter Use	\$0.1318	\$0.1318	\$0.1318	\$0.1318			\$0.0000	\$0.0000	\$0.0000	\$0.0000	
64		-18.39%	-18.39%	-18.39%	-18.39%							
65	G-50/T-50 Low Annual, Low Winter Use	\$0.1318	\$0.1318	\$0.1318	\$0.1318			\$0.0000	\$0.0000	\$0.0000	\$0.0000	
66		-18.39%	-18.39%	-18.39%	-18.39%		\$0.1318					
67	Total Low Annual Use											
68												
69						W/S DIFF						
70	G-41/T-41 Medium Annual, High Winter Use	\$0.2469		\$0.1993		\$0.0476	\$0.3803					
71		17.68%		22.87%								
72	G-51/T-51 Medium Annual, Low Winter Use	\$0.1546	\$0.1264	\$0.1209	\$0.0984		\$0.1280	\$0.0282	\$0.0225	\$0.0282	\$0.0225	
73		1.71%	2.10%	2.20%	2.71%							
74	Total Medium Annual Use											
75												
76												
77	G-42/T-42 High Annual, High Winter Use	\$0.2055		\$0.1357		\$0.0698	\$0.1879					
78		16.50%		27.30%								
79	G-52/T-52 High Annual, Low Winter Use	\$0.1605		\$0.0771		\$0.0834	\$0.1226					
80		4.15%		9.05%								
81	Total Large Annual Use											
82												
83												
84	Total											
85												
86												
87												
88												
89												

Note:
Block Percentages are Proposed Increase to Existing Charges from Page 2 of 8

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
CONFIDENTIAL

		(A)	(X)	(Y)	(Z)	(AA)	(AB)	(AC)	(AD)	(AE)	(AF)	(AG)
48												
49	CURRENT & PROPOSED RATES											
50	(excl Special Contract)											
51		Customer	Customer	Proposed Revenue Recovery				Total	Final			Variance
52		Costs	Charges	Winter Therms	Summer Therms	First Block	Second Block	Revenues	Proposed	Class Target		due to
53	R-5 Residential, Heating	\$14,194,946	\$6,765,991	\$4,170,885	\$4,757,168	\$1,694,763	\$245,024	\$17,633,832	17.23%			
54	R-10 Residential Heating, Low Income	\$632,142	\$301,309	\$192,350	\$171,833	\$69,400	\$5,644	\$740,536	17.12%			
55	Total Heating		\$7,067,301	\$4,363,235	\$4,929,001	\$1,764,163	\$250,668	\$18,374,368	17.23%	\$18,374,242		\$126
56			38.46%	23.75%	26.83%	9.60%	1.36%	100.00%				
57												
58	R-6 Residential, Non-Heating	\$834,136	\$415,061	\$27,247	\$46,981	\$27,597	\$16,624	\$533,510	17.23%			
59	R-11 Residential Non-Heating, Low Income	\$2,405	\$1,197	\$83	\$45	\$126	\$65	\$1,515	17.22%			
60	Total Non-Heating		\$416,258	\$27,331	\$47,025	\$27,723	\$16,689	\$535,025	17.23%	\$535,025		\$0
61			77.80%	5.11%	8.79%	5.18%	3.12%	100.00%				C&I ADJ FCTR
62												100.20%
63	G-40/T-40 Low Annual, High Winter Use	\$3,689,030	\$4,566,693	242,499	\$816,244	96,097	\$76,015	\$5,797,548	5.74%	\$5,768,402		
64			78.77%	4.18%	14.08%	1.66%	1.31%	100.00%				
65	G-50/T-50 Low Annual, Low Winter Use	\$597,935	\$752,335	28,785	\$91,929	28,890	\$71,926	\$973,865	5.14%	\$1,002,711		
66			77.25%	2.96%	9.44%	2.97%	7.39%	100.00%				
67	Total Low Annual Use		\$5,319,028	\$271,284	\$908,173	\$124,987	\$147,941	\$6,771,413	5.66%	\$6,771,113		\$300
68				0.0049								
69												
70	G-41/T-41 Medium Annual, High Winter Use	\$1,225,151	\$1,859,740	2,627,149		500,038		\$4,986,927	16.92%	\$5,000,272		
71			37.29%	52.68%		10.03%		100.00%				
72	G-51/T-51 Medium Annual, Low Winter Use	\$427,691	\$698,141	252,202	\$123,837	149,265	\$62,640	\$1,286,085	8.37%	\$1,272,061		
73			54.28%	19.61%	9.63%	11.61%	4.87%	100.00%				
74	Total Medium Annual Use		\$2,557,881	\$2,879,351	\$123,837	\$649,303	\$62,640	\$6,273,013	15.06%	\$6,272,333		\$680
75												
76												
77	G-42/T-42 High Annual, High Winter Use	\$157,087	\$580,672	\$1,037,204		\$232,164		\$1,850,040	17.18%	\$1,850,733		
78			31.39%	56.06%		12.55%		100.00%				
79	G-52/T-52 High Annual, Low Winter Use	\$111,072	\$497,295	\$1,482,827		\$593,667		\$2,573,790	7.18%	\$2,574,640		
80			19.32%	57.61%		23.07%		100.00%				
81	Total Large Annual Use		\$1,077,967	\$2,520,031		\$825,832		\$4,423,830	11.15%	\$4,425,373		-\$1,544
82												
83												
84	Total	\$21,871,595	\$16,438,434	\$10,061,232	\$6,008,037	\$3,392,008	\$477,938	\$36,377,649	13.78%	\$36,378,086		-\$438
85		60.12%	45.19%	27.66%	16.52%	9.32%	1.31%	100.00%				
86												
87	Note:											
88	Revenue Recovery by Proposed Rate Components as a Percent of Total Proposed Revenues.											
89												

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
CONFIDENTIAL

	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
		Cost Study			Accounting Cost of Service Results @ 8.3% Equalized ROR				Marginal Cost of Service Results @ 8.3% Equalized ROR			
	CURRENT & PROPOSED RATES (excl Special Contract)	Existing Customer Charge	Proposed Customer Charges	Proposed Cust Chg Increase	Revenue (1) Total \$	Percent Increase	Customer (2) \$/Mo/Cust	FAC Charge(3) \$/Mo/Cust 23.04%	Revenue Total \$	Percent Increase	Customer \$/Mo/Cust	FAC Charge(4) \$/Mo/Cust 23.04%
95	R-5 Residential, Heating	\$21.36	\$25.00	17.04%								
96	R-10 Residential Heating, Low Income	\$21.36	\$25.00	17.04%								
97	Total Heating				\$18,516,675	18.14%	\$51.63	\$3.62	\$18,463,533	17.80%	\$52.45	\$4.43
99	R-6 Residential, Non-Heating	\$21.36	\$25.00	17.04%								
100	R-11 Residential Non-Heating, Low Income	\$21.36	\$25.00	17.04%								
101	Total Non-Heating				\$903,352	97.93%	\$50.85	\$0.73	\$773,798	69.55%	\$50.24	\$0.67
103	G-40/T-40 Low Annual, High Winter Use	\$67.45	\$77.50	14.90%	\$5,718,474	4.30%	\$62.21	\$9.68	\$6,051,323	10.37%	\$62.61	\$14.02
104	G-50/T-50 Low Annual, Low Winter Use	\$67.45	\$77.50	14.90%	\$888,412	-4.08%	\$61.77	\$8.22	\$763,063	-17.62%	\$61.59	\$5.65
107	G-41/T-41 Medium Annual, High Winter Use	\$196.73	\$225.00	14.37%	\$4,273,306	0.19%	\$184.66	\$93.84	\$5,145,582	20.63%	\$148.22	\$117.30
108	G-51/T-51 Medium Annual, Low Winter Use	\$196.73	\$225.00	14.37%	\$1,332,032	12.25%	\$180.86	\$70.32	\$1,093,864	-7.82%	\$137.84	\$51.15
109	Therms											
110	Block Differential Adjustment Rate											
112	Proposed Therm Rates											
113	Proposed Revenue Recovery											
116	G-42/T-42 High Annual, High Winter Use	\$1,124.19	\$1,290.00	14.75%	\$1,613,549	2.20%	\$650.93	\$833.22	\$1,877,664	18.93%	\$348.98	\$885.25
117	G-52/T-52 High Annual, Low Winter Use	\$1,124.19	\$1,290.00	14.75%	\$3,132,286	30.43%	\$899.77	\$2,058.82	\$2,209,261	-8.00%	\$288.12	\$1,280.21
120	Total				\$36,378,086	13.78%			\$36,378,086	13.78%		

Notes:

- (1) Accounting Cost - Schedule DLG/PMN-1G-6, Pages 5 and 6 of 8, Line 20
 (2) Accounting Cost - Schedule DLG/PMN-1G-6, Pages 7 and 8 of 8, Line 19
 (3) Accounting Cost - Schedule DLG/PMN-1G-6, Pages 6 and 7 of 9, Line 5 / line 24 * 23.04% (percent of cost for 2" and below mains)
 (4) Facilities Charge(FC): (Marginal Study Schedule DLG/PMN-2G-2, Table 14, Line 38 - Column (H)) * 24.04%
 Reference Workpapers - Local Distribution Fixed Cost Factor

NU - NH DIVISION 2017 PROPOSED GAS RATE DESIGN
CONFIDENTIAL

	(A)	(M)	(N)	(O)	(P)	(Q)	(R)	(S)	(T)	(U)	(V)	(W)
90												
91	CURRENT & PROPOSED RATES	Proposed Charges						Proposed Charges				
92	(excl Special Contract)	Winter		Summer				Block Differential				
93		<u>First</u>	<u>Second</u>	<u>First</u>	<u>Second</u>	<u>Total</u>		<u>Winter</u>	<u>Summer</u>	<u>First</u>	<u>Second</u>	
94												
95	R-5 Residential, Heating											
96	R-10 Residential Heating, Low Income											
97	Total Heating											
98												
99	R-6 Residential, Non-Heating											
100	R-11 Residential Non-Heating, Low Income											
101	Total Non-Heating											
102												
103	G-40/T-40 Low Annual, High Winter Use											
104	G-50/T-50 Low Annual, Low Winter Use											
105												
106												
107	G-41/T-41 Medium Annual, High Winter Use											
108	G-51/T-51 Medium Annual, Low Winter Use											
109	Therms	1,631,320	979,727	1,234,616	636,585	4,482,248						
110	Block Differential Adjustment Rate	\$0.0282	\$0.0280	\$0.0225								
111												
112	Proposed Therm Rates	0.1546	0.1264	0.1209	0.0984		\$576,464	0.0282	0.0225	0.0337	0.0280	
113	Proposed Revenue Recovery	\$252,202	\$123,837	\$149,265	\$62,640	\$587,945	\$11,481 Diff					
114				REV ADJ FA	0.7650							
115												
116	G-42/T-42 High Annual, High Winter Use											
117	G-52/T-52 High Annual, Low Winter Use											
118												
119												
120	Total											
121												
122												
123												
124												
125												
126												
127												
128												

Schedule DLG/PMN-1G-9

Typical Bill Impacts

Northern Utilities - NH Division
Residential Heating Customer - R5
Proposed Rates versus Present Rates
Winter

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
Delivery and Supply					
10.0%	8.26	\$33.15	\$37.65	\$4.51	13.6%
20.0%	26.13	\$58.62	\$65.01	\$6.38	10.9%
30.0%	41.73	\$80.88	\$88.90	\$8.02	9.9%
40.0%	56.24	\$100.87	\$110.42	\$9.55	9.5%
50.0%	70.90	\$120.11	\$131.19	\$11.08	9.2%
60.0%	86.45	\$140.53	\$153.24	\$12.72	9.0%
70.0%	104.48	\$164.19	\$178.80	\$14.61	8.9%
80.0%	126.94	\$193.68	\$210.65	\$16.97	8.8%
90.0%	158.18	\$234.69	\$254.93	\$20.25	8.6%
100.0%	243.66	\$346.90	\$376.12	\$29.22	8.4%
Average	92.30	\$148.20	\$161.53	\$13.33	9.0%
Distribution Only					
10.0%	8.26	\$26.52	\$30.95	\$4.44	16.7%
20.0%	26.13	\$37.66	\$43.82	\$6.16	16.4%
30.0%	41.73	\$47.39	\$55.06	\$7.67	16.2%
40.0%	56.24	\$55.74	\$64.81	\$9.07	16.3%
50.0%	70.90	\$63.22	\$73.70	\$10.48	16.6%
60.0%	86.45	\$71.16	\$83.14	\$11.98	16.8%
70.0%	104.48	\$80.35	\$94.08	\$13.72	17.1%
80.0%	126.94	\$91.82	\$107.71	\$15.89	17.3%
90.0%	158.18	\$107.76	\$126.66	\$18.90	17.5%
100.0%	243.66	\$151.38	\$178.53	\$27.15	17.9%
Average	92.30	\$74.14	\$86.69	\$12.55	16.9%
Present Rates			Proposed Rates		
Customer Charge (\$/customer)		\$21.36 (1)	Customer Charge (\$/customer)		
Distribution Charge - First 50 therms (\$/thm)		\$0.6239 (1)	Distribution Charge - First 50 therms (\$/thm)		
Distribution Charge - Excess 50 therms (\$/thm)		\$0.5103 (1)	Distribution Charge - Excess 50 therms (\$/thm)		
LDAC (\$/thm)		\$0.0489 (1)	LDAC (\$/thm)		
COG (\$/thm)		\$0.7535 (2)	COG (\$/thm)		

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
Residential Heating Customer - R5
Proposed Rates versus Present Rates
Summer

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	0.00	\$21.36	\$25.00	\$3.64	17.0%
20.0%	2.61	\$23.91	\$27.83	\$3.91	16.4%
30.0%	6.85	\$28.07	\$32.43	\$4.36	15.5%
40.0%	10.34	\$31.48	\$36.20	\$4.73	15.0%
50.0%	13.64	\$34.71	\$39.78	\$5.07	14.6%
60.0%	17.10	\$38.09	\$43.53	\$5.44	14.3%
70.0%	21.29	\$42.20	\$48.08	\$5.88	13.9%
80.0%	27.06	\$47.85	\$54.33	\$6.48	13.5%
90.0%	37.40	\$57.97	\$65.54	\$7.57	13.1%
100.0%	75.30	\$95.07	\$106.62	\$11.55	12.1%
Average	21.16	\$42.07	\$47.93	\$5.86	13.9%
<u>Distribution Only</u>					
10.0%	0.00	\$21.36	\$25.00	\$3.64	17.0%
20.0%	2.61	\$22.78	\$26.67	\$3.89	17.1%
30.0%	6.85	\$25.09	\$29.39	\$4.30	17.1%
40.0%	10.34	\$26.99	\$31.63	\$4.64	17.2%
50.0%	13.64	\$28.79	\$33.75	\$4.96	17.2%
60.0%	17.10	\$30.68	\$35.97	\$5.29	17.2%
70.0%	21.29	\$32.96	\$38.66	\$5.69	17.3%
80.0%	27.06	\$36.11	\$42.36	\$6.25	17.3%
90.0%	37.40	\$41.74	\$48.99	\$7.25	17.4%
100.0%	75.30	\$62.39	\$73.30	\$10.91	17.5%
Average	21.16	\$32.89	\$38.57	\$5.68	17.3%
<u>Present Rates</u>			<u>Proposed Rates</u>		
Customer Charge (\$/customer)		\$21.36 (1)	Customer Charge (\$/customer)		
Distribution Charge - First 50 therms (\$/thm)		\$0.5449 (1)	Distribution Charge - First 50 therms (\$/thm)		
Distribution Charge - Excess 50 therms (\$/thm)		\$0.5449 (1)	Distribution Charge - Excess 50 therms (\$/thm)		
LDAC (\$/thm)		\$0.0489 (1)	LDAC (\$/thm)		
COG (\$/thm)		\$0.3850 (2)	COG (\$/thm)		

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
Residential Low Income Heating Customer - R10
Proposed Rates versus Present Rates
Winter

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Present Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	13.42	\$22.66	\$24.75	\$2.09	9.2%
20.0%	30.86	\$41.00	\$43.92	\$2.91	7.1%
30.0%	43.75	\$54.57	\$58.09	\$3.52	6.5%
40.0%	55.35	\$66.52	\$70.59	\$4.07	6.1%
50.0%	66.76	\$78.01	\$82.61	\$4.60	5.9%
60.0%	79.29	\$90.63	\$95.82	\$5.19	5.7%
70.0%	93.47	\$104.90	\$110.76	\$5.86	5.6%
80.0%	112.63	\$124.18	\$130.95	\$6.77	5.4%
90.0%	140.35	\$152.08	\$160.15	\$8.07	5.3%
100.0%	207.60	\$219.77	\$231.01	\$11.24	5.1%
Average	84.35	\$95.71	\$101.15	\$5.43	5.7%
<u>Distribution Only</u>					
10.0%	13.42	\$11.89	\$13.87	\$1.98	16.6%
20.0%	30.86	\$16.24	\$18.89	\$2.65	16.3%
30.0%	43.75	\$19.46	\$22.61	\$3.15	16.2%
40.0%	55.35	\$22.11	\$25.71	\$3.60	16.3%
50.0%	66.76	\$24.44	\$28.48	\$4.04	16.5%
60.0%	79.29	\$27.00	\$31.52	\$4.52	16.7%
70.0%	93.47	\$29.89	\$34.96	\$5.07	17.0%
80.0%	112.63	\$33.80	\$39.61	\$5.81	17.2%
90.0%	140.35	\$39.46	\$46.34	\$6.88	17.4%
100.0%	207.60	\$53.19	\$62.66	\$9.47	17.8%
Average	84.35	\$28.03	\$32.75	\$4.72	16.8%
<u>Present Rates</u>		<u>Proposed Rates</u>			
Customer Charge (\$/customer)		\$8.54 (1)		\$10.00 (3)	
Distribution Charge - First 50 therms (\$/thm)		\$0.2496 (1)		\$0.2882 (3)	
Distribution Charge - Excess 50 therms (\$/thm)		\$0.2041 (1)		\$0.2427 (3)	
LDAC (\$/thm)		\$0.0489 (1)		\$0.0489 (1)	
COG (\$/thm)		\$0.7535 (2)		\$0.7620 (4)	

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
Residential Low Income Heating Customer - R10
Proposed Rates versus Present Rates
Summer

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Present Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	0.09	\$8.60	\$10.06	\$1.46	17.0%
20.0%	3.46	\$10.80	\$12.42	\$1.62	15.0%
30.0%	7.52	\$13.44	\$15.26	\$1.82	13.5%
40.0%	10.44	\$15.34	\$17.30	\$1.95	12.7%
50.0%	13.36	\$17.25	\$19.34	\$2.09	12.1%
60.0%	16.33	\$19.18	\$21.42	\$2.23	11.6%
70.0%	20.10	\$21.64	\$24.05	\$2.41	11.1%
80.0%	25.06	\$24.88	\$27.52	\$2.64	10.6%
90.0%	34.33	\$30.92	\$34.00	\$3.08	10.0%
100.0%	64.97	\$50.89	\$55.41	\$4.53	8.9%
Average	19.57	\$21.29	\$23.68	\$2.38	11.2%
<u>Distribution Only</u>					
10.0%	0.09	\$8.56	\$10.02	\$1.46	17.1%
20.0%	3.46	\$9.29	\$10.89	\$1.59	17.1%
30.0%	7.52	\$10.18	\$11.93	\$1.75	17.2%
40.0%	10.44	\$10.81	\$12.68	\$1.86	17.2%
50.0%	13.36	\$11.45	\$13.43	\$1.98	17.3%
60.0%	16.33	\$12.10	\$14.19	\$2.09	17.3%
70.0%	20.10	\$12.92	\$15.16	\$2.24	17.3%
80.0%	25.06	\$14.00	\$16.43	\$2.43	17.4%
90.0%	34.33	\$16.02	\$18.81	\$2.79	17.4%
100.0%	64.97	\$22.70	\$26.67	\$3.97	17.5%
Average	19.57	\$12.80	\$15.02	\$2.22	17.3%
<u>Present Rates</u>		<u>Proposed Rates</u>			
Customer Charge (\$/customer)		\$8.54 (1)		\$10.00 (3)	
Distribution Charge - First 50 therms (\$/thm)		\$0.2179 (1)		\$0.2566 (3)	
Distribution Charge - Excess 50 therms (\$/thm)		\$0.2179 (1)		\$0.2566 (3)	
LDAC (\$/thm)		\$0.0489 (1)		\$0.0489 (1)	
COG (\$/thm)		\$0.3850 (2)		\$0.3935 (4)	

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

- (1) Current seasonal rates
- (2) 6 month average seasonal COG
- (3) Proposed Rates, Schedule DLG/PMN-1G-8
- (4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
 Residential Non-Heating Customer - R6
 Proposed Rates versus Present Rates
 Summer

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Present Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	0.00	\$21.36	\$25.00	\$3.64	17.0%
20.0%	0.84	\$22.08	\$25.79	\$3.71	16.8%
30.0%	2.36	\$23.37	\$27.21	\$3.84	16.4%
40.0%	4.47	\$25.18	\$29.20	\$4.01	15.9%
50.0%	6.84	\$27.21	\$31.42	\$4.21	15.5%
60.0%	8.97	\$29.04	\$33.43	\$4.39	15.1%
70.0%	11.19	\$30.93	\$35.51	\$4.58	14.8%
80.0%	13.87	\$33.22	\$38.03	\$4.80	14.5%
90.0%	18.00	\$36.76	\$41.91	\$5.15	14.0%
100.0%	36.07	\$52.21	\$58.88	\$6.67	12.8%
Average	10.26	\$30.14	\$34.64	\$4.50	14.9%
<u>Distribution Only</u>					
10.0%	0.00	\$21.36	\$25.00	\$3.64	17.0%
20.0%	0.84	\$21.71	\$25.42	\$3.70	17.1%
30.0%	2.36	\$22.35	\$26.17	\$3.82	17.1%
40.0%	4.47	\$23.24	\$27.22	\$3.98	17.1%
50.0%	6.84	\$24.24	\$28.40	\$4.16	17.1%
60.0%	8.97	\$25.14	\$29.46	\$4.32	17.2%
70.0%	11.19	\$26.08	\$30.56	\$4.48	17.2%
80.0%	13.87	\$27.20	\$31.89	\$4.69	17.2%
90.0%	18.00	\$28.95	\$33.94	\$5.00	17.3%
100.0%	36.07	\$36.56	\$42.92	\$6.36	17.4%
Average	10.26	\$25.68	\$30.10	\$4.41	17.2%
<u>Present Rates</u>		<u>Proposed Rates</u>			
Customer Charge (\$/customer)		\$21.36 (1)		\$25.00 (3)	
Distribution Charge - First 10 therms (\$/thm)		\$0.4214 (1)		\$0.4968 (3)	
Distribution Charge - Excess 10 therms (\$/thm)		\$0.4214 (1)		\$0.4968 (3)	
LDAC (\$/thm)		\$0.0489 (1)		\$0.0489 (1)	
COG (\$/thm)		\$0.3850 (2)		\$0.3935 (4)	

- (1) Current seasonal rates
 (2) 6 month average seasonal COG
 (3) Proposed Rates, Schedule DLG/PMN-1G-8
 (4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
General Service - Low Annual, High Winter Use - G40
Proposed Rates versus Present Rates
Winter

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	4.43	\$71.70	\$81.65	\$9.96	13.9%
20.0%	27.64	\$93.94	\$103.40	\$9.46	10.1%
30.0%	54.57	\$119.75	\$128.64	\$8.89	7.4%
40.0%	86.90	\$150.73	\$158.94	\$8.21	5.4%
50.0%	126.77	\$188.95	\$196.31	\$7.36	3.9%
60.0%	177.28	\$237.36	\$243.65	\$6.29	2.7%
70.0%	245.10	\$302.36	\$307.21	\$4.85	1.6%
80.0%	338.06	\$391.45	\$394.33	\$2.88	0.7%
90.0%	484.85	\$532.13	\$531.90	(\$0.23)	0.0%
100.0%	923.90	\$952.93	\$943.40	(\$9.54)	-1.0%
Average	246.95	\$304.13	\$308.94	\$4.81	1.6%
<u>Distribution Only</u>					
10.0%	4.43	\$68.17	\$78.08	\$9.92	14.6%
20.0%	27.64	\$71.91	\$81.14	\$9.23	12.8%
30.0%	54.57	\$76.26	\$84.69	\$8.43	11.1%
40.0%	86.90	\$81.48	\$88.95	\$7.47	9.2%
50.0%	126.77	\$87.92	\$94.21	\$6.28	7.1%
60.0%	177.28	\$96.08	\$100.87	\$4.78	5.0%
70.0%	245.10	\$107.03	\$109.80	\$2.77	2.6%
80.0%	338.06	\$122.05	\$122.06	\$0.01	0.0%
90.0%	484.85	\$145.75	\$141.40	(\$4.35)	-3.0%
100.0%	923.90	\$216.66	\$199.27	(\$17.39)	-8.0%
Average	246.95	\$107.33	\$110.05	\$2.72	2.5%
<u>Present Rates</u>		<u>Proposed Rates</u>			
Customer Charge (\$/customer)		\$67.45 (1)		\$77.50 (3)	
Distribution Charge - First 75 therms (\$/thm)		\$0.1615 (1)		\$0.1318 (3)	
Distribution Charge - Excess 75 therms (\$/thm)		\$0.1615 (1)		\$0.1318 (3)	
LDAC (\$/thm)		\$0.0296 (2)		\$0.0296 (4)	
CGA (\$/thm)		\$0.7673 (2)		\$0.7758 (4)	

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
General Service - Low Annual, High Winter Use - G40
Proposed Rates versus Present Rates
Summer

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
Delivery and Supply					
10.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
20.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
30.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
40.0%	1.16	\$68.17	\$78.19	\$10.03	14.7%
50.0%	5.41	\$70.80	\$80.73	\$9.94	14.0%
60.0%	11.70	\$74.68	\$84.48	\$9.80	13.1%
70.0%	23.50	\$81.98	\$91.53	\$9.55	11.7%
80.0%	45.46	\$95.55	\$104.64	\$9.09	9.5%
90.0%	87.78	\$121.72	\$129.91	\$8.19	6.7%
100.0%	249.91	\$221.95	\$226.70	\$4.75	2.1%
Average	42.49	\$93.72	\$102.87	\$9.15	9.8%
Distribution Only					
10.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
20.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
30.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
40.0%	1.16	\$67.64	\$77.65	\$10.02	14.8%
50.0%	5.41	\$68.32	\$78.21	\$9.89	14.5%
60.0%	11.70	\$69.34	\$79.04	\$9.70	14.0%
70.0%	23.50	\$71.25	\$80.60	\$9.35	13.1%
80.0%	45.46	\$74.79	\$83.49	\$8.70	11.6%
90.0%	87.78	\$81.63	\$89.07	\$7.44	9.1%
100.0%	249.91	\$107.81	\$110.44	\$2.63	2.4%
Average	42.49	\$74.31	\$83.10	\$8.79	11.8%
Present Rates			Proposed Rates		
Customer Charge (\$/customer)		\$67.45 (1)	Customer Charge (\$/customer)		
Distribution Charge - First 75 therms (\$/thm)		\$0.1615 (1)	Distribution Charge - First 75 therms (\$/thm)		
Distribution Charge - Excess 75 therms (\$/thm)		\$0.1615 (1)	Distribution Charge - Excess 75 therms (\$/thm)		
LDAC (\$/thm)		\$0.0296 (2)	LDAC (\$/thm)		
CGA (\$/thm)		\$0.4271 (2)	CGA (\$/thm)		

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
General Service - Low Annual, Low Winter Use - G50
Proposed Rates versus Present Rates
Winter

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
20.0%	2.72	\$69.81	\$79.80	\$9.99	14.3%
30.0%	9.58	\$75.78	\$85.62	\$9.85	13.0%
40.0%	23.28	\$87.68	\$97.24	\$9.56	10.9%
50.0%	47.61	\$108.82	\$117.86	\$9.04	8.3%
60.0%	91.23	\$146.72	\$154.83	\$8.12	5.5%
70.0%	172.70	\$217.51	\$223.90	\$6.39	2.9%
80.0%	300.72	\$328.75	\$332.42	\$3.67	1.1%
90.0%	456.81	\$464.38	\$464.74	\$0.37	0.1%
100.0%	769.53	\$736.10	\$729.84	(\$6.26)	-0.9%
Average	187.42	\$230.30	\$236.38	\$6.08	2.6%
<u>Distribution Only</u>					
10.0%	0.00	\$67.45	\$77.50	\$10.05	14.9%
20.0%	2.72	\$67.89	\$77.86	\$9.97	14.7%
30.0%	9.58	\$69.00	\$78.76	\$9.77	14.2%
40.0%	23.28	\$71.21	\$80.57	\$9.36	13.1%
50.0%	47.61	\$75.14	\$83.78	\$8.64	11.5%
60.0%	91.23	\$82.18	\$89.52	\$7.34	8.9%
70.0%	172.70	\$95.34	\$100.26	\$4.92	5.2%
80.0%	300.72	\$116.02	\$117.13	\$1.12	1.0%
90.0%	456.81	\$141.22	\$137.71	(\$3.52)	-2.5%
100.0%	769.53	\$191.73	\$178.92	(\$12.80)	-6.7%
Average	187.42	\$97.72	\$102.20	\$4.48	4.6%
<u>Present Rates</u>		<u>Proposed Rates</u>			
Customer Charge (\$/customer)		\$67.45	(1)	Customer Charge (\$/customer)	\$77.50 (3)
Distribution Charge - First 75 therms (\$/thm)		\$0.1615	(1)	Distribution Charge - First 75 therms (\$/thm)	\$0.1318 (3)
Distribution Charge - Excess 75 therms (\$/thm)		\$0.1615	(1)	Distribution Charge - Excess 75 therms (\$/thm)	\$0.1318 (3)
LDAC (\$/thm)		\$0.0296	(2)	CGA (\$/thm)	\$0.0296 (4)
CGA (\$/thm)		\$0.6778	(2)	LDAC (\$/thm)	\$0.6863 (4)

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
General Service - Low Annual, Low Winter Use - G50
Proposed Rates versus Present Rates
Summer

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
Delivery and Supply					
10.0%	0.07	\$67.49	\$77.53	\$10.05	14.9%
20.0%	2.86	\$68.99	\$78.98	\$9.99	14.5%
30.0%	8.24	\$71.88	\$81.76	\$9.88	13.7%
40.0%	17.63	\$76.94	\$86.61	\$9.68	12.6%
50.0%	35.77	\$86.69	\$95.99	\$9.29	10.7%
60.0%	71.14	\$105.72	\$114.27	\$8.54	8.1%
70.0%	142.62	\$144.18	\$151.21	\$7.03	4.9%
80.0%	247.68	\$200.70	\$205.50	\$4.80	2.4%
90.0%	372.16	\$267.68	\$269.84	\$2.16	0.8%
100.0%	611.33	\$396.36	\$393.45	(\$2.91)	-0.7%
Average	150.95	\$148.66	\$155.51	\$6.85	4.6%
Distribution Only					
10.0%	0.07	\$67.46	\$77.51	\$10.05	14.9%
20.0%	2.86	\$67.91	\$77.88	\$9.97	14.7%
30.0%	8.24	\$68.78	\$78.59	\$9.81	14.3%
40.0%	17.63	\$70.30	\$79.82	\$9.53	13.6%
50.0%	35.77	\$73.23	\$82.21	\$8.99	12.3%
60.0%	71.14	\$78.94	\$86.88	\$7.94	10.1%
70.0%	142.62	\$90.48	\$96.30	\$5.81	6.4%
80.0%	247.68	\$107.45	\$110.14	\$2.69	2.5%
90.0%	372.16	\$127.55	\$126.55	(\$1.00)	-0.8%
100.0%	611.33	\$166.18	\$158.07	(\$8.11)	-4.9%
Average	150.95	\$91.83	\$97.40	\$5.57	6.1%
Present Rates		Proposed Rates			
Customer Charge (\$/customer)		\$67.45	(1)	Customer Charge (\$/customer)	
Distribution Charge - First 75 therms (\$/thm)		\$0.1615	(1)	Distribution Charge - First 75 therms (\$/thm)	
Distribution Charge - Excess 75 therms (\$/thm)		\$0.1615	(1)	Distribution Charge - Excess 75 therms (\$/thm)	
LDAC (\$/thm)		\$0.0296	(2)	CGA (\$/thm)	
CGA (\$/thm)		\$0.3469	(2)	LDAC (\$/thm)	

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
General Service - Medium Annual, High Winter Use - G41
Proposed Rates versus Present Rates
Winter

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	310.17	\$508.98	\$551.39	\$42.41	8.3%
20.0%	818.65	\$1,020.88	\$1,086.48	\$65.60	6.4%
30.0%	1,089.68	\$1,293.73	\$1,371.69	\$77.96	6.0%
40.0%	1,314.59	\$1,520.15	\$1,608.36	\$88.22	5.8%
50.0%	1,553.42	\$1,760.59	\$1,859.69	\$99.11	5.6%
60.0%	1,858.38	\$2,067.59	\$2,180.60	\$113.01	5.5%
70.0%	2,313.08	\$2,525.34	\$2,659.09	\$133.75	5.3%
80.0%	3,035.26	\$3,252.38	\$3,419.06	\$166.68	5.1%
90.0%	4,276.44	\$4,501.90	\$4,725.17	\$223.28	5.0%
100.0%	7,338.99	\$7,585.01	\$7,947.94	\$362.93	4.8%
Average	2,390.87	\$2,603.65	\$2,740.95	\$137.29	5.3%
<u>Distribution Only</u>					
10.0%	310.17	\$261.80	\$301.58	\$39.78	15.2%
20.0%	818.65	\$368.48	\$427.13	\$58.64	15.9%
30.0%	1,089.68	\$425.34	\$494.04	\$68.70	16.2%
40.0%	1,314.59	\$472.53	\$549.57	\$77.04	16.3%
50.0%	1,553.42	\$522.64	\$608.54	\$85.90	16.4%
60.0%	1,858.38	\$586.62	\$683.83	\$97.22	16.6%
70.0%	2,313.08	\$682.01	\$796.10	\$114.09	16.7%
80.0%	3,035.26	\$833.53	\$974.41	\$140.88	16.9%
90.0%	4,276.44	\$1,093.93	\$1,280.85	\$186.93	17.1%
100.0%	7,338.99	\$1,736.45	\$2,037.00	\$300.55	17.3%
Average	2,390.87	\$698.33	\$815.30	\$116.97	16.8%
<u>Present Rates</u>			<u>Proposed Rates</u>		
Customer Charge (\$/customer)		\$196.73 (1)	Customer Charge (\$/customer)		\$225.00 (3)
Distribution Charge - All therms (\$/thm)		\$0.2098 (1)	Distribution Charge - All therms (\$/thm)		\$0.2469 (3)
LDAC (\$/thm)		\$0.0296 (2)	LDAC (\$/thm)		\$0.0296 (4)
CGA (\$/thm)		\$0.7673 (2)	CGA (\$/thm)		\$0.7758 (4)

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
General Service - Medium Annual, High Winter Use - G41
Proposed Rates versus Present Rates
Summer

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
10.0%	0.00	\$196.73	\$225.00	\$28.27	14.4%
20.0%	5.88	\$200.37	\$228.91	\$28.54	14.2%
30.0%	39.86	\$221.40	\$251.49	\$30.09	13.6%
40.0%	119.15	\$270.47	\$304.17	\$33.70	12.5%
50.0%	230.97	\$339.67	\$378.48	\$38.80	11.4%
60.0%	364.21	\$422.14	\$467.02	\$44.88	10.6%
70.0%	509.61	\$512.13	\$563.64	\$51.51	10.1%
80.0%	719.54	\$642.06	\$703.14	\$61.08	9.5%
90.0%	1,106.64	\$881.63	\$960.36	\$78.73	8.9%
100.0%	2,524.27	\$1,759.00	\$1,902.38	\$143.38	8.2%
Average	562.01	\$544.56	\$598.46	\$53.90	9.9%
<u>Distribution Only</u>					
10.0%	0.00	\$196.73	\$225.00	\$28.27	14.4%
20.0%	5.88	\$197.68	\$226.17	\$28.49	14.4%
30.0%	39.86	\$203.20	\$232.94	\$29.75	14.6%
40.0%	119.15	\$216.06	\$248.75	\$32.69	15.1%
50.0%	230.97	\$234.19	\$271.03	\$36.84	15.7%
60.0%	364.21	\$255.80	\$297.59	\$41.78	16.3%
70.0%	509.61	\$279.39	\$326.57	\$47.18	16.9%
80.0%	719.54	\$313.44	\$368.41	\$54.97	17.5%
90.0%	1,106.64	\$376.23	\$445.55	\$69.33	18.4%
100.0%	2,524.27	\$606.17	\$728.09	\$121.92	20.1%
Average	562.01	\$287.89	\$337.01	\$49.12	17.1%
<u>Present Rates</u>			<u>Proposed Rates</u>		
Customer Charge (\$/customer)		\$196.73 (1)	Customer Charge (\$/customer)		\$225.00 (3)
Distribution Charge - All therms (\$/thm)		\$0.1622 (1)	Distribution Charge - All therms (\$/thm)		\$0.1993 (3)
LDAC (\$/thm)		\$0.0296 (2)	LDAC (\$/thm)		\$0.0296 (4)
CGA (\$/thm)		\$0.4271 (2)	CGA (\$/thm)		\$0.4356 (4)

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
General Service - Medium Annual, Low Winter Use - G51
Proposed Rates versus Present Rates
Winter

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
Delivery and Supply					
10.0%	335.07	\$484.70	\$516.69	\$31.99	6.6%
20.0%	725.69	\$820.40	\$856.73	\$36.33	4.4%
30.0%	853.10	\$929.90	\$967.63	\$37.74	4.1%
40.0%	971.90	\$1,031.99	\$1,071.05	\$39.06	3.8%
50.0%	1,107.19	\$1,148.26	\$1,188.82	\$40.56	3.5%
60.0%	1,275.87	\$1,293.23	\$1,335.67	\$42.43	3.3%
70.0%	1,495.24	\$1,476.26	\$1,521.13	\$44.87	3.0%
80.0%	1,899.30	\$1,812.12	\$1,861.47	\$49.35	2.7%
90.0%	2,635.60	\$2,424.15	\$2,481.67	\$57.53	2.4%
100.0%	5,025.23	\$4,410.45	\$4,494.50	\$84.05	1.9%
Average	1,632.42	\$1,590.28	\$1,636.67	\$46.39	2.9%
Distribution Only					
10.0%	335.07	\$247.66	\$276.80	\$29.14	11.8%
20.0%	725.69	\$307.04	\$337.19	\$30.16	9.8%
30.0%	853.10	\$326.40	\$356.89	\$30.49	9.3%
40.0%	971.90	\$344.46	\$375.26	\$30.80	8.9%
50.0%	1,107.19	\$365.02	\$396.17	\$31.15	8.5%
60.0%	1,275.87	\$390.66	\$422.25	\$31.59	8.1%
70.0%	1,495.24	\$418.50	\$450.66	\$32.16	7.7%
80.0%	1,899.30	\$468.52	\$501.73	\$33.21	7.1%
90.0%	2,635.60	\$559.68	\$594.80	\$35.12	6.3%
100.0%	5,025.23	\$855.51	\$896.85	\$41.34	4.8%
Average	1,632.42	\$435.48	\$468.00	\$32.51	7.5%
Present Rates		Proposed Rates			
Customer Charge (\$/customer)		\$196.73	(1)	Customer Charge (\$/customer)	
Distribution Charge - First 1,300 therms (\$/thm)		\$0.1520	(1)	Distribution Charge - First 1,300 therms (\$/thm)	
Distribution Charge - Excess 1,300 therms (\$/thm)		\$0.1238	(1)	Distribution Charge - Excess 1,300 therms (\$/thm)	
LDAC (\$/thm)		\$0.0296	(2)	CGA (\$/thm)	
CGA (\$/thm)		\$0.6778	(2)	LDAC (\$/thm)	

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Monthly Bills

Delivery and Supply

Distribution Only

Proposed Rates

Customer Charge (\$/customer)	\$196.73	(1)	Customer Charge (\$/customer)	\$225.00	(3)
Distribution Charge - First 1,000 therms (\$/thm)	\$0.1183	(1)	Distribution Charge - First 1,000 therms (\$/thm)	\$0.1209	(3)
Distribution Charge - Excess 1,000 therms (\$/thm)	\$0.0958	(1)	Distribution Charge - Excess 1,000 therms (\$/thm)	\$0.0984	(3)
LDAC (\$/thm)	\$0.0296	(2)	CGA (\$/thm)	\$0.0296	(4)
CGA (\$/thm)	\$0.3469	(2)	LDAC (\$/thm)	\$0.3554	(4)

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Northern Utilities - NH Division
General Service - High Annual, High Winter Use - G42
Proposed Rates versus Present Rates
Summer

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
Delivery and Supply					
10.0%	194.84	\$1,233.94	\$1,407.08	\$173.14	14.0%
20.1%	466.60	\$1,387.03	\$1,570.38	\$183.35	13.2%
30.1%	1,161.76	\$1,778.61	\$1,988.10	\$209.49	11.8%
40.2%	2,092.77	\$2,303.05	\$2,547.54	\$244.50	10.6%
50.2%	3,103.77	\$2,872.54	\$3,155.06	\$282.51	9.8%
59.8%	3,754.37	\$3,239.03	\$3,546.00	\$306.97	9.5%
69.9%	4,661.49	\$3,750.01	\$4,091.09	\$341.08	9.1%
79.9%	6,258.51	\$4,649.61	\$5,050.74	\$401.13	8.6%
90.0%	8,711.55	\$6,031.41	\$6,524.77	\$493.36	8.2%
100.0%	42,931.93	\$25,307.75	\$27,087.80	\$1,780.05	7.0%
Average	7,333.76	\$5,255.30	\$5,696.86	\$441.56	8.4%
Distribution Only					
10.0%	194.84	\$1,144.96	\$1,316.44	\$171.48	15.0%
20.1%	466.60	\$1,173.93	\$1,353.32	\$179.39	15.3%
30.1%	1,161.76	\$1,248.03	\$1,447.65	\$199.62	16.0%
40.2%	2,092.77	\$1,347.28	\$1,573.99	\$226.71	16.8%
50.2%	3,103.77	\$1,455.05	\$1,711.18	\$256.13	17.6%
59.8%	3,754.37	\$1,524.41	\$1,799.47	\$275.06	18.0%
69.9%	4,661.49	\$1,621.10	\$1,922.56	\$301.46	18.6%
79.9%	6,258.51	\$1,791.35	\$2,139.28	\$347.93	19.4%
90.0%	8,711.55	\$2,052.84	\$2,472.16	\$419.32	20.4%
100.0%	42,931.93	\$5,700.73	\$7,115.86	\$1,415.13	24.8%
Average	7,333.76	\$1,905.97	\$2,285.19	\$379.22	19.9%
Present Rates			Proposed Rates		
Customer Charge (\$/customer)		\$1,124.19	(1)	Customer Charge (\$/customer)	
Distribution Charge - All therms (\$/thm)		\$0.1066	(1)	Distribution Charge - All therms (\$/thm)	
LDAC (\$/thm)		\$0.0296	(2)	LDAC (\$/thm)	
CGA (\$/thm)		\$0.4271	(2)	CGA (\$/thm)	

(1) Current seasonal rates

(2) 6 month average seasonal COG

(3) Proposed Rates, Schedule DLG/PMN-1G-8

(4) 6 month average seasonal COG adjusted for changes due to rate proposal

Northern Utilities - NH Division
 General Service - High Annual, Low Winter Use - G52
 Proposed Rates versus Present Rates
 Winter

Cumulative Percentage of Bills	Average Monthly Usage (Therms)	Monthly Bills @ Present Rates	Monthly Bills @ Proposed Rates	\$ Difference	% Difference
<u>Delivery and Supply</u>					
9.8%	3,102.47	\$3,797.02	\$4,009.05	\$212.04	5.6%
20.1%	9,768.47	\$9,539.89	\$9,851.25	\$311.36	3.3%
29.9%	14,676.19	\$13,767.97	\$14,152.46	\$384.49	2.8%
40.2%	20,424.77	\$18,720.47	\$19,190.61	\$470.14	2.5%
50.0%	24,742.79	\$22,440.52	\$22,974.99	\$534.48	2.4%
59.8%	35,960.92	\$32,105.12	\$32,806.75	\$701.63	2.2%
70.1%	46,755.90	\$41,405.18	\$42,267.65	\$862.47	2.1%
79.9%	54,331.66	\$47,931.82	\$48,907.18	\$975.35	2.0%
90.2%	69,522.58	\$61,019.05	\$62,220.75	\$1,201.70	2.0%
100.0%	191,929.38	\$166,474.55	\$169,500.11	\$3,025.56	1.8%
Average	47,121.51	\$41,720.16	\$42,588.08	\$867.92	2.1%
<u>Distribution Only</u>					
9.8%	3,102.47	\$1,602.28	\$1,787.95	\$185.67	11.6%
20.1%	9,768.47	\$2,629.51	\$2,857.84	\$228.33	8.7%
29.9%	14,676.19	\$3,385.79	\$3,645.53	\$259.74	7.7%
40.2%	20,424.77	\$4,271.65	\$4,568.18	\$296.53	6.9%
50.0%	24,742.79	\$4,937.05	\$5,261.22	\$324.16	6.6%
59.8%	35,960.92	\$6,665.77	\$7,061.73	\$395.96	5.9%
70.1%	46,755.90	\$8,329.27	\$8,794.32	\$465.05	5.6%
79.9%	54,331.66	\$9,496.70	\$10,010.23	\$513.53	5.4%
90.2%	69,522.58	\$11,837.62	\$12,448.37	\$610.75	5.2%
100.0%	191,929.38	\$30,700.51	\$32,094.67	\$1,394.16	4.5%
Average	47,121.51	\$8,385.62	\$8,853.00	\$467.39	5.6%
<u>Present Rates</u>		<u>Proposed Rates</u>			
Customer Charge (\$/customer)		\$1,124.19 (1)	Customer Charge (\$/customer)		
Distribution Charge - All therms (\$/thm)		\$0.1541 (1)	Distribution Charge - All therms (\$/thm)		
LDAC (\$/thm)		\$0.0296 (2)	CGA (\$/thm)		
CGA (\$/thm)		\$0.6778 (2)	LDAC (\$/thm)		
			\$1,290.00 (3)		
			\$0.1605 (3)		
			\$0.0296 (4)		
			\$0.6863 (4)		

- (1) Current seasonal rates
 (2) 6 month average seasonal COG
 (3) Proposed Rates, Schedule DLG/PMN-1G-8
 (4) 6 month average seasonal COG adjusted for changes due to rate proposal

Monthly Bills

- (1) Current seasonal rates
- (2) 6 month average seasonal COG
- (3) Proposed Rates, Schedule DLG/PMN-1G-8
- (4) 6 month average seasonal COG adjusted for changes due to rate proposal

Schedule DLG/PMN-1G-10

Average Monthly Residential Bill Impacts

**Northern Utilities - New Hampshire Division
Typical Residential Heating Bill (R-5)
Bill Impacts Illustrating Changes on a Monthly Basis
Current Rates and Proposed Rates, using 6 month average COGC**

Line		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total Peak	Total Off-Peak	Annual Nov-Oct
No.	<u>Residential Heating (R-5)</u>	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	Test Year Monthly Weather Normalized Therm per Customer	53	97	129	140	117	73	41	22	14	14	14	24	609	129	738
2	Average First Block Therm per Customer	36	45	46	47	45	42	31	21	13	14	13	22	260	114	374
3	Average Excess Block Therm per Customer	17	52	83	94	72	31	10	1	1	1	1	2	349	15	365
4																
5	<u>Current November - October Rates</u>															
6	Customer Charge	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36			
7	Distribution - First 50 therm @	\$0.6239	\$0.6239	\$0.6239	\$0.6239	\$0.6239	\$0.6239	\$0.5449	\$0.5449	\$0.5449	\$0.5449	\$0.5449	\$0.5449			
8	Distribution - Over 50 therm @	\$0.5103	\$0.5103	\$0.5103	\$0.5103	\$0.5103	\$0.5103	\$0.5449	\$0.5449	\$0.5449	\$0.5449	\$0.5449	\$0.5449			
9																
10	LDAC (\$/therm)	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489			
11	COGC (\$/therm)	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.3850	\$0.3850	\$0.3850	\$0.3850	\$0.3850	\$0.3850			
12																
13	TOTAL BILL	\$95.29	\$153.39	\$196.15	\$210.85	\$180.36	\$121.31	\$61.39	\$43.04	\$34.67	\$35.44	\$34.93	\$45.18	\$957	\$255	\$1,212
14																
15																
16	<u>Proposed November - October Rates</u>															
17	Customer Charge	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00			
18	Distribution - First 50 therm @	\$0.7204	\$0.7204	\$0.7204	\$0.7204	\$0.7204	\$0.7204	\$0.6414	\$0.6414	\$0.6414	\$0.6414	\$0.6414	\$0.6414			
19	Distribution - Over 50 therm @	\$0.6068	\$0.6068	\$0.6068	\$0.6068	\$0.6068	\$0.6068	\$0.6414	\$0.6414	\$0.6414	\$0.6414	\$0.6414	\$0.6414			
20																
21	LDAC (\$/therm)	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489			
22	COGC (\$/therm) inc. increment	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.3935	\$0.3935	\$0.3935	\$0.3935	\$0.3935	\$0.3935			
23																
24	TOTAL BILL	\$104.51	\$167.19	\$213.35	\$229.22	\$196.31	\$132.56	\$69.32	\$49.01	\$39.74	\$40.60	\$40.03	\$51.38	\$1,043	\$290	\$1,333
25																
26	<u>Proposed Bill less Current Bill</u>															
27	Total Bill increase/(decrease)	\$9.22	\$13.79	\$17.21	\$18.37	\$15.95	\$11.26	\$7.93	\$5.97	\$5.07	\$5.15	\$5.10	\$6.20	\$86	\$35	\$121
28	Percentage increase/(decrease)	9.7%	9.0%	8.8%	8.7%	8.8%	9.3%	12.9%	13.9%	14.6%	14.5%	14.6%	13.7%	9.0%	13.9%	10.0%

**Northern Utilities - New Hampshire Division
Typical Low Income Residential Heating Bill (R-10)
Bill Impacts Illustrating Changes on a Monthly Basis
Current Rates and Proposed Rates, using 6 month average COGC**

Line														Total	Total	Annual
No.	<u>Low Income Residential Heating (R-10)</u>	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Peak	Off-Peak	Nov-Oct
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
1	Test Year Monthly Weather Normalized Therm per Customer	47	85	115	118	104	68	45	18	12	13	16	23	537	127	664
2	Average First Block Therm per Customer	37	46	47	47	46	43	32	19	12	13	15	22	267	112	379
3	Average Excess Block Therm per Customer	10	39	68	71	57	25	14	(1)	0	0	0	1	271	15	286
4																
5	<u>Current November - October Rates</u>															
6	Customer Charge	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54	\$8.54			
7	Distribution - First 50 therm @	\$0.2496	\$0.2496	\$0.2496	\$0.2496	\$0.2496	\$0.2496	\$0.2179	\$0.2179	\$0.2179	\$0.2179	\$0.2179	\$0.2179			
8	Distribution - Over 50 therm @	\$0.2041	\$0.2041	\$0.2041	\$0.2041	\$0.2041	\$0.2041	\$0.2179	\$0.2179	\$0.2179	\$0.2179	\$0.2179	\$0.2179			
9																
10	LDAC (\$/therm)	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489			
11	COGC (\$/therm)	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.3850	\$0.3850	\$0.3850	\$0.3850	\$0.3850	\$0.3850			
12																
13	TOTAL BILL	\$57.93	\$96.68	\$126.64	\$129.30	\$114.88	\$78.80	\$38.05	\$20.16	\$16.39	\$16.86	\$18.79	\$23.71	\$604	\$134	\$738
14																
15																
16	<u>Proposed November - October Rates</u>															
17	Customer Charge	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00	\$10.00			
18	Distribution - First 50 therm @	\$0.2882	\$0.2882	\$0.2882	\$0.2882	\$0.2882	\$0.2882	\$0.2566	\$0.2566	\$0.2566	\$0.2566	\$0.2566	\$0.2566			
19	Distribution - Over 50 therm @	\$0.2427	\$0.2427	\$0.2427	\$0.2427	\$0.2427	\$0.2427	\$0.2566	\$0.2566	\$0.2566	\$0.2566	\$0.2566	\$0.2566			
20																
21	LDAC (\$/therm)	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489			
22	COGC (\$/therm) inc. increment	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.3935	\$0.3935	\$0.3935	\$0.3935	\$0.3935	\$0.3935			
23																
24	TOTAL BILL	\$61.62	\$102.17	\$133.53	\$136.31	\$121.22	\$83.46	\$41.65	\$22.46	\$18.42	\$18.93	\$20.99	\$26.27	\$638	\$149	\$787
25																
26	<u>Proposed Bill less Current Bill</u>															
27	Total Bill increase/(decrease)	\$3.69	\$5.49	\$6.89	\$7.01	\$6.34	\$4.66	\$3.60	\$2.30	\$2.03	\$2.06	\$2.20	\$2.56	\$34	\$15	\$49
28	Percentage increase/(decrease)	6.4%	5.7%	5.4%	5.4%	5.5%	5.9%	9.5%	11.4%	12.4%	12.2%	11.7%	10.8%	5.6%	11.0%	6.6%

**Northern Utilities - New Hampshire Division
Typical Residential Non-Heating Bill (R-6)
Bill Impacts Illustrating Changes on a Monthly Basis
Current Rates and Proposed Rates, using 6 month average COGC**

Line		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total Peak	Total Off-Peak	Annual Nov-Oct
No.	<u>Residential Non-Heating (R-6)</u>	<u>(1)</u>	<u>(2)</u>	<u>(3)</u>	<u>(4)</u>	<u>(5)</u>	<u>(6)</u>	<u>(7)</u>	<u>(8)</u>	<u>(9)</u>	<u>(10)</u>	<u>(11)</u>	<u>(12)</u>	<u>(13)</u>	<u>(14)</u>	<u>(15)</u>
1	Test Year Monthly Weather Normalized Therm per Customer	12	17	22	23	20	16	13	11	10	9	9	10	110	63	172
2	Average First Block Therm per Customer	7	7	7	7	7	7	7	7	6	6	6	6	41	39	79
3	Average Excess Block Therm per Customer	5	10	15	16	14	9	6	5	4	3	3	3	69	24	93
4																
5	<u>Current November - October Rates</u>															
6	Customer Charge	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36	\$21.36			
7	Distribution - First 10 therm @	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214			
8	Distribution - Over 10 therm @	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214	\$0.4214			
9																
10	LDAC (\$/therm)	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489			
11	COGC (\$/therm)	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.7535	\$0.3850	\$0.3850	\$0.3850	\$0.3850	\$0.3850	\$0.3850			
12																
13	TOTAL BILL	\$35.94	\$42.23	\$47.93	\$49.38	\$46.18	\$40.82	\$32.33	\$31.10	\$29.86	\$29.43	\$29.25	\$29.70	\$262	\$182	\$444
14																
15																
16	<u>Proposed November - October Rates</u>															
17	Customer Charge	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00	\$25.00			
18	Distribution - First 10 therm @	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968			
19	Distribution - Over 10 therm @	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968	\$0.4968			
20																
21	LDAC (\$/therm)	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489	\$0.0489			
22	COGC (\$/therm) inc. increment	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.7620	\$0.3935	\$0.3935	\$0.3935	\$0.3935	\$0.3935	\$0.3935			
23																
24	TOTAL BILL	\$40.58	\$47.30	\$53.39	\$54.94	\$51.52	\$45.79	\$37.04	\$35.70	\$34.33	\$33.86	\$33.66	\$34.16	\$294	\$209	\$502
25																
26	<u>Proposed Bill less Current Bill</u>															
27	Total Bill increase/(decrease)	\$4.64	\$5.07	\$5.46	\$5.56	\$5.34	\$4.97	\$4.72	\$4.60	\$4.47	\$4.43	\$4.41	\$4.46	\$31	\$27	\$58
28	Percentage increase/(decrease)	12.9%	12.0%	11.4%	11.3%	11.6%	12.2%	14.6%	14.8%	15.0%	15.1%	15.1%	15.0%	11.8%	14.9%	13.1%

Schedule DLG/PMN-2G-S

Detail List of Updated Data for Revised Marginal Study

Marginal Cost Summary Results – Table 14

Marginal Cost Workpaper Revision History
Northern Utilities- New Hampshire
2017 Updated Marginal Cost Filing

Revisions for 2017 Filing

<u>No.</u>	<u>Date</u>	<u>Revised Tab</u>	<u>Description</u>
1	5/19/17	General Data	Updated cost of new debt to 4.42%
2	5/19/17	General Data	Updated common stock to 10.30%
3	5/19/17	General Data	Updated long-term debt capital structure to 48.3%
4	5/19/17	General Data	Updated common debt capital structure to 51.7%
5	5/19/17	General Data	Updated incremental income tax rate to 39.894%
6	5/19/17	General Data	Updated property tax rate to 2.099%
7	5/19/17	General Data	Updated forecasted inflation rate to 2.10% adj to 1.60 for technical progress
8	5/19/17	General Data	Updated property tax escalation rate to 2.10%
9	5/19/17	General Data	Updated Rate Year End Date to 2-28-19
10	5/19/17	Working Capital	Updated lag days and working capital (2017 study)
11	5/19/17	Depreciation	Updated depreciation data from 2017 Depreciation Study
12	5/19/17	Class Data	Updated Total Design Day Demands, Therms
13	5/19/17	Class Data	Updated Normalized Calendar Month Sales, Summer and Winter, Therms
14	5/19/17	Class Data	Updated Total Sales and Transportation customers (bills) per month
15	5/19/17	Uncollectibles	Updated Uncollectible Accounts from COS model
16	5/19/17	Uncollectibles	Updated Delivery Revenues by Class
17	5/19/17	Meters & Services	Updated current average cost of meters and services by class
18	5/19/17	Meters & Services	Updated total number of meters and services
19	5/19/17	Del. Rev. Req.	Updated Total Revenue Requirement

Note:

All data was updated in the data source file.

Table - 14
Northern Utilities- New Hampshire
Marginal Cost Study

Derivation of Marginal Prices Equi-Portionately Constrained by Embedded Costs

Line No.	Description	----- Residential -----		----- Small C&I -----		----- Medium C&I -----		----- Large C&I -----		Total Company
		ResNonHt&LI R-6&R-11	ResHt&LI R-5&R-10	SmHiW G-40	SmLoW G-50	MdHiW G-41	MdLoW G-51	LgHiW G-42	LgLoW G-52	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Estimated Delivery Revenue Reqmts {1}									\$36,378,086
2	Total Marginal Annual Revenue Requirements {2}	663,601	15,834,141	5,189,554	654,395	4,412,800	938,087	1,610,266	1,894,640	31,197,484
3	Difference (1) - (2)									5,180,602
4	% Difference (3)/(2)									16.61%
5	Equi-proportional Adjustment (2) x (4)	110,197	2,629,391	861,769	108,668	732,782	155,777	267,398	314,621	5,180,602
6	Marginal Cost Constained to Allowed Revenues (2) + (5)	773,798	18,463,533	6,051,323	763,063	5,145,582	1,093,864	1,877,664	2,209,261	36,378,086
7										
8	Marginal Unit Prices									
9	Customer Unit Costs from Table 13 x [1+ (4)]	\$50.24	\$52.45	\$62.61	\$61.59	\$148.22	\$137.84	\$348.98	\$288.12	
10										
11	WINTER CHARGES									
12	Winter Supply Capacity Cost	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
13	Winter Delivery Pressure Support	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
14	Winter Delivery Reinforcements	\$0.0916	\$0.1176	\$0.1202	\$0.0760	\$0.1211	\$0.0839	\$0.1104	\$0.0736	
15	Winter Delivery Main Ext.	\$0.1912	\$0.2454	\$0.2508	\$0.1586	\$0.2527	\$0.1750	\$0.2304	\$0.1535	
16	Winter Supply Commodity	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
17		\$0.2829	\$0.3631	\$0.3710	\$0.2347	\$0.3738	\$0.2589	\$0.3408	\$0.2271	
18										
19	SUMMER CHARGES									
20	Supply Demand Charge	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
21	Delivery Demand Charge	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
22	Commodity Charge \$'s per Therms	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
23		\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
24	TOTAL CHARGES									
25	<u>Supply Costs</u>									
26	Customer	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
27	Winter, \$/Therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
28	Summer, \$/Therm	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
29	Annual Avg, \$/Therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
30										
31										
32	<u>Delivery</u>									
33	Customer Charges	\$50.24	\$52.45	\$62.61	\$61.59	\$148.22	\$137.84	\$348.98	\$288.12	
34	Winter, \$/Therm	\$0.2829	\$0.3631	\$0.3710	\$0.2347	\$0.3738	\$0.2589	\$0.3408	\$0.2271	
35	Summer, \$/Therm	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
36	Annual Avg, \$/Therm	\$0.1788	\$0.2976	\$0.3194	\$0.1292	\$0.3031	\$0.1506	\$0.2547	\$0.1240	
37	or									
38	Facilities Charge, \$/Month (6) / Annual bills	\$ 53.17	\$ 71.70	\$ 123.45	\$ 86.11	\$ 657.33	\$ 359.82	\$ 4,191.21	\$ 5,844.61	

Notes

- Source: DLG/PMN-1G-2, page 5 of 8, line 12
- Source: Table 12, line 56

Workpapers

Accounting Cost Study

Marginal Cost Study (Updated Schedules from Docket DG 13-086 and Back-up Supporting Workpapers)

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
SUMMARY OF RESULTS-1				
RATE BASE				
1 GAS PLANT IN SERVICE		212,059,660	93,490,278	3,943,147
2 LESS: DEPREC & AMORT RES		67,148,218	31,046,992	1,382,940
3 NET UTILITY PLANT IN SERVICE		144,911,442	62,443,287	2,560,207
ADD:				
4 WORKING CASH REQUIREMENT		1,387,963	716,350	28,771
5 MATERIALS & SUPPLIES		2,421,808	1,053,597	44,353
6 PREPAYMENTS		0	0	0
DEDUCT:				
7 CUSTOMER DEPOSITS		430,588	79,268	4,156
8 CUSTOMER ADVANCES		0	0	0
9 DEFERRED TAXES		16,798,824	7,366,244	308,849
10 RATE BASE		131,491,801	56,767,721	2,320,327
DEVELOPMENT OF RETURN				
11 SALES OF GAS TO ULTIMATE CUST		55,234,662	26,159,490	593,352
12 OTHER OPERATING REVENUES		979,079	323,900	12,835
13 TOTAL GAS OPERATING REVENUES		56,213,741	26,483,390	606,187
LESS:				
14 PURCHASED GAS COSTS		20,951,307	9,655,623	125,522
15 OTHER OPER & MAINT EXPENSE		12,909,475	6,418,177	299,554
16 DEPRECIATION AND AMORTIZATION EXPENSE		7,420,524	3,484,709	157,364
17 OTHER TAXES		4,467,456	1,977,634	83,846
18 INCOME TAXES		2,402,684	2,045,782	17,384
19 INTEREST ON CUSTOMER DEPOSITS		13,346	2,457	129
20 TOTAL OPERATING EXPENSE		48,164,792	23,584,382	683,799
21 NET OPERATING INCOME		8,048,949	2,899,008	(77,612)
22 RATE OF RETURN		6.12%	5.11%	-3.34%
23 RELATIVE RATE OF RETURN		1.000	0.834	-0.546

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
SUMMARY OF RESULTS-1							
RATE BASE							
1	GAS PLANT IN SERVICE	33,907,972	5,077,961	29,346,331	8,651,285	12,516,303	25,126,381
2	LESS: DEPREC & AMORT RES	10,770,643	1,640,702	8,723,262	2,607,793	3,667,701	7,308,184
3	NET UTILITY PLANT IN SERVICE	23,137,329	3,437,260	20,623,069	6,043,491	8,848,602	17,818,197
ADD:							
4	WORKING CASH REQUIREMENT	244,791	39,716	166,597	49,695	56,130	85,914
5	MATERIALS & SUPPLIES	384,408	58,249	338,594	100,667	145,810	296,130
6	PREPAYMENTS	0	0	0	0	0	0
DEDUCT:							
7	CUSTOMER DEPOSITS	143,967	32,651	112,209	58,338	0	0
8	CUSTOMER ADVANCES	0	0	0	0	0	0
9	DEFERRED TAXES	2,677,242	400,399	2,336,283	687,087	1,003,185	2,019,535
10	RATE BASE	20,945,320	3,102,174	18,679,768	5,448,428	8,047,357	16,180,705
DEVELOPMENT OF RETURN							
11	SALES OF GAS TO ULTIMATE CUST	10,515,195	1,680,688	8,325,713	2,324,704	2,754,921	2,880,601
12	OTHER OPERATING REVENUES	360,512	57,444	84,825	26,822	37,646	75,095
13	TOTAL GAS OPERATING REVENUES	10,875,707	1,738,132	8,410,538	2,351,526	2,792,566	2,955,696
LESS:							
14	PURCHASED GAS COSTS	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
15	OTHER OPER & MAINT EXPENSE	2,215,426	339,152	1,576,973	488,343	558,264	1,013,585
16	DEPRECIATION AND AMORTIZATION EXPENSE	1,193,628	182,097	944,444	282,975	393,340	781,965
17	OTHER TAXES	716,329	107,396	615,820	181,936	261,215	523,280
18	INCOME TAXES	595,336	133,892	140,742	16,923	(63,385)	(483,990)
19	INTEREST ON CUSTOMER DEPOSITS	4,462	1,012	3,478	1,808	0	0
20	TOTAL OPERATING EXPENSE	9,332,900	1,454,776	6,908,588	1,985,730	2,157,205	2,057,413
21	NET OPERATING INCOME	1,542,807	283,356	1,501,949	365,795	635,362	898,284
22	RATE OF RETURN	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
23	RELATIVE RATE OF RETURN	1.203	1.492	1.314	1.097	1.290	0.907

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE-2					
GAS PLANT IN SERVICE					
INTANGIBLE PLANT					
1	303.2-INTANGIBLE SOFTWARE - 10YR	LABOR	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	LABOR	3,540,586	1,713,236	80,470
3	TOTAL INTANGIBLE PLANT		3,540,586	1,713,236	80,470
PRODUCTION PLANT					
4	304-LAND	DEMLPG	6,816	3,234	20
5	305-STRUCTURES	DEMLPG	161,860	76,792	474
6	310-LAND & LAND RIGHTS	DEMLPG	0	0	0
7	311-LPG GAS EQUIPMENT	DEMLPG	0	0	0
8	320-OTHER EQUIPMENT	DEMLPG	7,640	3,625	22
9	321-LNG EQUIPMENT	DEMLPG	84,156	39,926	246
10	TOTAL PRODUCTION PLANT		260,472	123,577	762
OTHER STORAGE PLANT					
11	360-LAND	DEMLNG	0	0	0
12	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0
13	362-GAS HOLDERS	DEMLPG	0	0	0
14	363-PURIFICATION EQUIPMENT	DEMLPG	0	0	0
15	TOTAL OTHER STORAGE PLANT		0	0	0
16	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	2,193,573	1,040,711	6,417

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE-2								
GAS PLANT IN SERVICE								
INTANGIBLE PLANT								
1	303.2-INTANGIBLE SOFTWARE - 10YR	LABOR	0	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	LABOR	603,670	92,676	444,367	138,408	162,470	305,288
3	TOTAL INTANGIBLE PLANT		603,670	92,676	444,367	138,408	162,470	305,288
PRODUCTION PLANT								
4	304-LAND	DEMLPG	1,658	50	1,305	138	338	74
5	305-STRUCTURES	DEMLPG	39,367	1,181	30,987	3,272	8,026	1,762
6	310-LAND & LAND RIGHTS	DEMLPG	0	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	DEMLPG	0	0	0	0	0	0
8	320-OTHER EQUIPMENT	DEMLPG	1,858	56	1,463	154	379	83
9	321-LNG EQUIPMENT	DEMLPG	20,468	614	16,111	1,701	4,173	916
10	TOTAL PRODUCTION PLANT		63,351	1,900	49,865	5,266	12,915	2,835
OTHER STORAGE PLANT								
11	360-LAND	DEMLNG	0	0	0	0	0	0
12	361-STRUCTURES & IMPROVE	DEMLPG	0	0	0	0	0	0
13	362-GAS HOLDERS	DEMLPG	0	0	0	0	0	0
14	363-PURIFICATION EQUIPMENT	DEMLPG	0	0	0	0	0	0
15	TOTAL OTHER STORAGE PLANT		0	0	0	0	0	0
16	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	533,514	16,000	419,942	44,347	108,765	23,877

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-3				
DISTRIBUTION PLANT				
1	374.4-LAND RIGHTS	DISTOTH 89,111	23,738	282
2	374.5-RIGHT OF WAY	DISTRMAIN 17,911	4,771	57
3	375-STRUCTURES & IMPROVE	DISTR 2,910,194	775,235	9,220
4	376-MAINS	DISTRMAIN 106,849,866	28,463,298	338,537
5	378-MEAS & REG STATION EQ	DISTR 3,445,431	917,814	10,916
6	379-MEAS & REG CITY GATE	DISTR 39,266	10,460	124
7	380-SERVICES	CUST380 60,250,315	42,480,267	2,487,389
8	381-METERS	CUST3813 3,913,705	2,204,145	129,061
9	382-METER INSTALLATION	CUST3813 19,938,729	11,229,221	657,516
10	383-HOUSE REGULATORS	CUST3813 537,766	302,862	17,734
11	386-CONV BURNERS & WAT HEATER	CUST386 1,637,356	436,169	5,188
12	TOTAL DISTRIBUTION PLANT	199,629,651	86,847,981	3,656,025
GENERAL & COMMON PLANT				
13	389.1-LAND	LABOR 232,947	112,719	5,294
14	391-OFFICE EQUIPMENT	LABOR 420,149	203,304	9,549
15	392-TRANSPORTATION EQUIP	LABOR 0	0	0
16	393-STORES EQUIPMENT	DISTRPLT 31,520	13,713	577
17	394-TOOLS, SHOP & GARAGE EQ	DISTRPLT 1,173,029	510,321	21,483
18	396-POWER OPERATED EQUIP	DISTRPLT 75,266	32,744	1,378
19	397-COMMUNICATION EQUIP	LABOR 1,453,181	703,172	33,028
20	397-COMM EQ METSCAN - TELEMET	CUST397M 112,656	0	0
21	397-COMM EQ - ERT AUTO RDG DEV-G	CUST397I 2,936,629	2,188,800	128,163
22	TOT GENERAL & COMMON PLT	6,435,378	3,764,773	199,473
23	TOTAL GAS PLANT IN SERVICE	212,059,660	93,490,278	3,943,147

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CON'T-3								
DISTRIBUTION PLANT								
1	374.4-LAND RIGHTS	DISTOTH	13,206	1,845	17,942	5,054	8,674	18,369
2	374.5-RIGHT OF WAY	DISTRMAIN	2,654	371	3,606	1,016	1,743	3,692
3	375-STRUCTURES & IMPROVE	DISTR	431,296	60,251	585,955	165,069	283,274	599,894
4	376-MAINS	DISTRMAIN	15,835,343	2,212,176	21,513,751	6,060,627	10,400,593	22,025,541
5	378-MEAS & REG STATION EQ	DISTR	510,619	71,333	693,722	195,428	335,373	710,225
6	379-MEAS & REG CITY GATE	DISTR	5,819	813	7,906	2,227	3,822	8,094
7	380-SERVICES	CUST380	10,033,733	1,658,527	2,109,398	787,280	373,927	319,795
8	381-METERS	CUST3813	739,959	122,312	424,962	158,606	72,583	62,076
9	382-METER INSTALLATION	CUST3813	3,769,788	623,128	2,165,009	808,035	369,782	316,250
10	383-HOUSE REGULATORS	CUST3813	101,675	16,806	58,392	21,793	9,973	8,530
11	386-CONV BURNERS & WAT HEATER	CUST386	242,659	33,899	329,675	92,872	159,378	337,517
12	TOTAL DISTRIBUTION PLANT		31,686,752	4,801,461	27,910,318	8,298,009	12,019,122	24,409,983
GENERAL & COMMON PLANT								
13	389.1-LAND	LABOR	39,717	6,097	29,236	9,106	10,689	20,086
14	391-OFFICE EQUIPMENT	LABOR	71,635	10,998	52,732	16,424	19,280	36,227
15	392-TRANSPORTATION EQUIP	LABOR	0	0	0	0	0	0
16	393-STORES EQUIPMENT	DISTRPLT	5,003	758	4,407	1,310	1,898	3,854
17	394-TOOLS, SHOP & GARAGE EQ	DISTRPLT	186,192	28,214	164,002	48,759	70,625	143,434
18	396-POWER OPERATED EQUIP	DISTRPLT	11,947	1,810	10,523	3,129	4,532	9,203
19	397-COMMUNICATION EQUIP	LABOR	247,768	38,038	182,384	56,807	66,683	125,301
20	397-COMM EQ METSCAN - TELEMET	CUST397M	1,587	4,760	15,867	6,347	38,081	46,015
21	397-COMM EQ - ERT AUTO RDG DEV-G	CUST397I	456,836	75,250	62,688	23,372	1,243	278
22	TOT GENERAL & COMMON PLT		1,020,685	165,925	521,838	165,255	213,031	384,398
23	TOTAL GAS PLANT IN SERVICE		33,907,972	5,077,961	29,346,331	8,651,285	12,516,303	25,126,381

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-4				
DEPRECIATION & AMORTIZATION RESERVE				
INTANGIBLE PLANT RESERVE				
1	303.2-INTANGIBLE SOFTWARE - 10YR	PLT303.2	0	0
2	303.3-INT PLT- MISC SOFTWARE	PLT303.3	2,593,404	58,943
3	TOT INTANGIBLE PLT RESERVE		2,593,404	58,943
PRODUCTION PLANT RESERVE				
4	305-STRUCTURES	PLT305	129,465	379
5	311-LPG GAS EQUIPMENT	PLT311	0	0
6	320-OTHER EQUIPMENT	PLT320	2,756	8
7	321-LNG EQUIPMENT	PLT321	56,611	166
8	TOTAL PRODUCTION RESERVE		188,832	552
9	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	188,832	552
OTHER STORAGE PLANT				
10	361-STRUCTURES & IMPROVE	PLT361	0	0
11	362-GAS HOLDERS	PLT362	0	0
12	363-PURIFICATION EQUIPMENT	PLT363	0	0
13	TOTAL OTHER STORAGE PLANT		0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-4							
DEPRECIATION & AMORTIZATION RESERVE							
INTANGIBLE PLANT RESERVE							
1	303.2-INTANGIBLE SOFTWARE - 10YR	PLT303.2	0	0	0	0	0
2	303.3-INT PLT- MISC SOFTWARE	PLT303.3	442,176	67,883	325,490	101,381	223,617
3	TOT INTANGIBLE PLT RESERVE		442,176	67,883	325,490	101,381	223,617
PRODUCTION PLANT RESERVE							
4	305-STRUCTURES	PLT305	31,488	944	24,785	2,617	6,419
5	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0
6	320-OTHER EQUIPMENT	PLT320	670	20	528	56	137
7	321-LNG EQUIPMENT	PLT321	13,769	413	10,838	1,145	2,807
8	TOTAL PRODUCTION RESERVE		45,927	1,377	36,150	3,818	9,363
9	PROFORMA ADJUSTMNTS - PROD & STOR	DEMLPG	45,927	1,377	36,150	3,818	9,363
OTHER STORAGE PLANT							
10	361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0
11	362-GAS HOLDERS	PLT362	0	0	0	0	0
12	363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0
13	TOTAL OTHER STORAGE PLANT		0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-5					
	DISTRIBUTION PLANT RESERVE				
1	375-STRUCTURES & IMPROVE	PLT375	742,822	197,877	2,354
2	376-MAINS	PLT376	29,105,074	7,753,181	92,215
3	378-MEAS & REG STATION EQ	PLT378	707,635	188,504	2,242
4	379-MEAS & REG CITY GATE	PLT379	1,589	423	5
5	380-SERVICES	PLT380	19,892,215	14,025,265	821,235
6	381-METERS	PLT381	1,541,268	868,021	50,826
7	382-METER INSTALLATION	PLT382	5,924,107	3,336,377	195,358
8	383-HOUSE REGULATORS	PLT383	128,575	72,412	4,240
9	386-CONV BURNERS & WAT HEATER	PLT386	775,908	206,691	2,458
10	TOTAL DISTRIBUTION PLANT		58,819,193	26,648,751	1,170,933
GENERAL & COMMON PLT RESERVE					
11	391-OFFICE EQUIPMENT	PLT391	160,599	77,711	3,650
12	392-TRANSPORTATION EQUIP	PLT392	0	0	0
13	393-STORES EQUIPMENT	PLT393	31,511	13,709	577
14	394-TOOLS, SHOP & GARAGE EQ	PLT394	539,019	234,498	9,872
15	396-POWER OPERATED EQUIP	PLT396	69,923	30,420	1,281
16	397-COMMUNICATION EQUIP	PLT397	1,075,375	520,358	24,441
17	397-COMM EQ METSCAN - TELEMET	PLT397M	109,973	0	0
18	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	1,974,038	1,471,338	86,153
19	TOTAL GENERAL PLT RESERVE		3,960,437	2,348,033	125,973
20	PROFORMA ADJUSTMNTS - OTHER	PLANT	1,397,518	616,121	25,986
21	TOTAL DEPRECIATION RESERVE		67,148,218	31,046,992	1,382,940
22	NET UTILITY PLANT		144,911,442	62,443,287	2,560,207

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CON'T-5								
DISTRIBUTION PLANT RESERVE								
1	375-STRUCTURES & IMPROVE	PLT375	110,088	15,379	149,564	42,134	72,305	153,122
2	376-MAINS	PLT376	4,313,425	602,580	5,860,179	1,650,868	2,833,041	5,999,586
3	378-MEAS & REG STATION EQ	PLT378	104,873	14,651	142,479	40,138	68,880	145,869
4	379-MEAS & REG CITY GATE	PLT379	236	33	320	90	155	328
5	380-SERVICES	PLT380	3,312,732	547,579	696,438	259,928	123,455	105,583
6	381-METERS	PLT381	291,405	48,168	167,356	62,461	28,584	24,446
7	382-METER INSTALLATION	PLT382	1,120,063	185,141	643,258	240,080	109,868	93,963
8	383-HOUSE REGULATORS	PLT383	24,309	4,018	13,961	5,211	2,385	2,039
9	386-CONV BURNERS & WAT HEATER	PLT386	114,991	16,064	156,226	44,010	75,526	159,942
10	TOTAL DISTRIBUTION PLANT		9,392,121	1,433,612	7,829,780	2,344,919	3,314,199	6,684,878
GENERAL & COMMON PLT RESERVE								
11	391-OFFICE EQUIPMENT	PLT391	27,382	4,204	20,156	6,278	7,370	13,848
12	392-TRANSPORTATION EQUIP	PLT392	0	0	0	0	0	0
13	393-STORES EQUIPMENT	PLT393	5,002	758	4,406	1,310	1,897	3,853
14	394-TOOLS, SHOP & GARAGE EQ	PLT394	85,557	12,964	75,360	22,405	32,453	65,909
15	396-POWER OPERATED EQUIP	PLT396	11,099	1,682	9,776	2,906	4,210	8,550
16	397-COMMUNICATION EQUIP	PLT397	183,352	28,148	134,967	42,038	49,347	92,724
17	397-COMM EQ METSCAN - TELEMET	PLT397M	1,549	4,647	15,489	6,196	37,174	44,919
18	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	307,091	50,584	42,140	15,711	836	187
19	TOTAL GENERAL PLT RESERVE		621,031	102,987	302,294	96,845	133,286	229,990
20	PROFORMA ADJUSTMNTS - OTHER	PLANT	223,461	33,465	193,399	57,014	82,485	165,588
21	TOTAL DEPRECIATION RESERVE		10,770,643	1,640,702	8,723,262	2,607,793	3,667,701	7,308,184
22	NET UTILITY PLANT		23,137,329	3,437,260	20,623,069	6,043,491	8,848,602	17,818,197

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-6				
ADDITIONS TO NET PLANT				
WORKING CAPITAL REQUIREMENTS				
CASH WORKING CAPITAL REQ				
1	PURCHASED GAS	0	0	0
2	OTHER O&M & TAXES	1,387,963	716,350	28,771
3	TOTAL CASH WORKING CAP	1,387,963	716,350	28,771
MATERIALS & SUPPLIES				
4	MATERIALS AND SUPPLIES	2,191,928	953,588	40,143
5	STORES EXPENSE UNDISTRIBUTED	229,880	100,008	4,210
6	TOTAL MATERIALS & SUPPLIES	2,421,808	1,053,597	44,353
7	TOTAL WORKING CAPITAL	3,809,771	1,769,946	73,124
PREPAYMENTS				
8	PREPAYMENTS - OTHER	0	0	0
9	PREPAYMENTS - PENSION	0	0	0
10	PREPAYMENTS - OPEB	0	0	0
11	TOTAL PREPAYMENTS	0	0	0
12	TOTAL ADDITIONS TO NET PLT	3,809,771	1,769,946	73,124

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CONT-6							
ADDITIONS TO NET PLANT							
WORKING CAPITAL REQUIREMENTS							
CASH WORKING CAPITAL REQ							
1	PURCHASED GAS		0	0	0	0	0
2	OTHER O&M & TAXES	WORKCASH	244,791	39,716	166,597	49,695	85,914
3	TOTAL CASH WORKING CAP		244,791	39,716	166,597	56,130	85,914
MATERIALS & SUPPLIES							
4	MATERIALS AND SUPPLIES	DISTRPLT	347,920	52,720	306,455	131,970	268,021
5	STORES EXPENSE UNDISTRIBUTED	DISTRPLT	36,488	5,529	32,140	13,840	28,109
6	TOTAL MATERIALS & SUPPLIES		384,408	58,249	338,594	145,810	296,130
7	TOTAL WORKING CAPITAL		629,199	97,965	505,191	201,940	382,044
PREPAYMENTS							
8	PREPAYMENTS - OTHER	PLANT	0	0	0	0	0
9	PREPAYMENTS - PENSION	EXP926	0	0	0	0	0
10	PREPAYMENTS - OPEB	EXP926	0	0	0	0	0
11	TOTAL PREPAYMENTS		0	0	0	0	0
12	TOTAL ADDITIONS TO NET PLT		629,199	97,965	505,191	201,940	382,044

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF RATE BASE CON'T-7				
DEDUCTIONS TO NET PLANT				
1	CUSTOMER DEPOSITS	CUSTDEP 430,588	79,268	4,156
2	CUSTOMER ADVANCES	PLT37680 0	0	0
ACCUM DEFERRED INCOME TAX				
4	ACCEL DEP & AMORT & SETT ADJ	PLANT 17,390,879	7,667,079	323,375
5	FAS 87 / 106	EXP926 (849,723)	(411,168)	(19,312)
6	BAD DEBT	EXP904 (19,530)	(12,951)	(455)
7	PREPAID PROPERTY TAXES	PLANT 225,277	99,317	4,189
8	DEFERRED RATE CASE COSTS	REVCLAIM 18,120	9,187	436
9	UNAMORT ITC (ACCT 255)	PLANT 36,300	16,004	675
10	ACCUM NON-CURRENT	PLANT 418	184	8
11	INSURANCE CLAIM	EXP9245 (2,917)	(1,409)	(66)
12	TOTAL ACCUM DEF INCOME TAX	16,798,824	7,366,244	308,849
13	TOTAL DEDUCTIONS TO NET PLT	17,229,412	7,445,512	313,005
14	TOTAL RATE BASE	131,491,801	56,767,721	2,320,327

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF RATE BASE CON'T-7								
DEDUCTIONS TO NET PLANT								
1	CUSTOMER DEPOSITS	CUSTDEP	143,967	32,651	112,209	58,338	0	0
2	CUSTOMER ADVANCES	PLT37680	0	0	0	0	0	0
ACCUM DEFERRED INCOME TAX								
4	ACCEL DEP & AMORT & SETT ADJ	PLANT	2,780,771	416,440	2,406,674	709,486	1,026,454	2,060,599
5	FAS 87 / 106	EXP926	(144,878)	(22,242)	(106,646)	(33,217)	(38,992)	(73,268)
6	BAD DEBT	EXP904	(2,949)	(439)	(1,810)	(421)	(413)	(93)
7	PREPAID PROPERTY TAXES	PLANT	36,021	5,394	31,175	9,191	13,296	26,692
8	DEFERRED RATE CASE COSTS	REVCLAIM	2,901	442	2,175	664	807	1,507
9	UNAMORT ITC (ACCT 255)	PLANT	5,804	869	5,023	1,481	2,143	4,301
10	ACCUM NON-CURRENT	PLANT	67	10	58	17	25	50
11	INSURANCE CLAIM	EXP9245	(497)	(76)	(367)	(114)	(135)	(254)
12	TOTAL ACCUM DEF INCOME TAX		2,677,242	400,399	2,336,283	687,087	1,003,185	2,019,535
13	TOTAL DEDUCTIONS TO NET PLT		2,821,209	433,050	2,448,492	745,425	1,003,185	2,019,535
14	TOTAL RATE BASE		20,945,320	3,102,174	18,679,768	5,448,428	8,047,357	16,180,705

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
REVENUES-8				
GAS OPERATING REVENUES				
1		54,051,875	25,844,412	589,604
2		1,182,788	315,078	3,747
3		55,234,662	26,159,490	593,352
TOTAL FIRM SALES OF GAS				
4				
5				
6				
7				
8				
9				
10				
11				
12				
OTHER OPERATING REVENUES				
487-LATE PAYMENT CHARGES				
4		75,514	75,514	0
5		2,513	0	2,513
6		13,812	0	0
7		1,401	0	0
8		5,410	0	0
9		3,206	0	0
10		1,204	0	0
11		1,804	0	0
12		104,863	75,514	2,513
488-MISC SERVICE REVENUE				
13		107,048	82,238	4,844
14		1,132	0	0
15		14,369	0	0
16		6,497	0	0
17		265,798	70,805	842
18		296,829	0	0
19		13,850	9,199	539
20		15,922	15,041	881
21		721,444	177,282	7,105
495-OTHER GAS REVENUES				
22		3,648	1,698	77
23		149,124	69,406	3,141
24		152,772	71,104	3,217
25		979,079	323,900	12,835
25		56,213,741	26,483,390	606,187

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
REVENUES-8								
GAS OPERATING REVENUES								
1	TOTAL FIRM SALES OF GAS		10,339,903	1,656,200	8,087,564	2,257,615	2,639,790	2,636,787
2	SPECIAL CONTRACT REVENUES	DISTR	175,291	24,488	238,149	67,089	115,131	243,814
3	TOTAL REVENUE SALES OF GAS		10,515,195	1,680,688	8,325,713	2,324,704	2,754,921	2,880,601
OTHER OPERATING REVENUES								
487-LATE PAYMENT CHARGES								
4	RESIDENTIAL HEATING - R-5 & R-10	C488RH	0	0	0	0	0	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C488RNH	0	0	0	0	0	0
6	C&I SMALL - LLF G40	C488G40	13,812	0	0	0	0	0
7	C&I SMALL - HLF G50	C488G50	0	1,401	0	0	0	0
8	C&I MEDIUM - LLF G41	C488G41	0	0	5,410	0	0	0
9	C&I MEDIUM - HLF G51	C488G51	0	0	0	3,206	0	0
10	C&I LARGE - LLF G42	C488G42	0	0	0	0	1,204	0
11	C&I LARGE - HLF G52	C488G52	0	0	0	0	0	1,804
12	TOTAL ACCOUNT 487		13,812	1,401	5,410	3,206	1,204	1,804
488-MISC SERVICE REVENUE								
13	RECONNECT FEE	CUST488R	17,142	2,824	0	0	0	0
14	POOL ADMINISTRATION	CUSTTRAN	554	78	307	129	29	35
15	3RD PARTY BILLING	CUSTTRAN	7,033	986	3,897	1,639	372	442
16	CUSTOMER TELEMETERING	PLT397M	92	275	915	366	2,196	2,654
17	WTR HTR & CONV BURN RENTAL	PLT386	39,392	5,503	53,517	15,076	25,872	54,790
18	EQUIP PROTECTION PLAN-COMMERCIAL	PLT380C	254,724	42,105	0	0	0	0
19	CLEAN & CHECK REVENUE	PLT3803	2,396	396	779	291	135	116
20	GAS LINES - RESIDENTIAL	PLT380R	0	0	0	0	0	0
21	TOTAL ACCOUNT 488		321,333	52,166	59,415	17,501	28,605	58,037
495-OTHER GAS REVENUES								
22	RENTAL INCOME - GRANITE	GENPLT	606	93	478	146	187	364
23	RENTAL INCOME - USC	GENPLT	24,762	3,784	19,522	5,969	7,650	14,890
24	TOTAL OTHER REVENUES		25,368	3,876	20,000	6,115	7,837	15,254
25	TOTAL OTHER OPERATING REV		360,512	57,444	84,825	26,822	37,646	75,095
25	TOTAL GAS OPERATING REVENUE		10,875,707	1,738,132	8,410,538	2,351,526	2,792,566	2,955,696

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE-9				
OPERATION & MAINTENANCE EXPENSE				
LIQUEFIED PROPANE GAS PRODUCTION				
OPERATION EXPENSE				
1 710-SUPERVISION	TLABPO	12,377	5,872	36
2 717-PROPANE EXPENSES	DEMLPG	9,492	4,503	28
3 718-DISPATCHING PRODUCTION	GASCOSTS	0	0	0
4 723-FUEL LPG GAS PROCESS	DEMLPG	9,702	4,603	28
5 728-LIQUID PETROLEUM GAS	EGAS	0	0	0
6 735-MISCELLANEOUS	DEMLPG	12,805	6,075	37
7 736-RENTS	DEMLPG	0	0	0
8 TOTAL OPERATION EXPENSE		44,377	21,054	130
MAINTENANCE				
9 740-SUPERVISION	TLABPM	12,377	5,872	36
10 741-MAINTENANCE OF PLANT	DEMLPG	7,688	3,648	22
11 742-MAINT OF EQUIPMENT	DEMLPG	7,713	3,659	23
12 743-GAS SYS PROD TRAINING	DEMLPG	0	0	0
13 TOTAL MAINTENANCE EXPENSE		27,778	13,179	81
14 769-MAINT OF SCADA - PRODUCT	EXP813	683	258	3
15 TOTAL MANUF GAS PROD EXP		72,838	34,491	214

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE-9								
OPERATION & MAINTENANCE EXPENSE								
LIQUEFIED PROPANE GAS PRODUCTION								
OPERATION EXPENSE								
1	710-SUPERVISION	TLABPO	3,010	90	2,369	250	614	135
2	717-PROPANE EXPENSES	DEMLPG	2,309	69	1,817	192	471	103
3	718-DISPATCHING PRODUCTION	GASCOSTS	0	0	0	0	0	0
4	723-FUEL LPG GAS PROCESS	DEMLPG	2,360	71	1,857	196	481	106
5	728-LIQUID PETROLEUM GAS	EGAS	0	0	0	0	0	0
6	735-MISCELLANEOUS	DEMLPG	3,115	93	2,452	259	635	139
7	736-RENTS	DEMLPG	0	0	0	0	0	0
8	TOTAL OPERATION EXPENSE		10,793	324	8,496	897	2,200	483
MAINTENANCE								
9	740-SUPERVISION	TLABPM	3,010	90	2,369	250	614	135
10	741-MAINTENANCE OF PLANT	DEMLPG	1,870	56	1,472	155	381	84
11	742-MAINT OF EQUIPMENT	DEMLPG	1,876	56	1,477	156	382	84
12	743-GAS SYS PROD TRAINING	DEMLPG	0	0	0	0	0	0
13	TOTAL MAINTENANCE EXPENSE		6,756	203	5,318	562	1,377	302
14	769-MAINT OF SCADA - PRODUCT	EXP813	129	19	127	36	47	64
15	TOTAL MANUF GAS PROD EXP		17,678	545	13,940	1,494	3,625	850

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
ALLOC			TOTAL COMPANY (1)-1		
OPER & MAINT EXPENSE CON'T-10					
PURCHASED GAS SUPPLY EXPENSES					
PURCHASED GAS SUPPLY					
804-PURCHASED GAS COSTS					
1	DIRECT GAS COSTS	EGAS	20,951,307	9,655,623	125,522
2	TOTAL DIRECT GAS COSTS		20,951,307	9,655,623	125,522
OTHER GAS SUPPLY					
3	813-OTHER GAS SUPPLY EXP	GASCOSTS	230,952	106,437	1,384
4	813-OTH GAS SUPP EXP-DEL SERV	DISTR	172,598	45,978	547
5	TOTAL GAS SUPPLY EXPENSE		21,354,857	9,808,037	127,452
6	TOTAL PRODUCTION EXPENSE		21,427,695	9,842,528	127,667
TRANSMISSION EXPENSES					
7	851-SYS CONTROL & LOAD DISTR	DISTR	337,514	89,909	1,069
8	851-SYS CNTRL & LD GAS SUPPLY	GASCOSTS	11,886	5,478	71
9	852-COMMUNICATION SYSTEM EXP	DISTR	45,325	12,074	144
10	856-MAINS EXPENSE	DISTR	0	0	0
11	857-T&D OPER MEAS & REGUL STNQ	DISTR	0	0	0
12	TOTAL TRANSMISSION EXPENSES		394,724	107,460	1,284

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-10								
PURCHASED GAS SUPPLY EXPENSES								
PURCHASED GAS SUPPLY								
1	804-PURCHASED GAS COSTS	EGAS						
	DIRECT GAS COSTS		4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
2	TOTAL DIRECT GAS COSTS		4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
OTHER GAS SUPPLY								
3	813-OTHER GAS SUPPLY EXP	GASCOSTS	50,792	7,620	39,983	11,175	11,109	2,453
4	813-OTH GAS SUPP EXP-DEL SERV	DISTR	25,579	3,573	34,752	9,790	16,800	35,579
5	TOTAL GAS SUPPLY EXPENSE		4,684,090	702,419	3,701,865	1,034,709	1,035,679	260,605
6	TOTAL PRODUCTION EXPENSE		4,701,769	702,965	3,715,805	1,036,203	1,039,304	261,455
TRANSMISSION EXPENSES								
7	851-SYS CONTROL & LOAD DISTR	DISTR	50,020	6,988	67,957	19,144	32,853	69,574
8	851-SYS CNTRL & LD GAS SUPPLY	GASCOSTS	2,614	392	2,058	575	572	126
9	852-COMMUNICATION SYSTEM EXP	DISTR	6,717	938	9,126	2,571	4,412	9,343
10	856-MAINS EXPENSE	DISTR	0	0	0	0	0	0
11	857-T&D OPER MEAS & REGUL STNQ	DISTR	0	0	0	0	0	0
12	TOTAL TRANSMISSION EXPENSES		59,351	8,318	79,141	22,290	37,837	79,043

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE CON'T-11				
DISTRIBUTION EXPENSES				
OPERATION EXPENSE				
1	870-SUPER & ENGINEERING	TLABDO 33,632	15,730	761
2	857-MEAS & REG STA EQUIP	PLT378 0	0	0
3	874-MAINS & SERVICE EXPENSE	PLT37680 682,358	289,700	11,540
4	875-REGULAT STATION EXPENSE	PLT378 220,978	58,865	700
5	878-METER & HOUSE REG EXP	PLT3813 995,427	560,611	32,826
6	879-CUSTOMER INSTALL EXP	PLT3803 47,743	31,710	1,857
7	880-OTHER EXPENSES	EXP8519 455,698	220,271	10,985
8	TOTAL OPERATION EXPENSE	2,435,835	1,176,887	58,669
MAINTENANCE				
9	885-SUPERVISION	TLABDM 68,672	23,335	654
10	886-MAINT STRUCT & IMPROVE	PLT375 6,369	1,697	20
11	887-MAINTENANCE OF MAINS	PLT376 93,438	24,891	296
12	889-MT OF MEAS & REG STA EQ	PLT378 31,746	8,457	101
13	890-MT OF REG EQ (INDUST)	PLT378 86	23	0
14	891-MT OF REG EQ (CITY GATE)	PLT378 26,441	7,044	84
15	891-MAIN DISTRI SCADA	EXP851 27,436	7,490	90
16	892-MAINTENANCE OF SERVICES	PLT380 120,017	84,619	4,955
17	893-MAINT METER & HOUSE REG	PLT3813 12,495	7,037	412
18	894-T&D MAINT SYSTEM EQUIP	DISTR 8,896	2,370	28
19	894-MNT WAT HTERS & CONV BURN	PLT386 151,485	40,353	480
20	894-MAINT OF RENTED CONV BURN	PLT386 11,869	3,162	38
21	TOTAL MAINTENANCE EXPENSE	558,951	210,477	7,157
22	586-INTERVAL DATA	DISTR 0	0	0
23	PAYROLL ADJUSTMENT	DISTLAB 273,315	124,286	5,825
24	TOTAL DISTRIBUTION EXPENSES	3,268,101	1,511,650	71,651

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-11							
DISTRIBUTION EXPENSES							
OPERATION EXPENSE							
1	870-SUPER & ENGINEERING	TLABDO	5,756	903	4,544	1,461	2,901
2	857-MEAS & REG STA EQUIP	PLT378	0	0	0	0	0
3	874-MAINS & SERVICE EXPENSE	PLT37680	105,637	15,806	96,466	27,964	43,998
4	875-REGULAT STATION EXPENSE	PLT378	32,749	4,575	44,493	12,534	21,510
5	878-METER & HOUSE REG EXP	PLT3813	188,204	31,109	108,086	40,341	18,461
6	879-CUSTOMER INSTALL EXP	PLT3803	8,261	1,365	2,684	1,002	466
7	880-OTHER EXPENSES	EXP8519	78,392	12,374	58,932	19,160	19,767
8	TOTAL OPERATION EXPENSE		418,999	66,133	315,205	102,460	105,778
MAINTENANCE							
9	885-SUPERVISION	TLABDM	10,404	1,503	11,926	3,398	5,632
10	886-MAINT STRUCT & IMPROVE	PLT375	944	132	1,282	361	620
11	887-MAINTENANCE OF MAINS	PLT376	13,848	1,935	18,813	5,300	9,095
12	889-MT OF MEAS & REG STA EQ	PLT378	4,705	657	6,392	1,801	3,090
13	890-MT OF REG EQ (INDUST)	PLT378	13	2	17	5	8
14	891-MT OF REG EQ (CITY GATE)	PLT378	3,919	547	5,324	1,500	2,574
15	891-MAIN DISTRI SCADA	EXP851	4,133	579	5,498	1,548	2,625
16	892-MAINTENANCE OF SERVICES	PLT380	19,987	3,304	4,202	1,568	745
17	893-MAINT METER & HOUSE REG	PLT3813	2,362	391	1,357	506	232
18	894-T&D MAINT SYSTEM EQUIP	DISTR	1,318	184	1,791	505	866
19	894-MNT WAT HTERS & CONV BURN	PLT386	22,450	3,136	30,501	8,592	14,745
20	894-MAINT OF RENTED CONV BURN	PLT386	1,759	246	2,390	673	1,155
21	TOTAL MAINTENANCE EXPENSE		85,842	12,616	89,493	25,758	41,387
22	586-INTERVAL DATA	DISTR	0	0	0	0	0
23	PAYROLL ADJUSTMENT	DISTLAB	46,230	7,201	37,995	12,039	13,783
24	TOTAL DISTRIBUTION EXPENSES		551,071	85,949	442,694	140,257	160,948

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE CON'T-12				
CUSTOMER ACCOUNT				
1 901-SUPERVISION	TLABCA	0	0	0
2 902-METER READING EXPENSE	CUST902	110,170	80,316	4,703
3 903-CUST RECORDS & COLLECT	CUST903	1,462,490	971,364	57,397
904-UNCOLLECTIBLE ACCTS				
4 RESIDENTIAL HEATING - R-5 & R-10	C904RH	128,360	128,360	0
5 RESIDENTIAL NON-HTG- R-6 & R-11	C904RNH	5,936	0	5,936
6 C&I SMALL - LLF G40	C904G40	13,821	0	0
7 C&I SMALL - HLF G50	C904G50	2,561	0	0
8 C&I MEDIUM - LLF G41	C904G41	4,107	0	0
9 C&I MEDIUM - HLF G51	C904G51	344	0	0
10 C&I LARGE - LLF G42	C904G42	0	0	0
11 C&I LARGE - HLF G52	C904G52	0	0	0
12 SUBTOTAL ACCOUNT 904		155,128	128,360	5,936
13 CGA BAD DEBT EXPENSE	E904GAS	129,165	60,160	687
14 BAD DEBT EXP ADJ DELIVERY	EXP904B	89,445	74,011	3,422
15 BAD DEBT EXP ADJ COST OF GAS	E904GAS	74,476	34,688	396
16 TOTAL ACCOUNT 904		448,214	297,218	10,442
17 TOTAL CUSTOMER ACCTS EXP		2,020,874	1,348,898	72,541
CUSTOMER SERVICES & INFO EXP				
18 907-CUST SERV & INFO SUPRV	TLABSE	0	0	0
19 909-INFO & INSTRUCT ADVERTISING	CUST908	2,570	1,274	61
20 TOT CUST SERV & INFO EXP		2,570	1,274	61

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-12							
CUSTOMER ACCOUNT							
1	901-SUPERVISION	TLABCA	0	0	0	0	0
2	902-METER READING EXPENSE	CUST902	16,797	2,863	2,640	994	862
3	903-CUST RECORDS & COLLECT	CUST903	278,443	44,200	70,878	28,469	5,605
	904-UNCOLLECTIBLE ACCTS						
4	RESIDENTIAL HEATING - R-5 & R-10	C904RH	0	0	0	0	0
5	RESIDENTIAL NON-HTG- R-6 & R-11	C904RNH	0	0	0	0	0
6	C&I SMALL - LLF G40	C904G40	13,821	0	0	0	0
7	C&I SMALL - HLF G50	C904G50	0	2,561	0	0	0
8	C&I MEDIUM - LLF G41	C904G41	0	0	4,107	0	0
9	C&I MEDIUM - HLF G51	C904G51	0	0	0	344	0
10	C&I LARGE - LLF G42	C904G42	0	0	0	0	0
11	C&I LARGE - HLF G52	C904G52	0	0	0	0	0
12	SUBTOTAL ACCOUNT 904		13,821	2,561	4,107	344	0
13	CGA BAD DEBT EXPENSE	E904GAS	29,107	3,824	22,242	5,782	6,015
14	BAD DEBT EXP ADJ DELIVERY	EXP904B	7,969	1,477	2,368	198	0
15	BAD DEBT EXP ADJ COST OF GAS	E904GAS	16,783	2,205	12,825	3,334	3,468
16	TOTAL ACCOUNT 904		67,680	10,065	41,542	9,658	9,484
17	TOTAL CUSTOMER ACCTS EXP		362,920	57,128	115,060	39,120	15,950
CUSTOMER SERVICES & INFO EXP							
18	907-CUST SERV & INFO SUPRV	TLABSE	0	0	0	0	0
19	909-INFO & INSTRUCT ADVERTISING	CUST908	371	64	270	93	126
20	TOT CUST SERV & INFO EXP		371	64	270	93	126

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
OPER & MAINT EXPENSE CON'T-13					
ADMINISTRATIVE & GENERAL EXPENSE					
1	920-ADMIN & GENERAL SALARY	LABOR	11,770	5,695	268
2	921-OFFICE SUPPLIES & EXP	LABOR	204,409	98,911	4,646
3	923-OUTSIDE SERV EMPLOYED	LABOR	(180,410)	(87,297)	(4,100)
4	923-OS UNITIL SERVICE CORP	LABOR	3,427,182	1,658,361	77,893
5	923-OUTSIDE SERV IRP	EGASB	61,850	28,504	371
6	923-USC EXPS - WATER HTR PROG	PLT386	49,539	13,196	157
7	924-PROPERTY INSURANCE	PLANT	5,024	2,215	93
8	925-INJURIES & DAMAGES	LABOR	228,942	110,782	5,203
9	PROPERTY & LIABILITY INSUR ADJ	EXP9245	48,435	23,392	1,097
10	926-EMPLOYED PENSION & BENF	LABOR	1,979,724	957,958	44,995
11	928-REGULATORY COMM EXPENSE	REVCLAIM	207,077	104,992	4,982
12	PUC ASSESSMENT ADJUSTMENT	REVCLAIM	219,575	111,329	5,283
13	930-MISCELLANEOUS GENERAL EXP	LABOR	179,698	86,953	4,084
14	931-RENTS	LABOR	15,603	7,550	355
15	TOTAL OPERATION EXPENSE		6,458,419	3,122,542	145,325
MAINTENANCE					
16	932-MAINT OF GENL PLT - EQUIP SHARED	GENPLT	135,879	63,242	2,862
17	935-MAINT OF GENERAL PLT	GENPLT	11,240	5,232	237
18	POSTAGE	EXP903	4,415	2,932	173
19	O&M INFLATION ALLOWANCE	OMLAB	136,865	68,043	3,275
20	TOTAL ADMIN & GEN EXPENSE		6,746,818	3,261,990	151,871
21	TOTAL GAS O & M EXPENSE		33,860,782	16,073,800	425,076

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
OPER & MAINT EXPENSE CON'T-13							
ADMINISTRATIVE & GENERAL EXPENSE							
1	920-ADMIN & GENERAL SALARY	LABOR	2,007	308	1,477	460	1,015
2	921-OFFICE SUPPLIES & EXP	LABOR	34,852	5,351	25,655	7,991	17,625
3	923-OUTSIDE SERV EMPLOYED	LABOR	(30,760)	(4,722)	(22,643)	(7,053)	(15,556)
4	923-OS UNITIL SERVICE CORP	LABOR	584,335	89,708	430,134	133,975	295,510
5	923-OUTSIDE SERV IRP	EGASB	13,602	2,041	10,708	2,993	657
6	923-USC EXPS - WATER HTR PROG	PLT386	7,342	1,026	9,974	2,810	4,822
7	924-PROPERTY INSURANCE	PLANT	803	120	695	205	297
8	925-INJURIES & DAMAGES	LABOR	39,035	5,993	28,734	8,950	19,741
9	PROPERTY & LIABILITY INSUR ADJ	EXP9245	8,247	1,265	6,092	1,895	2,236
10	926-EMPLOYED PENSION & BENF	LABOR	337,543	51,820	248,469	77,391	90,845
11	928-REGULATORY COMM EXPENSE	REVCLAIM	33,157	5,050	24,854	7,591	9,225
12	PUC ASSESSMENT ADJUSTMENT	REVCLAIM	35,158	5,355	26,354	8,049	9,782
13	930-MISCELLANEOUS GENERAL EXP	LABOR	30,638	4,704	22,553	7,025	8,246
14	931-RENTS	LABOR	2,660	408	1,958	610	716
15	TOTAL OPERATION EXPENSE		1,098,620	168,427	815,015	252,891	298,558
MAINTENANCE							
16	932-MAINT OF GENL PLT - EQUIP SHARED	GENPLT	22,563	3,448	17,788	5,439	6,971
17	935-MAINT OF GENERAL PLT	GENPLT	1,866	285	1,472	450	577
18	POSTAGE	EXP903	840	133	214	86	17
19	O&M INFLATION ALLOWANCE	OMLAB	23,773	3,661	16,646	5,258	5,748
20	TOTAL ADMIN & GEN EXPENSE		1,147,663	175,954	851,135	264,124	311,870
21	TOTAL GAS O & M EXPENSE		6,823,144	1,030,379	5,204,104	1,502,087	1,566,034
							1,236,158

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)	
DEPRECIATION & AMORTIZATION-14					
DEPRECIATION & AMORTIZATION EXPENSE					
AMORTIZATION EXPENSE					
1	INTANGIBLE AMORTIZATION	PLANT	(940,818)	(414,776)	(17,494)
2	ACCT 303.2 & 303.3 COM SOFT & ADJ	PLT303	383,589	185,613	8,718
3	TRANSITION & TRANACTION AMORT	PLANT	940,818	414,776	17,494
4	AMORT INVESTMENT TAX CREDIT	PLANT	0	0	0
5	TOTAL AMORTIZATION EXPENSE		383,589	185,613	8,718
DEPRECIATION EXPENSE					
PRODUCTION PLANT EXP					
6	305-STRUCTURES	PLT305	0	0	0
7	311-LPG GAS EQUIPMENT	PLT311	0	0	0
8	361-STRUCTURES & IMPROVE	DEMLPG	5,119	2,428	15
9	362-GAS HOLDERS	DEMLPG	33,481	15,885	98
10	PROFORMA ADJUST- PROD & STOR	PSPLT	0	0	0
11	TOTAL PRODUCTION PLANT		38,600	18,313	113

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)	
DEPRECIATION & AMORTIZATION-14								
DEPRECIATION & AMORTIZATION EXPENSE								
AMORTIZATION EXPENSE								
1	INTANGIBLE AMORTIZATION	PLANT	(150,435)	(22,529)	(130,197)	(38,382)	(55,529)	(111,475)
2	ACCT 303.2 & 303.3 COM SOFT & ADJ	PLT303	65,402	10,041	48,143	14,995	17,602	33,075
3	TRANSITION & TRANACTION AMORT	PLANT	150,435	22,529	130,197	38,382	55,529	111,475
4	AMORT INVESTMENT TAX CREDIT	PLANT	0	0	0	0	0	0
5	TOTAL AMORTIZATION EXPENSE		65,402	10,041	48,143	14,995	17,602	33,075
DEPRECIATION EXPENSE								
PRODUCTION PLANT EXP								
6	305-STRUCTURES	PLT305	0	0	0	0	0	0
7	311-LPG GAS EQUIPMENT	PLT311	0	0	0	0	0	0
8	361-STRUCTURES & IMPROVE	DEMLPG	1,245	37	980	103	254	56
9	362-GAS HOLDERS	DEMLPG	8,143	244	6,410	677	1,660	364
10	PROFORMA ADJUST- PROD & STOR	PSPLT	0	0	0	0	0	0
11	TOTAL PRODUCTION PLANT		9,388	282	7,390	780	1,914	420

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEPRECIATION & AMORTIZATION-15				
DISTRIBUTION EXPENSE				
1	375-STRUCTURES & IMPROVE	PLT375 8,818	2,349	28
2	376-MAINS	PLT376 2,931,580	780,932	9,288
3	378.2-MEAS & REG STATION EQ	PLT378 77,522	20,651	246
4	379-MEAS & REG CITY GATE	PLT379 0	0	0
5	380-SERVICES	PLT380 2,175,036	1,533,537	89,795
6	381-METERS	PLT381 77,491	43,642	2,555
7	382-METER INSTALLATION	PLT382 675,923	380,671	22,290
8	383-HOUSE REGULATORS	PLT383 16,778	9,449	553
9	386-OTHER PROP CUST PREM	PLT386 83,014	22,114	263
10	TOTAL DISTRIBUTION PLANT	6,046,162	2,793,344	125,018
GENERAL & COMMON PLANT EXP				
11	391-OFFICE EQUIPMENT	PLT391 24,579	11,893	559
12	393-STORES EQUIPMENT	PLT393 0	0	0
13	394-TOOLS, SHOP & GARAGE EQ	PLT394 45,044	19,596	825
14	396-POWER OPERATED EQUIP	PLT396 4,185	1,821	77
15	397-COMMUNICATION EQUIP	PLT397 111,750	54,074	2,540
16	397-COMM EQ METSCAN - TELEMET	PLT397M 8,663	0	0
17	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I 216,430	161,315	9,446
18	TOTAL GEN & COMMON EXP	410,651	248,699	13,446
19	DEPREC EXP ANNUALIZATION ADJUST	PLANT 541,522	238,740	10,069
20	TOTAL DEPRECIATION EXPENSE	7,036,935	3,299,096	148,646
21	TOTAL DEPR & AMORT EXPENSE	7,420,524	3,484,709	157,364

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEPRECIATION & AMORTIZATION-15							
DISTRIBUTION EXPENSE							
1	375-STRUCTURES & IMPROVE	PLT375	1,307	183	1,775	500	1,818
2	376-MAINS	PLT376	434,465	60,694	590,261	166,282	604,302
3	378.2-MEAS & REG STATION EQ	PLT378	11,489	1,605	15,609	4,397	15,980
4	379-MEAS & REG CITY GATE	PLT379	0	0	0	0	0
5	380-SERVICES	PLT380	362,218	59,873	76,149	28,421	11,545
6	381-METERS	PLT381	14,651	2,422	8,414	3,140	1,229
7	382-METER INSTALLATION	PLT382	127,796	21,124	73,394	27,392	10,721
8	383-HOUSE REGULATORS	PLT383	3,172	524	1,822	680	266
9	386-OTHER PROP CUST PREM	PLT386	12,303	1,719	16,715	4,709	17,112
10	TOTAL DISTRIBUTION PLANT		967,401	148,143	784,139	235,521	662,973
GENERAL & COMMON PLANT EXP							
11	391-OFFICE EQUIPMENT	PLT391	4,191	643	3,085	961	2,119
12	393-STORES EQUIPMENT	PLT393	0	0	0	0	0
13	394-TOOLS, SHOP & GARAGE EQ	PLT394	7,150	1,083	6,298	1,872	5,508
14	396-POWER OPERATED EQUIP	PLT396	664	101	585	174	512
15	397-COMMUNICATION EQUIP	PLT397	19,053	2,925	14,025	4,369	9,636
16	397-COMM EQ METSCAN - TELEMET	PLT397M	122	366	1,220	488	3,538
17	397-COMM EQ - ERT AUTO RDG DEV-G	PLT397I	33,669	5,546	4,620	1,723	20
18	TOTAL GEN & COMMON EXP		64,849	10,665	29,833	9,586	21,333
19	DEPREC EXP ANNUALIZATION ADJUST	PLANT	86,588	12,967	74,940	22,092	64,163
20	TOTAL DEPRECIATION EXPENSE		1,128,226	172,057	896,301	267,980	748,890
21	TOTAL DEPR & AMORT EXPENSE		1,193,628	182,097	944,444	282,975	781,965

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

			TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOC					
STATE & FED TAXES & OTHER EXP-16					
TAXES OTHER THAN INCOME					
FEDERAL TAXES					
1	UNEMPLOYMENT	LABOR	1,958	947	45
2	FICA	LABOR	290,749	140,689	6,608
3	FICA ADJUSTMENT	LABOR	0	0	0
4	TOTAL FEDERAL TAXES		292,707	141,636	6,653
STATE TAXES					
5	UNEMPLOYMENT	LABOR	629	304	14
6	PROPERTY TAX	PLANT	4,179,034	1,842,402	77,707
7	TOTAL STATE TAXES		4,179,663	1,842,706	77,721
8	PAYROLL TAXES CAPITALIZED	LABOR	(130,498)	(63,146)	(2,966)
9	PAYROLL TAXES ADJUSTMENT	LABOR	24,915	12,056	566
10	TAXES - OTHER	PLANT	100,670	44,382	1,872
11	TOTAL TAXES OTHER THAN INC		4,467,456	1,977,634	83,846
12	TOTAL INCOME TAX EXPENSE		2,402,684	2,045,782	17,384
13	INTEREST ON CUSTOMER DEPOSITS	CUSTDEP	13,346	2,457	129
14	TOTAL EXPENSES		48,164,792	23,584,382	683,799

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
STATE & FED TAXES & OTHER EXP-16							
TAXES OTHER THAN INCOME							
FEDERAL TAXES							
1	UNEMPLOYMENT	LABOR	334	51	246	77	169
2	FICA	LABOR	49,573	7,610	36,491	11,366	25,070
3	FICA ADJUSTMENT	LABOR	0	0	0	0	0
4	TOTAL FEDERAL TAXES		49,907	7,662	36,737	11,442	25,239
STATE TAXES							
5	UNEMPLOYMENT	LABOR	107	16	79	25	54
6	PROPERTY TAX	PLANT	668,220	100,071	578,325	170,490	495,163
7	TOTAL STATE TAXES		668,328	100,087	578,404	170,514	495,217
8	PAYROLL TAXES CAPITALIZED	LABOR	(22,250)	(3,416)	(16,378)	(5,101)	(11,252)
9	PAYROLL TAXES ADJUSTMENT	LABOR	4,248	652	3,127	974	2,148
10	TAXES - OTHER	PLANT	16,097	2,411	13,931	4,107	11,928
11	TOTAL TAXES OTHER THAN INC		716,329	107,396	615,820	181,936	523,280
12	TOTAL INCOME TAX EXPENSE		595,336	133,892	140,742	16,923	(63,385)
13	INTEREST ON CUSTOMER DEPOSITS	CUSTDEP	4,462	1,012	3,478	1,808	0
14	TOTAL EXPENSES		9,332,900	1,454,776	6,908,588	1,985,730	2,157,205

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INCOME TAXES-17				
FEDERAL & STATE TAX CALCULAT				
1 OPERATING REVENUES		56,213,741	26,483,390	606,187
OPERATING EXPENSES				
2 OPERATION & MAINTENANCE EXP		33,860,782	16,073,800	425,076
3 DEPRECIATION & AMORTIZATION		7,420,524	3,484,709	157,364
4 TAXES OTHER THAN INCOME		4,467,456	1,977,634	83,846
5 INTEREST ON CUSTOMER DEPOSITS		13,346	2,457	129
6 PLUS: OTHER	PLANT	0	0	0
7 OPERATING INC BEFORE FED TAX		10,451,633	4,944,790	(60,228)
8 LESS: INTEREST EXPENSE		4,018,906	1,735,045	70,918
9 LESS: MISC OTHER ADJ	PLANT	0	0	0
10 NET OPERATING INC BEFORE TXS		6,432,727	3,209,745	(131,147)
PERMANENT ITEMS				
12 LOBBYING	REVCLAIM	33,398	16,933	803
13 STATE REGUL ASSET AMORT	REVCLAIM	133,500	67,687	3,212
14 UNALLOWABLE MEALS	REVCLAIM	0	0	0
15 TOTAL PERMANENT ITEMS		166,898	84,620	4,015
TEMPORARY DIFFERENCES				
16 ACCRUED REVENUE	REVCLAIM	64,773	32,841	1,558
17 BAD DEBT	EXP904	(19,155)	(12,702)	(446)
18 DEFERRED RATE CASE	REVCLAIM	55,173	27,974	1,327
19 INSURANCE CLAIM RESERVE	EXP9245	5,184	2,504	117
20 FASB 87-PENSIONS	LABOR	(232,970)	(112,731)	(5,295)
20 PNGTS REFUND	DISTR	(5,277,371)	(1,405,817)	(16,721)
21 PREPAID PROPERTY TAXES	PLANT	(130,091)	(57,353)	(2,419)
22 REMEDIATION	PLANT	(665,432)	(293,368)	(12,373)
23 PBOP SFAS 106	LABOR	269,865	130,584	6,133
24 TRANSACTION COSTS	PLANT	318,988	140,632	5,931
25 TRANSITION COSTS	PLANT	269,361	118,753	5,009
26 UTILITY PLANT DIFFERENCES	PLANT	(13,435,718)	(5,923,376)	(249,831)
27 TOTAL TEMPORARY DIFF		(18,777,394)	(7,352,060)	(267,008)
INVESTMENT TAX CREDIT AMORT				
28 UNAMORTIZED ITC	PLANT	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INCOME TAXES-17							
FEDERAL & STATE TAX CALCULAT							
1	OPERATING REVENUES	10,875,707	1,738,132	8,410,538	2,351,526	2,792,566	2,955,696
OPERATING EXPENSES							
2	OPERATION & MAINTENANCE EXP	6,823,144	1,030,379	5,204,104	1,502,087	1,566,034	1,236,158
3	DEPRECIATION & AMORTIZATION	1,193,628	182,097	944,444	282,975	393,340	781,965
4	TAXES OTHER THAN INCOME	716,329	107,396	615,820	181,936	261,215	523,280
5	INTEREST ON CUSTOMER DEPOSITS	4,462	1,012	3,478	1,808	0	0
6	PLUS: OTHER	0	0	0	0	0	0
7	OPERATING INC BEFORE FED TAX	2,138,143	417,248	1,642,692	382,718	571,977	414,294
8	LESS: INTEREST EXPENSE	640,171	94,815	570,927	166,525	245,959	494,546
9	LESS: MISC OTHER ADJ	0	0	0	0	0	0
10	NET OPERATING INC BEFORE TXS	1,497,972	322,433	1,071,765	216,193	326,018	(80,252)
PERMANENT ITEMS							
12	LOBBYING	5,348	815	4,009	1,224	1,488	2,778
13	STATE REGUL ASSET AMORT	21,376	3,256	16,023	4,894	5,947	11,106
14	UNALLOWABLE MEALS	0	0	0	0	0	0
15	TOTAL PERMANENT ITEMS	26,723	4,070	20,032	6,118	7,435	13,884
TEMPORARY DIFFERENCES							
16	ACCRUED REVENUE	10,371	1,580	7,774	2,374	2,886	5,388
17	BAD DEBT	(2,892)	(430)	(1,775)	(413)	(405)	(91)
18	DEFERRED RATE CASE	8,834	1,346	6,622	2,022	2,458	4,590
19	INSURANCE CLAIM RESERVE	883	135	652	203	239	451
20	FASB 87-PENSIONS	(39,721)	(6,098)	(29,239)	(9,107)	(10,691)	(20,088)
20	PNGTS REFUND	(782,116)	(109,261)	(1,062,576)	(299,338)	(513,691)	(1,087,853)
21	PREPAID PROPERTY TAXES	(20,801)	(3,115)	(18,003)	(5,307)	(7,678)	(15,414)
22	REMEDATION	(106,401)	(15,934)	(92,087)	(27,147)	(39,276)	(78,845)
23	PBOP SFAS 106	46,012	7,064	33,870	10,550	12,384	23,269
24	TRANSACTION COSTS	51,006	7,638	44,144	13,014	18,828	37,796
25	TRANSITION COSTS	43,070	6,450	37,276	10,989	15,898	31,916
26	UTILITY PLANT DIFFERENCES	(2,148,348)	(321,730)	(1,859,331)	(548,130)	(793,010)	(1,591,962)
27	TOTAL TEMPORARY DIFF	(2,940,104)	(432,356)	(2,932,673)	(850,290)	(1,312,059)	(2,690,844)
INVESTMENT TAX CREDIT AMORT							
28	UNAMORTIZED ITC	0	0	0	0	0	0

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INCOME TAXES CON'T-18				
1	FEDERAL AND STATE TAX DIFF TAX DEPRECIATION	PLANT 1,767,276	779,135	32,862
2	STATE TAXABLE BASE INCOME	(10,410,493)	(3,278,559)	(361,278)
3	ST TAX ADJ LOBBING & PENALTIES	REVCLAIM (13,686)	(6,939)	(329)
4	STATE BUSINESS ENTERPRISE TAX	REVCLAIM 481,665	244,213	11,588
5	STATE INCOME TAX @ 8.20% PLUS ADJ	(385,681)	(31,568)	(18,366)
6	FED TAX INC BEF FED & STA TAX DIFF	(10,520,162)	(3,498,143)	(354,829)
7	LESS: FEDERAL AND STATE TAX DIFF	1,767,276	779,135	32,862
8	FEDERAL TAXABLE INCOME BASE	(12,287,438)	(4,277,278)	(387,691)
9	FED TAX ADJ LOBBING & PENALTIES	REVCLAIM (45,964)	(23,304)	(1,106)
10	FED CURRENT/DEF ADJ	REVCLAIM 7,007,359	3,552,859	168,584
11	FEDERAL INCOME TAX @ 34.00% PLUS ADJ	2,783,666	2,075,280	35,663
TOT DEF FEDERAL & STATE INC TAX				
12	ACCELERATED DEPRECIATION	PLANT 5,199,640	2,292,354	96,685
13	PBOP	LABOR (106,359)	(51,466)	(2,417)
14	PENSION	LABOR 91,818	44,429	2,087
15	BAD DEBTS EXPENSE	EXP904 7,549	5,006	176
16	ACCRUED REVENUE	REVCLAIM (25,528)	(12,943)	(614)
17	PREPAID PROPERTY TAXES	PLANT 51,272	22,604	953
18	DEFERRED RATE CASE	REVCLAIM (21,745)	(11,025)	(523)
19	REMEDATION	PLANT 262,260	115,622	4,877
20	TRANSITION COSTS	PLANT (106,161)	(46,803)	(1,974)
21	TRANSACTION COSTS	PLANT (125,720)	(55,426)	(2,338)
22	INSURANCE CLAIM RESERVE	EXP9245 (2,043)	(987)	(46)
23	DEF FED & STATE FLOW THRU DIFF	DEFTAX (5,220,285)	(2,299,297)	(96,778)
24	TOTAL DEFERRED INCOME TAXES	4,699	2,070	87
25	TOTAL INCOME TAX EXPENSE	2,402,684	2,045,782	17,384
26	NET OPERATING INCOME AFTER TAX	8,048,949	2,899,008	(77,612)
EFFECTIVE STATE TAX RATE		8.20%		
FEDERAL TAX RATE - CURRENT		34.00%		
1 - INCREMENTAL TAX RATE		0.60588		
INCREMENTAL TAX RATE		0.39412		

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INCOME TAXES CON'T-18							
	FEDERAL AND STATE TAX DIFF						
1	TAX DEPRECIATION	PLANT	282,584	42,319	244,568	72,099	209,400
2	STATE TAXABLE BASE INCOME		(1,132,825)	(63,533)	(1,596,308)	(874,296)	(2,547,812)
3	ST TAX ADJ LOBBING & PENALTIES	REVCLAIM	(2,191)	(334)	(1,643)	(610)	(1,138)
4	STATE BUSINESS ENTERPRISE TAX	REVCLAIM	77,123	11,747	57,811	21,458	40,069
5	STATE INCOME TAX @ 8.20% PLUS ADJ		(17,960)	6,204	(74,729)	(50,844)	(169,990)
6	FED TAX INC BEF FED & STA TAX DIFF		(1,194,180)	(81,818)	(1,581,033)	(845,519)	(2,419,030)
7	LESS: FEDERAL AND STATE TAX DIFF		282,584	42,319	244,568	72,099	209,400
8	FEDERAL TAXABLE INCOME BASE		(1,476,764)	(124,137)	(1,825,601)	(949,829)	(2,628,430)
9	FED TAX ADJ LOBBING & PENALTIES	REVCLAIM	(7,360)	(1,121)	(5,517)	(2,048)	(3,824)
10	FED CURRENT/DEF ADJ	REVCLAIM	1,122,004	170,903	841,042	312,171	582,932
11	FEDERAL INCOME TAX @ 34.00% PLUS ADJ		612,544	127,576	214,821	(12,818)	(314,558)
TOT DEF FEDERAL & STATE INC TAX							
12	ACCELERATED DEPRECIATION	PLANT	831,413	124,510	719,563	306,896	616,091
13	PBOP	LABOR	(18,134)	(2,784)	(13,349)	(4,881)	(9,171)
14	PENSION	LABOR	15,655	2,403	11,524	4,213	7,917
15	BAD DEBTS EXPENSE	EXP904	1,140	170	700	163	36
16	ACCRUED REVENUE	REVCLAIM	(4,088)	(623)	(3,064)	(936)	(2,124)
17	PREPAID PROPERTY TAXES	PLANT	8,198	1,228	7,095	3,026	6,075
18	DEFERRED RATE CASE	REVCLAIM	(3,482)	(530)	(2,610)	(797)	(1,809)
19	REMEDIATION	PLANT	41,935	6,280	36,293	15,479	31,075
20	TRANSITION COSTS	PLANT	(16,975)	(2,542)	(14,691)	(4,331)	(12,579)
21	TRANSACTION COSTS	PLANT	(20,102)	(3,010)	(17,398)	(7,420)	(14,896)
22	INSURANCE CLAIM RESERVE	EXP9245	(348)	(53)	(257)	(94)	(178)
23	DEF FED & STATE FLOW THRU DIFF	DEFTAX	(834,462)	(124,935)	(723,156)	(308,730)	(619,880)
24	TOTAL DEFERRED INCOME TAXES		751	112	651	278	558
25	TOTAL INCOME TAX EXPENSE		595,336	133,892	140,742	(63,385)	(483,990)
26	NET OPERATING INCOME AFTER TAX		1,542,807	283,356	1,501,949	635,362	898,284

EFFECTIVE STATE TAX RATE
FEDERAL TAX RATE - CURRENT
1 - INCREMENTAL TAX RATE
INCREMENTAL TAX RATE

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVELOPMENT OF LABOR ALLOCATOR-19				
1 163 - STORES EXPENSE UNDISTRIBUTED	DISTRPLT	61,889	26,924	1,133
LPG & LNG GAS PRODUCTION OPERATION				
2 710-SUPERVISION	LABPO	12,377	5,872	36
3 717-PROPANE EXPENSES	EXP717	0	0	0
4 718-DISPATCHING PRODUCTION	EXP718	0	0	0
5 735-MISCELLANEOUS	EXP735	12,805	6,075	37
6 TOTAL OPERATION LABOR		25,182	11,947	74
MAINTENANCE				
7 740-SUPERVISION	LABPM	12,377	5,872	36
8 741-MAINTENANCE OF PLANT	EXP741	7,688	3,648	22
9 742-MAINTENANCE OF EQUIP	EXP742	7,713	3,659	23
10 743-GAS SYSTEM PROD TRAINING	EXP743	0	0	0
11 TOTAL MAINTENANCE LABOR		27,778	13,179	81
12 TOT MANUFACTURED GAS LABOR		52,960	25,126	155
GAS SUPPLY LABOR				
13 813-OTHER GAS SUPPLY EXP	EXP813	214,992	81,199	1,028
14 TOTAL GAS SUPPLY LABOR		214,992	81,199	1,028
15 TOTAL PRODUCTION LABOR		267,952	106,325	1,183

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVELOPMENT OF LABOR ALLOCATOR-19							
1 163 - STORES EXPENSE UNDISTRIBUTED	DISTRPLT	9,823	1,489	8,653	2,573	3,726	7,568
LPG & LNG GAS PRODUCTION OPERATION							
2 710-SUPERVISION	LABPO	3,010	90	2,369	250	614	135
3 717-PROPANE EXPENSES	EXP717	0	0	0	0	0	0
4 718-DISPATCHING PRODUCTION	EXP718	0	0	0	0	0	0
5 735-MISCELLANEOUS	EXP735	3,115	93	2,452	259	635	139
6 TOTAL OPERATION LABOR		6,125	184	4,821	509	1,249	274
MAINTENANCE							
7 740-SUPERVISION	LABPM	3,010	90	2,369	250	614	135
8 741-MAINTENANCE OF PLANT	EXP741	1,870	56	1,472	155	381	84
9 742-MAINTENANCE OF EQUIP	EXP742	1,876	56	1,477	156	382	84
10 743-GAS SYSTEM PROD TRAINING	EXP743	0	0	0	0	0	0
11 TOTAL MAINTENANCE LABOR		6,756	203	5,318	562	1,377	302
12 TOT MANUFACTURED GAS LABOR		12,881	386	10,139	1,071	2,626	576
GAS SUPPLY LABOR							
13 813-OTHER GAS SUPPLY EXP	EXP813	40,687	5,963	39,815	11,169	14,869	20,262
14 TOTAL GAS SUPPLY LABOR		40,687	5,963	39,815	11,169	14,869	20,262
15 TOTAL PRODUCTION LABOR		53,568	6,349	49,954	12,240	17,495	20,838

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVEL OF LABOR ALLOCATOR CON'T-20				
TRANSMISSION & DISTRIBUTION LABOR				
OPERATION				
1	870-SUPER & ENGINEERING	LABDO 31,573	14,767	715
2	851-SYSTEM CONTROL & DISP	EXP851 186,247	50,846	608
3	857-MEAS & REG STATION EXP	PLT378 0	0	0
4	874-MAINS & SERVICE EXPENSE	EXP874 481,755	204,533	8,147
5	875-GAS SYSTEM T&D TRAINING	EXP875 213,949	56,993	678
6	878-METER & HOUSE REG EXP	EXP878 907,555	511,123	29,928
7	879-CUSTOMER INSTALL EXP	EXP879 48,424	32,162	1,883
8	880-OTHER EXPENSE	EXP880 251,716	121,672	6,068
9	TOTAL OPERATION LABOR	2,121,220	992,096	48,027
MAINTENANCE				
10	885-SUPERVISION	LABDM 34,584	11,752	329
11	886-MAINT STRUCT & IMPROVE	EXP886 3,279	874	10
12	887-MAINTENANCE OF MAINS	EXP887 5,982	1,594	19
13	889-MT OF MEAS & REG STA EQ	EXP889 22,786	6,070	72
14	890-MT OF REG EQ (INDUST)	EXP890 245	65	1
15	891-MT OF REG EQ (CITY GATE)	EXP891 26,937	7,266	87
16	892-MAINTENANCE OF SERVICES	EXP892 33,648	23,724	1,389
17	893-MAINT METER & HOUSE REG	EXP893 602	339	20
18	894-MAINT OF OTHER EQUIP	EXP894 111,239	29,633	352
19	TOTAL MAINTENANCE LABOR	239,302	81,316	2,280
20	TOTAL DISTRIB & TRANS LABOR	2,360,522	1,073,411	50,307
CUSTOMER ACCOUNTS LABOR				
21	901-SUPERVISION	LABCA 0	0	0
22	902-METER READING EXPENSE	EXP902 88,600	64,591	3,782
23	903-CUST RECORDS & COLLECT	EXP903 653,826	434,261	25,660
24	TOTAL CUSTOMER ACCTS LABOR	742,426	498,852	29,442

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVEL OF LABOR ALLOCATOR CON'T-20							
TRANSMISSION & DISTRIBUTION LABOR OPERATION							
1	870-SUPER & ENGINEERING LABDO	5,403	848	4,266	1,371	1,480	2,724
2	851-SYSTEM CONTROL & DISP EXP851	28,057	3,934	37,321	10,511	17,817	37,153
3	857-MEAS & REG STATION EXP PLT378	0	0	0	0	0	0
4	874-MAINS & SERVICE EXPENSE EXP874	74,581	11,159	68,106	19,743	31,063	64,422
5	875-GAS SYSTEM T&D TRAINING EXP875	31,708	4,430	43,078	12,135	20,825	44,103
6	878-METER & HOUSE REG EXP EXP878	171,590	28,363	98,545	36,779	16,831	14,395
7	879-CUSTOMER INSTALL EXP EXP879	8,379	1,385	2,722	1,016	473	404
8	880-OTHER EXPENSE EXP880	43,302	6,835	32,553	10,583	10,919	19,784
9	TOTAL OPERATION LABOR	363,020	56,954	286,591	92,140	99,408	182,985
MAINTENANCE							
10	885-SUPERVISION LABDM	5,239	757	6,006	1,711	2,836	5,953
11	886-MAINT STRUCT & IMPROVE EXP886	486	68	660	186	319	676
12	887-MAINTENANCE OF MAINS EXP887	887	124	1,204	339	582	1,233
13	889-MT OF MEAS & REG STA EQ EXP889	3,377	472	4,588	1,292	2,218	4,697
14	890-MT OF REG EQ (INDUST) EXP890	36	5	49	14	24	50
15	891-MT OF REG EQ (CITY GATE) EXP891	4,026	563	5,410	1,524	2,599	5,461
16	892-MAINTENANCE OF SERVICES EXP892	5,604	926	1,178	440	209	179
17	893-MAINT METER & HOUSE REG EXP893	114	19	65	24	11	10
18	894-MAINT OF OTHER EQUIP EXP894	16,486	2,303	22,398	6,310	10,828	22,930
19	TOTAL MAINTENANCE LABOR	36,254	5,237	41,559	11,840	19,627	41,189
20	TOTAL DISTRIB & TRANS LABOR	399,274	62,190	328,150	103,980	119,035	224,174
CUSTOMER ACCOUNTS LABOR							
21	901-SUPERVISION LABCA	0	0	0	0	0	0
22	902-METER READING EXPENSE EXP902	13,508	2,303	2,123	799	693	801
23	903-CUST RECORDS & COLLECT EXP903	124,482	19,760	31,687	12,728	2,506	2,742
24	TOTAL CUSTOMER ACCTS LABOR	137,990	22,063	33,810	13,527	3,199	3,543

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
DEVEL OF LABOR ALLOCATOR CON'T-21				
CUSTOMER SERVICES & INFO EXP				
1 907-CUST SERV & INFO SUPRV	LABSE	0	0	0
2 908-CUST ASSISTANCE EXP	EXP909	160,148	79,381	3,781
3 TOT CUST SERV & INFO EXP		160,148	79,381	3,781
ADMINISTRATIVE & GENERAL LABOR				
OPERATION LABOR				
4 920-ADMIN & GENERAL SALARY	LABORXAG	0	0	0
5 921-OFFICE SUPPLIES & EXP	LABORXAG	25,414	12,653	610
6 923-OUTSIDE SERV EMPLOYED	LABORXAG	1,885,906	938,918	45,245
7 925-INJURIES & DAMAGES	LABORXAG	0	0	0
8 926-EMPLOYED PENSION & BENF	LABORXAG	0	0	0
9 930-MISCELLANEOUS GEN EXP	LABORXAG	0	0	0
10 TOTAL OPERATION EXPENSE		1,911,320	951,571	45,855
MAINTENANCE				
11 935-MAINT OF GENERAL PLT	EXP935	0	0	0
12 TOTAL ADMIN & GEN LABOR		1,911,320	951,571	45,855
13 TOTAL GAS O & M LABOR		5,504,256	2,736,465	131,702
14 CONSTRUCTION LABOR - DISTRIBUTION	DISTRPLT	1,495,483	650,603	27,388
15 SUM OF ALLOCATED LABOR EXP		6,999,739	3,387,068	159,090

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
DEVEL OF LABOR ALLOCATOR CON'T-21							
CUSTOMER SERVICES & INFO EXP							
1	907-CUST SERV & INFO SUPRV	LABSE	0	0	0	0	0
2	908-CUST ASSISTANCE EXP	EXP909	23,108	3,970	16,803	5,788	7,836
3	TOT CUST SERV & INFO EXP		23,108	3,970	16,803	5,788	7,836
ADMINISTRATIVE & GENERAL LABOR							
OPERATION LABOR							
4	920-ADMIN & GENERAL SALARY	LABORXAG	0	0	0	0	0
5	921-OFFICE SUPPLIES & EXP	LABORXAG	4,419	681	3,086	975	1,062
6	923-OUTSIDE SERV EMPLOYED	LABORXAG	327,900	50,510	228,975	72,388	78,813
7	925-INJURIES & DAMAGES	LABORXAG	0	0	0	0	0
8	926-EMPLOYED PENSION & BENF	LABORXAG	0	0	0	0	0
9	930-MISCELLANEOUS GEN EXP	LABORXAG	0	0	0	0	0
10	TOTAL OPERATION EXPENSE		332,319	51,191	232,060	73,363	79,875
MAINTENANCE							
11	935-MAINT OF GENERAL PLT	EXP935	0	0	0	0	0
12	TOTAL ADMIN & GEN LABOR		332,319	51,191	232,060	73,363	79,875
13	TOTAL GAS O & M LABOR		956,082	147,252	669,430	211,469	231,165
14	CONSTRUCTION LABOR - DISTRIBUTION	DISTRPLT	237,375	35,969	209,084	62,163	90,039
15	SUM OF ALLOCATED LABOR EXP		1,193,456	183,221	878,514	273,632	321,203

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
REVENUE REQUIREMENTS-22				
PRESENT RATES				
1 RATE BASE		131,491,801	56,767,721	2,320,327
2 NET OPER INC (PRESENT RATES)		8,048,949	2,899,008	(77,612)
3 RATE OF RETURN (PRES RATES)		6.12%	5.11%	-3.34%
4 RELATIVE RATE OF RETURN		1.000	0.834	-0.546
5 SALES REVENUE (PRE RATES)		54,051,875	25,844,412	589,604
6 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
7 SALE REV \$/CCF (PRE RATES)		\$0.7732	\$1.4921	\$2.4662
CLAIMED RATE OF RETURN				
8 CLAIMED RATE OF RETURN		8.30%	8.30%	8.30%
9 RETURN REQ FOR CLAIMED ROR		10,913,819	4,711,721	192,587
10 SALES REVENUE REQ CLAIMED ROR		58,780,320	28,836,279	1,035,566
11 REVENUE DEFICIENCY SALES REV		4,728,445	2,991,867	445,962
12 PERCENT INCREASE REQUIRED		8.75%	11.58%	75.64%
13 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
14 SALES REV REQUIRED \$/CCF		\$0.8408	\$1.6648	\$4.3316
15 REVENUE DEFICIENCY \$/CCF		\$0.0676	\$0.1727	\$1.8654
PROPOSED REVENUES				
16 PROPOSED SALES REVENUES		58,780,320	28,836,279	1,035,566
17 REVENUE DEFICIENCY SALES REV		4,728,445	2,991,867	445,962
18 PERCENT INCREASE PROPOSED		8.75%	11.58%	75.64%
19 PROPOSED RATE OF RETURN		8.30%	8.30%	8.30%
20 RETURN REQ FOR PROPOSED REV		10,913,819	4,711,721	192,587
21 ANNUAL BOOKED CCF SALES		69,908,226	17,320,928	239,073
22 SALES REV REQUIRED \$/CCF		\$0.8408	\$1.6648	\$4.3316
23 REVENUE DEFICIENCY \$/CCF		\$0.0676	\$0.1727	\$1.8654
WORKING SECTION				
1 TOTAL FIRM SALES OF GAS		54,051,875	25,844,412	589,604

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
REVENUE REQUIREMENTS-22							
PRESENT RATES							
1	RATE BASE	20,945,320	3,102,174	18,679,768	5,448,428	8,047,357	16,180,705
2	NET OPER INC (PRESENT RATES)	1,542,807	283,356	1,501,949	365,795	635,362	898,284
3	RATE OF RETURN (PRES RATES)	7.37%	9.13%	8.04%	6.71%	7.90%	5.55%
4	RELATIVE RATE OF RETURN	1.203	1.492	1.314	1.097	1.290	0.907
5	SALES REVENUE (PRE RATES)	10,339,903	1,656,200	8,087,564	2,257,615	2,639,790	2,636,787
6	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
7	SALE REV \$/CCF (PRE RATES)	\$1.1072	\$0.9854	\$0.6150	\$0.5037	\$0.3906	\$0.1557
CLAIMED RATE OF RETURN							
8	CLAIMED RATE OF RETURN	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
9	RETURN REQ FOR CLAIMED ROR	1,738,462	257,480	1,550,421	452,220	667,931	1,342,999
10	SALES REVENUE REQ CLAIMED ROR	10,662,829	1,613,493	8,167,565	2,400,257	2,693,545	3,370,785
11	REVENUE DEFICIENCY SALES REV	322,926	(42,707)	80,002	142,643	53,755	733,998
12	PERCENT INCREASE REQUIRED	3.12%	-2.58%	0.99%	6.32%	2.04%	27.84%
13	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
14	SALES REV REQUIRED \$/CCF	\$1.1418	\$0.9600	\$0.6211	\$0.5355	\$0.3986	\$0.1990
15	REVENUE DEFICIENCY \$/CCF	\$0.0346	-\$0.0254	\$0.0061	\$0.0318	\$0.0080	\$0.0433
PROPOSED REVENUES							
16	PROPOSED SALES REVENUES	10,662,829	1,613,493	8,167,565	2,400,257	2,693,545	3,370,785
17	REVENUE DEFICIENCY SALES REV	322,926	(42,707)	80,002	142,643	53,755	733,998
18	PERCENT INCREASE PROPOSED	3.12%	-2.58%	0.99%	6.32%	2.04%	27.84%
19	PROPOSED RATE OF RETURN	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
20	RETURN REQ FOR PROPOSED REV	1,738,462	257,480	1,550,421	452,220	667,931	1,342,999
21	ANNUAL BOOKED CCF SALES	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
22	SALES REV REQUIRED \$/CCF	\$1.1418	\$0.9600	\$0.6211	\$0.5355	\$0.3986	\$0.1990
23	REVENUE DEFICIENCY \$/CCF	\$0.0346	-\$0.0254	\$0.0061	\$0.0318	\$0.0080	\$0.0433
WORKING SECTION							
1	TOTAL FIRM SALES OF GAS	10,339,903	1,656,200	8,087,564	2,257,615	2,639,790	2,636,787

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE-23				
CAPACITY RELATED				
1	-----			
2	PRODUCTION ALLOCATORS			
3		358,782	170,219	1,050
4		358,782	170,219	1,050
5		358,782	170,219	1,050
6		358,782	170,219	1,050
7	DEMLPG			
8	DEMLNG			
9				
10				
11				
12				
13				
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18				
DISTRIBUTION ALLOCATORS				
1	-----			
2	DISTR	100.0000%	26.6386%	0.3168%
3	DISTRMAIN	100.0000%	26.6386%	0.3168%
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

ALLOCATION FACTOR TABLE-23

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
CAPACITY RELATED							
1	-----						
2	PRODUCTION ALLOCATORS						
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DISTRIBUTION ALLOCATORS							
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-24					
COMMODITY RELATED					
1	ANNUAL FIRM CCF SALES SENDOUT		38,065,334	17,539,649	242,092
2	ANNUAL FIRM CCF THROUGHPUT		70,790,993	17,539,649	242,092
3	DIRECT GAS COST ALLOCATOR	EGAS	20,951,307	9,655,623	125,522
4	CGA BAD DEBT ALLOCATOR	E904GAS	129,165	60,160	687
5					
6	DIRECT GAS COST - BASE DIST ALLOC	EGASB	20,951,307	9,655,623	125,522
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOCATION FACTOR TABLE CONT-24								
COMMODITY RELATED								
1	ANNUAL FIRM CCF SALES SENDOUT		8,020,419	1,448,898	6,474,779	2,129,031	1,764,570	445,897
2	ANNUAL FIRM CCF THROUGHPUT		9,456,738	1,702,029	13,315,558	4,538,848	6,843,423	17,152,658
3	DIRECT GAS COST ALLOCATOR	EGAS	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
4	CGA BAD DEBT ALLOCATOR	E904GAS	29,107	3,824	22,242	5,782	6,015	1,348
5								
6	DIRECT GAS COST - BASE DIST ALLOC	EGASB	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-25					
CUSTOMER RELATED					
1	ACCT 380-SERVICES	CUST380	60,250,315	42,480,267	2,487,389
2	ACCT 381-383 METERS,MET INST,REG	CUST3813	24,390,199	13,736,229	804,311
3	ACCT 386-OTHER PROP CUST PREM	CUST386	100.0000%	26.6386%	0.3168%
4	ACCT 397-COMM EQ METSCAN - TELM	CUST397M	852	0	0
5	ACCT 397-COMM EQUIP - ITRON	CUST397I	380,337	283,482	16,599
6	CUSTOMER DEPOSITS	CUSTDEP	412,115	75,867	3,978
7	CUSTOMERS TRANSPORTSTION	CUSTTRAN	11,701	0	0
8	ACCT 902-METER READ EXP	CUST902	388,857	283,482	16,599
9	ACCT 903-CUST RECORDS & COLL	CUST903	435,636	289,343	17,097
10	ACCT 488 RECONNECT FEE	CUST488R	367,975	282,692	16,650
11	ACCT 908-CUST ASSISTANCE EXP	CUST908	100.0000%	49.5671%	2.3608%
12	ACCT 909-INFO & INSTR ADVERT	CUST909	100.0000%	49.5671%	2.3608%
13					
14					
15					
16					
17					
18	ANNUAL NO SALES CUSTOMERS		368,478	282,692	16,650
19	ANNUAL NO OF TRANS CUSTOMERS		11,701	0	0
20	ANNUAL NUMBER GAS BILLS		388,832	289,343	17,097
21					
22	ANNUAL NO METER EXCL DAILY MET		380,337	283,482	16,599
23	ANNUAL NO METERS DAILY METERED		852	0	0
24					
25	TOTAL SALES & TRANSP CUSTOMERS		380,179	282,692	16,650
26					
27	NUMBER OF SERVICES		22,979	16,874	988
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ALLOCATION FACTOR TABLE CONT-25								
CUSTOMER RELATED								
1	ACCT 380-SERVICES	CUST380	10,033,733	1,658,527	2,109,398	787,280	373,927	319,795
2	ACCT 381-383 METERS,MET INST,REG	CUST3813	4,611,421	762,245	2,648,363	988,435	452,339	386,856
3	ACCT 386-OTHER PROP CUST PREM	CUST386	14.8202%	2.0704%	20.1346%	5.6721%	9.7338%	20.6135%
4	ACCT 397-COMM EQ METSCAN - TELM	CUST397M	12	36	120	48	288	348
5	ACCT 397-COMM EQUIP - ITRON	CUST397I	59,167	9,746	8,119	3,027	161	36
6	CUSTOMER DEPOSITS	CUSTDEP	137,791	31,250	107,395	55,835	0	0
7	CUSTOMERS TRANSPORTSTION	CUSTTRAN	5,727	803	3,173	1,335	303	360
8	ACCT 902-METER READ EXP	CUST902	59,287	10,106	9,319	3,507	3,041	3,516
9	ACCT 903-CUST RECORDS & COLL	CUST903	82,941	13,166	21,113	8,480	1,670	1,827
10	ACCT 488 RECONNECT FEE	CUST488R	58,925	9,708	0	0	0	0
11	ACCT 908-CUST ASSISTANCE EXP	CUST908	14.4290%	2.4789%	10.4919%	3.6139%	4.8927%	12.1657%
12	ACCT 909-INFO & INSTR ADVERT	CUST909	14.4290%	2.4789%	10.4919%	3.6139%	4.8927%	12.1657%
13								
14								
15								
16								
17								
18	ANNUAL NO SALES CUSTOMERS		53,198	8,905	5,092	1,768	148	26
19	ANNUAL NO OF TRANS CUSTOMERS		5,727	803	3,173	1,335	303	360
20	ANNUAL NUMBER GAS BILLS		60,032	9,954	8,419	3,141	459	387
21								
22	ANNUAL NO METER EXCL DAILY MET		59,167	9,746	8,119	3,027	161	36
23	ANNUAL NO METERS DAILY METERED		12	36	120	48	288	348
24								
25	TOTAL SALES & TRANSP CUSTOMERS		58,925	9,708	8,266	3,103	450	386
26								
27	NUMBER OF SERVICES		3,523	582	687	256	37	32
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
ALLOCATION FACTOR TABLE CONT-26				
EXTERNALLY DEVELOPED				
UNCOLLECTIBLE ACCOUNTS				
1 RESID NON HTG RATE R-6 & R-11	C904RNH	5,936	0	5,936
2 RESID HEATING RATE R-5 & R-10	C904RH	128,360	128,360	0
3 LOW LF SMALL RATE G40 & T40	C904G40	13,821	0	0
4 LOW LF MEDIUM RATE G41 & T41	C904G41	4,107	0	0
5 LOW LF LARGE RATE G42 & T42	C904G42	0	0	0
6 HIGH LF SMALL RATE G50 & T50	C904G50	2,561	0	0
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	344	0	0
8 HIGH LF LARGE RATE G52 & T52	C904G52	0	0	0
		155,128		
INTERNALLY DEVELOPED				
LATE PAYMENT CHARGES				
9 RESID NON HTG RATE R-6 & R-11	C488RNH	1,035,566	0	1,035,566
10 RESID HEATING RATE R-5 & R-10	C488RH	28,836,279	28,836,279	0
11 LOW LF SMALL RATE G40 & T40	C488G40	10,662,829	0	0
12 LOW LF MEDIUM RATE G41 & T41	C488G41	8,167,565	0	0
13 LOW LF LARGE RATE G42 & T42	C488G42	2,693,545	0	0
14 HIGH LF SMALL RATE G50 & T50	C488G50	1,613,493	0	0
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	2,400,257	0	0
16 HIGH LF LARGE RATE G52 & T52	C488G51	3,370,785	0	0
17		58,780,320		
INTERNALLY DEVELOPED				
WORKING CASH				
21 TOTAL OPERATION & MAINTENANCE EXP		33,860,782	16,073,800	425,076
22 LESS: PURCHASED GAS		20,951,307	9,655,623	125,522
23 904-UNCOLLECTIBLE EXPENSE		448,214	297,218	10,442
24 PLUS: OTHER TAXES		4,467,456	1,977,634	83,846
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)		2,783,666	2,075,280	35,663
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		19,712,383	10,173,873	408,621
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

ALLOCATION FACTOR TABLE CONT-26

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
EXTERNALLY DEVELOPED							
UNCOLLECTIBLE ACCOUNTS							
1 RESID NON HTG RATE R-6 & R-11	C904RNL	0	0	0	0	0	0
2 RESID HEATING RATE R-5 & R-10	C904RH	0	0	0	0	0	0
3 LOW LF SMALL RATE G40 & T40	C904G40	13,821	0	0	0	0	0
4 LOW LF MEDIUM RATE G41 & T41	C904G41	0	0	4,107	0	0	0
5 LOW LF LARGE RATE G42 & T42	C904G42	0	0	0	0	0	0
6 HIGH LF SMALL RATE G50 & T50	C904G50	0	2,561	0	0	0	0
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	0	0	0	344	0	0
8 HIGH LF LARGE RATE G52 & T52	C904G52	0	0	0	0	0	0
INTERNALLY DEVELOPED							
LATE PAYMENT CHARGES							
9 RESID NON HTG RATE R-6 & R-11	C488RNL	0	0	0	0	0	0
10 RESID HEATING RATE R-5 & R-10	C488RH	0	0	0	0	0	0
11 LOW LF SMALL RATE G40 & T40	C488G40	10,662,829	0	0	0	0	0
12 LOW LF MEDIUM RATE G41 & T41	C488G41	0	0	8,167,565	0	0	0
13 LOW LF LARGE RATE G42 & T42	C488G42	0	0	0	0	2,693,545	0
14 HIGH LF SMALL RATE G50 & T50	C488G50	0	1,613,493	0	0	0	0
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	0	0	0	2,400,257	0	0
16 HIGH LF LARGE RATE G52 & T52	C488G51	0	0	0	0	0	3,370,785
17							
INTERNALLY DEVELOPED							
WORKING CASH							
21 TOTAL OPERATION & MAINTENANCE EXP		6,823,144	1,030,379	5,204,104	1,502,087	1,566,034	1,236,158
22 LESS: PURCHASED GAS		4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
23 904-UNCOLLECTIBLE EXPENSE		67,680	10,065	41,542	9,658	9,484	2,126
24 PLUS: OTHER TAXES		716,329	107,396	615,820	181,936	261,215	523,280
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)		612,544	127,576	214,821	45,159	(12,818)	(314,558)
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		3,476,620	564,058	2,366,072	705,781	797,177	1,220,181
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

		ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED-27					
1	ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0
2	ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	3,540,586	1,713,236	80,470
3	ACCT 303-MISC INTANGIBLE PLT	PLT303	3,540,586	1,713,236	80,470
4	ACCT 305-STRUCTURES & IMPROVE	PLT305	161,860	76,792	474
5	ACCT 311-LP GAS EQUIP	PLT311	0	0	0
6	ACCT 320-OTHER EQUIPMENT	PLT320	7,640	3,625	22
7	ACCT 321-LNG EQUIPMENT	PLT321	84,156	39,926	246
8	ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0
9	ACCT 362-GAS HOLDERS	PLT362	0	0	0
10	ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0
11	ACCT 375-STRUCTURES & IMPROVE	PLT375	2,910,194	775,235	9,220
12	ACCT 376-MAINS	PLT376	106,849,866	28,463,298	338,537
13	ACCT 376 MAINS & 380 SERVICES	PLT37680	167,100,182	70,943,565	2,825,926
14	ACCT 378-MEAS & REG STATION EQ	PLT378	3,445,431	917,814	10,916
15	ACCT 379-MEAS & REG CITY GATE	PLT379	39,266	10,460	124
16	ACCT 380-SERVICES	PLT380	60,250,315	42,480,267	2,487,389
17	ACCT 380-SERVICES - COMMERCIAL	PLT380C	11,692,260	0	0
18	ACCT 380-SERVICES - RESIDENTIAL	PLT380R	44,967,656	42,480,267	2,487,389
19	ACCT 380-383-SERV,METRS & REGUL	PLT3803	84,640,514	56,216,496	3,291,700
20	ACCT 381-METERS	PLT381	3,913,705	2,204,145	129,061
21	ACCT 381 - 383 METER & HSE REGUL	PLT3813	24,390,199	13,736,229	804,311
22	ACCT 382-METER INSTALLATION	PLT382	19,938,729	11,229,221	657,516
23	ACCT 383-HOUSE REGULATORS	PLT383	537,766	302,862	17,734
24	ACCT 386-OTHER PROP CUST PREM	PLT386	1,637,356	436,169	5,188
25	ACCT 391-OFFICE FURN & EQUIP	PLT391	420,149	203,304	9,549
26	ACCT 392-TRANSPORTATION EQUIP	PLT392	82,633	0	0
27	ACCT 393-STORES EQUIPMENT	PLT393	31,520	13,713	577
28	ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1,173,029	510,321	21,483
29	ACCT 396-POWER OPERATED EQUIP	PLT396	75,266	32,744	1,378
30	ACCT 397-COMMUNICATION EQUIP	PLT397	1,453,181	703,172	33,028
31	ACCT 397-COMM EQ METSCAN - TEL	PLT397M	112,656	0	0
32	ACCT 397-COMM EQUIP - ITRON	PLT397I	2,936,629	2,188,800	128,163
33	TOTAL PROD & STORAGE PLANT	PSPLT	260,472	123,577	762
34	DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	113,244,758	30,166,807	358,798
35	TOTAL DISTRIBUTION PLANT	DISTRPLT	199,629,651	86,847,981	3,656,025
36	TOTAL GENERAL PLT EX 397M & 397I	GENPLT	3,386,092	1,575,973	71,310
37	TOTAL GAS PLANT IN SERVICE	PLANT	212,059,660	93,490,278	3,943,147
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED-27							
1 ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0	0	0	0	0	0
2 ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	603,670	92,676	444,367	138,408	162,470	305,288
3 ACCT 303-MISC INTANGIBLE PLT	PLT303	603,670	92,676	444,367	138,408	162,470	305,288
4 ACCT 305-STRUCTURES & IMPROVE	PLT305	39,367	1,181	30,987	3,272	8,026	1,762
5 ACCT 311-LP GAS EQUIP	PLT311	0	0	0	0	0	0
6 ACCT 320-OTHER EQUIPMENT	PLT320	1,858	56	1,463	154	379	83
7 ACCT 321-LNG EQUIPMENT	PLT321	20,468	614	16,111	1,701	4,173	916
8 ACCT 361-STRUCTURES & IMPROVE	PLT361	0	0	0	0	0	0
9 ACCT 362-GAS HOLDERS	PLT362	0	0	0	0	0	0
10 ACCT 363-PURIFICATION EQUIPMENT	PLT363	0	0	0	0	0	0
11 ACCT 375-STRUCTURES & IMPROVE	PLT375	431,296	60,251	585,955	165,069	283,274	599,894
12 ACCT 376-MAINS	PLT376	15,835,343	2,212,176	21,513,751	6,060,627	10,400,593	22,025,541
13 ACCT 376 MAINS & 380 SERVICES	PLT37680	25,869,076	3,870,703	23,623,149	6,847,907	10,774,520	22,345,336
14 ACCT 378-MEAS & REG STATION EQ	PLT378	510,619	71,333	693,722	195,428	335,373	710,225
15 ACCT 379-MEAS & REG CITY GATE	PLT379	5,819	813	7,906	2,227	3,822	8,094
16 ACCT 380-SERVICES	PLT380	10,033,733	1,658,527	2,109,398	787,280	373,927	319,795
17 ACCT 380-SERVICES - COMMERCIAL	PLT380C	10,033,733	1,658,527	0	0	0	0
18 ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0	0	0	0	0	0
19 ACCT 380-383-SERV,METRS & REGUL	PLT3803	14,645,154	2,420,773	4,757,761	1,775,715	826,265	706,650
20 ACCT 381-METERS	PLT381	739,959	122,312	424,962	158,606	72,583	62,076
21 ACCT 381 - 383 METER & HSE REGUL	PLT3813	4,611,421	762,245	2,648,363	988,435	452,339	386,856
22 ACCT 382-METER INSTALLATION	PLT382	3,769,788	623,128	2,165,009	808,035	369,782	316,250
23 ACCT 383-HOUSE REGULATORS	PLT383	101,675	16,806	58,392	21,793	9,973	8,530
24 ACCT 386-OTHER PROP CUST PREM	PLT386	242,659	33,899	329,675	92,872	159,378	337,517
25 ACCT 391-OFFICE FURN & EQUIP	PLT391	71,635	10,998	52,732	16,424	19,280	36,227
26 ACCT 392-TRANSPORTATION EQUIP	PLT392	71,635	10,998	0	0	0	0
27 ACCT 393-STORES EQUIPMENT	PLT393	5,003	758	4,407	1,310	1,898	3,854
28 ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	186,192	28,214	164,002	48,759	70,625	143,434
29 ACCT 396-POWER OPERATED EQUIP	PLT396	11,947	1,810	10,523	3,129	4,532	9,203
30 ACCT 397-COMMUNICATION EQUIP	PLT397	247,768	38,038	182,384	56,807	66,683	125,301
31 ACCT 397-COMM EQ METSCAN - TEL	PLT397M	1,587	4,760	15,867	6,347	38,081	46,015
32 ACCT 397-COMM EQUIP - ITRON	PLT397I	456,836	75,250	62,688	23,372	1,243	278
33 TOTAL PROD & STORAGE PLANT	PSPLT	63,351	1,900	49,865	5,266	12,915	2,835
34 DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	16,783,077	2,344,573	22,801,334	6,423,351	11,023,062	23,343,755
35 TOTAL DISTRIBUTION PLANT	DISTRPLT	31,686,752	4,801,461	27,910,318	8,298,009	12,019,122	24,409,983
36 TOTAL GENERAL PLT EX 397M & 397I	GENPLT	562,263	85,915	443,283	135,536	173,707	338,105
37 TOTAL GAS PLANT IN SERVICE	PLANT	33,907,972	5,077,961	29,346,331	8,651,285	12,516,303	25,126,381
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-28				
1 ACCT 717-PROPANE EXPENSES	EXP717	9,492	4,503	28
2 ACCT 718-DISPATCHING PROD	EXP718	0	0	0
3 ACCT 735-MISCELLANEOUS	EXP735	12,805	6,075	37
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	7,688	3,648	22
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	7,713	3,659	23
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0
7 TOTAL GAS COSTS	GASCOSTS	20,951,307	9,655,623	125,522
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	403,550	152,414	1,931
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	349,400	95,387	1,141
10 ACCT 857-879 DIST OPER EXP	EXP8519	1,946,505	940,886	46,923
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0
12 ACCT 874-MAINS & SERVICE EXP	EXP874	682,358	289,700	11,540
13 ACCT 875-REGULAT STATION EXP	EXP875	220,978	58,865	700
14 ACCT 878-METER & HOUSE REG EXP	EXP878	995,427	560,611	32,826
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	47,743	31,710	1,857
16 ACCT 880-OTHER EXPENSE	EXP880	455,698	220,271	10,985
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	6,369	1,697	20
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	172,250	45,885	546
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	93,438	24,891	296
20 ACCT 889-MT OF M & R STA EQ	EXP889	31,746	8,457	101
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	86	23	0
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	53,877	14,534	173
23 ACCT 892-MAINTENANCE OF SERV	EXP892	120,017	84,619	4,955
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	12,495	7,037	412
25 ACCT 902-METER READING EXP	EXP902	110,170	80,316	4,703
26 ACCT 903-CUST RECORDS & COLL	EXP903	1,462,490	971,364	57,397
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	448,214	297,218	10,442
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	155,128	128,360	5,936
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	2,570	1,274	61
30 ACCT 920-ADMIN & GEN SALARY	EXP920	11,770	5,695	268
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	204,409	98,911	4,646
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	3,358,161	1,612,765	74,320
33 ACCT 925-INJURIES & DAMAGES	EXP925	228,942	110,782	5,203
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	233,966	112,997	5,297
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	1,979,724	957,958	44,995
36 ACCT 930-MISC GEN EXP	EXP930	179,698	86,953	4,084
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	11,240	5,232	237
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-28							
1 ACCT 717-PROPANE EXPENSES	EXP717	2,309	69	1,817	192	471	103
2 ACCT 718-DISPATCHING PROD	EXP718	0	0	0	0	0	0
3 ACCT 735-MISCELLANEOUS	EXP735	3,115	93	2,452	259	635	139
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	1,870	56	1,472	155	381	84
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	1,876	56	1,477	156	382	84
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0	0	0	0	0	0
7 TOTAL GAS COSTS	GASCOSTS	4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	76,371	11,193	74,735	20,965	27,909	38,032
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	52,634	7,380	70,015	19,719	33,425	69,700
10 ACCT 857-879 DIST OPER EXP	EXP8519	334,851	52,856	251,729	81,840	84,435	152,986
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0	0	0	0	0	0
12 ACCT 874-MAINS & SERVICE EXP	EXP874	105,637	15,806	96,466	27,964	43,998	91,248
13 ACCT 875-REGULAT STATION EXP	EXP875	32,749	4,575	44,493	12,534	21,510	45,551
14 ACCT 878-METER & HOUSE REG EXP	EXP878	188,204	31,109	108,086	40,341	18,461	15,789
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	8,261	1,365	2,684	1,002	466	399
16 ACCT 880-OTHER EXPENSE	EXP880	78,392	12,374	58,932	19,160	19,767	35,816
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	944	132	1,282	361	620	1,313
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	25,528	3,566	34,682	9,770	16,767	35,507
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	13,848	1,935	18,813	5,300	9,095	19,261
20 ACCT 889-MT OF M & R STA EQ	EXP889	4,705	657	6,392	1,801	3,090	6,544
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	13	2	17	5	8	18
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	8,052	1,127	10,822	3,048	5,198	10,924
23 ACCT 892-MAINTENANCE OF SERV	EXP892	19,987	3,304	4,202	1,568	745	637
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	2,362	391	1,357	506	232	198
25 ACCT 902-METER READING EXP	EXP902	16,797	2,863	2,640	994	862	996
26 ACCT 903-CUST RECORDS & COLL	EXP903	278,443	44,200	70,878	28,469	5,605	6,133
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	67,680	10,065	41,542	9,658	9,484	2,126
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	13,821	2,561	4,107	344	0	0
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	371	64	270	93	126	313
30 ACCT 920-ADMIN & GEN SALARY	EXP920	2,007	308	1,477	460	540	1,015
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	34,852	5,351	25,655	7,991	9,380	17,625
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	574,519	88,052	428,174	132,725	156,785	290,822
33 ACCT 925-INJURIES & DAMAGES	EXP925	39,035	5,993	28,734	8,950	10,506	19,741
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	39,838	6,113	29,429	9,155	10,802	20,336
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	337,543	51,820	248,469	77,391	90,845	170,702
36 ACCT 930-MISC GEN EXP	EXP930	30,638	4,704	22,553	7,025	8,246	15,494
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	1,866	285	1,472	450	577	1,122
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-29				
1 GAS PROD LABOR ACCTS 717-735	LABPO	12,805	6,075	37
2 GAS PROD LABOR ACCTS 741-743	LABPM	15,401	7,307	45
3 DIST LABOR OPER ACCT 851 - 882	LABDO	2,089,647	977,329	47,312
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	204,717	69,564	1,950
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	742,426	498,852	29,442
6 CUST SERV & INFO LABOR ACCT 908	LABSE	160,148	79,381	3,781
7 TOTAL GAS PROD OPER LABOR	TLABPO	25,182	11,947	74
8 TOTAL GAS PROD MAINT LABOR	TLABPM	27,778	13,179	81
9 TOTAL DISTR OPER LABOR	TLABDO	2,121,220	992,096	48,027
10 TOTAL DISTR MAINT LABOR	TLABDM	239,302	81,316	2,280
11 TOTAL DISTRIBUTION LABOR	DISTLAB	2,360,522	1,073,411	50,307
12 TOTAL CUST ACCTS LABOR	TLABCA	742,426	498,852	29,442
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	160,148	79,381	3,781
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	3,531,047	1,757,969	84,714
15 TOTAL GAS O & M LABOR	OMLAB	5,504,256	2,736,465	131,702
16 SUM OF ALLOCATED LABOR EXP	LABOR	6,999,739	3,387,068	159,090
17				
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	5,224,984	2,301,366	96,865
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	37,970,292	19,251,632	913,492
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-29							
1 GAS PROD LABOR ACCTS 717-735	LABPO	3,115	93	2,452	259	635	139
2 GAS PROD LABOR ACCTS 741-743	LABPM	3,746	112	2,948	311	764	168
3 DIST LABOR OPER ACCT 851 - 882	LABDO	357,616	56,106	282,325	90,768	97,929	180,261
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	31,014	4,480	35,553	10,129	16,790	35,236
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	137,990	22,063	33,810	13,527	3,199	3,543
6 CUST SERV & INFO LABOR ACCT 908	LABSE	23,108	3,970	16,803	5,788	7,836	19,483
7 TOTAL GAS PROD OPER LABOR	TLABPO	6,125	184	4,821	509	1,249	274
8 TOTAL GAS PROD MAINT LABOR	TLABPM	6,756	203	5,318	562	1,377	302
9 TOTAL DISTR OPER LABOR	TLABDO	363,020	56,954	286,591	92,140	99,408	182,985
10 TOTAL DISTR MAINT LABOR	TLABDM	36,254	5,237	41,559	11,840	19,627	41,189
11 TOTAL DISTRIBUTION LABOR	DISTLAB	399,274	62,190	328,150	103,980	119,035	224,174
12 TOTAL CUST ACCTS LABOR	TLABCA	137,990	22,063	33,810	13,527	3,199	3,543
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	23,108	3,970	16,803	5,788	7,836	19,483
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	613,939	94,572	428,717	135,534	147,564	268,038
15 TOTAL GAS O & M LABOR	OMLAB	956,082	147,252	669,430	211,469	231,165	420,692
16 SUM OF ALLOCATED LABOR EXP	LABOR	1,193,456	183,221	878,514	273,632	321,203	603,554
17							
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	835,213	125,048	723,807	213,239	309,008	620,438
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	6,079,724	926,061	4,557,294	1,391,857	1,691,540	3,158,691
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-30				

REVENUES FROM GAS SALES				
1 REVENUES FIRM SALES OF GAS		54,051,875	25,844,412	589,604
2 WEATHER ADJ NET REV SALES		732,954	532,432	2,897
3 WEATHER ADJ NET REV TRANS		164,445	0	0
4 CGA REVENUES		20,951,307	9,655,623	125,522
5 BASE REVENUE SALES		24,162,798	14,762,607	453,124
6 BASE REVENUE EXTERNAL SUPPLY		6,532,260	0	0
7 PRODUCTION REVENUES		938,029	433,832	5,609
8 CGA BAD DEBT CHARGES		129,165	60,160	687
9 LOW INCOME DISCOUNT		366,440	365,071	1,368
10 CGA BAD DEBT CHARGES FROM INCR		74,476	34,688	396
11 ANNUALIZATION ADJUSTMENT		0	0	0
12 PRODUCTION REVENUE ADJUSTMENT		0	0	0
REVENUE REQUIREMENT INPUTS				

1 CLAIMED RATE OF RETURN		8.300%	8.300%	8.300%
2 ANNUAL BOOKED CCF SALES & TRANS		69,908,226	17,320,928	239,073
3 PROPOSED SALES REVENUES		58,780,320	28,836,279	1,035,566
4 TOTAL ANNUAL CUSTOMERS		380,179	282,692	16,650
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-30							

REVENUES FROM GAS SALES							
1 REVENUES FIRM SALES OF GAS		10,339,903	1,656,200	8,087,564	2,257,615	2,639,790	2,636,787
2 WEATHER ADJ NET REV SALES		79,255	2,370	89,128	10,134	15,716	1,022
3 WEATHER ADJ NET REV TRANS		13,733	763	86,086	6,576	33,879	23,408
4 CGA REVENUES		4,607,719	691,226	3,627,131	1,013,744	1,007,770	222,573
5 BASE REVENUE SALES		4,788,047	829,300	2,200,668	613,245	433,413	82,394
6 BASE REVENUE EXTERNAL SUPPLY		601,630	93,777	1,889,572	556,906	1,095,736	2,294,638
7 PRODUCTION REVENUES		203,630	32,735	159,911	47,893	43,793	10,627
8 CGA BAD DEBT CHARGES		29,107	3,824	22,242	5,782	6,015	1,348
9 LOW INCOME DISCOUNT		0	0	0	0	0	0
10 CGA BAD DEBT CHARGES FROM INCR		16,783	2,205	12,825	3,334	3,468	777
11 ANNUALIZATION ADJUSTMENT		0	0	0	0	0	0
12 PRODUCTION REVENUE ADJUSTMENT		0	0	0	0	0	0
REVENUE REQUIREMENT INPUTS							

1 CLAIMED RATE OF RETURN		8.300%	8.300%	8.300%	8.300%	8.300%	8.300%
2 ANNUAL BOOKED CCF SALES & TRANS		9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763
3 PROPOSED SALES REVENUES		10,662,829	1,613,493	8,167,565	2,400,257	2,693,545	3,370,785
4 TOTAL ANNUAL CUSTOMERS		58,925	9,708	8,266	3,103	450	386
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE-31

CAPACITY RELATED

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
1 PRODUCTION ALLOCATORS				
2 DES DAY REMANNG DEMNDS - SALES		1.00000	0.47444	0.00293
3 LPG PROD ALLOC-PROD		1.00000	0.47444	0.00293
4 LNG PROD ALLOC-PROD		1.00000	0.47444	0.00293
5 LPG & LNG PROD ALLOC-DISTR		1.00000	0.47444	0.00293
6 LPG PRODUCTION DEMAND	DEMLPG	1.00000	0.47444	0.00293
7 LNG PRODUCTION DEMAND	DEMLNG	1.00000	0.47444	0.00293

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DISTRIBUTION ALLOCATORS

1 DISTRIBUTION ALLOCATOR	DISTR	1.00000	0.26639	0.00317
2 DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	1.00000	0.26639	0.00317

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE-31

CAPACITY RELATED

ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
1 PRODUCTION ALLOCATORS						
2 DES DAY REMANNG DEMNDS - SALES	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
3 LPG PROD ALLOC-PROD	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
4 LNG PROD ALLOC-PROD	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
5 LPG & LNG PROD ALLOC-DISTR	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
6 LPG PRODUCTION DEMAND	DEMLPG	0.24322	0.00729	0.19144	0.02022	0.04958
7 LNG PRODUCTION DEMAND	DEMLNG	0.24322	0.00729	0.19144	0.02022	0.04958

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DISTRIBUTION ALLOCATORS

1 DISTRIBUTION ALLOCATOR	DISTR	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
2 DISTRIBUTION MAINS ALLOCATOR	DISTRMAIN	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE CONT-32				
COMMODITY RELATED				
1 ANNUAL FIRM MCF SENDOUT		1.00000	0.46078	0.00636
2 ANNUAL FIRM CCF THROUGHPUT		1.00000	0.24777	0.00342
3 DIRECT GAS COST ALLOCATOR	EGAS	1.00000	0.46086	0.00599
4 CGA BAD DEBT ALLOCATOR	E904GAS	1.00000	0.46576	0.00532
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6 DIRECT GAS COST - BASE DIST ALLOC	EGASB	1.00000	0.46086	0.00599
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE CONT-32

COMMODITY RELATED

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
1 ANNUAL FIRM MCF SENDOUT		0.21070	0.03806	0.17010	0.05593	0.04636	0.01171
2 ANNUAL FIRM CCF THROUGHPUT		0.13359	0.02404	0.18810	0.06412	0.09667	0.24230
3 DIRECT GAS COST ALLOCATOR	EGAS	0.21993	0.03299	0.17312	0.04839	0.04810	0.01062
4 CGA BAD DEBT ALLOCATOR	E904GAS	0.22534	0.02960	0.17220	0.04476	0.04657	0.01044
5							
6 DIRECT GAS COST - BASE DIST ALLOC	EGASB	0.21993	0.03299	0.17312	0.04839	0.04810	0.01062
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE CONT-33

CUSTOMER RELATED

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
1 ACCT 380-SERVICES	CUST380	1.00000	0.70506	0.04128
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	1.00000	0.56319	0.03298
3 ACCT 386-OTHER PROP CUST PREM	CUST386	1.00000	0.26639	0.00317
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	1.00000	0.00000	0.00000
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	1.00000	0.74534	0.04364
6 CUSTOMER DEPOSITS	CUSTDEP	1.00000	0.18409	0.00965
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	1.00000	0.00000	0.00000
8 ACCT 902-METER READ EXP	CUST902	1.00000	0.72901	0.04269
9 ACCT 903-CUST RECORDS & COLL	CUST903	1.00000	0.66419	0.03925
10 ACCT 488 RECONNECT FEE	CUST488R	1.00000	0.76824	0.04525
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	1.00000	0.49567	0.02361
12 ACCT 909-INFO & INSTR ADVERT	CUST909	1.00000	0.49567	0.02361
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

RATIO TABLE CONT-33

CUSTOMER RELATED

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
1 ACCT 380-SERVICES	CUST380	0.16653	0.02753	0.03501	0.01307	0.00621	0.00531
2 ACCT 381-383 METERS,MET INST,REG	CUST3813	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
3 ACCT 386-OTHER PROP CUST PREM	CUST386	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
4 ACCT 397-COMM EQ METSCAN - TELM	CUST397M	0.01408	0.04225	0.14085	0.05634	0.33803	0.40845
5 ACCT 397-COMM EQUIP - ITRON	CUST397I	0.15556	0.02562	0.02135	0.00796	0.00042	0.00009
6 CUSTOMER DEPOSITS	CUSTDEP	0.33435	0.07583	0.26059	0.13548	0.00000	0.00000
7 CUSTOMERS TRANSPORTSTION	CUSTTRAN	0.48946	0.06862	0.27121	0.11408	0.02586	0.03077
8 ACCT 902-METER READ EXP	CUST902	0.15246	0.02599	0.02397	0.00902	0.00782	0.00904
9 ACCT 903-CUST RECORDS & COLL	CUST903	0.19039	0.03022	0.04846	0.01947	0.00383	0.00419
10 ACCT 488 RECONNECT FEE	CUST488R	0.16013	0.02638	0.00000	0.00000	0.00000	0.00000
11 ACCT 908-CUST ASSISTANCE EXP	CUST908	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166
12 ACCT 909-INFO & INSTR ADVERT	CUST909	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166

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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
RATIO TABLE CONT-34				
EXTERNALLY DEVELOPED				
UNCOLLECTIBLE ACCOUNTS				
1 RESID NON HTG RATE R-6 & R-11	C904RNH	1.00000	0.00000	1.00000
2 RESID HEATING RATE R-5 & R-10	C904RH	1.00000	1.00000	0.00000
3 LOW LF SMALL RATE G40 & T40	C904G40	1.00000	0.00000	0.00000
4 LOW LF MEDIUM RATE G41 & T41	C904G41	1.00000	0.00000	0.00000
5 LOW LF LARGE RATE G42 & T42	C904G42	0.00000	0.00000	0.00000
6 HIGH LF SMALL RATE G50 & T50	C904G50	1.00000	0.00000	0.00000
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	1.00000	0.00000	0.00000
8 HIGH LF LARGE RATE G52 & T52	C904G52	0.00000	0.00000	0.00000
INTERNALLY DEVELOPED				
LATE PAYMENT CHARGES				
9 RESID NON HTG RATE R-6 & R-11	C488RNH	1.00000	0.00000	1.00000
10 RESID HEATING RATE R-5 & R-10	C488RH	1.00000	1.00000	0.00000
11 LOW LF SMALL RATE G40 & T40	C488G40	1.00000	0.00000	0.00000
12 LOW LF MEDIUM RATE G41 & T41	C488G41	1.00000	0.00000	0.00000
13 LOW LF LARGE RATE G42 & T42	C488G42	1.00000	0.00000	0.00000
14 HIGH LF SMALL RATE G50 & T50	C488G50	1.00000	0.00000	0.00000
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	1.00000	0.00000	0.00000
16 HIGH LF LARGE RATE G52 & T52	C488G52	1.00000	0.00000	0.00000
17				
18 INTERNALLY DEVELOPED				
19 WORKING CASH				
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21 TOTAL OPERATION & MAINTENANCE EXP				
22 LESS: PURCHASED GAS				
23 904-UNCOLLECTIBLE EXPENSE				
24 PLUS: OTHER TAXES				
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)				
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		1.00000	0.51612	0.02073
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
RATIO TABLE CONT-34							
EXTERNALLY DEVELOPED							
UNCOLLECTIBLE ACCOUNTS							
1 RESID NON HTG RATE R-6 & R-11	C904RNL	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2 RESID HEATING RATE R-5 & R-10	C904RH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3 LOW LF SMALL RATE G40 & T40	C904G40	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4 LOW LF MEDIUM RATE G41 & T41	C904G41	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000
5 LOW LF LARGE RATE G42 & T42	C904G42	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6 HIGH LF SMALL RATE G50 & T50	C904G50	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000
7 HIGH LF MEDIUM RATE G51 & T51	C904G51	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000
8 HIGH LF LARGE RATE G52 & T52	C904G52	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
INTERNALLY DEVELOPED							
LATE PAYMENT CHARGES							
9 RESID NON HTG RATE R-6 & R-11	C488RNL	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10 RESID HEATING RATE R-5 & R-10	C488RH	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11 LOW LF SMALL RATE G40 & T40	C488G40	1.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12 LOW LF MEDIUM RATE G41 & T41	C488G41	0.00000	0.00000	1.00000	0.00000	0.00000	0.00000
13 LOW LF LARGE RATE G42 & T42	C488G42	0.00000	0.00000	0.00000	0.00000	1.00000	0.00000
14 HIGH LF SMALL RATE G50 & T50	C488G50	0.00000	1.00000	0.00000	0.00000	0.00000	0.00000
15 HIGH LF MEDIUM RATE G51 & T51	C488G51	0.00000	0.00000	0.00000	1.00000	0.00000	0.00000
16 HIGH LF LARGE RATE G52 & T52	C488G52	0.00000	0.00000	0.00000	0.00000	0.00000	1.00000
17							
18 INTERNALLY DEVELOPED							
19 WORKING CASH							
20							
21 TOTAL OPERATION & MAINTENANCE EXP							
22 LESS: PURCHASED GAS							
23 904-UNCOLLECTIBLE EXPENSE							
24 PLUS: OTHER TAXES							
25 PLUS: CURRENT INC TAXES (NEG ST TAX SET TO ZERO)							
26 TOTAL WORKING CASH ALLOCATOR WORKCASH		0.17637	0.02861	0.12003	0.03580	0.04044	0.06190
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED-35				
1 ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0.00000	0.00000	0.00000
2 ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	1.00000	0.48388	0.02273
3 ACCT 303-MISC INTANGIBLE PLT	PLT303	1.00000	0.48388	0.02273
4 ACCT 305-STRUCTURES & IMPROVE	PLT305	1.00000	0.47444	0.00293
5 ACCT 311-LP GAS EQUIP	PLT311	0.00000	0.00000	0.00000
6 ACCT 320-OTHER EQUIPMENT	PLT320	1.00000	0.47444	0.00293
7 ACCT 321-LNG EQUIPMENT	PLT321	1.00000	0.47444	0.00293
8 ACCT 361-STRUCTURES & IMPROVE	PLT361	0.00000	0.00000	0.00000
9 ACCT 362-GAS HOLDERS	PLT362	0.00000	0.00000	0.00000
10 ACCT 363-PURIFICATION EQUIPMENT	PLT363	0.00000	0.00000	0.00000
11 ACCT 375-STRUCTURES & IMPROVE	PLT375	1.00000	0.26639	0.00317
12 ACCT 376-MAINS	PLT376	1.00000	0.26639	0.00317
13 ACCT 376 MAINS & 380 SERVICES	PLT37680	1.00000	0.42456	0.01691
14 ACCT 378-MEAS & REG STATION EQ	PLT378	1.00000	0.26639	0.00317
15 ACCT 379-MEAS & REG CITY GATE	PLT379	1.00000	0.26639	0.00317
16 ACCT 380-SERVICES	PLT380	1.00000	0.70506	0.04128
17 ACCT 380-SERVICES - COMMERCIAL	PLT380C	1.00000	0.00000	0.00000
18 ACCT 380-SERVICES - RESIDENTIAL	PLT380R	1.00000	0.94468	0.05532
19 ACCT 380-383-SERV,METRS & REGUL	PLT3803	1.00000	0.66418	0.03889
20 ACCT 381-METERS	PLT381	1.00000	0.56319	0.03298
21 ACCT 381 - 383 METER & HSE REGUL	PLT3813	1.00000	0.56319	0.03298
22 ACCT 382-METER INSTALLATION	PLT382	1.00000	0.56319	0.03298
23 ACCT 383-HOUSE REGULATORS	PLT383	1.00000	0.56319	0.03298
24 ACCT 386-OTHER PROP CUST PREM	PLT386	1.00000	0.26639	0.00317
25 ACCT 391-OFFICE FURN & EQUIP	PLT391	1.00000	0.48388	0.02273
26 ACCT 392-TRANSPORTATION EQUIP	PLT392	1.00000	0.00000	0.00000
27 ACCT 393-STORES EQUIPMENT	PLT393	1.00000	0.43505	0.01831
28 ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	1.00000	0.43505	0.01831
29 ACCT 396-POWER OPERATED EQUIP	PLT396	1.00000	0.43505	0.01831
30 ACCT 397-COMMUNICATION EQUIP	PLT397	1.00000	0.48388	0.02273
31 ACCT 397-COMM EQ METSCAN - TEL	PLT397M	1.00000	0.00000	0.00000
32 ACCT 397-COMM EQUIP - ITRON	PLT397I	1.00000	0.74534	0.04364
33 TOTAL PROD & STORAGE PLANT	PSPLT	1.00000	0.47444	0.00293
34 DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	1.00000	0.26639	0.00317
35 TOTAL DISTRIBUTION PLANT	DISTRPLT	1.00000	0.43505	0.01831
36 TOTAL GENERAL PLT EX 397M & 397I	GENPLT	1.00000	0.46543	0.02106
37 TOTAL GAS PLANT IN SERVICE	PLANT	1.00000	0.44087	0.01859
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED-35							
1 ACCT 303.2-INTAN SOFTWARE - 10YR	PLT303.2	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
2 ACCT 303.3-INT PLT- MISC SOFTWARE	PLT303.3	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
3 ACCT 303-MISC INTANGIBLE PLT	PLT303	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
4 ACCT 305-STRUCTURES & IMPROVE	PLT305	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
5 ACCT 311-LP GAS EQUIP	PLT311	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
6 ACCT 320-OTHER EQUIPMENT	PLT320	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
7 ACCT 321-LNG EQUIPMENT	PLT321	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
8 ACCT 361-STRUCTURES & IMPROVE	PLT361	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
9 ACCT 362-GAS HOLDERS	PLT362	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
10 ACCT 363-PURIFICATION EQUIPMENT	PLT363	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
11 ACCT 375-STRUCTURES & IMPROVE	PLT375	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
12 ACCT 376-MAINS	PLT376	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
13 ACCT 376 MAINS & 380 SERVICES	PLT37680	0.15481	0.02316	0.14137	0.04098	0.06448	0.13372
14 ACCT 378-MEAS & REG STATION EQ	PLT378	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
15 ACCT 379-MEAS & REG CITY GATE	PLT379	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
16 ACCT 380-SERVICES	PLT380	0.16653	0.02753	0.03501	0.01307	0.00621	0.00531
17 ACCT 380-SERVICES - COMMERCIAL	PLT380C	0.85815	0.14185	0.00000	0.00000	0.00000	0.00000
18 ACCT 380-SERVICES - RESIDENTIAL	PLT380R	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
19 ACCT 380-383-SERV,METRS & REGUL	PLT3803	0.17303	0.02860	0.05621	0.02098	0.00976	0.00835
20 ACCT 381-METERS	PLT381	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
21 ACCT 381 - 383 METER & HSE REGUL	PLT3813	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
22 ACCT 382-METER INSTALLATION	PLT382	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
23 ACCT 383-HOUSE REGULATORS	PLT383	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
24 ACCT 386-OTHER PROP CUST PREM	PLT386	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
25 ACCT 391-OFFICE FURN & EQUIP	PLT391	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
26 ACCT 392-TRANSPORTATION EQUIP	PLT392	0.86691	0.13309	0.00000	0.00000	0.00000	0.00000
27 ACCT 393-STORES EQUIPMENT	PLT393	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
28 ACCT 394-TOOLS, SHOP & GAR EQ	PLT394	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
29 ACCT 396-POWER OPERATED EQUIP	PLT396	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
30 ACCT 397-COMMUNICATION EQUIP	PLT397	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
31 ACCT 397-COMM EQ METSCAN - TEL	PLT397M	0.01408	0.04225	0.14085	0.05634	0.33803	0.40845
32 ACCT 397-COMM EQUIP - ITRON	PLT397I	0.15556	0.02562	0.02135	0.00796	0.00042	0.00009
33 TOTAL PROD & STORAGE PLANT	PSPLT	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
34 DISTRIBUTION STRUCT, MAINS & M&R	DISTOTH	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
35 TOTAL DISTRIBUTION PLANT	DISTRPLT	0.15873	0.02405	0.13981	0.04157	0.06021	0.12228
36 TOTAL GENERAL PLT EX 397M & 397I	GENPLT	0.16605	0.02537	0.13091	0.04003	0.05130	0.09985
37 TOTAL GAS PLANT IN SERVICE	PLANT	0.15990	0.02395	0.13839	0.04080	0.05902	0.11849
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-36				
1 ACCT 717-PROPANE EXPENSES	EXP717	1.00000	0.47444	0.00293
2 ACCT 718-DISPATCHING PROD	EXP718	0.00000	0.00000	0.00000
3 ACCT 735-MISCELLANEOUS	EXP735	1.00000	0.47444	0.00293
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	1.00000	0.47444	0.00293
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	1.00000	0.47444	0.00293
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0.00000	0.00000	0.00000
7 TOTAL GAS COSTS	GASCOSTS	1.00000	0.46086	0.00599
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	1.00000	0.37768	0.00478
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	1.00000	0.27300	0.00326
10 ACCT 857-879 DIST OPER EXP	EXP8519	1.00000	0.48337	0.02411
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0.00000	0.00000	0.00000
12 ACCT 874-MAINS & SERVICE EXP	EXP874	1.00000	0.42456	0.01691
13 ACCT 875-REGULAT STATION EXP	EXP875	1.00000	0.26639	0.00317
14 ACCT 878-METER & HOUSE REG EXP	EXP878	1.00000	0.56319	0.03298
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	1.00000	0.66418	0.03889
16 ACCT 880-OTHER EXPENSE	EXP880	1.00000	0.48337	0.02411
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	1.00000	0.26639	0.00317
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	1.00000	0.26639	0.00317
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	1.00000	0.26639	0.00317
20 ACCT 889-MT OF M & R STA EQ	EXP889	1.00000	0.26639	0.00317
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	1.00000	0.26639	0.00317
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	1.00000	0.26975	0.00322
23 ACCT 892-MAINTENANCE OF SERV	EXP892	1.00000	0.70506	0.04128
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	1.00000	0.56319	0.03298
25 ACCT 902-METER READING EXP	EXP902	1.00000	0.72901	0.04269
26 ACCT 903-CUST RECORDS & COLL	EXP903	1.00000	0.66419	0.03925
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	1.00000	0.66312	0.02330
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	1.00000	0.82745	0.03826
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	1.00000	0.49567	0.02361
30 ACCT 920-ADMIN & GEN SALARY	EXP920	1.00000	0.48388	0.02273
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	1.00000	0.48388	0.02273
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	1.00000	0.48025	0.02213
33 ACCT 925-INJURIES & DAMAGES	EXP925	1.00000	0.48388	0.02273
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	1.00000	0.48296	0.02264
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	1.00000	0.48388	0.02273
36 ACCT 930-MISC GEN EXP	EXP930	1.00000	0.48388	0.02273
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	1.00000	0.46543	0.02106
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-36							
1 ACCT 717-PROPANE EXPENSES	EXP717	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
2 ACCT 718-DISPATCHING PROD	EXP718	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
3 ACCT 735-MISCELLANEOUS	EXP735	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
4 ACCT 741-MAINTENANCE OF PLANT	EXP741	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
5 ACCT 742-MAINTENANCE OF EQUIP	EXP742	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
6 ACCT 743-GAS SYS PROD TRAINING	EXP743	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
7 TOTAL GAS COSTS	GASCOSTS	0.21993	0.03299	0.17312	0.04839	0.04810	0.01062
8 ACCT 813-OTHER GAS SUPPLY EXP	EXP813	0.18925	0.02774	0.18519	0.05195	0.06916	0.09424
9 ACCT 851-SYSTEM CONTROL & DISP	EXP851	0.15064	0.02112	0.20039	0.05644	0.09566	0.19948
10 ACCT 857-879 DIST OPER EXP	EXP8519	0.17203	0.02715	0.12932	0.04204	0.04338	0.07860
11 ACCT 857-MEAS & REG STATION EXP	EXP857	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
12 ACCT 874-MAINS & SERVICE EXP	EXP874	0.15481	0.02316	0.14137	0.04098	0.06448	0.13372
13 ACCT 875-REGULAT STATION EXP	EXP875	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
14 ACCT 878-METER & HOUSE REG EXP	EXP878	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
15 ACCT 879-CUSTOMER INSTALL EXP	EXP879	0.17303	0.02860	0.05621	0.02098	0.00976	0.00835
16 ACCT 880-OTHER EXPENSE	EXP880	0.17203	0.02715	0.12932	0.04204	0.04338	0.07860
17 ACCT 886-MAINT STRUCT & IMPROV	EXP886	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
18 ACCT 894-MAINT OF OTHER EQUIP	EXP894	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
19 ACCT 887-MAINTENANCE OF MAINS	EXP887	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
20 ACCT 889-MT OF M & R STA EQ	EXP889	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
21 ACCT 890-MT OF REG EQ (INDUST)	EXP890	0.14820	0.02070	0.20135	0.05672	0.09734	0.20614
22 ACCT 891-MT OF REG EQ (CITY GATE)	EXP891	0.14944	0.02092	0.20086	0.05658	0.09649	0.20275
23 ACCT 892-MAINTENANCE OF SERV	EXP892	0.16653	0.02753	0.03501	0.01307	0.00621	0.00531
24 ACCT 893-MAINT MET & HOUSE REG	EXP893	0.18907	0.03125	0.10858	0.04053	0.01855	0.01586
25 ACCT 902-METER READING EXP	EXP902	0.15246	0.02599	0.02397	0.00902	0.00782	0.00904
26 ACCT 903-CUST RECORDS & COLL	EXP903	0.19039	0.03022	0.04846	0.01947	0.00383	0.00419
27 ACCT 904-UNCOLLECTIBLE ACCTS	EXP904	0.15100	0.02246	0.09268	0.02155	0.02116	0.00474
28 ACCT 904-UNCOLL ACCTS EXP BASE	EXP904B	0.08909	0.01651	0.02647	0.00222	0.00000	0.00000
29 ACCT 909-INFO & INSTRUCT ADVERT	EXP909	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166
30 ACCT 920-ADMIN & GEN SALARY	EXP920	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
31 ACCT 921-OFFICE SUPPLIES & EXP	EXP921	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
32 ACCT 923-OUTSIDE SERV EMPLOYED	EXP923	0.17108	0.02622	0.12750	0.03952	0.04669	0.08660
33 ACCT 925-INJURIES & DAMAGES	EXP925	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
34 ACCT 924 & 925 PROP & LIABILITY INS	EXP9245	0.17027	0.02613	0.12578	0.03913	0.04617	0.08692
35 ACCT 926-EMPLOY PENSION & BENF	EXP926	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
36 ACCT 930-MISC GEN EXP	EXP930	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
37 ACCT 935-MAINT OF GENERAL PLT	EXP935	0.16605	0.02537	0.13091	0.04003	0.05130	0.09985
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-37				
1 GAS PROD LABOR ACCTS 717-735	LABPO	1.00000	0.47444	0.00293
2 GAS PROD LABOR ACCTS 741-743	LABPM	1.00000	0.47444	0.00293
3 DIST LABOR OPER ACCT 851 - 882	LABDO	1.00000	0.46770	0.02264
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	1.00000	0.33980	0.00953
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	1.00000	0.67192	0.03966
6 CUST SERV & INFO LABOR ACCT 908	LABSE	1.00000	0.49567	0.02361
7 TOTAL GAS PROD OPER LABOR	TLABPO	1.00000	0.47444	0.00293
8 TOTAL GAS PROD MAINT LABOR	TLABPM	1.00000	0.47444	0.00293
9 TOTAL DISTR OPER LABOR	TLABDO	1.00000	0.46770	0.02264
10 TOTAL DISTR MAINT LABOR	TLABDM	1.00000	0.33980	0.00953
11 TOTAL DISTRIBUTION LABOR	DISTLAB	1.00000	0.45473	0.02131
12 TOTAL CUST ACCTS LABOR	TLABCA	1.00000	0.67192	0.03966
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	1.00000	0.49567	0.02361
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	1.00000	0.49786	0.02399
15 TOTAL GAS O & M LABOR	OMLAB	1.00000	0.49715	0.02393
16 SUM OF ALLOCATED LABOR EXP	LABOR	1.00000	0.48388	0.02273
17				
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	1.00000	0.44045	0.01854
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	1.00000	0.50702	0.02406
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
INTERNALLY DEVELOPED CONT-37							
1 GAS PROD LABOR ACCTS 717-735	LABPO	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
2 GAS PROD LABOR ACCTS 741-743	LABPM	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
3 DIST LABOR OPER ACCT 851 - 882	LABDO	0.17114	0.02685	0.13511	0.04344	0.04686	0.08626
4 DIST LABOR MAINT ACCT 886 - 894	LABDM	0.15150	0.02188	0.17367	0.04948	0.08202	0.17212
5 CUST ACCTS LABOR ACCT 902 - 903	LABCA	0.18586	0.02972	0.04554	0.01822	0.00431	0.00477
6 CUST SERV & INFO LABOR ACCT 908	LABSE	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166
7 TOTAL GAS PROD OPER LABOR	TLABPO	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
8 TOTAL GAS PROD MAINT LABOR	TLABPM	0.24322	0.00729	0.19144	0.02022	0.04958	0.01088
9 TOTAL DISTR OPER LABOR	TLABDO	0.17114	0.02685	0.13511	0.04344	0.04686	0.08626
10 TOTAL DISTR MAINT LABOR	TLABDM	0.15150	0.02188	0.17367	0.04948	0.08202	0.17212
11 TOTAL DISTRIBUTION LABOR	DISTLAB	0.16915	0.02635	0.13902	0.04405	0.05043	0.09497
12 TOTAL CUST ACCTS LABOR	TLABCA	0.18586	0.02972	0.04554	0.01822	0.00431	0.00477
13 CUSTOMER SERVICE & INFO LABOR	TLABSE	0.14429	0.02479	0.10492	0.03614	0.04893	0.12166
14 TOTAL GAS LABOR EXCL A&G	LABORXAG	0.17387	0.02678	0.12141	0.03838	0.04179	0.07591
15 TOTAL GAS O & M LABOR	OMLAB	0.17370	0.02675	0.12162	0.03842	0.04200	0.07643
16 SUM OF ALLOCATED LABOR EXP	LABOR	0.17050	0.02618	0.12551	0.03909	0.04589	0.08623
17							
18 DEFERRED INCOME TAXES PRELIM	DEFTAX	0.15985	0.02393	0.13853	0.04081	0.05914	0.11874
19 REV CLAIMED ROR LESS GAS COSTS	REVCLAIM	0.16012	0.02439	0.12002	0.03666	0.04455	0.08319
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	TOTAL COMPANY (1)-1	RESIDENTIAL HEATING RATE R-5 & R-10 (2)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (3)
INTERNALLY DEVELOPED CONT-38				
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NORTHERN - NEW HAMPSHIRE
GAS COST OF SERVICE STUDY
12 MONTHS ENDED DECEMBER 31, 2016

	ALLOC	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
1	INTERNALLY DEVELOPED CONT-38						
2	-----						
3	REVENUES FROM GAS SALES						
4	REVENUES FIRM SALES OF GAS	0.19130	0.03064	0.14963	0.04177	0.04884	0.04878
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Northern Utilities - NH
Sales and Demand Model
Input Data

Service Area
Northern - NH

Weather Data to Use
New Hampshire

Class Names:	Sales or Transportation
1 R-6 Resi Non-Heat Sales	S
2 R-11 Resi Non-Heat Low Income	S
3 R-5 Resi Heating Sales	S
4 R-10 Resi Heating Low Income	S
5 G-40 GS Small Hi Wtr Sales	S
6 G-50 GS Small Low Wtr Sales	S
7 G-41 GS Med Hi Wtr Sales	S
8 G-51 GS Med Low Wtr Sales	S
9 G-42 GS Large Hi Wtr Sales	S
10 G-52 GS Large Low Wtr Sales	S
11 T-40 GS Small Hi Wtr Trans	T
12 T-50 GS Small Low Wtr Trans	T
13 T-41 GS Med Hi Wtr Trans	T
14 T-51 GS Med Low Wtr Trans	T
15 T-42 GS Large Hi Wtr Trans	T
16 T-52 GS Large Low Wtr Trans	T
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23	
24	
25	
26	
27	
28	
29	
30 Total	
31 Total Sales	
32 Total Transportation	
33 Total Other	

Northern Utilities - NH
Sales and Demand Model
Input Data

MONTHS	Nov-16	Dec-16	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Total	Winter	Summer
Number of Non Zero Use Customers (this is NOT Bills or Number of Customers Billed)															
1 R-6 Resi Non-Heat Sales	1,206	1,151	1,159	1,154	1,134	1,182	1,251	1,288	1,251	1,278	1,249	1,250	14,553	6,986	7,567
2 R-11 Resi Non-Heat Low Incom	0	0	5	5	5	5	5	5	5	5	4	4	48	20	28
3 R-5 Resi Heating Sales	22,719	23,144	22,317	22,240	22,284	22,316	21,994	20,619	19,497	19,424	19,527	21,445	257,528	135,021	122,506
4 R-10 Resi Heating Low Incom	710	689	1,022	1,134	1,134	1,135	1,273	1,044	1,011	988	985	929	12,052	5,823	6,230
5 G-40 GS Small Hi Wtr Sales	4,228	4,469	4,427	4,479	4,442	4,358	4,123	3,087	2,184	2,091	2,306	3,502	43,696	26,403	17,293
6 G-50 GS Small Low Wtr Sales	656	645	646	635	662	673	704	709	689	681	700	682	8,082	3,917	4,165
7 G-41 GS Med Hi Wtr Sales	372	372	452	449	448	448	446	407	357	342	299	365	4,757	2,541	2,216
8 G-51 GS Med Low Wtr Sales	146	147	148	149	149	147	148	142	138	136	125	142	1,717	886	831
9 G-42 GS Large Hi Wtr Sales	10	9	14	14	15	14	16	15	15	16	8	9	155	76	79
10 G-52 GS Large Low Wtr Sales	2	2	3	3	2	2	2	2	2	2	2	2	26	14	12
11 T-40 GS Small Hi Wtr Trans	467	489	443	443	467	473	475	429	403	383	406	445	5,323	2,782	2,541
12 T-50 GS Small Low Wtr Trans	69	69	63	62	64	63	61	61	59	61	79	69	780	390	390
13 T-41 GS Med Hi Wtr Trans	254	262	266	269	272	270	272	262	235	237	222	250	3,071	1,593	1,478
14 T-51 GS Med Low Wtr Trans	112	112	110	111	110	110	109	111	110	112	104	112	1,323	665	658
15 T-42 GS Large Hi Wtr Trans	25	24	24	26	25	24	24	24	24	24	25	24	293	148	145
16 T-52 GS Large Low Wtr Trans	30	29	27	27	29	30	30	30	30	30	30	30	352	172	180
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30 Total	31,006	31,613	31,126	31,200	31,242	31,250	30,933	28,235	26,010	25,810	26,071	29,260	353,756	187,437	166,319
31 Total Sales	30,049	30,628	30,193	30,262	30,275	30,280	29,962	27,318	25,149	24,963	25,205	28,330	342,614	181,687	160,927
32 Total Transportation	957	985	933	938	967	970	971	917	861	847	866	930	11,142	5,750	5,392
33 Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Input Data

	Nov-16	Dec-16	Jan-16	Feb-16	Mar-16	Apr-16	May-16	Jun-16	Jul-16	Aug-16	Sep-16	Oct-16	Total	Winter	Summer
Sales Volumes, Therms															
1 R-6 Resi Non-Heat Sales	15,963	22,784	27,160	29,306	25,969	21,483	18,529	15,725	14,514	13,602	12,992	13,528	231,556	142,665	88,892
2 R-11 Resi Non-Heat Low Incom	0	0	59	64	62	62	50	90	63	64	52	75	641	247	394
3 R-5 Resi Heating Sales	1,184,720	2,235,630	2,493,922	2,868,395	2,339,474	1,607,846	971,024	453,584	305,866	322,759	310,648	534,067	15,627,934	12,729,987	2,897,948
4 R-10 Resi Heating Low Incom	32,069	57,967	99,623	120,440	102,649	75,149	61,002	16,895	12,002	12,446	13,024	20,570	623,834	487,895	135,939
5 G-40 GS Small Hi Wtr Sales	555,754	1,176,133	1,292,417	1,489,043	1,171,240	759,403	386,781	144,110	77,918	90,820	92,317	193,726	7,429,662	6,443,990	985,673
6 G-50 GS Small Low Wtr Sales	104,546	126,973	132,099	145,813	137,247	118,243	106,003	114,232	102,123	119,171	111,669	98,035	1,416,154	764,921	651,234
7 G-41 GS Med Hi Wtr Sales	445,627	801,274	1,032,104	1,125,534	917,521	601,388	339,618	162,093	95,044	113,618	111,578	214,657	5,960,055	4,923,448	1,036,607
8 G-51 GS Med Low Wtr Sales	161,270	193,626	211,768	228,643	185,466	179,729	171,288	141,737	115,670	129,484	139,951	153,288	2,011,920	1,160,502	851,418
9 G-42 GS Large Hi Wtr Sales	123,416	189,802	286,794	233,030	245,104	210,148	120,643	69,506	47,711	45,106	17,534	62,665	1,651,460	1,288,294	363,166
10 G-52 GS Large Low Wtr Sales	33,911	44,083	87,635	41,755	42,139	29,777	24,191	26,735	24,675	25,505	28,946	24,354	433,706	279,300	154,406
11 T-40 GS Small Hi Wtr Trans	106,599	200,165	206,938	228,987	198,067	140,086	86,946	40,525	24,728	23,499	23,647	53,186	1,333,374	1,080,842	252,531
12 T-50 GS Small Low Wtr Trans	18,630	23,535	24,936	27,262	26,346	21,219	17,324	17,783	14,823	17,336	18,353	17,704	245,250	141,928	103,322
13 T-41 GS Med Hi Wtr Trans	523,646	868,558	970,313	1,090,623	924,662	662,621	426,799	202,000	120,864	126,080	144,408	273,944	6,334,517	5,040,423	1,294,095
14 T-51 GS Med Low Wtr Trans	184,197	222,186	239,828	261,645	245,436	202,247	177,401	171,008	142,591	166,481	148,996	162,136	2,324,152	1,355,539	968,614
15 T-42 GS Large Hi Wtr Trans	441,535	658,586	700,845	727,838	540,449	419,095	281,754	169,514	156,052	157,659	223,958	330,909	4,808,193	3,488,348	1,319,845
16 T-52 GS Large Low Wtr Trans	1,448,393	1,344,347	1,632,849	1,526,704	1,495,040	1,372,925	1,270,515	1,206,449	1,169,880	1,286,372	1,253,506	1,331,207	16,338,188	8,820,259	7,517,929
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30 Total	5,380,276	8,165,648	9,439,292	10,145,081	8,596,869	6,421,422	4,459,867	2,951,987	2,424,523	2,650,002	2,651,580	3,484,052	66,770,598	48,148,587	18,622,010
31 Total Sales	2,657,275	4,848,272	5,663,582	6,282,022	5,166,869	3,603,228	2,199,128	1,144,708	795,586	872,575	838,712	1,314,966	35,386,923	28,221,248	7,165,675
32 Total Transportation	2,723,001	3,317,376	3,775,710	3,863,059	3,430,000	2,818,194	2,260,738	1,807,279	1,628,937	1,777,427	1,812,868	2,169,085	31,383,675	19,927,339	11,456,335
33 Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Input Data

Billing Month Sales Percentage for Current Calendar Month

	November	December	January	February	March	April	May	June	July	August	September	October
1 R-6 Resi Non-Heat Sales	46.21%	48.83%	55.07%	46.33%	50.53%	53.83%	45.51%	49.40%	48.11%	47.00%	48.94%	64.80%
2 R-11 Resi Non-Heat Low Incom	46.21%	48.83%	55.07%	46.33%	50.53%	53.83%	45.51%	49.40%	48.11%	47.00%	48.94%	64.80%
3 R-5 Resi Heating Sales	50.66%	52.73%	55.57%	46.44%	49.27%	53.47%	45.21%	50.05%	50.96%	49.78%	52.36%	68.02%
4 R-10 Resi Heating Low Incom	50.66%	52.73%	55.57%	46.44%	49.27%	53.47%	45.21%	50.05%	50.96%	49.78%	52.36%	68.02%
5 G-40 GS Small Hi Wtr Sales	56.27%	58.99%	59.78%	49.51%	51.44%	56.12%	46.53%	51.58%	53.11%	52.78%	57.81%	71.46%
6 G-50 GS Small Low Wtr Sales	47.97%	51.55%	56.84%	48.87%	52.67%	55.03%	47.94%	51.04%	49.78%	48.45%	49.81%	65.25%
7 G-41 GS Med Hi Wtr Sales	55.39%	59.90%	60.41%	49.50%	52.26%	55.96%	47.66%	51.95%	49.58%	50.80%	54.88%	70.21%
8 G-51 GS Med Low Wtr Sales	50.91%	55.84%	54.73%	45.78%	55.06%	55.05%	45.97%	51.22%	52.16%	49.98%	53.72%	66.02%
9 G-42 GS Large Hi Wtr Sales	83.75%	82.54%	78.92%	66.41%	70.26%	75.81%	64.12%	67.11%	71.13%	68.67%	71.92%	88.69%
10 G-52 GS Large Low Wtr Sales	71.02%	74.44%	84.40%	70.26%	73.73%	73.15%	64.37%	69.70%	70.69%	64.44%	73.33%	77.57%
11 T-40 GS Small Hi Wtr Trans	52.15%	56.62%	57.71%	48.00%	52.05%	54.88%	47.86%	52.16%	53.03%	53.61%	55.61%	67.51%
12 T-50 GS Small Low Wtr Trans	48.05%	50.20%	52.41%	44.94%	49.91%	53.77%	49.08%	51.66%	52.10%	49.76%	53.79%	66.49%
13 T-41 GS Med Hi Wtr Trans	57.86%	60.00%	62.25%	53.72%	55.71%	59.60%	51.59%	55.06%	60.76%	58.95%	63.21%	72.91%
14 T-51 GS Med Low Wtr Trans	50.85%	53.31%	55.97%	47.39%	51.61%	55.00%	48.83%	52.08%	53.98%	51.63%	54.27%	67.70%
15 T-42 GS Large Hi Wtr Trans	97.30%	97.22%	96.57%	94.66%	96.48%	96.99%	95.98%	96.48%	97.85%	97.29%	98.26%	98.62%
16 T-52 GS Large Low Wtr Trans	99.28%	99.23%	99.35%	99.10%	99.23%	99.27%	99.24%	99.20%	99.38%	99.17%	99.27%	99.44%
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Northern Utilities - NH
Sales and Demand Model
Normalization Calculations

	November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
CUSTOMERS															
1 R-6 Resi Non-Heat Sales	1,206	1,151	1,159	1,154	1,134	1,182	1,251	1,288	1,251	1,278	1,249	1,250	14,553	6,986	7,567
2 R-11 Resi Non-Heat Low Incr	-	-	5	5	5	5	5	5	5	5	4	4	48	20	28
3 R-5 Resi Heating Sales	22,719	23,144	22,317	22,240	22,284	22,316	21,994	20,619	19,497	19,424	19,527	21,445	257,528	135,021	122,506
4 R-10 Resi Heating Low Incon	710	689	1,022	1,134	1,134	1,135	1,273	1,044	1,011	988	985	929	12,052	5,823	6,230
5 G-40 GS Small Hi Wtr Sales	4,228	4,469	4,427	4,479	4,442	4,358	4,123	3,087	2,184	2,091	2,306	3,502	43,696	26,403	17,293
6 G-50 GS Small Low Wtr Sale	656	645	646	635	662	673	704	709	689	681	700	682	8,082	3,917	4,165
7 G-41 GS Med Hi Wtr Sales	372	372	452	449	448	448	446	407	357	342	299	365	4,757	2,541	2,216
8 G-51 GS Med Low Wtr Sales	146	147	148	149	149	147	148	142	138	136	125	142	1,717	886	831
9 G-42 GS Large Hi Wtr Sales	10	9	14	14	15	14	16	15	15	16	8	9	155	76	79
10 G-52 GS Large Low Wtr Sale	2	2	3	3	2	2	2	2	2	2	2	2	26	14	12
11 T-40 GS Small Hi Wtr Trans	467	489	443	443	467	473	475	429	403	383	406	445	5,323	2,782	2,541
12 T-50 GS Small Low Wtr Tran:	69	69	63	62	64	63	61	61	59	61	79	69	780	390	390
13 T-41 GS Med Hi Wtr Trans	254	262	266	269	272	270	272	262	235	237	222	250	3,071	1,593	1,478
14 T-51 GS Med Low Wtr Trans	112	112	110	111	110	110	109	111	110	112	104	112	1,323	665	658
15 T-42 GS Large Hi Wtr Trans	25	24	24	26	25	24	24	24	24	24	25	24	293	148	145
16 T-52 GS Large Low Wtr Tran:	30	29	27	27	29	30	30	30	30	30	30	30	352	172	180
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30 Total	31,006	31,613	31,126	31,200	31,242	31,250	30,933	28,235	26,010	25,810	26,071	29,260	353,756	187,437	166,319
31 Total Sales	30,049	30,628	30,193	30,262	30,275	30,280	29,962	27,318	25,149	24,963	25,205	28,330	342,614	181,687	160,927
32 Total Transportation	957	985	933	938	967	970	971	917	861	847	866	930	11,142	5,750	5,392
33 Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**Northern Utilities - NH
Sales and Demand Model
Normalization Calculations**

BILLING MONTH		November	December	January	February	March	April	May	June	July	August	September	October	TOTAL	WINTER	SUMMER
SALES, THERMS																
1	R-6 Resi Non-Heat Sales	15,963	22,784	27,160	29,306	25,969	21,483	18,529	15,725	14,514	13,602	12,992	13,528	231,556	142,665	88,892
2	R-11 Resi Non-Heat Low Incr	-	-	59	64	62	62	50	90	63	64	52	75	641	247	394
3	R-5 Resi Heating Sales	1,184,720	2,235,630	2,493,922	2,868,395	2,339,474	1,607,846	971,024	453,584	305,866	322,759	310,648	534,067	15,627,934	12,729,987	2,897,948
4	R-10 Resi Heating Low Incon	32,069	57,967	99,623	120,440	102,649	75,149	61,002	16,895	12,002	12,446	13,024	20,570	623,834	487,895	135,939
5	G-40 GS Small Hi Wtr Sales	555,754	1,176,133	1,292,417	1,489,043	1,171,240	759,403	386,781	144,110	77,918	90,820	92,317	193,726	7,429,662	6,443,990	985,673
6	G-50 GS Small Low Wtr Sale	104,546	126,973	132,099	145,813	137,247	118,243	106,003	114,232	102,123	119,171	111,669	98,035	1,416,154	764,921	651,234
7	G-41 GS Med Hi Wtr Sales	445,627	801,274	1,032,104	1,125,534	917,521	601,388	339,618	162,093	95,044	113,618	111,578	214,657	5,960,055	4,923,448	1,036,607
8	G-51 GS Med Low Wtr Sales	161,270	193,626	211,768	228,643	185,466	179,729	171,288	141,737	115,670	129,484	139,951	153,288	2,011,920	1,160,502	851,418
9	G-42 GS Large Hi Wtr Sales	123,416	189,802	286,794	233,030	245,104	210,148	120,643	69,506	47,711	45,106	17,534	62,665	1,651,460	1,288,294	363,166
10	G-52 GS Large Low Wtr Sale	33,911	44,083	87,635	41,755	42,139	29,777	24,191	26,735	24,675	25,505	28,946	24,354	433,706	279,300	154,406
11	T-40 GS Small Hi Wtr Trans	106,599	200,165	206,938	228,987	198,067	140,086	86,946	40,525	24,728	23,499	23,647	53,186	1,333,374	1,080,842	252,531
12	T-50 GS Small Low Wtr Tran:	18,630	23,535	24,936	27,262	26,346	21,219	17,324	17,783	14,823	17,336	18,353	17,704	245,250	141,928	103,322
13	T-41 GS Med Hi Wtr Trans	523,646	868,558	970,313	1,090,623	924,662	662,621	426,799	202,000	120,864	126,080	144,408	273,944	6,334,517	5,040,423	1,294,095
14	T-51 GS Med Low Wtr Trans	184,197	222,186	239,828	261,645	245,436	202,247	177,401	171,008	142,591	166,481	148,996	162,136	2,324,152	1,355,539	968,614
15	T-42 GS Large Hi Wtr Trans	441,535	658,586	700,845	727,838	540,449	419,095	281,754	169,514	156,052	157,659	223,958	330,909	4,808,193	3,488,348	1,319,845
16	T-52 GS Large Low Wtr Tran:	1,448,393	1,344,347	1,632,849	1,526,704	1,495,040	1,372,925	1,270,515	1,206,449	1,169,880	1,286,372	1,253,506	1,331,207	16,338,188	8,820,259	7,517,929
17		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Total	5,380,276	8,165,648	9,439,292	10,145,081	8,596,869	6,421,422	4,459,867	2,951,987	2,424,523	2,650,002	2,651,580	3,484,052	66,770,598	48,148,587	18,622,010
31	Total Sales	2,657,275	4,848,272	5,663,582	6,282,022	5,166,869	3,603,228	2,199,128	1,144,708	795,586	872,575	838,712	1,314,966	35,386,923	28,221,248	7,165,675
32	Total Transportation	2,723,001	3,317,376	3,775,710	3,863,059	3,430,000	2,818,194	2,260,738	1,807,279	1,628,937	1,777,427	1,812,868	2,169,085	31,383,675	19,927,339	11,456,335
33	Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Normalizations Calculations

Class Number = 1

R-6 Resi Non-Heat Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 11.12	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	1,206	15,963	13,407	2,556	531	557	(26)	4.81	125	2,681	16,088	13.24	\$0.42140	\$53
2	December	1,151	22,784	12,796	9,988	931	935	(4)	10.73	43	10,030	22,826	19.79	\$0.42140	\$18
3	January	1,159	27,160	12,885	14,275	1,066	1,269	(203)	13.39	2,716	16,991	29,876	23.43	\$0.42140	\$1,144
4	February	1,154	29,306	12,829	16,476	1,182	1,308	(126)	13.93	1,754	18,230	31,060	25.39	\$0.42140	\$739
5	March	1,134	25,969	12,607	13,362	1,025	1,184	(159)	13.04	2,070	15,432	28,039	22.90	\$0.42140	\$872
6	April	1,182	21,483	13,140	8,343	738	747	(9)	11.30	102	8,445	21,585	18.18	\$0.42140	\$43
7	May	1,251	18,529	13,908	4,622	489	444	45	9.45	(428)	4,194	18,101	14.81	\$0.42140	(\$180)
8	June	1,288	15,725	14,319	1,406	147	198	(52)	9.58	494	1,900	16,219	12.21	\$0.42140	\$208
9	July	1,251	14,514	13,908	-	19	26	(7)	0.00	0	0	14,514	11.60	\$0.42140	\$0
10	August	1,278	13,602	14,209	-	2	8	(5)	0.00	0	0	13,602	10.64	\$0.42140	\$0
11	September	1,249	12,992	13,885	-	14	53	(39)	0.00	0	0	12,992	10.40	\$0.42140	\$0
12	October	1,250	13,528	13,896	-	253	275	(22)	0.00	0	0	13,528	10.82	\$0.42140	\$0
13															
14	Total	1,213	231,556	161,790	71,028	6,398	7,004	(607)		6,875	77,903	238,432	193		\$ 2,897
15	Winter	1,164	142,665	77,665	65,000	5,473	5,999	(526)		6,809	71,809	149,474	123		\$ 2,869
16	Summer	1,261	88,892	84,125	6,028	925	1,005	(80)		66	6,094	88,958	70		\$ 28

Northern Utilities - NH
Sales and Demand Model
Normalization Calculations

Class Number = 2

R-11 Resi Non-Heat Low Income

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 12.78	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	0	0	0	-	531	557	(26)	0.00	0	0	0	0.00	\$0.31960	\$0
2	December	0	0	0	-	931	935	(4)	0.00	0	0	0	0.00	\$0.31960	\$0
3	January	5	59	64	-	1,066	1,269	(203)	0.00	0	0	59	11.81	\$0.31960	\$0
4	February	5	64	64	1	1,182	1,308	(126)	0.00	0	0	64	12.89	\$0.31960	\$0
5	March	5	62	64	-	1,025	1,184	(159)	0.00	0	0	62	12.38	\$0.31960	\$0
6	April	5	62	64	-	738	747	(9)	0.00	0	0	62	12.35	\$0.31960	\$0
7	May	5	50	64	-	489	444	45	0.00	0	0	50	10.05	\$0.31960	\$0
8	June	5	90	64	26	147	198	(52)	0.18	0	0	90	18.07	\$0.31960	\$0
9	July	5	63	64	-	19	26	(7)	0.00	0	0	63	12.52	\$0.31960	\$0
10	August	5	64	62	-	2	8	(5)	0.00	0	0	64	13.05	\$0.31960	\$0
11	September	4	52	51	1	14	53	(39)	0.09	0	0	52	13.10	\$0.31960	\$0
12	October	4	75	51	24	253	275	(22)	0.09	0	0	75	18.76	\$0.31960	\$0
13															
14	Total	4	641	612	52	6,398	7,004	(607)		0	0	641	135		\$ -
15	Winter	3	247	256	1	5,473	5,999	(526)		0	0	247	49		\$ -
16	Summer	5	394	356	52	925	1,005	(80)		0	0	394	86		\$ -

Northern Utilities - NH
Sales and Demand Model
Normalization Calculations

Class Number = 3

R-5 Resi Heating Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 16.15	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	22,719	1,184,720	366,947	817,773	555	581	(26)	1,474.25	38,229	856,002	1,222,949	52.15	\$0.51030	\$19,508
2	December	23,144	2,235,630	373,807	1,861,823	942	944	(2)	1,976.04	4,249	1,866,072	2,239,879	96.60	\$0.51030	\$2,168
3	January	22,317	2,493,922	360,448	2,133,474	1,067	1,269	(202)	1,999.69	404,469	2,537,944	2,898,392	111.75	\$0.51030	\$206,401
4	February	22,240	2,868,395	359,208	2,509,186	1,177	1,302	(125)	2,131.63	266,875	2,776,061	3,135,270	128.97	\$0.51030	\$136,186
5	March	22,284	2,339,474	359,917	1,979,557	1,035	1,189	(154)	1,912.53	293,701	2,273,258	2,633,174	104.98	\$0.51030	\$149,875
6	April	22,316	1,607,846	360,432	1,247,414	738	748	(10)	1,690.48	16,569	1,263,983	1,624,415	72.05	\$0.51030	\$8,455
7	May	21,994	971,024	355,237	615,787	492	447	45	1,251.89	(56,507)	559,279	914,516	44.15	\$0.54490	(\$30,791)
8	June	20,619	453,584	333,019	120,565	145	197	(52)	831.04	42,882	163,446	496,466	22.00	\$0.54490	\$23,366
9	July	19,497	305,866	314,908	-	19	25	(6)	0.00	0	0	305,866	15.69	\$0.54490	\$0
10	August	19,424	322,759	313,717	-	2	8	(6)	0.00	0	0	322,759	16.62	\$0.54490	\$0
11	September	19,527	310,648	315,382	-	18	58	(41)	0.00	0	0	310,648	15.91	\$0.54490	\$0
12	October	21,445	534,067	346,368	187,699	267	289	(22)	702.70	15,344	203,044	549,411	24.90	\$0.54490	\$8,361
13															
14	Total	21,461	15,627,934	4,159,390	11,473,279	6,457	7,057	(600)		1,025,811	12,499,089	16,653,745	706		\$ 523,531
15	Winter	22,504	12,729,987	2,180,759	10,549,228	5,514	6,033	(519)		1,024,092	11,573,320	13,754,079	566		\$ 522,594
16	Summer	20,418	2,897,948	1,978,631	924,051	943	1,024	(81)		1,719	925,769	2,899,666	139		\$ 936

Northern Utilities - NH
Sales and Demand Model
Normalization Calculations

Class Number = 4

R-10 Resi Heating Low Income

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 12.23	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	710	32,069	8,679	23,389	555	581	(26)	42.17	1,093	24,483	33,162	45.19	\$0.24960	\$273
2	December	689	57,967	8,426	49,541	942	944	(2)	52.58	113	49,654	58,080	84.15	\$0.20410	\$23
3	January	1,022	99,623	12,500	87,123	1,067	1,269	(202)	81.66	16,517	103,640	116,140	97.48	\$0.20410	\$3,371
4	February	1,134	120,440	13,867	106,573	1,177	1,302	(125)	90.54	11,335	117,908	131,775	106.24	\$0.20410	\$2,313
5	March	1,134	102,649	13,868	88,780	1,035	1,189	(154)	85.77	13,172	101,952	115,821	90.53	\$0.20410	\$2,688
6	April	1,135	75,149	13,882	61,267	738	748	(10)	83.03	814	62,081	75,963	66.21	\$0.20410	\$166
7	May	1,273	61,002	15,566	45,436	492	447	45	92.37	(4,169)	41,267	56,832	47.93	\$0.21790	(\$909)
8	June	1,044	16,895	12,772	4,123	145	197	(52)	28.42	1,466	5,589	18,361	16.18	\$0.21790	\$320
9	July	1,011	12,002	12,360	-	19	25	(6)	0.00	0	0	12,002	11.88	\$0.21790	\$0
10	August	988	12,446	12,088	-	2	8	(6)	0.00	0	0	12,446	12.59	\$0.21790	\$0
11	September	985	13,024	12,050	973	18	58	(41)	55.32	2,255	3,228	15,279	13.22	\$0.21790	\$491
12	October	929	20,570	11,360	9,210	267	289	(22)	34.48	753	9,963	21,323	22.15	\$0.21790	\$164
13															
14	Total	1,004	623,834	147,418	476,416	6,457	7,057	(600)		43,349	519,765	667,183	614		\$ 8,902
15	Winter	970	487,895	71,222	416,674	5,514	6,033	(519)		43,044	459,718	530,940	490		\$ 8,835
16	Summer	1,038	135,939	76,196	59,742	943	1,024	(81)		305	60,047	136,243	124		\$ 66

**Northern Utilities - NH
Sales and Demand Model
Normalization Calculations**

Class Number = 5

G-40 GS Small Hi Wtr Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 39.47	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	4,228	555,754	166,882	388,872	591	617	(25)	657.45	16,514	405,386	572,268	131.45	\$0.16150	\$2,667
2	December	4,469	1,176,133	176,395	999,738	959	954	4	1,042.94	(4,420)	995,318	1,171,713	263.18	\$0.16150	(\$714)
3	January	4,427	1,292,417	174,737	1,117,680	1,079	1,257	(178)	1,035.95	184,915	1,302,595	1,477,332	291.94	\$0.16150	\$29,864
4	February	4,479	1,489,043	176,790	1,312,253	1,172	1,303	(132)	1,120.04	147,654	1,459,907	1,636,697	332.45	\$0.16150	\$23,846
5	March	4,442	1,171,240	175,329	995,911	1,032	1,176	(144)	964.79	138,826	1,134,737	1,310,066	263.67	\$0.16150	\$22,420
6	April	4,358	759,403	172,014	587,390	724	740	(15)	810.93	12,558	599,948	771,961	174.25	\$0.16150	\$2,028
7	May	4,123	386,781	162,738	224,043	493	448	45	454.20	(20,562)	203,482	366,220	93.81	\$0.16150	(\$3,321)
8	June	3,087	144,110	121,846	22,264	139	191	(52)	159.88	8,243	30,507	152,353	46.68	\$0.16150	\$1,331
9	July	2,184	77,918	86,204	-	20	25	(5)	0.00	0	0	77,918	35.68	\$0.16150	\$0
10	August	2,091	90,820	82,533	-	3	9	(6)	0.00	0	0	90,820	43.43	\$0.16150	\$0
11	September	2,306	92,317	91,020	1,298	23	66	(43)	56.61	2,435	3,733	94,752	40.03	\$0.16150	\$393
12	October	3,502	193,726	138,227	55,500	284	308	(23)	195.28	4,578	60,078	198,304	55.32	\$0.16150	\$739
13															
14	Total	3,641	7,429,662	1,724,714	5,704,948	6,519	7,094	(575)		490,741	6,195,690	7,920,404	1,772		\$ 79,255
15	Winter	4,401	6,443,990	1,042,146	5,401,843	5,557	6,048	(491)		496,047	5,897,891	6,940,037	1,457		\$ 80,112
16	Summer	2,882	985,673	682,568	303,105	962	1,046	(84)		-5,306	297,799	980,367	315		\$ (857)

**Northern Utilities - NH
Sales and Demand Model
Normalization Calculations**

Class Number = 6

G-50 GS Small Low Wtr Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 161.53	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	656	104,546	105,962	-	551	578	(27)	0.00	0	0	104,546	159.37	\$0.1615	\$0
2	December	645	126,973	104,186	22,788	930	939	(8)	24.49	199	22,987	127,173	196.86	\$0.1615	\$32
3	January	646	132,099	104,347	27,752	1,064	1,256	(193)	26.09	5,025	32,776	137,124	204.49	\$0.1615	\$812
4	February	635	145,813	102,570	43,243	1,172	1,303	(131)	36.90	4,833	48,076	150,647	229.63	\$0.1615	\$781
5	March	662	137,247	106,932	30,315	1,025	1,175	(150)	29.57	4,420	34,736	141,667	207.32	\$0.1615	\$714
6	April	673	118,243	108,708	9,534	729	744	(15)	13.08	198	9,732	118,440	175.69	\$0.1615	\$32
7	May	704	106,003	113,716	-	483	440	43	0.00	0	0	106,003	150.57	\$0.1615	\$0
8	June	709	114,232	114,523	-	143	194	(51)	0.00	0	0	114,232	161.12	\$0.1615	\$0
9	July	689	102,123	111,293	-	20	27	(7)	0.00	0	0	102,123	148.22	\$0.1615	\$0
10	August	681	119,171	110,001	-	3	8	(5)	0.00	0	0	119,171	174.99	\$0.1615	\$0
11	September	700	111,669	113,070	-	17	56	(39)	0.00	0	0	111,669	159.53	\$0.1615	\$0
12	October	682	98,035	110,162	-	254	274	(21)	0.00	0	0	98,035	143.75	\$0.1615	\$0
13															
14	Total	674	1,416,154	1,305,471	133,632	6,391	6,993	(602)		14,676	148,307	1,430,830	2,112		\$ 2,370
15	Winter	653	764,921	632,706	133,632	5,471	5,994	(523)		14,676	148,307	779,596	1,173		\$ 2,370
16	Summer	694	651,234	672,765	-	920	998	(79)		0	0	651,234	938		\$ -

**Northern Utilities - NH
Sales and Demand Model
Normalization Calculations**

Class Number = 7

G-41 GS Med Hi Wtr Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 298.51	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	372	445,627	111,047	334,580	597	623	(25)	559.98	14,220	348,800	459,847	1,197.92	\$0.2098	\$2,983
2	December	372	801,274	111,047	690,227	955	954	1	722.62	(705)	689,522	800,569	2,153.96	\$0.2098	(\$148)
3	January	452	1,032,104	134,928	897,176	1,075	1,250	(174)	834.51	145,566	1,042,742	1,177,671	2,283.42	\$0.2098	\$30,540
4	February	449	1,125,534	134,033	991,501	1,166	1,303	(137)	850.06	116,488	1,107,989	1,242,022	2,506.76	\$0.2098	\$24,439
5	March	448	917,521	133,734	783,786	1,035	1,172	(138)	757.47	104,255	888,042	1,021,776	2,048.04	\$0.2098	\$21,873
6	April	448	601,388	133,734	467,654	720	742	(21)	649.22	13,791	481,445	615,180	1,342.38	\$0.2098	\$2,893
7	May	446	339,618	133,137	206,481	491	447	45	420.29	(18,820)	187,661	320,798	761.48	\$0.1622	(\$3,053)
8	June	407	162,093	121,495	40,598	138	189	(51)	293.88	15,090	55,687	177,183	398.26	\$0.1622	\$2,448
9	July	357	95,044	106,569	-	22	28	(6)	0.00	0	0	95,044	266.23	\$0.1622	\$0
10	August	342	113,618	102,092	-	4	9	(4)	0.00	0	0	113,618	332.22	\$0.1622	\$0
11	September	299	111,578	89,256	22,322	25	65	(40)	888.02	35,361	57,683	146,938	373.17	\$0.1622	\$5,736
12	October	365	214,657	108,958	105,699	279	302	(23)	378.99	8,738	114,437	223,394	588.10	\$0.1622	\$1,417
13															
14	Total	396	5,960,055	1,420,031	4,540,024	6,509	7,084	(575)		433,984	4,974,008	6,394,039	14,252	\$	89,128
15	Winter	424	4,923,448	758,524	4,164,924	5,549	6,044	(495)		393,616	4,558,541	5,317,064	11,532	\$	82,581
16	Summer	369	1,036,607	661,507	375,100	960	1,040	(80)		40,367	415,467	1,076,974	2,719	\$	6,548

**Northern Utilities - NH
Sales and Demand Mode
Normalization Calculations**

Class Number = 8

G-51 GS Med Low Wtr Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 894.72	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	146	161,270	130,629	30,640	572	598	(27)	53.59	1,425	32,066	162,695	1,104.59	\$0.15200	\$217
2	December	147	193,626	131,524	62,102	935	943	(8)	66.42	548	62,650	194,174	1,317.19	\$0.12380	\$68
3	January	148	211,768	132,419	79,349	1,048	1,244	(196)	75.72	14,877	94,226	226,645	1,430.86	\$0.12380	\$1,842
4	February	149	228,643	133,314	95,330	1,166	1,306	(139)	81.73	11,390	106,720	240,033	1,534.52	\$0.12380	\$1,410
5	March	149	185,466	133,314	52,152	1,023	1,173	(151)	51.00	7,686	59,838	193,152	1,244.73	\$0.15200	\$1,168
6	April	147	179,729	131,524	48,204	724	744	(20)	66.60	1,324	49,529	181,053	1,222.64	\$0.15200	\$201
7	May	148	171,288	132,419	38,869	498	452	46	78.03	(3,589)	35,280	167,699	1,157.35	\$0.09580	(\$344)
8	June	142	141,737	127,051	14,687	141	192	(52)	104.49	5,389	20,076	147,126	998.15	\$0.11830	\$638
9	July	138	115,670	123,472	-	20	27	(6)	0.00	0	0	115,670	838.19	\$0.11830	\$0
10	August	136	129,484	121,682	-	4	9	(5)	0.00	0	0	129,484	952.09	\$0.11830	\$0
11	September	125	139,951	111,840	28,110	23	62	(40)	1,241.88	49,367	77,478	189,318	1,119.61	\$0.09580	\$4,729
12	October	142	153,288	127,051	26,238	258	279	(21)	101.83	2,144	28,381	155,432	1,079.49	\$0.09580	\$205
13															
14	Total	143	2,011,920	1,536,238	475,681	6,410	7,029	(619)		90,562	566,243	2,102,482	13,999	\$	10,134
15	Winter	148	1,160,502	792,724	367,778	5,467	6,009	(541)		37,251	405,029	1,197,753	7,855	\$	4,906
16	Summer	139	851,418	743,514	107,904	943	1,021	(77)		53,311	161,215	904,729	6,145	\$	5,228

**Northern Utilities - NH
Sales and Demand Model
Normalization Calculations**

Class Number = 9

G-42 GS Large Hi Wtr Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 2,994.11	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	10	123,416	29,941	93,475	669	709	(39)	139.71	5,517	98,992	128,933	12,341.60	\$0.17640	\$973
2	December	9	189,802	26,947	162,855	1,046	1,050	(4)	155.71	653	163,508	190,455	21,089.16	\$0.17640	\$115
3	January	14	286,794	41,918	244,876	1,139	1,286	(147)	214.90	31,564	276,441	318,358	20,485.27	\$0.17640	\$5,568
4	February	14	233,030	41,918	191,112	1,139	1,261	(122)	167.79	20,434	211,546	253,464	16,644.97	\$0.17640	\$3,605
5	March	15	245,104	44,912	200,192	962	1,107	(144)	208.05	30,034	230,226	275,138	16,340.27	\$0.17640	\$5,298
6	April	14	210,148	41,918	168,231	695	686	9	241.91	(2,186)	166,044	207,962	15,010.58	\$0.17640	(\$386)
7	May	16	120,643	47,906	72,737	427	397	31	170.27	(5,206)	67,531	115,437	7,540.16	\$0.10660	(\$555)
8	June	15	69,506	44,912	24,594	111	151	(39)	221.29	8,735	33,329	78,241	4,633.73	\$0.10660	\$931
9	July	15	47,711	44,912	-	15	16	(1)	0.00	0	0	47,711	3,180.76	\$0.10660	\$0
10	August	16	45,106	47,906	-	1	11	(10)	0.00	0	0	45,106	2,819.13	\$0.10660	\$0
11	September	8	17,534	23,953	-	55	93	(38)	0.00	0	0	17,534	2,191.77	\$0.10660	\$0
12	October	9	62,665	26,947	35,718	380	396	(17)	94.08	1,560	37,279	64,226	6,962.81	\$0.10660	\$166
13															
14	Total	13	1,651,460	464,088	1,193,791	6,641	7,163	(522)		91,106	1,284,897	1,742,565	129,240		\$ 15,716
15	Winter	13	1,288,294	227,553	1,060,741	5,651	6,099	(448)		86,016	1,146,758	1,374,310	101,912		\$ 15,173
16	Summer	13	363,166	236,535	133,049	989	1,064	(74)		5,090	138,139	368,255	27,328		\$ 543

Northern Utilities - NH
Sales and Demand Model
Normalization Calculations

Class Number = 10

G-52 GS Large Low Wtr Sales

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 12,545.01	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	2	33,911	25,090	8,821	637	651	(15)	13.86	204	9,025	34,115	16,955.73	\$0.15410	\$31
2	December	2	44,083	25,090	18,993	1,031	966	65	18.42	(1,190)	17,803	42,893	22,041.42	\$0.15410	(\$183)
3	January	3	87,635	37,635	50,000	1,162	1,242	(80)	43.03	3,436	53,436	91,071	29,211.71	\$0.15410	\$529
4	February	3	41,755	37,635	4,120	1,195	1,308	(112)	3.45	387	4,507	42,142	13,918.24	\$0.15410	\$60
5	March	2	42,139	25,090	17,049	900	1,104	(204)	18.95	3,860	20,908	45,998	21,069.36	\$0.15410	\$595
6	April	2	29,777	25,090	4,687	704	694	10	6.66	(66)	4,621	29,711	14,888.49	\$0.15410	(\$10)
7	May	2	24,191	25,090	-	410	375	35	0.00	0	0	24,191	12,095.30	\$0.07070	\$0
8	June	2	26,735	25,090	-	104	142	(38)	0.00	0	0	26,735	13,367.63	\$0.07070	\$0
9	July	2	24,675	25,090	-	14	14	(1)	0.00	0	0	24,675	12,337.41	\$0.07070	\$0
10	August	2	25,505	25,090	-	0	9	(9)	0.00	0	0	25,505	12,752.60	\$0.07070	\$0
11	September	2	28,946	25,090	-	22	81	(59)	0.00	0	0	28,946	14,473.25	\$0.07070	\$0
12	October	2	24,354	25,090	-	335	373	(39)	0.00	0	0	24,354	12,177.06	\$0.07070	\$0
13															
14	Total	2	433,706	326,170	103,670	6,514	6,960	(446)		6,631	110,300	440,337	195,288		\$ 1,022
15	Winter	2	279,300	175,630	103,670	5,629	5,965	(336)		6,631	110,300	285,931	118,085		\$ 1,022
16	Summer	2	154,406	150,540	-	885	995	(110)		0	0	154,406	77,203		\$ -

**Northern Utilities - NH
Sales and Demand Model
Normalization Calculations**

Class Number = 11

T-40 GS Small Hi Wtr Trans

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 61.36	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	467	106,599	28,654	77,945	569	593	(24)	137.00	3,331	81,276	109,930	228.26	\$0.16150	\$538
2	December	489	200,165	30,004	170,160	958	943	15	177.71	(2,605)	167,555	197,559	409.33	\$0.16150	(\$421)
3	January	443	206,938	27,182	179,756	1,067	1,252	(185)	168.42	31,094	210,850	238,032	467.13	\$0.16150	\$5,022
4	February	443	228,987	27,182	201,806	1,185	1,321	(136)	170.31	23,144	224,949	252,131	516.90	\$0.16150	\$3,738
5	March	467	198,067	28,654	169,413	1,019	1,166	(148)	166.33	24,570	193,982	222,637	424.13	\$0.16150	\$3,968
6	April	473	140,086	29,022	111,064	727	747	(20)	152.74	2,982	114,046	143,069	296.17	\$0.16150	\$482
7	May	475	86,946	29,145	57,801	490	444	46	117.94	(5,423)	52,378	81,523	183.04	\$0.16150	(\$876)
8	June	429	40,525	26,323	14,203	136	187	(51)	104.40	5,328	19,531	45,853	94.46	\$0.16150	\$861
9	July	403	24,728	24,727	-	21	26	(5)	0.00	0	0	24,728	61.36	\$0.16150	\$0
10	August	383	23,499	23,500	-	3	9	(6)	0.00	0	0	23,499	61.36	\$0.16150	\$0
11	September	406	23,647	24,911	-	19	63	(44)	0.00	0	0	23,647	58.24	\$0.16150	\$0
12	October	445	53,186	27,304	25,882	273	300	(28)	94.85	2,614	28,496	55,800	119.52	\$0.16150	\$422
13															
14	Total	444	1,333,374	326,609	1,008,029	6,466	7,051	(585)		85,035	1,093,064	1,418,408	2,920	\$	13,733
15	Winter	464	1,080,842	170,698	910,144	5,524	6,022	(497)		82,515	992,659	1,163,357	2,342	\$	13,326
16	Summer	424	252,531	155,911	97,885	942	1,029	(87)		2,520	100,405	255,051	578	\$	407

Northern Utilities - NH
Sales and Demand Model
Normalizing Calculations

Class Number = 12

T-50 GS Small Low Wtr Trans

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 267.99	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	69	18,630	18,491	139	550	579	(29)	0.25	7	146	18,637	270.00	\$0.16150	\$1
2	December	69	23,535	18,491	5,044	934	940	(6)	5.40	31	5,075	23,566	341.09	\$0.16150	\$5
3	January	63	24,936	16,883	8,053	1,044	1,252	(208)	7.71	1,601	9,654	26,537	395.81	\$0.16150	\$259
4	February	62	27,262	16,615	10,646	1,177	1,314	(137)	9.04	1,235	11,881	28,497	439.70	\$0.16150	\$199
5	March	64	26,346	17,151	9,195	1,032	1,175	(142)	8.91	1,269	10,464	27,615	411.66	\$0.16150	\$205
6	April	63	21,219	16,883	4,336	729	748	(20)	5.95	118	4,454	21,337	336.80	\$0.16150	\$19
7	May	61	17,324	16,347	977	485	442	43	2.01	(87)	890	17,237	284.00	\$0.16150	(\$14)
8	June	61	17,783	16,347	1,436	137	189	(52)	10.49	550	1,986	18,334	291.53	\$0.16150	\$89
9	July	59	14,823	15,811	-	21	26	(5)	0.00	0	0	14,823	251.23	\$0.16150	\$0
10	August	61	17,336	16,347	-	4	9	(5)	0.00	0	0	17,336	284.19	\$0.16150	\$0
11	September	79	18,353	21,171	-	21	62	(41)	0.00	0	0	18,353	232.31	\$0.16150	\$0
12	October	69	17,704	18,491	-	263	285	(23)	0.00	0	0	17,704	256.58	\$0.16150	\$0
13															
14	Total	65	245,250	209,030	39,826	6,397	7,020	(623)		4,725	44,550	249,975	3,795		\$ 763
15	Winter	65	141,928	104,515	37,413	5,466	6,007	(541)		4,262	41,674	146,189	2,195		\$ 688
16	Summer	65	103,322	104,515	2,413	931	1,013	(82)		463	2,876	103,785	1,600		\$ 75

**Northern Utilities - NH
Sales and Demand Model
Normalization Calculations**

Class Number = 13

T-41 GS Med Hi Wtr Trans

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 523.19	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	254	523,646	132,889	390,757	595	621	(27)	657.03	17,551	408,307	541,197	2,061.60	\$0.20980	\$3,682
2	December	262	868,558	137,075	731,483	964	958	5	759.08	(4,065)	727,418	864,493	3,315.11	\$0.20980	(\$853)
3	January	266	970,313	139,168	831,145	1,086	1,259	(172)	765.01	131,921	963,066	1,102,234	3,647.79	\$0.20980	\$27,677
4	February	269	1,090,623	140,737	949,886	1,170	1,300	(130)	812.21	105,641	1,055,527	1,196,264	4,054.36	\$0.20980	\$22,164
5	March	272	924,662	142,307	782,356	1,013	1,160	(147)	772.21	113,195	895,551	1,037,858	3,399.49	\$0.20980	\$23,748
6	April	270	662,621	141,260	521,360	717	731	(14)	727.03	9,847	531,207	672,468	2,454.15	\$0.20980	\$2,066
7	May	272	426,799	142,307	284,492	476	434	41	597.88	(24,719)	259,773	402,080	1,569.11	\$0.16220	(\$4,009)
8	June	262	202,000	137,075	64,925	133	182	(49)	489.66	24,141	89,066	226,141	770.99	\$0.16220	\$3,916
9	July	235	120,864	122,949	-	19	23	(4)	0.00	0	0	120,864	514.32	\$0.16220	\$0
10	August	237	126,080	123,995	-	3	10	(7)	0.00	0	0	126,080	531.98	\$0.16220	\$0
11	September	222	144,408	116,147	28,261	33	76	(42)	849.52	36,097	64,357	180,505	650.49	\$0.16220	\$5,855
12	October	250	273,944	130,797	143,147	295	318	(23)	485.22	11,347	154,494	285,291	1,095.77	\$0.16220	\$1,841
13															
14	Total	256	6,334,517	1,606,707	4,727,811	6,503	7,071	(568)		420,956	5,148,767	6,755,474	24,065		\$ 86,086
15	Winter	266	5,040,423	833,437	4,206,986	5,545	6,029	(484)		374,090	4,581,076	5,414,513	18,933		\$ 78,484
16	Summer	246	1,294,095	773,270	520,824	958	1,043	(84)		46,866	567,690	1,340,961	5,133		\$ 7,602

Northern Utilities - NH
Sales and Demand Model
Normalizaion Calculations

Class Number = 14

T-51 GS Med Low Wtr Trans

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 1,392.22	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	112	184,197	155,928	28,268	563	592	(29)	50.21	1,433	29,702	185,630	1,644.61	\$0.12380	\$177
2	December	112	222,186	155,928	66,258	945	951	(6)	70.15	435	66,692	222,621	1,983.80	\$0.12380	\$54
3	January	110	239,828	153,144	86,684	1,050	1,250	(201)	82.59	16,566	103,250	256,394	2,180.26	\$0.12380	\$2,051
4	February	111	261,645	154,536	107,109	1,163	1,304	(140)	92.07	12,931	120,040	274,577	2,357.16	\$0.12380	\$1,601
5	March	110	245,436	153,144	92,292	1,032	1,165	(133)	89.39	11,879	104,171	257,315	2,231.23	\$0.12380	\$1,471
6	April	110	202,247	153,144	49,103	727	747	(20)	67.53	1,332	50,434	203,578	1,838.61	\$0.12380	\$165
7	May	109	177,401	151,752	25,649	489	446	44	52.44	(2,284)	23,365	175,117	1,627.53	\$0.09580	(\$219)
8	June	111	171,008	154,536	16,472	138	189	(51)	119.10	6,088	22,560	177,096	1,540.62	\$0.09580	\$583
9	July	110	142,591	153,144	-	21	26	(5)	0.00	0	0	142,591	1,296.28	\$0.09580	\$0
10	August	112	166,481	155,928	-	4	9	(5)	0.00	0	0	166,481	1,486.44	\$0.09580	\$0
11	September	104	148,996	144,791	4,206	25	64	(39)	171.27	6,713	10,919	155,709	1,432.66	\$0.09580	\$643
12	October	112	162,136	155,928	6,208	272	295	(23)	22.84	521	6,729	162,657	1,447.65	\$0.09580	\$50
13															
14	Total	110	2,324,152	1,841,904	482,248	6,429	7,037	(608)		55,614	537,862	2,379,766	21,067		\$ 6,576
15	Winter	111	1,355,539	925,825	429,714	5,480	6,008	(528)		44,575	474,289	1,400,114	12,236		\$ 5,518
16	Summer	110	968,614	916,079	52,534	949	1,029	(80)		11,038	63,573	979,652	8,831		\$ 1,057

Northern Utilities - NH
Sales and Demand Model
Normalization Calculations

Class Number = 15

T-42 GS Large Hi Wtr Trans

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 6,535.63	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	25	441,535	163,391	278,145	706	750	(44)	393.98	17,525	295,670	459,061	17,661.42	\$0.17640	\$3,091
2	December	24	658,586	156,855	501,730	1,126	1,116	10	445.56	(4,337)	497,394	654,249	27,441.06	\$0.17640	(\$765)
3	January	24	700,845	156,855	543,990	1,201	1,313	(112)	452.93	50,625	594,615	751,471	29,201.89	\$0.17640	\$8,930
4	February	26	727,838	169,926	557,912	1,076	1,188	(112)	518.45	57,934	615,845	785,772	27,993.78	\$0.17640	\$10,219
5	March	25	540,449	163,391	377,058	858	1,006	(148)	439.34	65,064	442,121	605,512	21,617.94	\$0.17640	\$11,477
6	April	24	419,095	156,855	262,240	667	621	46	393.23	(18,073)	244,167	401,022	17,462.31	\$0.17640	(\$3,188)
7	May	24	281,754	156,855	124,898	315	321	(5)	396.10	2,095	126,993	283,849	11,739.74	\$0.10660	\$223
8	June	24	169,514	156,855	12,658	69	91	(22)	183.98	4,121	16,779	173,634	7,063.06	\$0.10660	\$439
9	July	24	156,052	156,855	-	13	9	3	0.00	0	0	156,052	6,502.15	\$0.10660	\$0
10	August	24	157,659	156,855	-	0	15	(15)	0.00	0	0	157,659	6,569.12	\$0.10660	\$0
11	September	25	223,958	163,391	60,567	93	133	(40)	649.91	25,930	86,498	249,889	8,958.33	\$0.10660	\$2,764
12	October	24	330,909	156,855	174,054	436	452	(16)	399.26	6,442	180,496	337,351	13,787.87	\$0.10660	\$687
13															
14	Total	24	4,808,193	1,914,941	2,893,252	6,560	7,016	(456)		207,326	3,100,579	5,015,519	195,999		\$ 33,879
15	Winter	25	3,488,348	967,274	2,521,074	5,634	5,995	(360)		168,738	2,689,813	3,657,087	141,378		\$ 29,765
16	Summer	24	1,319,845	947,667	372,178	926	1,021	(95)		38,588	410,766	1,358,433	54,620		\$ 4,114

Northern Utilities - NH
Sales and Demand Model
Normalization Calculations

Class Number = 16

T-52 GS Large Low Wtr Trans

Line No.	Month	Billing Cycle Customers	Billing Cycle Sales	Base Load per customer 40,937.53	Heating Load	Monthly Actual Degree Days	Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therms/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms	Average Use Per Customer	Weath Adj Billing Block Rate	Base Rate Revenue Weath Adjustment
1	November	30	1,448,393	1,228,126	220,267	713	758	(45)	308.76	13,910	234,177	1,462,303	48,279.78	\$0.15410	\$2,143
2	December	29	1,344,347	1,187,188	157,158	1,132	1,122	10	138.89	(1,327)	155,831	1,343,019	46,356.78	\$0.15410	(\$205)
3	January	27	1,632,849	1,105,313	527,536	1,208	1,313	(106)	436.73	46,102	573,638	1,678,951	60,475.90	\$0.15410	\$7,104
4	February	27	1,526,704	1,105,313	421,391	1,066	1,178	(112)	395.19	44,314	465,705	1,571,018	56,544.60	\$0.15410	\$6,829
5	March	29	1,495,040	1,187,188	307,852	849	992	(144)	362.68	52,102	359,954	1,547,143	51,553.11	\$0.15410	\$8,029
6	April	30	1,372,925	1,228,126	144,799	663	616	47	218.54	(10,266)	134,534	1,362,660	45,764.18	\$0.15410	(\$1,582)
7	May	30	1,270,515	1,228,126	42,389	306	314	(8)	138.75	1,124	43,513	1,271,639	42,350.50	\$0.07070	\$79
8	June	30	1,206,449	1,228,126	-	65	85	(20)	0.00	0	0	1,206,449	40,214.98	\$0.07070	\$0
9	July	30	1,169,880	1,228,126	-	13	9	3	0.00	0	0	1,169,880	38,995.98	\$0.07070	\$0
10	August	30	1,286,372	1,228,126	-	0	15	(15)	0.00	0	0	1,286,372	42,879.08	\$0.07070	\$0
11	September	30	1,253,506	1,228,126	25,380	96	135	(40)	265.73	10,505	35,885	1,264,011	41,783.53	\$0.07070	\$743
12	October	30	1,331,207	1,228,126	103,081	441	457	(16)	233.57	3,774	106,854	1,334,980	44,373.55	\$0.07070	\$267
13															
14	Total	29	16,338,188	14,410,011	1,949,853	6,551	6,996	(446)		160,238	2,110,092	16,498,426	559,572		\$ 23,408
15	Winter	29	8,820,259	7,041,255	1,779,004	5,631	5,980	(350)		144,835	1,923,839	8,965,094	308,974		\$ 22,319
16	Summer	30	7,517,929	7,368,756	170,850	920	1,016	(96)		15,403	186,253	7,533,332	250,598		\$ 1,089

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Sales and Demand Model
Summary of Billing Month Normalized Sales

	November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
BILLING MONTH SALES, Therms															
1 R-6 Resi Non-Heat Sales	16,088	22,826	29,876	31,060	28,039	21,585	18,101	16,219	14,514	13,602	12,992	13,528	238,432	149,474	88,958
2 R-11 Resi Non-Heat Low Inct	0	0	59	64	62	62	50	90	63	64	52	75	641	247	394
3 R-5 Resi Heating Sales	1,222,949	2,239,879	2,898,392	3,135,270	2,633,174	1,624,415	914,516	496,466	305,866	322,759	310,648	549,411	16,653,745	13,754,079	2,899,666
4 R-10 Resi Heating Low Incon	33,162	58,080	116,140	131,775	115,821	75,963	56,832	18,361	12,002	12,446	15,279	21,323	667,183	530,940	136,243
5 G-40 GS Small Hi Wtr Sales	572,268	1,171,713	1,477,332	1,636,697	1,310,066	771,961	366,220	152,353	77,918	90,820	94,752	198,304	7,920,404	6,940,037	980,367
6 G-50 GS Small Low Wtr Sale	104,546	127,173	137,124	150,647	141,667	118,440	106,003	114,232	102,123	119,171	111,669	98,035	1,430,830	779,596	651,234
7 G-41 GS Med Hi Wtr Sales	459,847	800,569	1,177,671	1,242,022	1,021,776	615,180	320,798	177,183	95,044	113,618	146,938	223,394	6,394,039	5,317,064	1,076,974
8 G-51 GS Med Low Wtr Sales	162,695	194,174	226,645	240,033	193,152	181,053	167,699	147,126	115,670	129,484	189,318	155,432	2,102,482	1,197,753	904,729
9 G-42 GS Large Hi Wtr Sales	128,933	190,455	318,358	253,464	275,138	207,962	115,437	78,241	47,711	45,106	17,534	64,226	1,742,565	1,374,310	368,255
10 G-52 GS Large Low Wtr Sale	34,115	42,893	91,071	42,142	45,998	29,711	24,191	26,735	24,675	25,505	28,946	24,354	440,337	285,931	154,406
11 T-40 GS Small Hi Wtr Trans	109,930	197,559	238,032	252,131	222,637	143,069	81,523	45,853	24,728	23,499	23,647	55,800	1,418,408	1,163,357	255,051
12 T-50 GS Small Low Wtr Tran:	18,637	23,566	26,537	28,497	27,615	21,337	17,237	18,334	14,823	17,336	18,353	17,704	249,975	146,189	103,785
13 T-41 GS Med Hi Wtr Trans	541,197	864,493	1,102,234	1,196,264	1,037,858	672,468	402,080	226,141	120,864	126,080	180,505	285,291	6,755,474	5,414,513	1,340,961
14 T-51 GS Med Low Wtr Trans	185,630	222,621	256,394	274,577	257,315	203,578	175,117	177,096	142,591	166,481	155,709	162,657	2,379,766	1,400,114	979,652
15 T-42 GS Large Hi Wtr Trans	459,061	654,249	751,471	785,772	605,512	401,022	283,849	173,634	156,052	157,659	249,889	337,351	5,015,519	3,657,087	1,358,433
16 T-52 GS Large Low Wtr Tran:	1,462,303	1,343,019	1,678,951	1,571,018	1,547,143	1,362,660	1,271,639	1,206,449	1,169,880	1,286,372	1,264,011	1,334,980	16,498,426	8,965,094	7,533,332
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Total	5,511,362	8,153,269	10,526,286	10,971,431	9,462,972	6,450,465	4,321,291	3,074,514	2,424,523	2,650,002	2,820,243	3,541,867	69,908,226	51,075,785	18,832,441
31 Total Sales	2,734,604	4,847,762	6,472,667	6,863,173	5,764,893	3,646,331	2,089,847	1,227,006	795,586	872,575	928,130	1,348,084	37,590,657	30,329,430	7,261,227
32 Total Transportation	2,776,758	3,305,507	4,053,619	4,108,258	3,698,079	2,804,134	2,231,445	1,847,507	1,628,937	1,777,427	1,892,113	2,193,784	32,317,568	20,746,355	11,571,214
33 Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Northern Utilities - NH
Sales and Demand Model
Revenue Adjustments

	November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
NORMALIZING REVENUE ADJUSTMENT, \$'S															
1 R-6 Resi Non-Heat Sales	\$53	\$18	\$1,144	\$739	\$872	\$43	-\$180	\$208	\$0	\$0	\$0	\$0	\$2,897	\$2,869	\$28
2 R-11 Resi Non-Heat Low Incc	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3 R-5 Resi Heating Sales	\$19,508	\$2,168	\$206,401	\$136,186	\$149,875	\$8,455	-\$30,791	\$23,366	\$0	\$0	\$0	\$8,361	\$523,531	\$522,594	\$936
4 R-10 Resi Heating Low Incon	\$273	\$23	\$3,371	\$2,313	\$2,688	\$166	-\$909	\$320	\$0	\$0	\$491	\$164	\$8,902	\$8,835	\$66
5 G-40 GS Small Hi Wtr Sales	\$2,667	-\$714	\$29,864	\$23,846	\$22,420	\$2,028	-\$3,321	\$1,331	\$0	\$0	\$393	\$739	\$79,255	\$80,112	-\$857
6 G-50 GS Small Low Wtr Sale	\$0	\$32	\$812	\$781	\$714	\$32	\$0	\$0	\$0	\$0	\$0	\$0	\$2,370	\$2,370	\$0
7 G-41 GS Med Hi Wtr Sales	\$2,983	-\$148	\$30,540	\$24,439	\$21,873	\$2,893	-\$3,053	\$2,448	\$0	\$0	\$5,736	\$1,417	\$89,128	\$82,581	\$6,548
8 G-51 GS Med Low Wtr Sales	\$217	\$68	\$1,842	\$1,410	\$1,168	\$201	-\$344	\$638	\$0	\$0	\$4,729	\$205	\$10,134	\$4,906	\$5,228
9 G-42 GS Large Hi Wtr Sales	\$973	\$115	\$5,568	\$3,605	\$5,298	-\$386	-\$555	\$931	\$0	\$0	\$0	\$166	\$15,716	\$15,173	\$543
10 G-52 GS Large Low Wtr Sale	\$31	-\$183	\$529	\$60	\$595	-\$10	\$0	\$0	\$0	\$0	\$0	\$0	\$1,022	\$1,022	\$0
11 T-40 GS Small Hi Wtr Trans	\$538	-\$421	\$5,022	\$3,738	\$3,968	\$482	-\$876	\$861	\$0	\$0	\$0	\$422	\$13,733	\$13,326	\$407
12 T-50 GS Small Low Wtr Tran:	\$1	\$5	\$259	\$199	\$205	\$19	-\$14	\$89	\$0	\$0	\$0	\$0	\$763	\$688	\$75
13 T-41 GS Med Hi Wtr Trans	\$3,682	-\$853	\$27,677	\$22,164	\$23,748	\$2,066	-\$4,009	\$3,916	\$0	\$0	\$5,855	\$1,841	\$86,086	\$78,484	\$7,602
14 T-51 GS Med Low Wtr Trans	\$177	\$54	\$2,051	\$1,601	\$1,471	\$165	-\$219	\$583	\$0	\$0	\$643	\$50	\$6,576	\$5,518	\$1,057
15 T-42 GS Large Hi Wtr Trans	\$3,091	-\$765	\$8,930	\$10,219	\$11,477	-\$3,188	\$223	\$439	\$0	\$0	\$2,764	\$687	\$33,879	\$29,765	\$4,114
16 T-52 GS Large Low Wtr Tran:	\$2,143	-\$205	\$7,104	\$6,829	\$8,029	-\$1,582	\$79	\$0	\$0	\$0	\$743	\$267	\$23,408	\$22,319	\$1,089
17	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
18	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
19	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
20	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
21	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
22	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
23	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
24	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
25	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
26	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
27	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
28	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
29	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
30 Total	\$36,339	-\$805	\$331,113	\$238,129	\$254,402	\$11,384	-\$43,967	\$35,129	\$0	\$0	\$21,354	\$14,320	\$897,399	\$870,563	\$26,836
31 Total Sales	\$26,706	\$1,379	\$280,071	\$193,379	\$205,504	\$13,423	-\$39,152	\$29,241	\$0	\$0	\$11,350	\$11,053	\$732,954	\$720,462	\$12,492
32 Total Transportation	\$9,634	-\$2,184	\$51,043	\$44,750	\$48,898	-\$2,039	-\$4,815	\$5,888	\$0	\$0	\$10,005	\$3,266	\$164,445	\$150,101	\$14,343
33 Total Other	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

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Northern Utilities - NH
Sales and Demand Model
Sales Adjustments

	November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
BILLING CYCLE WEATHER ADJUSTMENT, Therms															
1 R-6 Resi Non-Heat Sales	125	43	2,716	1,754	2,070	102	(428)	494	-	-	-	-	6,875	6,809	66
2 R-11 Resi Non-Heat Low Inct	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 R-5 Resi Heating Sales	38,229	4,249	404,469	266,875	293,701	16,569	(56,507)	42,882	-	-	-	15,344	1,025,811	1,024,092	1,719
4 R-10 Resi Heating Low Incon	1,093	113	16,517	11,335	13,172	814	(4,169)	1,466	-	-	2,255	753	43,349	43,044	305
5 G-40 GS Small Hi Wtr Sales	16,514	(4,420)	184,915	147,654	138,826	12,558	(20,562)	8,243	-	-	2,435	4,578	490,741	496,047	(5,306)
6 G-50 GS Small Low Wtr Sale	-	199	5,025	4,833	4,420	198	-	-	-	-	-	-	14,676	14,676	-
7 G-41 GS Med Hi Wtr Sales	14,220	(705)	145,566	116,488	104,255	13,791	(18,820)	15,090	-	-	35,361	8,738	433,984	393,616	40,367
8 G-51 GS Med Low Wtr Sales	1,425	548	14,877	11,390	7,686	1,324	(3,589)	5,389	-	-	49,367	2,144	90,562	37,251	53,311
9 G-42 GS Large Hi Wtr Sales	5,517	653	31,564	20,434	30,034	(2,186)	(5,206)	8,735	-	-	-	1,560	91,106	86,016	5,090
10 G-52 GS Large Low Wtr Sale	204	(1,190)	3,436	387	3,860	(66)	-	-	-	-	-	-	6,631	6,631	-
11 T-40 GS Small Hi Wtr Trans	3,331	(2,605)	31,094	23,144	24,570	2,982	(5,423)	5,328	-	-	-	2,614	85,035	82,515	2,520
12 T-50 GS Small Low Wtr Tran:	7	31	1,601	1,235	1,269	118	(87)	550	-	-	-	-	4,725	4,262	463
13 T-41 GS Med Hi Wtr Trans	17,551	(4,065)	131,921	105,641	113,195	9,847	(24,719)	24,141	-	-	36,097	11,347	420,956	374,090	46,866
14 T-51 GS Med Low Wtr Trans	1,433	435	16,566	12,931	11,879	1,332	(2,284)	6,088	-	-	6,713	521	55,614	44,575	11,038
15 T-42 GS Large Hi Wtr Trans	17,525	(4,337)	50,625	57,934	65,064	(18,073)	2,095	4,121	-	-	25,930	6,442	207,326	168,738	38,588
16 T-52 GS Large Low Wtr Tran:	13,910	(1,327)	46,102	44,314	52,102	(10,266)	1,124	-	-	-	10,505	3,774	160,238	144,835	15,403
17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30 Total	131,086	(12,379)	1,086,994	826,350	866,103	29,044	(138,575)	122,527	-	-	168,663	57,816	3,137,628	2,927,198	210,430
31 Total Sales	77,329	(510)	809,085	581,151	598,024	43,103	(109,282)	82,298	-	-	89,418	33,117	2,203,734	2,108,182	95,552
32 Total Transportation	53,757	(11,869)	277,909	245,199	268,079	(14,060)	(29,294)	40,228	-	-	79,245	24,699	933,894	819,015	114,878
33 Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Calendar Month Percentages

**PERCENTAGE OF BILLING SALES
IN CALENDAR MONTH**

	1	2	3	4	5	6	7	8	9	10	11	12	13
Month	R-6 Resi Non-Heat Sales	R-11 Resi Non-Heat Low Income	R-5 Resi Heating Sales	R-10 Resi Heating Low Income	G-40 GS Small Hi Wtr Sales	G-50 GS Small Low Wtr Sales	G-41 GS Med Hi Wtr Sales	G-51 GS Med Low Wtr Sales	G-42 GS Large Hi Wtr Sales	G-52 GS Large Low Wtr Sales	T-40 GS Small Hi Wtr Trans	T-50 GS Small Low Wtr Trans	T-41 GS Med Hi Wtr Trans
November	46.21%	46.21%	50.66%	50.66%	56.27%	47.97%	55.39%	50.91%	83.75%	71.02%	52.15%	48.05%	57.86%
December	48.83%	48.83%	52.73%	52.73%	58.99%	51.55%	59.90%	55.84%	82.54%	74.44%	56.62%	50.20%	60.00%
January	55.07%	55.07%	55.57%	55.57%	59.78%	56.84%	60.41%	54.73%	78.92%	84.40%	57.71%	52.41%	62.25%
February	46.33%	46.33%	46.44%	46.44%	49.51%	48.87%	49.50%	45.78%	66.41%	70.26%	48.00%	44.94%	53.72%
March	50.53%	50.53%	49.27%	49.27%	51.44%	52.67%	52.26%	55.06%	70.26%	73.73%	52.05%	49.91%	55.71%
April	53.83%	53.83%	53.47%	53.47%	56.12%	55.03%	55.96%	55.05%	75.81%	73.15%	54.88%	53.77%	59.60%
May	45.51%	45.51%	45.21%	45.21%	46.53%	47.94%	47.66%	45.97%	64.12%	64.37%	47.86%	49.08%	51.59%
June	49.40%	49.40%	50.05%	50.05%	51.58%	51.04%	51.95%	51.22%	67.11%	69.70%	52.16%	51.66%	55.06%
July	48.11%	48.11%	50.96%	50.96%	53.11%	49.78%	49.58%	52.16%	71.13%	70.69%	53.03%	52.10%	60.76%
August	47.00%	47.00%	49.78%	49.78%	52.78%	48.45%	50.80%	49.98%	68.67%	64.44%	53.61%	49.76%	58.95%
September	48.94%	48.94%	52.36%	52.36%	57.81%	49.81%	54.88%	53.72%	71.92%	73.33%	55.61%	53.79%	63.21%
October	64.80%	64.80%	68.02%	68.02%	71.46%	65.25%	70.21%	66.02%	88.69%	77.57%	67.51%	66.49%	72.91%
November	46.21%	46.21%	50.66%	50.66%	56.27%	47.97%	55.39%	50.91%	83.75%	71.02%	52.15%	48.05%	57.86%

Northern Utilities - NH
Sales and Demand Model
Calendar Month Percent

PERCENTAGE OF BILLING IN CALENDAR MONTH			
	14	15	16
Month	T-51 GS Med Low Wtr Trans	T-42 GS Large Hi Wtr Trans	T-52 GS Large Low Wtr Trans
November	50.85%	97.30%	99.28%
December	53.31%	97.22%	99.23%
January	55.97%	96.57%	99.35%
February	47.39%	94.66%	99.10%
March	51.61%	96.48%	99.23%
April	55.00%	96.99%	99.27%
May	48.83%	95.98%	99.24%
June	52.08%	96.48%	99.20%
July	53.98%	97.85%	99.38%
August	51.63%	97.29%	99.17%
September	54.27%	98.26%	99.27%
October	67.70%	98.62%	99.44%
November	50.85%	97.30%	99.28%

Northern Utilities - NH
Sales and Demand Model
Normalized Calendar Month Sales

CALENDAR MONTH SALES, Therms	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Month	R-6 Resi Non-Heat Sales	R-11 Resi Non-Heat Low Income	R-5 Resi Heating Sales	R-10 Resi Heating Low Income	G-40 GS Small Hi Wtr Sales	G-50 GS Small Low Wtr Sales	G-41 GS Med Hi Wtr Sales	G-51 GS Med Low Wtr Sales	G-42 GS Large Hi Wtr Sales	G-52 GS Large Low Wtr Sales	T-40 GS Small Hi Wtr Trans	T-50 GS Small Low Wtr Trans	T-41 GS Med Hi Wtr Trans	T-51 GS Med Low Wtr Trans
November	19,116	0	1,678,349	44,254	802,600	111,767	575,748	168,580	141,225	35,192	143,035	20,692	658,925	198,352
December	24,570	27	2,468,948	82,231	1,285,341	124,740	945,741	211,029	224,310	46,139	212,502	24,459	934,772	231,561
January	33,121	67	3,289,920	135,119	1,709,542	154,968	1,338,641	254,190	336,388	89,397	268,486	29,599	1,239,812	287,957
February	28,262	60	2,791,779	119,950	1,446,501	140,660	1,102,596	196,688	250,169	41,689	227,788	26,637	1,102,248	254,633
March	24,132	60	2,053,143	92,408	1,012,637	127,887	804,939	187,745	243,617	41,892	180,430	23,648	849,936	224,405
April	21,483	61	1,369,607	71,754	628,994	120,357	512,149	190,269	199,063	30,355	121,018	20,250	595,424	201,582
May	16,444	69	661,411	34,864	244,192	106,753	238,025	148,860	99,757	23,672	60,951	17,322	309,062	170,373
June	15,544	77	398,517	15,077	115,117	109,587	139,973	130,692	66,279	25,867	35,532	16,571	171,934	157,856
July	14,192	64	317,949	12,366	84,266	112,276	103,018	125,107	48,069	26,512	24,014	16,432	125,194	157,498
August	13,027	57	308,643	13,474	87,912	113,775	124,012	152,331	35,899	24,155	23,095	17,106	140,735	157,163
September	11,122	52	338,351	14,819	111,376	89,696	147,195	154,514	19,874	26,690	31,277	15,805	191,388	137,035
October	17,419	49	977,128	30,867	391,925	118,363	362,002	182,478	77,917	28,778	90,280	21,453	436,045	201,352
Total Firm	238,432	641	16,653,745	667,183	7,920,404	1,430,830	6,394,039	2,102,482	1,742,565	440,337	1,418,408	249,975	6,755,474	2,379,766
Check Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Normalized Calendar Month

CALENDAR MONTH		15		16	
SALES, Therms					
Month		T-42 GS Large Hi Wtr Trans		T-52 GS Large Low Wtr Trans	
November		464,875		1,462,083	
December		661,864		1,343,516	
January		767,614		1,682,282	
February		765,142		1,568,753	
March		596,275		1,545,084	
April		400,347		1,362,496	
May		278,557		1,271,562	
June		170,879		1,204,099	
July		156,970		1,173,314	
August		157,724		1,284,845	
September		250,183		1,262,224	
October		345,089		1,338,167	
Total Firm		5,015,519		16,498,426	
Check Total		-		-	

Northern Utilities - NH
Sales and Demand Model
Normalization Adjustment, Therms

CALENDAR MONTH ADJUSTMENT, Therms	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Month	R-6 Resi Non-Heat Sales	R-11 Resi Non-Heat Low Income	R-5 Resi Heating Sales	R-10 Resi Heating Low Income	G-40 GS Small Hi Wtr Sales	G-50 GS Small Low Wtr Sales	G-41 GS Med Hi Wtr Sales	G-51 GS Med Low Wtr Sales	G-42 GS Large Hi Wtr Sales	G-52 GS Large Low Wtr Sales	T-40 GS Small Hi Wtr Trans	T-50 GS Small Low Wtr Trans	T-41 GS Med Hi Wtr Trans	T-51 GS Med Low Wtr Trans
November	80	0	21,376	607	7,480	97	7,593	968	4,735	(159)	607	19	8,529	932
December	1,241	0	181,962	7,399	71,766	2,272	57,206	7,040	7,192	(350)	11,673	777	47,357	7,526
January	2,437	0	367,699	15,249	185,095	5,327	146,762	14,318	31,775	3,015	29,980	1,519	131,016	16,075
February	1,837	0	272,929	11,946	140,518	4,454	107,433	8,669	22,504	1,286	22,891	1,191	106,879	11,876
March	1,093	0	152,405	6,868	76,920	2,417	60,560	4,828	20,572	2,828	14,133	688	67,045	6,730
April	(178)	0	(22,101)	(1,849)	(3,946)	109	(2,134)	(1,210)	(3,525)	(48)	(1,191)	19	(6,098)	(436)
May	55	0	(4,129)	(1,153)	(5,577)	0	(1,719)	979	(465)	0	(46)	223	(1,902)	1,802
June	244	0	21,464	734	4,251	0	7,839	2,760	5,862	0	2,779	284	13,291	3,171
July	0	0	0	0	0	0	0	0	0	0	0	0	0	0
August	0	0	0	1,074	1,027	0	15,954	22,848	0	0	0	0	13,281	3,070
September	0	0	4,906	1,422	2,714	0	22,010	27,248	176	0	849	0	25,890	3,811
October	67	0	29,300	1,052	10,492	0	12,479	2,115	2,281	59	3,359	4	15,668	1,057
Total Firm	6,875	0	1,025,811	43,349	490,741	14,676	433,984	90,562	91,106	6,631	85,035	4,725	420,956	55,614
	6,875	-	1,025,811	43,349	490,741	14,676	433,984	90,562	91,106	6,631	85,035	4,725	420,956	55,614

Northern Utilities - NH
Sales and Demand Model
Normalization Adjustments

CALENDAR MONTH			
ADJUSTMENT, Therms			
	15	16	
Month	T-42 GS Large Hi Wtr Trans	T-52 GS Large Low Wtr Trans	
November	16,932	13,798	
December	(2,477)	(1,019)	
January	51,980	46,204	
February	57,132	44,315	
March	62,228	51,626	
April	(17,444)	(10,183)	
May	2,156	1,116	
June	3,976	0	
July	0	0	
August	451	76	
September	25,568	10,450	
October	6,826	3,854	
Total Firm	207,326	160,238	
	207,326	160,238	

Northern Utilities - NH
Sales and Demand Model
Base Use, Therms

CALENDAR MONTH BASE USE		1	2	3	4	5	6	7	8	9	10	Total Calendar Base 11	12	13	14
Month	Days/Month	R-6 Resi Non- Heat Sales	R-11 Resi Non-Heat Low Income	R-5 Resi Heating Sales	R-10 Resi Heating Low Income	G-40 GS Small Hi Wtr Sales	G-50 GS Small Low Wtr Sales	G-41 GS Med Hi Wtr Sales	G-51 GS Med Low Wtr Sales	G-42 GS Large Hi Wtr Sales	G-52 GS Large Low Wtr Sales	T-40 GS Small Hi Wtr Trans	T-50 GS Small Low Wtr Trans	T-41 GS Med Hi Wtr Trans	T-51 GS Med Low Wtr Trans
November	30	13,170	0	303,190	12,503	83,312	109,379	109,853	134,244	40,630	24,516	22,795	16,228	128,675	152,255
December	31	13,609	27	313,296	12,920	86,089	113,025	113,515	138,719	41,984	25,333	23,555	16,769	132,964	157,330
January	31	13,609	60	313,296	12,920	86,089	113,025	113,515	138,719	41,984	25,333	23,555	16,769	132,964	157,330
February	28	12,292	54	282,977	11,670	77,758	102,088	102,530	125,294	37,921	22,882	21,275	15,146	120,097	142,105
March	31	13,609	60	313,296	12,920	86,089	113,025	113,515	138,719	41,984	25,333	23,555	16,769	132,964	157,330
April	30	13,170	58	303,190	12,503	83,312	109,379	109,853	134,244	40,630	24,516	22,795	16,228	128,675	152,255
May	31	13,609	60	313,296	12,920	86,089	106,753	113,515	138,719	41,984	23,672	23,555	16,769	132,964	157,330
June	30	13,170	58	303,190	12,503	83,312	109,379	109,853	130,692	40,630	24,516	22,795	16,228	128,675	152,255
July	31	13,609	60	313,296	12,366	84,266	112,276	103,018	125,107	41,984	25,333	23,555	16,432	125,194	157,330
August	31	13,027	57	308,643	12,920	86,089	113,025	113,515	138,719	35,899	24,155	23,095	16,769	132,964	157,163
September	30	11,122	52	303,190	12,503	83,312	89,696	109,853	134,244	19,874	24,516	22,795	15,805	128,675	137,035
October	31	13,609	49	313,296	12,920	86,089	113,025	113,515	138,719	41,984	25,333	23,555	16,769	132,964	157,330
Total Firm	365	157,606	595	3,684,159	151,570	1,011,805	1,304,078	1,326,053	1,616,138	467,486	295,438	276,876	196,683	1,557,780	1,837,051

Northern Utilities - NH
Sales and Demand Model
Base Use, Therms

CALENDAR MONTH BASE USE	15	16
Month	T-42 GS Large Hi Wtr Trans	T-52 GS Large Low Wtr Trans
November	152,272	1,189,432
December	157,347	1,229,079
January	157,347	1,229,079
February	142,120	1,110,136
March	157,347	1,229,079
April	152,272	1,189,432
May	157,347	1,229,079
June	152,272	1,189,432
July	156,970	1,173,314
August	157,347	1,229,079
September	152,272	1,189,432
October	157,347	1,229,079
Total Firm	1,852,261	14,415,653

**Northern Utilities - NH
Sales and Demand Model
Remaining Use, Therms**

CALENDAR MONTH REMAINING USE	1	2	3	4	5	6	7	8	9	10	Total Calendar 11	12	13	14
Month	R-6 Resi Non- Heat Sales	R-11 Resi Non-Heat Low Income	R-5 Resi Heating Sales	R-10 Resi Heating Low Income	G-40 GS Small Hi Wtr Sales	G-50 GS Small Low Wtr Sales	G-41 GS Med Hi Wtr Sales	G-51 GS Med Low Wtr Sales	G-42 GS Large Hi Wtr Sales	G-52 GS Large Low Wtr Sales	T-40 GS Small Hi Wtr Trans Use Sales	T-50 GS Small Low Wtr Trans	T-41 GS Med Hi Wtr Trans	T-51 GS Med Low Wtr Trans
November	5,946	0	1,375,159	31,751	719,288	2,388	465,895	34,336	100,595	10,676	120,240	4,463	530,249	46,097
December	10,961	0	2,155,651	69,311	1,199,252	11,715	832,225	72,310	182,326	20,805	188,947	7,690	801,808	74,230
January	19,511	7	2,976,623	122,199	1,623,453	41,943	1,225,126	115,471	294,404	64,064	244,932	12,830	1,106,847	130,626
February	15,970	6	2,508,802	108,280	1,368,743	38,573	1,000,066	71,393	212,248	18,808	206,513	11,491	982,151	112,528
March	10,523	0	1,739,847	79,488	926,548	14,861	691,424	49,027	201,633	16,559	156,876	6,879	716,971	67,074
April	8,313	2	1,066,416	59,251	545,683	10,978	402,295	56,025	158,433	5,839	98,223	4,022	466,749	49,326
May	2,835	8	348,115	21,944	158,103	0	124,510	10,141	57,773	0	37,397	553	176,097	13,043
June	2,374	19	95,327	2,574	31,805	207	30,120	0	25,649	1,351	12,737	343	43,259	5,601
July	583	4	4,653	0	0	0	0	0	6,085	1,179	460	0	0	167
August	0	0	0	554	1,823	750	10,497	13,612	0	0	0	337	7,770	0
September	0	0	35,161	2,316	28,064	0	37,342	20,270	0	2,174	8,483	0	62,713	0
October	3,810	0	663,831	17,947	305,836	5,338	248,487	43,759	35,933	3,445	66,725	4,684	303,080	44,022
Total Firm	80,826	46	12,969,586	515,614	6,908,599	126,752	5,067,986	486,344	1,275,079	144,899	1,141,532	53,292	5,197,694	542,715

Northern Utilities - NH
Sales and Demand Model
Remaining Use, Therms

CALENDAR MONTH REMAINING USE	15	16
Month	T-42 GS Large Hi Wtr Trans	T-52 GS Large Low Wtr Trans
November	312,604	272,652
December	504,517	114,436
January	610,266	453,203
February	623,021	458,617
March	438,928	316,004
April	248,076	173,064
May	121,209	42,483
June	18,607	14,668
July	0	0
August	377	55,766
September	97,911	72,793
October	187,742	109,088
Total Firm	3,163,258	2,082,773

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Northern Utilities - NH
Sales and Demand Model
Normalized Calendar Month Sales, Therms

CALENDAR MONTH SALES, Therms		November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
1	R-6 Resi Non-Heat Sales	19,116	24,570	33,121	28,262	24,132	21,483	16,444	15,544	14,192	13,027	11,122	17,419	238,432	150,684	87,748
2	R-11 Resi Non-Heat Low Incc	0	27	67	60	60	61	69	77	64	57	52	49	641	275	367
3	R-5 Resi Heating Sales	1,678,349	2,468,948	3,289,920	2,791,779	2,053,143	1,369,607	661,411	398,517	317,949	308,643	338,351	977,128	16,653,745	13,651,745	3,002,000
4	R-10 Resi Heating Low Incon	44,254	82,231	135,119	119,950	92,408	71,754	34,864	15,077	12,366	13,474	14,819	30,867	667,183	545,716	121,467
5	G-40 GS Small Hi Wtr Sales	802,600	1,285,341	1,709,542	1,446,501	1,012,637	628,994	244,192	115,117	84,266	87,912	111,376	391,925	7,920,404	6,885,616	1,034,788
6	G-50 GS Small Low Wtr Sale	111,767	124,740	154,968	140,660	127,887	120,357	106,753	109,587	112,276	113,775	89,696	118,363	1,430,830	780,380	650,450
7	G-41 GS Med Hi Wtr Sales	575,748	945,741	1,338,641	1,102,596	804,939	512,149	238,025	139,973	103,018	124,012	147,195	362,002	6,394,039	5,279,813	1,114,225
8	G-51 GS Med Low Wtr Sales	168,580	211,029	254,190	196,688	187,745	190,269	148,860	130,692	125,107	152,331	154,514	182,478	2,102,482	1,208,501	893,981
9	G-42 GS Large Hi Wtr Sales	141,225	224,310	336,388	250,169	243,617	199,063	99,757	66,279	48,069	35,899	19,874	77,917	1,742,565	1,394,771	347,795
10	G-52 GS Large Low Wtr Sale	35,192	46,139	89,397	41,689	41,892	30,355	23,672	25,867	26,512	24,155	26,690	28,778	440,337	284,664	155,673
11	T-40 GS Small Hi Wtr Trans	143,035	212,502	268,486	227,788	180,430	121,018	60,951	35,532	24,014	23,095	31,277	90,280	1,418,408	1,153,259	265,149
12	T-50 GS Small Low Wtr Tran:	20,692	24,459	29,599	26,637	23,648	20,250	17,322	16,571	16,432	17,106	15,805	21,453	249,975	145,286	104,689
13	T-41 GS Med Hi Wtr Trans	658,925	934,772	1,239,812	1,102,248	849,936	595,424	309,062	171,934	125,194	140,735	191,388	436,045	6,755,474	5,381,116	1,374,358
14	T-51 GS Med Low Wtr Trans	198,352	231,561	287,957	254,633	224,405	201,582	170,373	157,856	157,498	157,163	137,035	201,352	2,379,766	1,398,488	981,278
15	T-42 GS Large Hi Wtr Trans	464,875	661,864	767,614	765,142	596,275	400,347	278,557	170,879	156,970	157,724	250,183	345,089	5,015,519	3,656,117	1,359,402
16	T-52 GS Large Low Wtr Tran:	1,462,083	1,343,516	1,682,282	1,568,753	1,545,084	1,362,496	1,271,562	1,204,099	1,173,314	1,284,845	1,262,224	1,338,167	16,498,426	8,964,214	7,534,212
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Total	6,524,793	8,821,747	11,617,102	10,063,555	8,008,238	5,845,208	3,681,874	2,773,600	2,497,242	2,653,951	2,801,603	4,619,311	69,908,226	50,880,644	19,027,582
31	Total Sales	3,576,832	5,413,074	7,341,352	6,118,355	4,588,461	3,144,091	1,574,047	1,016,729	843,819	873,284	913,690	2,186,925	37,590,657	30,182,164	7,408,493
32	Total Transportation	2,947,961	3,408,673	4,275,750	3,945,201	3,419,778	2,701,117	2,107,828	1,756,871	1,653,423	1,780,668	1,887,913	2,432,386	32,317,568	20,698,480	11,619,088
33	Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Total Sendout Level	6,607,185	8,933,144	11,763,798	10,190,633	8,109,362	5,919,019	3,728,367	2,808,623	2,528,776	2,687,464	2,836,980	4,677,642	70,790,993	51,523,141	19,267,853

Northern Utilities - NH
Sales and Demand Model

Normalized Calendar Month Sales at Sendout Level, Therms

CALENDAR MONTH SENDOUT SALES, Therms		November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
1	R-6 Resi Non-Heat Sales	19,357	24,880	33,539	28,619	24,437	21,755	16,651	15,741	14,371	13,191	11,262	17,639	241,442	152,587	88,856
2	R-11 Resi Non-Heat Low Incc	0	27	68	61	61	61	69	78	65	57	53	49	649	278	371
3	R-5 Resi Heating Sales	1,699,542	2,500,124	3,331,463	2,827,032	2,079,069	1,386,901	669,763	403,549	321,964	312,541	342,624	989,466	16,864,041	13,824,133	3,039,908
4	R-10 Resi Heating Low Incon	44,813	83,269	136,825	121,465	93,575	72,660	35,304	15,267	12,522	13,644	15,006	31,256	675,608	552,607	123,001
5	G-40 GS Small Hi Wtr Sales	812,735	1,301,572	1,731,129	1,464,767	1,025,424	636,937	247,276	116,570	85,330	89,022	112,783	396,874	8,020,419	6,972,564	1,047,855
6	G-50 GS Small Low Wtr Sale	113,179	126,316	156,925	142,437	129,501	121,877	108,101	110,970	113,693	115,212	90,829	119,858	1,448,898	790,234	658,664
7	G-41 GS Med Hi Wtr Sales	583,018	957,683	1,355,545	1,116,519	815,104	518,616	241,031	141,740	104,319	125,578	149,054	366,573	6,474,779	5,346,484	1,128,295
8	G-51 GS Med Low Wtr Sales	170,709	213,693	257,400	199,171	190,116	192,671	150,740	132,342	126,687	154,254	156,465	184,782	2,129,031	1,223,761	905,270
9	G-42 GS Large Hi Wtr Sales	143,008	227,142	340,635	253,328	246,693	201,577	101,016	67,116	48,676	36,352	20,125	78,901	1,764,570	1,412,383	352,186
10	G-52 GS Large Low Wtr Sale	35,637	46,721	90,526	42,216	42,421	30,738	23,971	26,193	26,847	24,460	27,027	29,142	445,897	288,259	157,639
11	T-40 GS Small Hi Wtr Trans	144,841	215,185	271,877	230,665	182,709	122,546	61,721	35,981	24,318	23,386	31,672	91,420	1,436,319	1,167,822	268,497
12	T-50 GS Small Low Wtr Tran:	20,953	24,768	29,973	26,974	23,947	20,506	17,541	16,780	16,640	17,322	16,005	21,724	253,131	147,120	106,011
13	T-41 GS Med Hi Wtr Trans	667,245	946,576	1,255,467	1,116,166	860,668	602,943	312,964	174,105	126,775	142,512	193,805	441,551	6,840,779	5,449,066	1,391,713
14	T-51 GS Med Low Wtr Trans	200,857	234,485	291,593	257,848	227,238	204,127	172,525	159,850	159,487	159,148	138,766	203,895	2,409,817	1,416,148	993,669
15	T-42 GS Large Hi Wtr Trans	470,746	670,222	777,307	774,803	603,805	405,403	282,074	173,036	158,953	159,716	253,342	349,447	5,078,853	3,702,285	1,376,568
16	T-52 GS Large Low Wtr Tran:	1,480,546	1,360,481	1,703,525	1,588,563	1,564,594	1,379,701	1,287,619	1,219,304	1,188,130	1,301,069	1,278,163	1,355,065	16,706,760	9,077,410	7,629,351
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Total	6,607,185	8,933,144	11,763,798	10,190,633	8,109,362	5,919,019	3,728,367	2,808,623	2,528,776	2,687,464	2,836,980	4,677,642	70,790,993	51,523,141	19,267,853
31	Total Sales	3,621,998	5,481,427	7,434,056	6,195,614	4,646,402	3,183,793	1,593,923	1,029,567	854,474	884,311	925,228	2,214,541	38,065,334	30,563,290	7,502,044
32	Total Transportation	2,985,187	3,451,716	4,329,742	3,995,019	3,462,961	2,735,226	2,134,444	1,779,056	1,674,302	1,803,153	1,911,752	2,463,101	32,725,659	20,959,851	11,765,808
33	Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Calendar Month Base Use, Therms

BASE USE SALES, Therms		November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
1	R-6 Resi Non-Heat Sales	13,170	13,609	13,609	12,292	13,609	13,170	13,609	13,170	13,609	13,027	11,122	13,609	157,606	79,460	78,146
2	R-11 Resi Non-Heat Low Incc	0	27	60	54	60	58	60	58	60	57	52	49	595	259	336
3	R-5 Resi Heating Sales	303,190	313,296	313,296	282,977	313,296	303,190	313,296	303,190	313,296	308,643	303,190	313,296	3,684,159	1,829,247	1,854,913
4	R-10 Resi Heating Low Incon	12,503	12,920	12,920	11,670	12,920	12,503	12,920	12,503	12,366	12,920	12,503	12,920	151,570	75,436	76,133
5	G-40 GS Small Hi Wtr Sales	83,312	86,089	86,089	77,758	86,089	83,312	86,089	83,312	84,266	86,089	83,312	86,089	1,011,805	502,648	509,156
6	G-50 GS Small Low Wtr Sale	109,379	113,025	113,025	102,088	113,025	109,379	106,753	109,379	112,276	113,025	89,696	113,025	1,304,078	659,923	644,155
7	G-41 GS Med Hi Wtr Sales	109,853	113,515	113,515	102,530	113,515	109,853	113,515	109,853	103,018	113,515	109,853	113,515	1,326,053	662,782	663,270
8	G-51 GS Med Low Wtr Sales	134,244	138,719	138,719	125,294	138,719	134,244	138,719	130,692	125,107	138,719	134,244	138,719	1,616,138	809,939	806,199
9	G-42 GS Large Hi Wtr Sales	40,630	41,984	41,984	37,921	41,984	40,630	41,984	40,630	41,984	35,899	19,874	41,984	467,486	245,132	222,354
10	G-52 GS Large Low Wtr Sale	24,516	25,333	25,333	22,882	25,333	24,516	23,672	24,516	25,333	24,155	24,516	25,333	295,438	147,913	147,525
11	T-40 GS Small Hi Wtr Trans	22,795	23,555	23,555	21,275	23,555	22,795	23,555	22,795	23,555	23,095	22,795	23,555	276,876	137,528	139,348
12	T-50 GS Small Low Wtr Tran:	16,228	16,769	16,769	15,146	16,769	16,228	16,769	16,228	16,432	16,769	15,805	16,769	196,683	97,910	98,773
13	T-41 GS Med Hi Wtr Trans	128,675	132,964	132,964	120,097	132,964	128,675	132,964	128,675	125,194	132,964	128,675	132,964	1,557,780	776,341	781,439
14	T-51 GS Med Low Wtr Trans	152,255	157,330	157,330	142,105	157,330	152,255	157,330	152,255	157,330	157,163	137,035	157,330	1,837,051	918,607	918,445
15	T-42 GS Large Hi Wtr Trans	152,272	157,347	157,347	142,120	157,347	152,272	157,347	152,272	156,970	157,347	152,272	157,347	1,852,261	918,705	933,556
16	T-52 GS Large Low Wtr Tran:	1,189,432	1,229,079	1,229,079	1,110,136	1,229,079	1,189,432	1,229,079	1,189,432	1,173,314	1,229,079	1,189,432	1,229,079	14,415,653	7,176,238	7,239,415
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Total	2,492,455	2,575,563	2,575,597	2,326,345	2,575,596	2,492,513	2,567,663	2,488,960	2,484,112	2,562,466	2,434,376	2,575,585	30,151,231	15,038,069	15,113,163
31	Total Sales	830,798	858,518	858,551	775,466	858,551	830,856	850,618	827,304	831,316	846,048	788,363	858,540	10,014,927	5,012,740	5,002,188
32	Total Transportation	1,661,657	1,717,045	1,717,045	1,550,880	1,717,045	1,661,657	1,717,045	1,661,657	1,652,796	1,716,418	1,646,014	1,717,045	20,136,304	10,025,329	10,110,975
33	Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	Total Sendout Level	2,523,928	2,608,086	2,608,120	2,355,721	2,608,120	2,523,987	2,600,086	2,520,390	2,515,480	2,594,824	2,465,117	2,608,108	30,531,967	15,227,962	15,304,005

Northern Utilities - NH
Sales and Demand Model
Calendar Month Base Use at Sendout Level, Therms

CALENDAR MONTH SENDOUT BASE USE																
SALES, Therms		November	December	January	February	March	April	May	June	July	August	September	October	TOTAL	WINTER	SUMMER
		2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016	2016			
1	R-6 Resi Non-Heat Sales	13,336	13,781	13,781	12,447	13,781	13,336	13,781	13,336	13,781	13,191	11,262	13,781	159,596	80,463	79,133
2	R-11 Resi Non-Heat Low Incc	0	27	61	55	61	59	61	59	61	57	53	49	602	262	340
3	R-5 Resi Heating Sales	307,019	317,253	317,253	286,551	317,253	307,019	317,253	307,019	317,253	312,541	307,019	317,253	3,730,681	1,852,345	1,878,336
4	R-10 Resi Heating Low Incon	12,661	13,083	13,083	11,817	13,083	12,661	13,083	12,661	12,522	13,083	12,661	13,083	153,483	76,389	77,094
5	G-40 GS Small Hi Wtr Sales	84,364	87,176	87,176	78,740	87,176	84,364	87,176	84,364	85,330	87,176	84,364	87,176	1,024,581	508,995	515,586
6	G-50 GS Small Low Wtr Sale	110,761	114,453	114,453	103,377	114,453	110,761	108,101	110,761	113,693	114,453	90,829	114,453	1,320,545	668,256	652,289
7	G-41 GS Med Hi Wtr Sales	111,241	114,949	114,949	103,825	114,949	111,241	114,949	111,241	104,319	114,949	111,241	114,949	1,342,797	671,151	671,646
8	G-51 GS Med Low Wtr Sales	135,939	140,471	140,471	126,877	140,471	135,939	140,471	132,342	126,687	140,471	135,939	140,471	1,636,546	820,166	816,379
9	G-42 GS Large Hi Wtr Sales	41,143	42,514	42,514	38,400	42,514	41,143	42,514	41,143	42,514	36,352	20,125	42,514	473,390	248,228	225,162
10	G-52 GS Large Low Wtr Sale	24,826	25,653	25,653	23,171	25,653	24,826	23,971	24,826	25,653	24,460	24,826	25,653	299,169	149,781	149,388
11	T-40 GS Small Hi Wtr Trans	23,083	23,852	23,852	21,544	23,852	23,083	23,852	23,083	23,852	23,386	23,083	23,852	280,373	139,265	141,108
12	T-50 GS Small Low Wtr Tran:	16,433	16,981	16,981	15,338	16,981	16,433	16,981	16,433	16,640	16,981	16,005	16,981	199,167	99,147	100,020
13	T-41 GS Med Hi Wtr Trans	130,300	134,644	134,644	121,613	134,644	130,300	134,644	130,300	126,775	134,644	130,300	134,644	1,577,451	786,144	791,306
14	T-51 GS Med Low Wtr Trans	154,178	159,317	159,317	143,899	159,317	154,178	159,317	154,178	159,317	159,148	138,766	159,317	1,860,248	930,206	930,042
15	T-42 GS Large Hi Wtr Trans	154,194	159,334	159,334	143,915	159,334	154,194	159,334	154,194	158,953	159,334	154,194	159,334	1,875,651	930,306	945,344
16	T-52 GS Large Low Wtr Tran:	1,204,451	1,244,600	1,244,600	1,124,154	1,244,600	1,204,451	1,244,600	1,204,451	1,188,130	1,244,600	1,204,451	1,244,600	14,597,687	7,266,856	7,330,831
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Total	2,523,928	2,608,086	2,608,120	2,355,721	2,608,120	2,523,987	2,600,086	2,520,390	2,515,480	2,594,824	2,465,117	2,608,108	30,531,967	15,227,962	15,304,005
31	Total Sales	841,289	869,359	869,393	785,258	869,392	841,348	861,359	837,751	841,813	856,732	798,318	869,381	10,141,391	5,076,038	5,065,353
32	Total Transportation	1,682,639	1,738,727	1,738,727	1,570,463	1,738,727	1,682,639	1,738,727	1,682,639	1,673,667	1,738,092	1,666,799	1,738,727	20,390,576	10,151,924	10,238,652
33	Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Calendar Month Remaining Use, Therms

REMAINING USE SALES, Therms		November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER
1	R-6 Resi Non-Heat Sales	5,946	10,961	19,511	15,970	10,523	8,313	2,835	2,374	583	0	0	3,810	80,826	71,224	9,602
2	R-11 Resi Non-Heat Low Incc	0	0	7	6	0	2	8	19	4	0	0	0	46	15	31
3	R-5 Resi Heating Sales	1,375,159	2,155,651	2,976,623	2,508,802	1,739,847	1,066,416	348,115	95,327	4,653	0	35,161	663,831	12,969,586	11,822,498	1,147,088
4	R-10 Resi Heating Low Incon	31,751	69,311	122,199	108,280	79,488	59,251	21,944	2,574	0	554	2,316	17,947	515,614	470,280	45,334
5	G-40 GS Small Hi Wtr Sales	719,288	1,199,252	1,623,453	1,368,743	926,548	545,683	158,103	31,805	0	1,823	28,064	305,836	6,908,599	6,382,967	525,632
6	G-50 GS Small Low Wtr Sale	2,388	11,715	41,943	38,573	14,861	10,978	0	207	0	750	0	5,338	126,752	120,457	6,295
7	G-41 GS Med Hi Wtr Sales	465,895	832,225	1,225,126	1,000,066	691,424	402,295	124,510	30,120	0	10,497	37,342	248,487	5,067,986	4,617,031	450,955
8	G-51 GS Med Low Wtr Sales	34,336	72,310	115,471	71,393	49,027	56,025	10,141	0	0	13,612	20,270	43,759	486,344	398,562	87,782
9	G-42 GS Large Hi Wtr Sales	100,595	182,326	294,404	212,248	201,633	158,433	57,773	25,649	6,085	0	0	35,933	1,275,079	1,149,639	125,440
10	G-52 GS Small Low Wtr Sale	10,676	20,805	64,064	18,808	16,559	5,839	0	1,351	1,179	0	2,174	3,445	144,899	136,751	8,148
11	T-40 GS Small Hi Wtr Trans	120,240	188,947	244,932	206,513	156,876	98,223	37,397	12,737	460	0	8,483	66,725	1,141,532	1,015,731	125,801
12	T-50 GS Small Low Wtr Tran:	4,463	7,690	12,830	11,491	6,879	4,022	553	343	0	337	0	4,684	53,292	47,376	5,916
13	T-41 GS Med Hi Wtr Trans	530,249	801,808	1,106,847	982,151	716,971	466,749	176,097	43,259	0	7,770	62,713	303,080	5,197,694	4,604,775	592,919
14	T-51 GS Med Low Wtr Trans	46,097	74,230	130,626	112,528	67,074	49,326	13,043	5,601	167	0	0	44,022	542,715	479,882	62,833
15	T-42 GS Large Hi Wtr Trans	312,604	504,517	610,266	623,021	438,928	248,076	121,209	18,607	0	377	97,911	187,742	3,163,258	2,737,412	425,846
16	T-52 GS Large Low Wtr Tran:	272,652	114,436	453,203	458,617	316,004	173,064	42,483	14,668	0	55,766	72,793	109,088	2,082,773	1,787,976	294,797
17		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Total	4,032,338	6,246,184	9,041,506	7,737,210	5,432,642	3,352,695	1,114,211	284,639	13,130	91,485	367,227	2,043,726	39,756,994	35,842,575	3,914,419
31	Total Sales	2,746,034	4,554,556	6,482,801	5,342,889	3,729,910	2,313,235	723,429	189,425	12,503	27,236	125,328	1,328,385	27,575,730	25,169,424	2,406,306
32	Total Transportation	1,286,305	1,691,628	2,558,705	2,394,321	1,702,732	1,039,460	390,782	95,214	627	64,249	241,899	715,341	12,181,264	10,673,151	1,508,113
33	Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Total Sendout Level	4,083,257	6,325,058	9,155,678	7,834,912	5,501,243	3,395,032	1,128,281	288,234	13,296	92,640	371,864	2,069,533	40,259,027	36,295,178	3,963,848

Northern Utilities - NH
Sales and Demand Model
Calendar Month Remaining Use at Sendout Level, Therms

CALENDAR MONTH SENDOUT REMAINING USE SALES, Therms																	
	November 2016	December 2016	January 2016	February 2016	March 2016	April 2016	May 2016	June 2016	July 2016	August 2016	September 2016	October 2016	TOTAL	WINTER	SUMMER		
1 R-6 Resi Non-Heat Sales	6,021	11,099	19,758	16,172	10,656	8,418	2,870	2,404	590	-	-	3,858	81,846	72,123	9,723		
2 R-11 Resi Non-Heat Low Incc	-	-	7	6	-	2	8	19	4	-	-	-	47	16	31		
3 R-5 Resi Heating Sales	1,392,524	2,182,872	3,014,211	2,540,482	1,761,817	1,079,883	352,511	96,531	4,712	-	35,605	672,214	13,133,360	11,971,787	1,161,572		
4 R-10 Resi Heating Low Inconr	32,152	70,186	123,742	109,648	80,491	59,999	22,221	2,606	-	561	2,345	18,173	522,125	476,218	45,906		
5 G-40 GS Small Hi Wtr Sales	728,371	1,214,396	1,643,953	1,386,027	938,248	552,573	160,100	32,206	-	1,846	28,419	309,698	6,995,838	6,463,569	532,269		
6 G-50 GS Small Low Wtr Sale	2,418	11,863	42,472	39,060	15,049	11,116	-	210	-	759	-	5,405	128,353	121,978	6,374		
7 G-41 GS Med Hi Wtr Sales	471,778	842,734	1,240,596	1,012,694	700,155	407,375	126,082	30,500	-	10,630	37,813	251,625	5,131,982	4,675,333	456,649		
8 G-51 GS Med Low Wtr Sales	34,770	73,223	116,930	72,295	49,646	56,732	10,269	-	-	13,784	20,526	44,311	492,485	403,595	88,891		
9 G-42 GS Large Hi Wtr Sales	101,866	184,628	298,121	214,928	204,179	160,434	58,502	25,973	6,162	-	-	36,387	1,291,180	1,164,156	127,024		
10 G-52 GS Large Low Wtr Sale	10,811	21,068	64,873	19,045	16,768	5,912	-	1,368	1,193	-	2,201	3,488	146,728	138,478	8,251		
11 T-40 GS Small Hi Wtr Trans	121,758	191,333	248,025	209,121	158,857	99,464	37,869	12,898	466	-	8,590	67,568	1,155,947	1,028,557	127,390		
12 T-50 GS Small Low Wtr Tran:	4,520	7,787	12,992	11,636	6,966	4,073	560	347	-	341	-	4,743	53,965	47,974	5,991		
13 T-41 GS Med Hi Wtr Trans	536,945	811,933	1,120,824	994,553	726,025	472,643	178,321	43,805	-	7,868	63,505	306,907	5,263,328	4,662,922	600,406		
14 T-51 GS Med Low Wtr Trans	46,679	75,168	132,276	113,949	67,921	49,949	13,208	5,672	169	-	-	44,578	549,568	485,942	63,626		
15 T-42 GS Large Hi Wtr Trans	316,551	510,888	617,972	630,889	444,471	251,208	122,740	18,842	-	382	99,147	190,113	3,203,202	2,771,979	431,224		
16 T-52 GS Large Low Wtr Tran:	276,095	115,881	458,926	464,408	319,995	175,250	43,020	14,853	-	56,470	73,712	110,465	2,109,074	1,810,554	298,520		
17	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
18	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
19	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
20	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
21	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
22	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
23	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
24	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
25	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
26	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
27	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
28	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
29	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0		
30 Total	4,083,257	6,325,058	9,155,678	7,834,912	5,501,243	3,395,032	1,128,281	288,234	13,296	92,640	371,864	2,069,533	40,259,027	36,295,178	3,963,848		
31 Total Sales	2,780,709	4,612,069	6,564,663	5,410,356	3,777,009	2,342,445	732,564	191,817	12,661	27,580	126,910	1,345,160	27,923,943	25,487,252	2,436,691		
32 Total Transportation	1,302,547	1,712,989	2,591,015	2,424,556	1,724,234	1,052,586	395,717	96,417	635	65,061	244,954	724,374	12,335,083	10,807,927	1,527,157		
33 Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Northern Utilities - NH
Sales and Demand Model
Design Day Demand, Therms

PERCENT UNACCT-SYSTEM

1.25%

DESIGN DAY				ADJUSTED FOR LOSSES		
DEMAND, Therms						
Customer Class	Total Design Day Demand	Total Design Day Base Demand	Total Design Day Remaining Dem	Total Design Day Demand	Total Design Day Base Demand	Total Design Day Remaining Dem
1 R-6 Resi Non-Heat Sales	1,475	439	1,036	1,494	445	1,049
2 R-11 Resi Non-Heat Low Incr	2	2	0	2	2	1
3 R-5 Resi Heating Sales	171,280	10,106	161,174	173,443	10,234	163,209
4 R-10 Resi Heating Low Incon	7,340	417	6,923	7,432	422	7,010
5 G-40 GS Small Hi Wtr Sales	88,951	2,777	86,174	90,074	2,812	87,262
6 G-50 GS Small Low Wtr Sale	6,230	3,646	2,584	6,309	3,692	2,617
7 G-41 GS Med Hi Wtr Sales	71,491	3,662	67,830	72,394	3,708	68,686
8 G-51 GS Med Low Wtr Sales	11,638	4,475	7,163	11,785	4,531	7,253
9 G-42 GS Large Hi Wtr Sales	18,922	1,354	17,568	19,161	1,371	17,790
10 G-52 GS Large Low Wtr Sale	4,674	817	3,857	4,733	828	3,905
11 T-40 GS Small Hi Wtr Trans	14,008	760	13,249	14,185	769	13,416
12 T-50 GS Small Low Wtr Tran	1,271	541	731	1,288	548	740
13 T-41 GS Med Hi Wtr Trans	66,077	4,289	61,788	66,912	4,343	62,568
14 T-51 GS Med Low Wtr Trans	11,669	5,075	6,593	11,816	5,139	6,677
15 T-42 GS Large Hi Wtr Trans	40,547	5,076	35,471	41,059	5,140	35,919
16 T-52 GS Large Low Wtr Tran	68,028	39,648	28,380	68,887	40,148	28,739
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0
25	0	0	0	0	0	0
26	0	0	0	0	0	0
27	0	0	0	0	0	0
28	0	0	0	0	0	0
29	0	0	0	0	0	0
30 Total	583,604	83,084	500,520	590,973	84,133	506,841
31 Total Sales	382,003	27,695	354,308	386,827	28,045	358,782
32 Total Transportation	201,601	55,389	146,212	204,146	56,088	148,058
33 Total Other	-	-	-	-	-	-

Northern Utilities - NH
Sales and Demand Model
Computation of Design Day Demand, Therms

DEVELOPMENT OF DESIGN DAY DEMAND, Therms													
Customer Class	November 11 2016	December 12 2016	January 1 2016	February 2 2016	March 3 2016	April 4 2016	May 5 2016	June 6 2016	July 7 2016	August 8 2016	September 9 2016	October 10 2016	Annual Usage
1 R-6 Resi Non-Heat Sales	19,116	24,570	33,121	28,262	24,132	21,483	16,444	15,544	14,192	13,027	11,122	17,419	238,432
2 R-11 Resi Non-Heat Low Incr	0	27	67	60	60	61	69	77	64	57	52	49	641
3 R-5 Resi Heating Sales	1,678,349	2,468,948	3,289,920	2,791,779	2,053,143	1,369,607	661,411	398,517	317,949	308,643	338,351	977,128	16,653,745
4 R-10 Resi Heating Low Incon	44,254	82,231	135,119	119,950	92,408	71,754	34,864	15,077	12,366	13,474	14,819	30,867	667,183
5 G-40 GS Small Hi Wtr Sales	802,600	1,285,341	1,709,542	1,446,501	1,012,637	628,994	244,192	115,117	84,266	87,912	111,376	391,925	7,920,404
6 G-50 GS Small Low Wtr Sale	111,767	124,740	154,968	140,660	127,887	120,357	106,753	109,587	112,276	113,775	89,696	118,363	1,430,830
7 G-41 GS Med Hi Wtr Sales	575,748	945,741	1,338,641	1,102,596	804,939	512,149	238,025	139,973	103,018	124,012	147,195	362,002	6,394,039
8 G-51 GS Med Low Wtr Sales	168,580	211,029	254,190	196,688	187,745	190,269	148,860	130,692	125,107	152,331	154,514	182,478	2,102,482
9 G-42 GS Large Hi Wtr Sales	141,225	224,310	336,388	250,169	243,617	199,063	99,757	66,279	48,069	35,899	19,874	77,917	1,742,565
10 G-52 GS Large Low Wtr Sale	35,192	46,139	89,397	41,689	41,892	30,355	23,672	25,867	26,512	24,155	26,690	28,778	440,337
11 T-40 GS Small Hi Wtr Trans	143,035	212,502	268,486	227,788	180,430	121,018	60,951	35,532	24,014	23,095	31,277	90,280	1,418,408
12 T-50 GS Small Low Wtr Tran	20,692	24,459	29,599	26,637	23,648	20,250	17,322	16,571	16,432	17,106	15,805	21,453	249,975
13 T-41 GS Med Hi Wtr Trans	658,925	934,772	1,239,812	1,102,248	849,936	595,424	309,062	171,934	125,194	140,735	191,388	436,045	6,755,474
14 T-51 GS Med Low Wtr Trans	198,352	231,561	287,957	254,633	224,405	201,582	170,373	157,856	157,498	157,163	137,035	201,352	2,379,766
15 T-42 GS Large Hi Wtr Trans	464,875	661,864	767,614	765,142	596,275	400,347	278,557	170,879	156,970	157,724	250,183	345,089	5,015,519
16 T-52 GS Large Low Wtr Tran	1,462,083	1,343,516	1,682,282	1,568,753	1,545,084	1,362,496	1,271,562	1,204,099	1,173,314	1,284,845	1,262,224	1,338,167	16,498,426
17	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0
30 Total	6,524,793	8,821,747	11,617,102	10,063,555	8,008,238	5,845,208	3,681,874	2,773,600	2,497,242	2,653,951	2,801,603	4,619,311	69,908,226
31 Total Sales	3,576,832	5,413,074	7,341,352	6,118,355	4,588,461	3,144,091	1,574,047	1,016,729	843,819	873,284	913,690	2,186,925	37,590,657
32 Total Transportation	2,947,961	3,408,673	4,275,750	3,945,201	3,419,778	2,701,117	2,107,828	1,756,871	1,653,423	1,780,668	1,887,913	2,432,386	32,317,568
33 Total Other	-	-	-	-	-	-	-	-	-	-	-	-	-

**Northern Utilities - NH
Sales and Demand Model
Computation of Design**

DEVELOPMENT OF DESIGN DEMAND, Therms				
Consumption Summaries				
Customer Class	6 Month Winter	6 Month Summer	6 mo. Wtr % of Annual	Design Day Demand
1 R-6 Resi Non-Heat Sales	150,684	87,748	63.20%	1,475
2 R-11 Resi Non-Heat Low Incr	275	367	42.81%	2
3 R-5 Resi Heating Sales	13,651,745	3,002,000	81.97%	171,280
4 R-10 Resi Heating Low Incon	545,716	121,467	81.79%	7,340
5 G-40 GS Small Hi Wtr Sales	6,885,616	1,034,788	86.94%	88,951
6 G-50 GS Small Low Wtr Sale	780,380	650,450	54.54%	6,230
7 G-41 GS Med Hi Wtr Sales	5,279,813	1,114,225	82.57%	71,491
8 G-51 GS Med Low Wtr Sales	1,208,501	893,981	57.48%	11,638
9 G-42 GS Large Hi Wtr Sales	1,394,771	347,795	80.04%	18,922
10 G-52 GS Large Low Wtr Sale	284,664	155,673	64.65%	4,674
11 T-40 GS Small Hi Wtr Trans	1,153,259	265,149	81.31%	14,008
12 T-50 GS Small Low Wtr Tran	145,286	104,689	58.12%	1,271
13 T-41 GS Med Hi Wtr Trans	5,381,116	1,374,358	79.66%	66,077
14 T-51 GS Med Low Wtr Trans	1,398,488	981,278	58.77%	11,669
15 T-42 GS Large Hi Wtr Trans	3,656,117	1,359,402	72.90%	40,547
16 T-52 GS Large Low Wtr Tran	8,964,214	7,534,212	54.33%	68,028
17	0	0	0.00%	0
18	0	0	0.00%	0
19	0	0	0.00%	0
20	0	0	0.00%	0
21	0	0	0.00%	0
22	0	0	0.00%	0
23	0	0	0.00%	0
24	0	0	0.00%	0
25	0	0	0.00%	0
26	0	0	0.00%	0
27	0	0	0.00%	0
28	0	0	0.00%	0
29	0	0	0.00%	0
30 Total	50,880,644	19,027,582	72.78%	583,604
31 Total Sales	30,182,164	7,408,493	80.29%	382,003
32 Total Transportation	20,698,480	11,619,088	64.05%	201,601
33 Total Other	-	-	0.00%	-

Northern Utilities - NH
Sales and Demand Model
Computation of Design

DEVELOPMENT OF DESIGN DEMAND, Therms													
Normal Degree Days in Calendar Month													
Customer Class	11 2016	12 2016	1 2016	2 2016	3 2016	4 2016	5 2016	6 2016	7 2016	8 2016	9 2016	10 2016	Total Yr's DD's
1 R-6 Resi Non-Heat Sales	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
2 R-11 Resi Non-Heat Low Incr	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
3 R-5 Resi Heating Sales	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
4 R-10 Resi Heating Low Incon	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
5 G-40 GS Small Hi Wtr Sales	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
6 G-50 GS Small Low Wtr Sale	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
7 G-41 GS Med Hi Wtr Sales	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
8 G-51 GS Med Low Wtr Sales	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
9 G-42 GS Large Hi Wtr Sales	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
10 G-52 GS Large Low Wtr Sale	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
11 T-40 GS Small Hi Wtr Trans	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
12 T-50 GS Small Low Wtr Tran	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
13 T-41 GS Med Hi Wtr Trans	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
14 T-51 GS Med Low Wtr Trans	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
15 T-42 GS Large Hi Wtr Trans	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
16 T-52 GS Large Low Wtr Tran	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
17	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
18	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
19	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
20	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
21	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
22	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
23	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
24	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
25	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
26	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
27	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
28	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
29	761	1,126	1,315	1,175	990	613	312	84	9	15	136	460	6,996
30 Total													
31 Total Sales													
32 Total Transportation													
33 Total Other													

**Northern Utilities - NH
Sales and Demand Model
Computation of Design**

DEVELOPMENT OF DESIGN DEMAND, Therms													
Use Per Customer													
Customer Class	11 2016	12 2016	1 2016	2 2016	3 2016	4 2016	5 2016	6 2016	7 2016	8 2016	9 2016	10 2016	Total Yr's
1 R-6 Resi Non-Heat Sales	16	21	29	24	21	18	13	12	11	10	9	14	16
2 R-11 Resi Non-Heat Low Incr	-	-	13	12	12	12	14	15	13	12	13	12	13
3 R-5 Resi Heating Sales	74	107	147	126	92	61	30	19	16	16	17	46	65
4 R-10 Resi Heating Low Incon	62	119	132	106	82	63	27	14	12	14	15	33	55
5 G-40 GS Small Hi Wtr Sales	190	288	386	323	228	144	59	37	39	42	48	112	181
6 G-50 GS Small Low Wtr Sale	170	193	240	222	193	179	152	155	163	167	128	174	177
7 G-41 GS Med Hi Wtr Sales	1,548	2,542	2,962	2,456	1,797	1,143	534	344	289	363	492	992	1,344
8 G-51 GS Med Low Wtr Sales	1,155	1,436	1,718	1,320	1,260	1,294	1,006	920	907	1,120	1,236	1,285	1,225
9 G-42 GS Large Hi Wtr Sales	14,122	24,923	24,028	17,869	16,241	14,219	6,235	4,419	3,205	2,244	2,484	8,657	11,242
10 G-52 GS Large Low Wtr Sale	17,596	23,069	29,799	13,896	20,946	15,177	11,836	12,933	13,256	12,077	13,345	14,389	16,936
11 T-40 GS Small Hi Wtr Trans	306	435	606	514	386	256	128	83	60	60	77	203	266
12 T-50 GS Small Low Wtr Trans	300	354	470	430	370	321	284	272	279	280	200	311	320
13 T-41 GS Med Hi Wtr Trans	2,594	3,568	4,661	4,098	3,125	2,205	1,136	656	533	594	862	1,744	2,200
14 T-51 GS Med Low Wtr Trans	1,771	2,068	2,618	2,294	2,040	1,833	1,563	1,422	1,432	1,403	1,318	1,798	1,799
15 T-42 GS Large Hi Wtr Trans	18,595	27,578	31,984	29,429	23,851	16,681	11,607	7,120	6,540	6,572	10,007	14,379	17,118
16 T-52 GS Large Low Wtr Trans	48,736	46,328	62,307	58,102	53,279	45,417	42,385	40,137	39,110	42,828	42,074	44,606	46,871
17	-	-	-	-	-	-	-	-	-	-	-	-	-
18	-	-	-	-	-	-	-	-	-	-	-	-	-
19	-	-	-	-	-	-	-	-	-	-	-	-	-
20	-	-	-	-	-	-	-	-	-	-	-	-	-
21	-	-	-	-	-	-	-	-	-	-	-	-	-
22	-	-	-	-	-	-	-	-	-	-	-	-	-
23	-	-	-	-	-	-	-	-	-	-	-	-	-
24	-	-	-	-	-	-	-	-	-	-	-	-	-
25	-	-	-	-	-	-	-	-	-	-	-	-	-
26	-	-	-	-	-	-	-	-	-	-	-	-	-
27	-	-	-	-	-	-	-	-	-	-	-	-	-
28	-	-	-	-	-	-	-	-	-	-	-	-	-
29	-	-	-	-	-	-	-	-	-	-	-	-	-
30 Total													
31 Total Sales													
32 Total Transportation													
33 Total Other													

**Northern Utilities - NH
Sales and Demand Model
Computation of Design**

**DEVELOPMENT OF DESIGN
DEMAND, Therms**

		Regression Prediction			R -Square Greater Than 90%	R -Square >90% Load at 78.5
Customer Class		Monthly Base Use per customer	Use per Deg Day per customer	Peak Month Customers		
1	R-6 Resi Non-Heat Sales	9	0.01	1,159	92%	1,475
2	R-11 Resi Non-Heat Low Incr	13	0.00	5	15%	
3	R-5 Resi Heating Sales	7	0.09	22,317	97%	171,280
4	R-10 Resi Heating Low Incon	4	0.09	1,022	96%	7,340
5	G-40 GS Small Hi Wtr Sales	12	0.25	4,427	96%	88,951
6	G-50 GS Small Low Wtr Sale	146	0.05	646	74.6%	
7	G-41 GS Med Hi Wtr Sales	150	1.95	452	97%	71,491
8	G-51 GS Med Low Wtr Sales	1,000	0.38	148	66%	
9	G-42 GS Large Hi Wtr Sales	2,006	16.38	14	94%	18,922
10	G-52 GS Large Low Wtr Sale	11,349	8.88	3	62%	
11	T-40 GS Small Hi Wtr Trans	33	0.39	443	98%	14,008
12	T-50 GS Small Low Wtr Tran	244	0.13	63	77%	
13	T-41 GS Med Hi Wtr Trans	401	3.00	266	99%	66,077
14	T-51 GS Med Low Wtr Trans	1,335	0.79	110	91%	11,669
15	T-42 GS Large Hi Wtr Trans	5,929	19.04	24	99%	40,547
16	T-52 GS Large Low Wtr Tran	39,323	13.36	27	79%	
17		0	0.00	-	0%	
18		0	0.00	-	0%	
19		0	0.00	-	0%	
20		0	0.00	-	0%	
21		0	0.00	-	0%	
22		0	0.00	-	0%	
23		0	0.00	-	0%	
24		0	0.00	-	0%	
25		0	0.00	-	0%	
26		0	0.00	-	0%	
27		0	0.00	-	0%	
28		0	0.00	-	0%	
29		0	0.00	-	0%	
30	Total					
31	Total Sales					
32	Total Transportation					
33	Total Other					

**Northern Utilities - NH
Sales and Demand Model
Computation of Design**

DEVELOPMENT OF DESIGN DEMAND, Therms									
Peak Month Regression R-Square => 75% & < 90%									
Customer Class	R-Square > 75% and < 90%	Use in Winter Peak Mo	Daily Use Winter Month	Regress Use Per DD Per Customer	Peak Month Customers	Heating Use Per Degree Day	Degree Days in Peak Month	Design DD Difference Over Peak Mo	Design Day Load at 78.5
1 R-6 Resi Non-Heat Sales									
2 R-11 Resi Non-Heat Low Incr									
3 R-5 Resi Heating Sales									
4 R-10 Resi Heating Low Incon									
5 G-40 GS Small Hi Wtr Sales									
6 G-50 GS Small Low Wtr Sale									
7 G-41 GS Med Hi Wtr Sales									
8 G-51 GS Med Low Wtr Sales									
9 G-42 GS Large Hi Wtr Sales									
10 G-52 GS Large Low Wtr Sale									
11 T-40 GS Small Hi Wtr Trans									
12 T-50 GS Small Low Wtr Tran	77%	29,599	973	0.13	63	8.5	1,315	35.3	1,271
13 T-41 GS Med Hi Wtr Trans									
14 T-51 GS Med Low Wtr Trans									
15 T-42 GS Large Hi Wtr Trans									
16 T-52 GS Large Low Wtr Tran	79%	1,682,282	55,308	13.36	27	360.6	1,315	35.3	68,028
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30 Total									
31 Total Sales									
32 Total Transportation									
33 Total Other									

**Northern Utilities - NH
Sales and Demand Model
Computation of Design**

DEVELOPMENT OF DESIGN DEMAND, Therms										
Peak Month Adjustment R-Square Less Than 75%										
Customer Class	R-Square Less Than 75%	Use in Winter Peak Mo	Daily Use Winter Month	July & Aug Monthly Avg Base Use	Peak Month Monthly Heating Use	Degree Days in Peak Month	Peak Month Use Per DD	Design DD Difference Over Peak Mo	Load at 78.5	Design Day Load Estimate 78.5
1 R-6 Resi Non-Heat Sales										1,475 Regression >90
2 R-11 Resi Non-Heat Low Incr	14.8%	67	2	58	9	1,315	0.01	35.3	2	2 Peak Month < 75
3 R-5 Resi Heating Sales										171,280 Regression >90
4 R-10 Resi Heating Low Incon										7,340 Regression >90
5 G-40 GS Small Hi Wtr Sales										88,951 Regression >90
6 G-50 GS Small Low Wtr Sale	74.6%	154,968	5,095	112,651	42,318	1,315	32.2	35.3	6,230	6,230 Peak Month < 75
7 G-41 GS Med Hi Wtr Sales										71,491 Regression >90
8 G-51 GS Med Low Wtr Sales	66%	254,190	8,357	131,913	122,277	1,315	93.0	35.3	11,638	11,638 Peak Month < 75
9 G-42 GS Large Hi Wtr Sales										18,922 Regression >90
10 G-52 GS Large Low Wtr Sale	62%	89,397	2,939	24,744	64,653	1,315	49.2	35.3	4,674	4,674 Peak Month < 75
11 T-40 GS Small Hi Wtr Trans										14,008 Regression >90
12 T-50 GS Small Low Wtr Tran:										1,271 Peak Mo Regr > 75
13 T-41 GS Med Hi Wtr Trans										66,077 Regression >90
14 T-51 GS Med Low Wtr Trans										11,669 Regression >90
15 T-42 GS Large Hi Wtr Trans										40,547 Regression >90
16 T-52 GS Large Low Wtr Tran										68,028 Peak Mo Regr > 75
17										0
18										0
19										0
20										0
21										0
22										-
23										-
24										-
25										-
26										-
27										-
28										-
29										-
30 Total										583,604
31 Total Sales										382,003
32 Total Transportation										201,601
33 Total Other										-

Northern Utilities - NH
Gas billing cycles and read dates for the 13 months of the test year

CYCLE	METER READ DATE Dec-15	METER READ DATE Jan-16	METER READ DATE Feb-16	METER READ DATE Mar-16	METER READ DATE Apr-16	METER READ DATE May-16	METER READ DATE Jun-16	METER READ DATE Jul-16	METER READ DATE Aug-16	METER READ DATE Sep-16	METER READ DATE Oct-16	METER READ DATE Nov-16	METER READ DATE Dec-16	METER READ DATE Jan-17
1	12/7/2015	1/7/2016	2/8/2016	3/10/2016	4/8/2016	5/9/2016	6/9/2016	7/7/2016	8/9/2016	9/8/2016	10/7/2016	11/4/2016	12/6/2016	1/5/2017
2														
3														
4	12/10/2015	1/12/2016	2/11/2016	3/15/2016	4/13/2016	5/12/2016	6/14/2016	7/12/2016	8/12/2016	9/13/2016	10/12/2016	11/9/2016	12/9/2016	1/10/2017
5	12/11/2015	1/13/2016	2/12/2016	3/16/2016	4/14/2016	5/13/2016	6/15/2016	7/13/2016	8/15/2016	9/14/2016	10/13/2016	11/10/2016	12/12/2016	1/11/2017
6														
7														
8	12/16/2015	1/18/2016	2/17/2016	3/21/2016	4/19/2016	5/18/2016	6/20/2016	7/18/2016	8/18/2016	9/19/2016	10/18/2016	11/16/2016	12/15/2016	1/16/2017
9														
10	12/18/2015	1/20/2016	2/19/2016	3/23/2016	4/21/2016	5/20/2016	6/22/2016	7/20/2016	8/22/2016	9/21/2016	10/20/2016	11/18/2016	12/19/2016	1/18/2017
11														
12														
13	12/22/2015	1/22/2016	2/23/2016	3/25/2016	4/25/2016	5/24/2016	6/24/2016	7/22/2016	8/24/2016	9/23/2016	10/24/2016	11/22/2016	12/21/2016	1/20/2017
14														
15														
16	12/29/2015	1/27/2016	2/26/2016	3/30/2016	4/28/2016	5/27/2016	6/29/2016	7/27/2016	8/29/2016	9/28/2016	10/27/2016	11/29/2016	12/28/2016	1/25/2017
17														
18														
19														
20														
21														
22	1/1/2016	2/1/2016	3/1/2016	4/1/2016	5/1/2016	6/1/2016	7/1/2016	8/1/2016	9/1/2016	10/1/2016	11/1/2016	12/1/2016	1/1/2017	2/1/2017
23														

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Northern Utilities - NH
Actual Days in Cycle

	Cycle No.																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	##	20	21	22
January	1	31	-	-	33	33	-	-	33	-	33	-	-	31	-	-	29	#	-			31
February	2	32	-	-	30	30	-	-	30	-	30	-	-	32	-	-	30	#	-			29
March	3	31	-	-	33	33	-	-	33	-	33	-	-	31	-	-	33	#	-			31
April	4	29	-	-	29	29	-	-	29	-	29	-	-	31	-	-	29	#	-			30
May	5	31	-	-	29	29	-	-	29	-	29	-	-	29	-	-	29	#	-			31
June	6	31	-	-	33	33	-	-	33	-	33	-	-	31	-	-	33	#	-			30
July	7	28	-	-	28	28	-	-	28	-	28	-	-	28	-	-	28	#	-			31
August	8	33	-	-	31	33	-	-	31	-	33	-	-	33	-	-	33	#	-			31
September	9	30	-	-	32	30	-	-	32	-	30	-	-	30	-	-	30	#	-			30
October	10	29	-	-	29	29	-	-	29	-	29	-	-	31	-	-	29	#	-			31
November	11	28	-	-	28	28	-	-	29	-	29	-	-	29	-	-	33	#	-			30
December	12	32	-	-	30	32	-	-	29	-	31	-	-	29	-	-	29	#	-			31
January 17	13	30	-	-	32	30	-	-	32	-	30	-	-	30	-	-	28	#	-			31

Northern Utilities - NH
Actual Days of current Month in Cycle

	Cycle No.																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
January	1	6.0		11.0	12.0			17.0		19.0			21.0			26.0						31.0
February	2	7.0		10.0	11.0			16.0		18.0			22.0			25.0						29.0
March	3	9.0		14.0	15.0			20.0		22.0			24.0			29.0						31.0
April	4	7.0		12.0	13.0			18.0		20.0			24.0			27.0						30.0
May	5	8.0		11.0	12.0			17.0		19.0			23.0			26.0						31.0
June	6	8.0		13.0	14.0			19.0		21.0			23.0			28.0						30.0
July	7	6.0		11.0	12.0			17.0		19.0			21.0			26.0						31.0
August	8	8.0		11.0	14.0			17.0		21.0			23.0			28.0						31.0
September	9	7.0		12.0	13.0			18.0		20.0			22.0			27.0						30.0
October	10	6.0		11.0	12.0			17.0		19.0			23.0			26.0						31.0
November	11	3.0		8.0	9.0			15.0		17.0			21.0			28.0						30.0
December	12	5.0		8.0	11.0			14.0		18.0			20.0			27.0						31.0
January 17	13	4.0		9.0	10.0			15.0		17.0			19.0			24.0						31.0

Northern Utilities - NH
Percent Days of Cycle in Current Month

	Cycle No.																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
January	1	19%		33%	36%			52%		58%			68%			90%						100%
February	2	22%		33%	37%			53%		60%			69%			83%						100%
March	3	29%		42%	45%			61%		67%			77%			88%						100%
April	4	24%		41%	45%			62%		69%			77%			93%						100%
May	5	26%		38%	41%			59%		66%			79%			90%						100%
June	6	26%		39%	42%			58%		64%			74%			85%						100%
July	7	21%		39%	43%			61%		68%			75%			93%						100%
August	8	24%		35%	42%			55%		64%			70%			85%						100%
September	9	23%		38%	43%			56%		67%			73%			90%						100%
October	10	21%		38%	41%			59%		66%			74%			90%						100%
November	11	11%		29%	32%			52%		59%			72%			85%						100%
December	12	16%		27%	34%			48%		58%			69%			93%						100%
January 17	13	13%		28%	33%			47%		57%			63%			86%						100%

Northern Utilities - NH
Gas billing cycles and read dates for the 13 months of the test year

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	##	21	22
January	1	896			987	1,006			1,106		1,168			1,148			1,173						1,210
February	2	1,173			1,140	1,159			1,223		1,193			1,210			1,094						1,064
March	3	1,149			1,118	1,085			962		944			886			950						846
April	4	760			778	777			731		709			696			617						662
May	5	610			516	497			446		429			400			347						303
June	6	179			180	175			130		109			95			82						64
July	7	33			17	17			15		15			13			12						12
August	8	12			-	-			-		-			-			-						-
September	9	5			9	9			22		22			22			63						97
October	10	164			224	235			277		290			335			368						444
November	11	423			478	487			553		577			637			780						716
December	12	817			794	904			885		1,042			1,031			1,037						1,135
January 17	13	1,112			1,268	1,169			1,229		1,102			1,077			1,014						1,073

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	##	21	22
January	1	245			412	451			654		764			861			1,059						1,210
February	2	208			341	400			667		746			862			942						1,064
March	3	293			396	421			565		626			683			829						846
April	4	206			327	352			450		489			533			600						662
May	5	154			182	187			234		256			271			285						303
June	6	31			59	59			62		62			63			64						64
July	7	-			12	12			12		12			12			12						12
August	8	-			-	-			-		-			-			-						-
September	9	5			9	9			22		22			22			63						97
October	10	72			136	147			202		215			260			334						444
November	11	51			170	190			311		348			452			670						716
December	12	152			248	378			481		675			767			991						1,135
January 17	13	130			381	412			575		641			710			871						1,073

Percent Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	##	21	22
January	1	27%	0%	0%	42%	45%	0%	0%	59%	0%	65%	0%	0%	75%	0%	0%	90%	0%	0%				100%
February	2	18%	0%	0%	30%	35%	0%	0%	55%	0%	63%	0%	0%	71%	0%	0%	86%	0%	0%				100%
March	3	26%	0%	0%	35%	39%	0%	0%	59%	0%	66%	0%	0%	77%	0%	0%	87%	0%	0%				100%
April	4	27%	0%	0%	42%	45%	0%	0%	62%	0%	69%	0%	0%	77%	0%	0%	97%	0%	0%				100%
May	5	25%	0%	0%	35%	38%	0%	0%	53%	0%	60%	0%	0%	68%	0%	0%	82%	0%	0%				100%
June	6	17%	0%	0%	33%	34%	0%	0%	48%	0%	57%	0%	0%	67%	0%	0%	78%	0%	0%				100%
July	7	0%	0%	0%	71%	71%	0%	0%	85%	0%	85%	0%	0%	94%	0%	0%	100%	0%	0%				100%
August	8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%				0%
September	9	100%	0%	0%	100%	100%	0%	0%	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%				100%
October	10	44%	0%	0%	61%	63%	0%	0%	73%	0%	74%	0%	0%	78%	0%	0%	91%	0%	0%				100%
November	11	12%	0%	0%	36%	39%	0%	0%	56%	0%	60%	0%	0%	71%	0%	0%	86%	0%	0%				100%
December	12	19%	0%	0%	31%	42%	0%	0%	54%	0%	65%	0%	0%	74%	0%	0%	96%	0%	0%				100%
January 17	13	12%	0%	0%	30%	35%	0%	0%	47%	0%	58%	0%	0%	66%	0%	0%	86%	0%	0%				100%

Northern Utilities - NH
Gas billing cycles and read dates for the 13 months of the test year

Normal Degree Days in Cycle

	Cycle No.																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	##	21	22		
January	1	1,176		1,274	1,279			1,312		1,323			1,266			1,226							1,315	
February	2	1,363		1,279	1,286			1,285		1,280			1,332			1,230							1,175	
March	3	1,210		1,250	1,237			1,184		1,167			1,085			1,095							990	
April	4	839		786	775			712		683			689			612							613	
May	5	541		462	452			411		399			365			335							312	
June	6	249		233	225			180		159			128			110							84	
July	7	46		31	27			16		15			13			10							9	
August	8	7		6	7			7		10			11			13							15	
September	9	28		41	43			65		74			81			113							136	
October	10	187		235	247			293		314			373			390							460	
November	11	456		502	511			587		607			651			799							761	
December	12	861		861	942			907		1,003			966			1,026							1,126	
January 17	13	1,128		1,226	1,164			1,262		1,200			1,209			1,172							1,273	

Normal Degree Days of Cycle in Current Month

	Cycle No.																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	##	21	22		
January	1	243		453	491			706		792			884			1,105							1,315	
February	2	292		417	462			677		757			901			1,021							1,175	
March	3	327		492	524			686		749			811			941							990	
April	4	176		288	309			408		442			509			563							613	
May	5	103		137	149			206		228			261			284							312	
June	6	41		58	62			74		75			77			82							84	
July	7	3		5	5			6		7			7			8							9	
August	8	1		2	3			4		7			9			13							15	
September	9	14		28	31			54		65			74			110							136	
October	10	65		127	141			211		243			311			363							460	
November	11	61		169	192			338		391			503			702							761	
December	12	161		269	374			484		632			708			968							1,126	
January 17	13	163		369	412			621		706			792			1,014							1,273	

Percent Normal Degree Days of Cycle in Current Month

	Cycle No.																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	##	21	22		
January	1	21%	0%	0%	36%	38%	0%	0%	54%	0%	60%	0%	0%	0%	0%	70%	0%	0%	90%	0%	0%	100%		
February	2	21%	0%	0%	33%	36%	0%	0%	53%	0%	59%	0%	0%	0%	0%	68%	0%	0%	83%	0%	0%	100%		
March	3	27%	0%	0%	39%	42%	0%	0%	58%	0%	64%	0%	0%	0%	0%	75%	0%	0%	86%	0%	0%	100%		
April	4	21%	0%	0%	37%	40%	0%	0%	57%	0%	65%	0%	0%	0%	0%	74%	0%	0%	92%	0%	0%	100%		
May	5	19%	0%	0%	30%	33%	0%	0%	50%	0%	57%	0%	0%	0%	0%	72%	0%	0%	85%	0%	0%	100%		
June	6	16%	0%	0%	25%	27%	0%	0%	41%	0%	47%	0%	0%	0%	0%	60%	0%	0%	75%	0%	0%	100%		
July	7	6%	0%	0%	17%	19%	0%	0%	39%	0%	44%	0%	0%	0%	0%	53%	0%	0%	83%	0%	0%	100%		
August	8	17%	0%	0%	34%	43%	0%	0%	63%	0%	76%	0%	0%	0%	0%	83%	0%	0%	96%	0%	0%	100%		
September	9	50%	0%	0%	67%	71%	0%	0%	83%	0%	89%	0%	0%	0%	0%	92%	0%	0%	97%	0%	0%	100%		
October	10	35%	0%	0%	54%	57%	0%	0%	72%	0%	77%	0%	0%	0%	0%	83%	0%	0%	93%	0%	0%	100%		
November	11	13%	0%	0%	34%	38%	0%	0%	58%	0%	64%	0%	0%	0%	0%	77%	0%	0%	88%	0%	0%	100%		
December	12	19%	0%	0%	31%	40%	0%	0%	53%	0%	63%	0%	0%	0%	0%	73%	0%	0%	94%	0%	0%	100%		
January 17	13	14%	0%	0%	30%	35%	0%	0%	49%	0%	59%	0%	0%	0%	0%	65%	0%	0%	87%	0%	0%	100%		

Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
12/1/2015	29.4	0	30.8	0
12/2/2015	23.9	29	31.7	31
12/3/2015	27.8	53	31.6	63
12/4/2015	27.1	81	32.6	94
12/5/2015	28.3	108	34.0	127
12/6/2015	24.0	136	32.9	161
12/7/2015	23.8	160	35.8	194
12/8/2015	30.2	184	39.6	229
12/9/2015	22.4	214	35.3	269
12/10/2015	20.4	237	33.5	304
12/11/2015	19.9	257	35.9	338
12/12/2015	20.5	277	36.5	374
12/13/2015	20.9	298	36.5	410
12/14/2015	19.5	319	37.1	447
12/15/2015	21.5	338	35.8	484
12/16/2015	28.6	359	37.6	520
12/17/2015	19.0	388	37.4	557
12/18/2015	27.7	407	37.7	595
12/19/2015	36.0	435	37.4	632
12/20/2015	34.7	471	38.3	670
12/21/2015	19.9	505	35.9	708
12/22/2015	22.1	525	35.8	744
12/23/2015	20.0	547	34.4	780
12/24/2015	20.1	567	36.5	814
12/25/2015	16.5	587	37.4	851
12/26/2015	21.7	604	40.1	888
12/27/2015	30.3	626	39.6	928
12/28/2015	41.5	656	37.2	968
12/29/2015	47.8	697	39.5	1005
12/30/2015	36.8	745	41.0	1044
12/31/2015	29.6	782	40.3	1085
1/1/2016	33.3	812	40.1	1126
1/2/2016	34.3	845	41.6	1166
1/3/2016	35.2	879	41.3	1207
1/4/2016	55.8	915	40.1	1249
1/5/2016	49.7	970	40.9	1289
1/6/2016	36.8	1020	39.6	1330
1/7/2016	36.9	1057	43.1	1369
1/8/2016	32.0	1094	41.7	1412
1/9/2016	29.7	1126	41.0	1454
1/10/2016	24.4	1155	42.7	1495
1/11/2016	43.6	1180	40.7	1538
1/12/2016	39.7	1223	38.3	1578
1/13/2016	49.3	1263	41.3	1617
1/14/2016	43.5	1312	43.6	1658
1/15/2016	35.3	1356	44.6	1702
1/16/2016	34.9	1391	44.0	1746
1/17/2016	39.6	1426	41.9	1790
1/18/2016	54.1	1466	43.2	1832
1/19/2016	55.5	1520	42.1	1875
1/20/2016	47.4	1575	44.7	1917
1/21/2016	50.4	1623	47.7	1962

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
1/22/2016	45.9	1673	45.2	2010
1/23/2016	52.2	1719	43.1	2055
1/24/2016	39.2	1771	41.9	2098
1/25/2016	36.6	1810	44.9	2140
1/26/2016	23.3	1847	46.0	2185
1/27/2016	35.1	1870	44.5	2231
1/28/2016	32.5	1905	42.2	2275
1/29/2016	33.4	1938	40.9	2318
1/30/2016	29.4	1971	40.0	2359
1/31/2016	21.1	2001	41.8	2399
2/1/2016	23.7	2022	39.1	2440
2/2/2016	28.7	2046	40.7	2480
2/3/2016	15.4	2074	39.7	2520
2/4/2016	22.8	2090	42.3	2560
2/5/2016	43.4	2113	44.5	2602
2/6/2016	38.0	2156	43.4	2647
2/7/2016	35.5	2194	41.8	2690
2/8/2016	51.1	2229	44.0	2732
2/9/2016	43.9	2281	41.0	2776
2/10/2016	38.8	2324	40.7	2817
2/11/2016	58.3	2363	44.9	2858
2/12/2016	52.1	2422	44.4	2903
2/13/2016	75.9	2474	44.7	2947
2/14/2016	67.5	2550	42.7	2992
2/15/2016	44.5	2617	42.4	3034
2/16/2016	27.2	2662	40.5	3077
2/17/2016	34.8	2689	41.1	3117
2/18/2016	44.2	2724	39.3	3158
2/19/2016	32.7	2768	37.1	3198
2/20/2016	16.1	2800	35.7	3235
2/21/2016	28.2	2817	36.0	3271
2/22/2016	38.6	2845	34.7	3307
2/23/2016	34.2	2883	38.8	3341
2/24/2016	23.4	2918	40.4	3380
2/25/2016	22.8	2941	40.9	3420
2/26/2016	45.3	2964	40.1	3461
2/27/2016	33.5	3009	38.8	3501
2/28/2016	19.4	3043	38.2	3540
2/29/2016	23.5	3062	37.2	3578
3/1/2016	30.2	3086	37.1	3616
3/2/2016	42.5	3116	36.0	3653
3/3/2016	45.9	3158	38.5	3689
3/4/2016	45.5	3204	37.4	3727
3/5/2016	37.9	3250	37.4	3765
3/6/2016	35.9	3288	37.1	3802
3/7/2016	30.3	3323	34.7	3839
3/8/2016	24.7	3354	34.0	3874
3/9/2016	0.1	3379	34.3	3908
3/10/2016	14.6	3379	33.6	3942
3/11/2016	26.8	3393	32.8	3976
3/12/2016	14.3	3420	33.4	4009
3/13/2016	17.8	3434	33.1	4042

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
3/14/2016	29.0	3452	32.0	4075
3/15/2016	25.7	3481	32.3	4107
3/16/2016	19.8	3507	33.0	4140
3/17/2016	19.0	3527	32.0	4173
3/18/2016	30.9	3546	31.7	4205
3/19/2016	36.9	3577	33.2	4236
3/20/2016	37.3	3614	32.1	4269
3/21/2016	34.2	3651	32.0	4302
3/22/2016	26.5	3685	31.3	4334
3/23/2016	23.1	3712	30.8	4365
3/24/2016	34.3	3735	30.6	4396
3/25/2016	30.1	3769	27.3	4426
3/26/2016	29.9	3799	27.2	4454
3/27/2016	28.5	3829	25.5	4481
3/28/2016	27.0	3858	24.7	4506
3/29/2016	29.7	3885	25.1	4531
3/30/2016	17.6	3914	25.1	4556
3/31/2016	0.0	3932	24.3	4581
4/1/2016	6.4	3932	25.5	4606
4/2/2016	25.4	3938	25.6	4631
4/3/2016	43.0	3964	24.7	4657
4/4/2016	46.1	4007	25.8	4681
4/5/2016	39.4	4053	26.0	4707
4/6/2016	27.1	4092	24.9	4733
4/7/2016	19.0	4119	23.3	4758
4/8/2016	27.5	4138	23.3	4781
4/9/2016	31.3	4166	22.5	4805
4/10/2016	26.2	4197	21.7	4827
4/11/2016	13.2	4223	22.1	4849
4/12/2016	22.8	4236	22.5	4871
4/13/2016	24.7	4259	21.6	4893
4/14/2016	25.0	4284	19.7	4915
4/15/2016	18.8	4309	19.7	4935
4/16/2016	21.5	4328	20.7	4954
4/17/2016	17.5	4349	19.1	4975
4/18/2016	14.9	4367	19.9	4994
4/19/2016	18.9	4382	16.9	5014
4/20/2016	20.4	4401	16.7	5031
4/21/2016	3.1	4421	15.7	5048
4/22/2016	2.2	4424	16.3	5063
4/23/2016	16.0	4426	18.0	5080
4/24/2016	22.7	4442	17.3	5098
4/25/2016	14.1	4465	17.6	5115
4/26/2016	31.8	4479	18.0	5132
4/27/2016	20.5	4511	17.6	5150
4/28/2016	21.9	4531	18.5	5168
4/29/2016	22.1	4553	16.8	5187
4/30/2016	18.0	4575	15.4	5203
5/1/2016	19.6	4593	13.3	5219
5/2/2016	21.2	4613	14.1	5232
5/3/2016	19.1	4634	13.7	5246
5/4/2016	22.4	4653	12.5	5260

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
5/5/2016	20.0	4676	13.2	5272
5/6/2016	16.6	4696	13.2	5286
5/7/2016	18.6	4712	11.1	5299
5/8/2016	16.9	4731	12.3	5310
5/9/2016	15.4	4748	10.9	5322
5/10/2016	6.3	4763	11.4	5333
5/11/2016	5.8	4770	11.0	5345
5/12/2016	5.4	4775	11.7	5356
5/13/2016	5.0	4781	13.6	5367
5/14/2016	0.3	4786	11.1	5381
5/15/2016	18.7	4786	10.7	5392
5/16/2016	17.6	4805	11.2	5403
5/17/2016	5.3	4822	10.4	5414
5/18/2016	13.0	4828	10.9	5424
5/19/2016	8.9	4841	11.4	5435
5/20/2016	1.6	4850	8.0	5447
5/21/2016	1.3	4851	8.1	5455
5/22/2016	9.4	4853	8.8	5463
5/23/2016	2.8	4862	8.2	5472
5/24/2016	12.1	4865	8.3	5480
5/25/2016	0.0	4877	7.7	5488
5/26/2016	1.6	4877	7.0	5496
5/27/2016	4.9	4879	7.8	5503
5/28/2016	0.0	4883	6.2	5511
5/29/2016	12.7	4883	4.6	5517
5/30/2016	0.0	4896	4.3	5522
5/31/2016	0.0	4896	4.7	5526
6/1/2016	4.7	4896	4.7	5531
6/2/2016	8.6	4901	5.0	5535
6/3/2016	5.3	4909	5.7	5540
6/4/2016	1.8	4915	6.8	5546
6/5/2016	6.2	4917	5.7	5553
6/6/2016	0.0	4923	5.9	5558
6/7/2016	0.0	4923	4.1	5564
6/8/2016	4.2	4923	2.8	5568
6/9/2016	8.1	4927	3.8	5571
6/10/2016	4.9	4935	3.8	5575
6/11/2016	6.3	4940	3.4	5579
6/12/2016	6.0	4946	3.4	5582
6/13/2016	3.0	4952	3.3	5586
6/14/2016	0.0	4955	3.5	5589
6/15/2016	0.0	4955	4.0	5592
6/16/2016	0.0	4955	3.3	5596
6/17/2016	0.0	4955	1.9	5600
6/18/2016	2.8	4955	2.0	5602
6/19/2016	0.0	4958	0.8	5604
6/20/2016	0.0	4958	0.6	5604
6/21/2016	0.0	4958	0.8	5605
6/22/2016	1.4	4958	1.3	5606
6/23/2016	0.0	4960	1.0	5607
6/24/2016	0.8	4960	1.1	5608
6/25/2016	0.0	4960	0.7	5609

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
6/26/2016	0.0	4960	0.6	5610
6/27/2016	0.0	4960	1.0	5610
6/28/2016	0.0	4960	1.1	5612
6/29/2016	0.0	4960	0.9	5613
6/30/2016	0.0	4960	0.9	5613
7/1/2016	0.0	4960	0.8	5614
7/2/2016	0.0	4960	0.9	5615
7/3/2016	0.0	4960	0.4	5616
7/4/2016	0.0	4960	0.3	5617
7/5/2016	0.0	4960	0.2	5617
7/6/2016	0.0	4960	0.1	5617
7/7/2016	0.2	4960	0.5	5617
7/8/2016	2.4	4961	0.7	5618
7/9/2016	5.6	4963	0.5	5618
7/10/2016	4.2	4969	0.2	5619
7/11/2016	0.0	4973	0.4	5619
7/12/2016	0.0	4973	0.1	5619
7/13/2016	0.0	4973	0.2	5619
7/14/2016	0.0	4973	0.3	5620
7/15/2016	0.0	4973	0.2	5620
7/16/2016	0.0	4973	0.3	5620
7/17/2016	0.0	4973	0.2	5620
7/18/2016	0.0	4973	0.0	5621
7/19/2016	0.0	4973	0.2	5621
7/20/2016	0.0	4973	0.3	5621
7/21/2016	0.0	4973	0.1	5621
7/22/2016	0.0	4973	0.0	5621
7/23/2016	0.0	4973	0.4	5621
7/24/2016	0.0	4973	0.4	5622
7/25/2016	0.0	4973	0.3	5622
7/26/2016	0.0	4973	0.3	5622
7/27/2016	0.0	4973	0.2	5623
7/28/2016	0.0	4973	0.0	5623
7/29/2016	0.0	4973	0.0	5623
7/30/2016	0.0	4973	0.1	5623
7/31/2016	0.0	4973	0.2	5623
8/1/2016	0.0	4973	0.3	5623
8/2/2016	0.0	4973	0.0	5623
8/3/2016	0.0	4973	0.0	5623
8/4/2016	0.0	4973	0.0	5624
8/5/2016	0.0	4973	0.1	5624
8/6/2016	0.0	4973	0.4	5624
8/7/2016	0.0	4973	0.3	5624
8/8/2016	0.0	4973	0.2	5624
8/9/2016	0.0	4973	0.2	5624
8/10/2016	0.0	4973	0.2	5625
8/11/2016	0.0	4973	0.4	5625
8/12/2016	0.0	4973	0.3	5625
8/13/2016	0.0	4973	0.3	5626
8/14/2016	0.0	4973	0.3	5626
8/15/2016	0.0	4973	0.8	5626
8/16/2016	0.0	4973	0.4	5627

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
8/17/2016	0.0	4973	0.2	5627
8/18/2016	0.0	4973	0.2	5627
8/19/2016	0.0	4973	0.9	5628
8/20/2016	0.0	4973	1.0	5629
8/21/2016	0.0	4973	1.0	5629
8/22/2016	0.0	4973	1.0	5631
8/23/2016	0.0	4973	0.6	5632
8/24/2016	0.0	4973	0.9	5632
8/25/2016	0.0	4973	0.9	5633
8/26/2016	0.0	4973	0.4	5634
8/27/2016	0.0	4973	0.5	5634
8/28/2016	0.0	4973	0.8	5635
8/29/2016	0.0	4973	1.5	5636
8/30/2016	0.0	4973	0.5	5637
8/31/2016	0.0	4973	1.0	5638
9/1/2016	0.0	4973	1.6	5639
9/2/2016	0.9	4973	2.2	5640
9/3/2016	2.2	4974	1.9	5642
9/4/2016	1.5	4976	2.0	5644
9/5/2016	0.0	4977	2.9	5646
9/6/2016	0.0	4977	2.4	5649
9/7/2016	0.0	4977	1.0	5652
9/8/2016	0.0	4977	2.2	5653
9/9/2016	0.0	4977	2.1	5655
9/10/2016	0.0	4977	3.2	5657
9/11/2016	0.7	4977	3.5	5660
9/12/2016	3.8	4978	2.9	5664
9/13/2016	0.0	4982	2.6	5667
9/14/2016	0.0	4982	2.6	5669
9/15/2016	9.0	4982	4.1	5672
9/16/2016	3.9	4991	5.5	5676
9/17/2016	0.0	4995	5.2	5681
9/18/2016	0.0	4995	5.8	5687
9/19/2016	0.0	4995	6.3	5692
9/20/2016	0.0	4995	5.3	5699
9/21/2016	0.0	4995	4.0	5704
9/22/2016	0.0	4995	4.8	5708
9/23/2016	4.1	4995	6.4	5713
9/24/2016	11.3	4999	8.4	5719
9/25/2016	14.0	5010	7.3	5728
9/26/2016	7.1	5024	7.6	5735
9/27/2016	4.3	5031	6.3	5743
9/28/2016	10.9	5036	6.6	5749
9/29/2016	12.1	5047	9.3	5755
9/30/2016	11.1	5059	10.4	5765
10/1/2016	13.8	5070	10.6	5775
10/2/2016	11.7	5084	8.3	5786
10/3/2016	5.6	5095	9.7	5794
10/4/2016	15.1	5101	11.1	5804
10/5/2016	16.5	5116	12.6	5815
10/6/2016	9.0	5132	12.5	5827
10/7/2016	7.3	5141	11.6	5840

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
10/8/2016	3.7	5149	12.2	5851
10/9/2016	18.0	5152	11.6	5864
10/10/2016	19.7	5170	12.8	5875
10/11/2016	15.5	5190	13.9	5888
10/12/2016	10.9	5206	14.3	5902
10/13/2016	9.9	5217	13.3	5916
10/14/2016	20.1	5226	13.4	5930
10/15/2016	21.2	5247	14.1	5943
10/16/2016	3.3	5268	14.5	5957
10/17/2016	1.2	5271	14.2	5972
10/18/2016	7.0	5272	15.8	5986
10/19/2016	5.3	5279	16.3	6002
10/20/2016	7.9	5285	15.8	6018
10/21/2016	2.4	5292	15.5	6034
10/22/2016	17.9	5295	18.1	6049
10/23/2016	16.7	5313	19.0	6067
10/24/2016	18.4	5329	15.8	6086
10/25/2016	27.5	5348	18.2	6102
10/26/2016	28.3	5375	18.0	6120
10/27/2016	21.2	5404	17.7	6138
10/28/2016	22.6	5425	20.1	6156
10/29/2016	19.8	5447	21.2	6176
10/30/2016	19.6	5467	20.2	6197
10/31/2016	27.0	5487	17.5	6217
11/1/2016	19.7	5514	18.8	6235
11/2/2016	13.1	5534	20.7	6254
11/3/2016	17.9	5547	21.1	6274
11/4/2016	26.8	5565	21.1	6295
11/5/2016	20.5	5591	20.7	6317
11/6/2016	24.9	5612	21.6	6337
11/7/2016	27.4	5637	22.7	6359
11/8/2016	19.5	5664	22.6	6382
11/9/2016	20.0	5684	22.9	6404
11/10/2016	19.4	5704	23.4	6427
11/11/2016	28.1	5723	24.3	6451
11/12/2016	24.0	5751	26.4	6475
11/13/2016	19.6	5775	25.8	6501
11/14/2016	16.6	5795	23.2	6527
11/15/2016	13.6	5812	22.6	6550
11/16/2016	15.8	5825	25.3	6573
11/17/2016	20.7	5841	27.3	6598
11/18/2016	17.9	5862	28.2	6625
11/19/2016	17.1	5880	27.6	6654
11/20/2016	32.7	5897	27.2	6681
11/21/2016	36.6	5929	29.1	6708
11/22/2016	34.3	5966	28.9	6738
11/23/2016	32.5	6000	29.8	6766
11/24/2016	30.5	6033	29.4	6796
11/25/2016	28.8	6063	28.4	6826
11/26/2016	27.8	6092	27.6	6854
11/27/2016	32.1	6120	27.4	6882
11/28/2016	32.0	6152	28.1	6909

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
11/29/2016	24.2	6184	30.1	6937
11/30/2016	21.2	6208	28.6	6967
12/1/2016	22.6	6229	30.8	6996
12/2/2016	25.0	6252	31.7	7027
12/3/2016	31.7	6277	31.6	7058
12/4/2016	36.2	6309	32.6	7090
12/5/2016	36.6	6345	34.0	7123
12/6/2016	31.0	6382	32.9	7157
12/7/2016	32.4	6413	35.8	7190
12/8/2016	32.5	6445	39.6	7225
12/9/2016	44.7	6478	35.3	7265
12/10/2016	48.9	6522	33.5	7300
12/11/2016	36.5	6571	35.9	7334
12/12/2016	33.8	6608	36.5	7370
12/13/2016	30.9	6641	36.5	7406
12/14/2016	38.4	6672	37.1	7443
12/15/2016	63.1	6711	35.8	7480
12/16/2016	55.4	6774	37.6	7516
12/17/2016	40.0	6829	37.4	7553
12/18/2016	34.9	6869	37.7	7591
12/19/2016	52.9	6904	37.4	7628
12/20/2016	40.0	6957	38.3	7666
12/21/2016	33.4	6997	35.9	7704
12/22/2016	36.4	7030	35.8	7740
12/23/2016	30.5	7067	34.4	7776
12/24/2016	29.6	7097	36.5	7810
12/25/2016	41.0	7127	37.4	7847
12/26/2016	28.0	7168	40.1	7884
12/27/2016	25.1	7196	39.6	7924
12/28/2016	34.6	7221	37.2	7964
12/29/2016	35.2	7255	39.5	8001
12/30/2016	39.8	7291	41.0	8040
12/31/2016	33.7	7330	40.3	8081
1/1/2017	35.9	7364	40.1	8122
1/2/2017	30.8	7400	41.6	8162
1/3/2017	30.2	7431	41.3	8203
1/4/2017	32.9	7461	40.1	8245
1/5/2017	40.1	7494	40.9	8285
1/6/2017	45.8	7534	39.6	8325
1/7/2017	54.1	7580	43.1	8365
1/8/2017	56.7	7634	41.7	8408
1/9/2017	54.5	7691	41.0	8450
1/10/2017	31.1	7745	42.7	8491
1/11/2017	20.6	7776	40.7	8534
1/12/2017	13.0	7797	38.3	8574
1/13/2017	43.3	7810	41.3	8613
1/14/2017	43.5	7853	43.6	8654
1/15/2017	43.1	7897	44.6	8698
1/16/2017	34.9	7940	44.0	8742
1/17/2017	31.1	7974	41.9	8786
1/18/2017	37.9	8006	43.2	8828
1/19/2017	30.6	8043	42.1	8871

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Northern Utilities - NH
Effective Degree Day data

	Actual EDD	Cum EDD	Normal EDD	Cum Normal EDD
1/20/2017	29.0	8074	44.7	8913
1/21/2017	26.6	8103	47.7	8958
1/22/2017	32.6	8130	45.2	9006
1/23/2017	37.8	8162	43.1	9051
1/24/2017	34.8	8200	41.9	9094
1/25/2017	31.1	8235	44.9	9136
1/26/2017	26.7	8266	46.0	9181
1/27/2017	31.4	8293	44.5	9227
1/28/2017	34.0	8324	42.2	9271
1/29/2017	35.6	8358	40.9	9314
1/30/2017	43.1	8394	40.0	9355
1/31/2017	42.3	8437	41.8	9395
Leap Year			0.0	
12 Months	6552		6996	
			6996	

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Northern Utilities - New Hampshire Division
Sales Therms by Cycle - Test Year 2016

January									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	432,690	154,278	524,063	283,181	583,298	340,429	175,983	0	2,493,922
6	5,094	2,535	4,018	2,800	6,387	5,585	740	0	27,160
10	12,113	8,093	12,750	8,941	15,009	38,238	4,479	0	99,623
11	0	0	0	0	0	59	0	0	59
40	334,258	60,385	130,795	141,689	309,516	270,489	252,224	0	1,499,355
41	465,499	88,367	103,075	217,533	342,179	327,914	401,407	56,443	2,002,417
42	31,620	27,079	10,902	40,274	44,686	18,327	33,268	781,482	987,639
50	38,542	8,080	22,694	14,591	28,123	23,872	20,563	570	157,035
51	148,380	23,510	48,676	30,455	67,568	46,111	59,240	27,656	451,596
52	7,853	0	0	6,505	0	39,991	60,659	1,605,476	1,720,484
Grand Total	1,476,051	372,327	856,974	745,968	1,396,766	1,111,015	1,008,563	0	2,471,628
February									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	591,125	189,130	664,113	317,085	614,806	323,479	168,657	0	2,868,395
6	6,181	3,043	4,855	3,050	6,030	5,673	474	0	29,306
10	16,409	9,497	16,439	9,499	18,188	46,316	4,091	0	120,440
11	0	0	0	0	0	64	0	0	64
40	488,848	75,240	171,051	162,643	328,473	258,785	232,989	0	1,718,030
41	645,845	114,980	122,921	218,300	367,376	319,636	371,980	55,120	2,216,157
42	44,502	28,575	15,265	42,584	47,410	27,363	39,515	715,653	960,868
50	46,268	8,832	25,165	15,715	31,368	24,570	20,555	603	173,075
51	174,416	26,364	54,660	30,139	75,753	48,140	56,703	24,113	490,288
52	9,991	0	0	7,931	0	46,940	6,254	1,497,343	1,568,459
Grand Total	2,023,585	455,662	1,074,468	806,945	1,489,405	1,100,966	901,218	0	2,292,832
March									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	578,038	180,720	542,883	231,208	446,800	240,351	119,473	0	2,339,474
6	5,955	3,026	4,102	2,662	5,244	4,613	367	0	25,969
10	15,804	9,736	14,043	7,400	13,262	39,057	3,346	0	102,649
11	0	0	0	0	0	62	0	0	62
40	462,528	71,640	130,818	115,246	246,542	184,286	158,248	0	1,369,307
41	615,441	115,340	99,779	171,706	268,225	242,733	288,178	40,781	1,842,183
42	42,456	27,979	15,123	30,585	29,040	28,656	31,548	580,166	785,553
50	48,353	8,407	22,395	13,750	28,699	23,438	18,046	505	163,593
51	137,658	28,772	49,130	26,848	66,991	44,857	54,983	21,663	430,901
52	10,212	0	0	7,875	0	51,486	0	1,467,605	1,537,179
Grand Total	1,916,445	445,620	878,274	607,279	1,104,802	859,539	674,190	0	2,110,720
April									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	365,127	117,677	390,393	172,603	312,811	167,565	81,670	0	1,607,846
6	4,620	2,171	4,097	2,158	4,263	3,875	299	0	21,483
10	12,052	6,588	10,455	5,664	11,724	26,641	2,025	0	75,149
11	0	0	0	0	0	62	0	0	62
40	275,965	44,676	95,912	80,224	175,759	122,771	104,183	0	899,490
41	411,686	66,427	77,702	129,452	186,222	165,473	190,143	36,904	1,264,009
42	26,839	19,810	9,367	12,268	24,166	62,312	18,209	456,273	629,244
50	41,204	8,710	20,402	12,731	23,692	17,513	14,642	566	139,461
51	135,879	21,724	42,314	23,611	56,473	39,377	44,557	18,040	381,975
52	8,224	0	0	6,813	0	39,913	0	1,347,752	1,402,702
Grand Total	1,281,596	287,783	650,642	445,525	795,110	645,501	455,730	0	1,859,535

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Northern Utilities - New Hampshire Division
Sales Therms by Cycle - Test Year 2016

May										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	248,396	71,274	235,519	100,116	180,262	91,673	43,783		0	971,024
6	4,027	2,058	4,193	1,734	3,397	2,869	251		0	18,529
10	11,728	4,985	9,066	3,093	9,592	19,508	3,030		0	61,002
11	0	0	0	0	0	50	0		0	50
40	160,721	23,261	54,101	39,732	91,776	62,819	41,318		0	473,727
41	262,938	42,035	49,870	79,494	104,404	92,164	114,142		21,369	766,417
42	21,220	13,849	5,800	12,533	19,169	36,746	3,988		289,092	402,396
50	33,322	6,599	21,699	11,354	22,192	14,453	13,257		451	123,327
51	131,465	20,708	38,204	18,503	52,108	34,967	38,953		13,781	348,688
52	6,805	0	0	5,520	0	33,075	0		1,249,306	1,294,706

Grand Total	880,622	184,770	418,451	272,078	482,901	388,323	258,721	0	1,574,001	4,459,867

June										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	98,581	34,613	114,670	50,262	84,766	42,883	27,810		0	453,584
6	3,106	1,823	3,968	1,405	2,805	2,410	208		0	15,725
10	2,464	1,757	3,174	693	2,014	5,984	809		0	16,895
11	0	44	0	0	0	46	0		0	90
40	55,736	7,928	25,241	12,692	36,258	26,506	20,275		0	184,636
41	119,785	20,131	22,323	44,684	44,059	35,744	69,570		7,796	364,093
42	7,867	4,380	1,231	9,377	14,473	39,631	1,092		160,969	239,019
50	31,226	7,702	31,562	10,295	23,387	14,011	13,410		421	132,015
51	102,760	19,366	38,466	17,977	52,146	33,740	37,371		10,919	312,746
52	7,063	0	0	7,233	0	36,556	0		1,182,331	1,233,185

Grand Total	428,588	97,745	240,635	154,618	259,908	237,511	170,545	0	1,362,437	2,951,987

July										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	63,143	24,437	78,327	33,534	60,715	30,576	15,133		0	305,866
6	2,617	1,515	5,239	1,004	2,246	1,799	96		0	14,514
10	2,278	1,049	1,743	839	1,376	4,165	552		0	12,002
11	0	19	0	0	0	44	0		0	63
40	27,217	4,770	14,872	7,411	24,098	16,706	7,571		0	102,646
41	66,583	11,864	10,745	27,847	30,991	24,395	37,731		5,752	215,908
42	4,080	1,305	349	5,127	9,836	30,520	1,839		150,707	203,763
50	28,702	7,020	33,626	8,218	18,231	9,991	10,790		368	116,946
51	83,864	16,854	31,626	13,956	38,283	27,227	30,281		16,171	258,261
52	5,353	0	0	7,448	0	29,570	0		1,152,183	1,194,554

Grand Total	283,836	68,834	176,528	105,382	185,776	174,994	103,992	0	1,325,182	2,424,523

August										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	62,468	24,154	82,392	33,425	65,619	32,922	21,779		0	322,759
6	2,644	1,557	4,014	995	2,355	1,877	162		0	13,602
10	2,310	1,015	1,829	791	1,409	4,409	684		0	12,446
11	0	19	0	0	0	44	0		0	64
40	25,254	5,717	18,511	7,453	25,844	18,422	12,964		154	114,319
41	70,115	11,649	10,794	28,471	33,780	25,480	52,457		6,951	239,697
42	3,572	1,003	369	3,329	11,187	28,993	3,224		151,088	202,765
50	31,697	7,753	40,629	8,828	23,232	10,946	13,124		298	136,506
51	96,969	19,397	37,605	14,953	44,274	30,727	36,351		15,690	295,965
52	6,425	0	0	9,024	0	35,817	0		1,260,613	1,311,878

Grand Total	301,454	72,265	196,142	107,269	207,699	189,636	140,745	0	1,434,793	2,650,002

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Northern Utilities - New Hampshire Division
Sales Therms by Cycle - Test Year 2016

September Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	55,521	24,003	74,029	36,744	65,850	33,492	21,009		0	310,648
6	2,291	1,513	3,946	974	2,341	1,811	117		0	12,992
10	1,974	1,049	2,143	884	1,374	4,919	681		0	13,024
11	0	21	0	0	0	32	0		0	52
40	22,715	5,141	15,790	8,682	28,068	19,271	15,793		503	115,964
41	67,146	9,750	13,158	31,198	33,523	31,285	52,779		17,147	255,986
42	2,875	1,017	421	4,509	10,968	0	1,109		220,592	241,492
50	29,076	10,393	33,927	9,904	25,972	9,065	11,029		658	130,022
51	83,207	19,491	31,274	29,010	44,254	29,042	40,257		12,411	288,947
52	5,332	0	0	0	0	47,826	0		1,229,294	1,282,452

Grand Total	270,137	72,377	174,688	121,905	212,349	176,743	142,775	0	1,480,606	2,651,580

October Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	83,845	30,954	111,093	64,031	120,959	75,632	47,553		0	534,067
6	2,651	1,276	3,265	1,068	2,777	2,326	165		0	13,528
10	2,754	1,590	2,829	1,689	2,748	7,778	1,182		0	20,570
11	0	43	0	0	0	32	0		0	75
40	44,038	8,708	21,879	21,602	58,422	50,979	40,071		1,213	246,912
41	107,340	17,189	24,968	55,547	76,700	77,082	100,989		28,786	488,600
42	5,056	3,565	2,034	8,898	14,625	0	4,624		354,772	393,574
50	29,069	8,484	21,687	10,460	23,350	9,404	12,575		709	115,739
51	96,705	18,260	29,892	29,114	46,720	32,563	46,158		16,012	315,424
52	5,282	0	0	0	0	44,033	0		1,306,246	1,355,561

Grand Total	376,741	90,069	217,648	192,409	346,301	299,829	253,317	0	1,707,737	3,484,052

November Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	183,837	67,175	237,129	135,230	279,647	171,451	110,252		0	1,184,720
6	3,035	1,599	3,266	1,298	3,670	2,884	210		0	15,963
10	5,030	2,422	4,617	3,139	3,381	11,316	2,163		0	32,069
11	0	0	0	0	0	0	0		0	0
40	125,009	23,246	50,741	58,300	142,880	128,762	130,831		2,584	662,353
41	214,505	35,440	46,752	98,694	153,473	147,746	229,202		43,461	969,273
42	9,204	7,077	5,803	13,115	21,051	0	11,785		496,917	564,951
50	30,218	8,901	16,530	12,477	26,621	11,402	16,432		595	123,176
51	97,020	18,215	31,223	33,180	52,238	34,033	59,355		20,202	345,467
52	5,848	0	0	0	0	52,376	0		1,424,081	1,482,305

Grand Total	673,706	164,075	396,061	355,433	682,960	559,970	560,232	0	1,987,840	5,380,276

December Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	382,649	126,993	475,347	230,778	541,432	314,108	164,322		0	2,235,630
6	4,511	2,292	4,536	1,805	5,381	4,078	179		0	22,784
10	7,454	4,873	8,876	5,230	7,651	20,709	3,174		0	57,967
11	0	0	0	0	0	0	0		0	0
40	288,185	52,438	116,005	111,115	289,288	263,463	251,018		4,787	1,376,298
41	385,180	66,205	85,493	155,713	292,597	277,365	337,620		69,660	1,669,832
42	16,938	12,598	10,866	21,681	33,991	0	17,960		734,353	848,388
50	39,014	10,921	20,028	14,314	32,357	13,795	19,523		556	150,508
51	122,710	21,027	37,715	36,654	64,544	41,020	68,394		23,748	415,812
52	6,237	0	0	0	0	64,869	0		1,317,323	1,388,430

Grand Total	1,252,879	297,348	758,866	577,290	1,267,243	999,407	862,189	0	2,150,427	8,165,648

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Sales Therms by Cycle - Test Year 2016

January 2017										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	578,047	218,815	658,408	335,750	597,417	348,937	157,531	0	0	2,894,904
6	5,421	3,155	5,336	2,522	5,789	4,924	204	0	0	27,351
10	13,173	8,199	11,528	8,606	11,103	30,127	2,967	0	0	85,701
11	509,215	103,776	169,113	172,285	335,425	305,757	248,570	0	0	1,844,141
40	600,411	120,480	115,653	231,188	336,538	326,709	333,004	3,814	0	2,067,797
41	25,433	21,024	15,027	29,667	40,423	0	19,448	77,668	0	228,689
42	46,976	13,790	22,913	17,062	30,792	15,997	18,306	745,691	0	911,526
50	164,263	27,798	44,551	44,561	64,537	43,140	67,568	423	0	456,842
51	8,777	0	0	0	0	67,691	0	22,103	0	98,570
52						22,181		1,374,574	0	1,396,755
Grand Total	1,951,715	517,035	1,042,530	841,641	1,422,023	1,165,461	847,599	0	2,224,273	10,012,277

Annual 2016										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	3,145,420	1,045,408	3,529,959	1,688,197	3,356,966	1,864,560	997,425	0	0	15,627,934
6	46,732	24,408	49,500	20,953	46,895	39,800	3,269	0	0	231,556
10	92,372	52,654	87,964	47,860	87,728	229,040	26,216	0	0	623,834
11	0	146	0	0	0	495	0	0	0	641
40	2,310,473	383,152	845,716	766,787	1,756,923	1,423,257	1,267,486	0	9,241	8,763,036
41	3,432,062	599,378	667,580	1,258,638	1,933,530	1,767,017	2,246,198	0	390,170	12,294,572
42	216,231	148,238	77,530	204,280	280,602	272,547	168,159	0	5,092,065	6,459,653
50	426,691	101,803	310,344	142,637	307,224	182,460	183,945	0	6,300	1,661,405
51	1,411,032	253,688	470,786	304,399	661,352	441,804	572,604	0	220,407	4,336,072
52	84,626	0	0	58,349	0	522,452	66,913	0	16,039,555	16,771,894
Grand Total	11,165,639	2,608,874	6,039,377	4,492,101	8,431,220	6,743,433	5,532,216	0	21,757,738	66,770,598

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Customers by Cycle - Test Year 2016

January									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,526	1,397	4,755	2,136	5,134	2,941	1,513		0 22,402
6	291	84	194	116	239	221	15		0 1,160
10	158	80	116	71	146	327	39		0 937
11	0	0	0	0	0	4	0		0 4
40	1,421	216	583	456	841	676	677		0 4,870
41	223	47	46	57	110	103	124		8 718
42	3	2	1	2	3	1	2		24 38
50	150	29	124	73	124	135	71		3 709
51	84	17	32	17	38	29	36		5 258
52	1	0	0	1	0	2	1		25 30
Grand Total	6,857	1,872	5,851	2,929	6,635	4,439	2,478	0	65 31,126
February									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,545	1,389	4,742	2,135	5,158	2,945	1,513		0 22,427
6	295	84	190	115	238	217	16		0 1,155
10	157	83	122	77	146	322	40		0 947
11	0	0	0	0	0	4	0		0 4
40	1,434	227	594	462	853	675	677		0 4,922
41	224	48	45	57	109	103	124		8 718
42	3	2	1	2	3	2	3		24 40
50	150	29	119	71	123	131	71		3 697
51	85	18	32	18	37	29	36		5 260
52	1	0	0	1	0	2	1		25 30
Grand Total	6,894	1,880	5,845	2,938	6,667	4,430	2,481	0	65 31,200
March									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,546	1,395	4,777	2,136	5,139	2,929	1,512		0 22,434
6	286	84	185	113	233	219	15		0 1,135
10	158	83	123	80	152	349	39		0 984
11	0	0	0	0	0	4	0		0 4
40	1,437	221	587	458	852	680	674		0 4,909
41	225	48	45	57	110	103	124		8 720
42	3	2	1	2	3	2	3		24 40
50	159	31	128	73	123	138	71		3 726
51	85	17	32	17	37	29	37		5 259
52	1	0	0	1	0	2	0		27 31
Grand Total	6,900	1,881	5,878	2,937	6,649	4,455	2,475	0	67 31,242
April									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,553	1,407	4,790	2,141	5,134	2,896	1,523		0 22,444
6	288	97	218	116	232	215	17		0 1,183
10	158	86	125	81	153	364	40		0 1,007
11	0	0	0	0	0	4	0		0 4
40	1,412	216	577	455	852	663	656		0 4,831
41	226	48	45	57	110	103	122		7 718
42	3	2	1	1	3	1	3		24 38
50	153	35	149	74	122	131	69		3 736
51	84	17	32	17	36	30	36		5 257
52	1	0	0	1	0	2	0		28 32
Grand Total	6,878	1,908	5,937	2,943	6,642	4,409	2,466	0	67 31,250

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Customers by Cycle - Test Year 2016

May									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,523	1,420	4,832	2,130	4,984	2,864	1,508		0
6	296	103	287	112	229	207	18		0
10	156	87	123	82	153	365	40		0
11	0	0	0	0	0	4	0		0
40	1,358	212	562	441	800	624	601		0
41	226	46	45	57	110	104	123		7
42	3	2	1	2	3	1	3		25
50	154	32	184	72	123	130	67		3
51	85	16	32	17	37	30	35		5
52	1	0	0	1	0	2	0		28
Grand Total	6,802	1,918	6,066	2,914	6,439	4,331	2,395	0	68
June									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,369	1,415	4,644	2,046	4,294	2,492	1,442		0
6	286	114	336	113	216	206	17		0
10	157	87	124	80	126	343	44		0
11	0	1	0	0	0	4	0		0
40	1,155	158	486	328	586	435	368		0
41	219	40	45	55	100	94	109		7
42	3	2	1	2	3	1	3		24
50	151	33	203	71	122	124	63		3
51	84	16	32	17	34	30	35		5
52	1	0	0	1	0	2	0		28
Grand Total	6,425	1,866	5,871	2,713	5,481	3,731	2,081	0	67
July									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,099	1,339	4,372	1,987	4,058	2,394	1,368		0
6	271	110	343	107	206	196	18		0
10	153	79	107	76	108	330	38		0
11	0	1	0	0	0	4	0		0
40	750	101	353	239	495	378	271		0
41	189	32	40	52	91	80	102		6
42	3	2	1	2	3	1	3		24
50	150	32	201	66	117	117	62		3
51	82	16	30	16	35	30	34		5
52	1	0	0	1	0	2	0		28
Grand Total	5,698	1,712	5,447	2,546	5,113	3,532	1,896	0	66
August									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	4,028	1,338	4,345	1,979	4,065	2,363	1,443		0
6	274	116	352	108	212	199	17		0
10	149	77	99	72	103	311	40		0
11	0	1	0	0	0	4	0		0
40	689	100	334	233	479	375	263		1
41	178	31	37	53	94	82	97		7
42	3	2	1	1	3	1	3		26
50	146	34	203	65	119	112	60		3
51	84	16	30	17	33	29	33		6
52	1	0	0	1	0	2	0		28
Grand Total	5,552	1,715	5,401	2,529	5,108	3,478	1,956	0	71

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Customers by Cycle - Test Year 2016

September										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,004	1,340	4,360	2,027	4,054	2,413	1,465		0	19,663
6	271	114	345	105	205	193	16		0	1,249
10	148	80	102	74	100	304	41		0	849
11	0	1	0	0	0	3	0		0	4
40	692	104	347	260	513	420	375		1	2,712
41	146	27	34	46	89	83	87		9	521
42	2	1	1	1	3	0	1		24	33
50	169	41	211	74	120	101	60		3	779
51	74	13	25	14	32	29	38		4	229
52	1	0	0	0	0	3	0		28	32
Grand Total	5,507	1,721	5,425	2,601	5,116	3,549	2,083	0	69	26,071
October										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,284	1,405	4,667	2,138	4,699	2,760	1,528		0	21,481
6	273	112	326	108	216	200	15		0	1,250
10	148	82	110	75	128	313	37		0	893
11	0	1	0	0	0	3	0		0	4
40	1,029	155	457	376	725	604	600		1	3,947
41	187	33	39	53	103	91	100		9	615
42	2	1	1	1	3	0	1		24	33
50	153	40	193	73	119	106	64		3	751
51	86	15	31	18	33	29	38		4	254
52	1	0	0	0	0	3	0		28	32
Grand Total	6,163	1,844	5,824	2,842	6,026	4,109	2,383	0	69	29,260
November										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,544	1,447	4,846	2,190	5,140	3,020	1,551		0	22,738
6	280	104	274	105	224	205	14		0	1,206
10	129	61	96	71	83	217	34		0	691
11	0	0	0	0	0	0	0		0	0
40	1,344	208	549	433	815	683	662		1	4,695
41	191	36	39	54	103	91	102		10	626
42	2	1	1	1	3	0	1		26	35
50	156	41	162	74	119	105	65		3	725
51	86	15	32	18	35	30	38		4	258
52	1	0	0	0	0	3	0		28	32
Grand Total	6,733	1,913	5,999	2,946	6,522	4,354	2,467	0	72	31,006
December										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,624	1,448	4,902	2,218	5,303	3,103	1,563		0	23,161
6	287	85	210	111	236	208	14		0	1,151
10	115	62	94	71	83	213	34		0	672
11	0	0	0	0	0	0	0		0	0
40	1,422	225	584	445	851	728	702		1	4,958
41	191	37	39	54	105	95	103		10	634
42	2	1	1	1	3	0	1		24	33
50	162	43	136	72	121	109	68		3	714
51	86	15	32	18	35	30	39		4	259
52	1	0	0	0	0	3	0		27	31
Grand Total	6,890	1,916	5,998	2,990	6,737	4,489	2,524	0	69	31,613

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Customers by Cycle - Test Year 2016

January 2017										22 Grand Total	
Class / Cycle	1	4	5	8	10	13	16	18			
5	4,657	1,437	4,902	2,229	5,311	3,095	1,556			0	23,187
6	284	82	182	108	234	206	13			0	1,109
10	116	63	91	73	85	223	33			0	684
11	0	0	0	0	0	0	0			0	0
40	1,479	239	595	456	858	725	702			1	5,055
41	190	38	39	54	108	100	102			9	640
42	2	1	1	1	3	0	1			24	33
50	161	38	125	73	123	112	70			3	705
51	88	15	32	18	35	30	39			4	261
52	1	0	0	0	0	3	0			25	29
Grand Total	6,978	1,913	5,967	3,012	6,757	4,494	2,516	0		66	31,703

Annual 2016										22 Grand Total	
Class / Cycle	1	4	5	8	10	13	16	18			
5	52,645	16,740	56,032	25,263	57,162	33,120	17,929	0		0	258,891
6	3,398	1,207	3,260	1,329	2,686	2,486	192	0		0	14,558
10	1,786	947	1,341	910	1,481	3,758	466	0		0	10,689
11	0	5	0	0	0	38	0	0		0	43
40	14,143	2,143	6,013	4,586	8,662	6,941	6,526	0		5	49,019
41	2,425	473	499	652	1,234	1,132	1,317	0		96	7,828
42	32	20	12	18	36	10	27	0		293	448
50	1,853	420	2,013	858	1,452	1,439	791	0		36	8,862
51	1,005	191	372	204	422	354	435	0		57	3,040
52	12	0	0	8	0	28	2	0		328	378
Grand Total	77,299	22,146	69,542	33,828	73,135	49,306	27,685	0		815	353,756

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January										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	55,365	1,492	17,276	21,388	25,160	72,498	13,759		206,938	
41	212,275	34,978	50,586	101,854	177,120	183,791	153,266	56,443	970,313	
42	8,741		10,902			33,804		647,398	700,845	
50	8,330	696	3,105	2,361	4,899	3,623	1,352	570	24,936	
51	80,467	7,756	31,908	10,333	33,794	29,133	18,780	27,656	239,828	
52	7,853					19,520		1,605,476	1,632,849	
Grand Total	373,032	44,923	113,778	135,935	274,778	308,565	187,157	0	2,337,543	3,775,710
February										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	75,759	1,981	20,972	23,634	25,193	67,711	13,738		228,987	
41	289,495	41,045	58,583	116,666	189,978	187,663	152,071	55,120	1,090,623	
42	13,492		15,265			47,410		651,671	727,838	
50	10,032	721	2,815	2,565	5,114	3,839	1,573	603	27,262	
51	94,215	8,398	36,050	13,817	32,986	31,863	20,203	24,113	261,645	
52	9,991					19,370		1,497,343	1,526,704	
Grand Total	492,985	52,144	133,686	156,683	300,682	310,446	187,585	0	2,228,850	3,863,059
March										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	71,456	1,963	17,036	17,949	28,692	51,773	9,197		198,067	
41	291,440	41,851	49,522	94,709	139,760	147,479	119,121	40,781	924,662	
42			15,123		29,040			496,285	540,449	
50	10,205	747	2,231	2,576	4,844	3,811	1,427	505	26,346	
51	93,855	8,867	31,066	12,037	29,962	29,052	18,932	21,663	245,436	
52	10,212					17,223		1,467,605	1,495,040	
Grand Total	477,168	53,429	114,978	127,272	232,298	249,338	148,677	0	2,026,840	3,430,000
April										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	48,496	1,209	12,941	12,565	21,192	36,269	7,414		140,086	
41	199,270	27,728	37,780	71,829	101,073	104,543	83,494	36,904	662,621	
42			9,367			24,166		385,563	419,095	
50	7,902	470	1,625	2,209	4,071	3,188	1,189	566	21,219	
51	75,201	6,292	26,542	9,694	25,133	26,063	15,284	18,040	202,247	
52	8,224					16,949		1,347,752	1,372,925	
Grand Total	339,093	35,698	88,254	96,296	175,634	187,012	107,381	0	1,788,824	2,818,194

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May										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5										0
6										0
10										0
11										0
40	31,001	613	8,354	7,382	12,845	21,960	4,790			86,946
41	138,380	17,966	26,532	43,936	60,493	61,873	56,250	21,369		426,799
42			5,800		19,169			256,785		281,754
50	5,835		1,555	2,029	3,839	2,402	1,213	451		17,324
51	66,813	5,072	23,259	7,702	23,256	23,779	13,738	13,781		177,401
52	6,805					14,404		1,249,306		1,270,515
Grand Total	248,834	23,651	65,499	61,048	119,603	124,417	75,992	0	1,541,694	2,260,738
June										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5										0
6										0
10										0
11										0
40	13,834	180	4,374	2,547	6,258	10,508	2,824			40,525
41	62,466	9,283	13,124	24,084	25,776	24,923	34,546	7,796		202,000
42			1,231		14,473			153,809		169,514
50	6,043		1,710	2,199	3,936	2,237	1,237	421		17,783
51	59,361	4,348	24,090	7,509	27,891	23,271	13,620	10,919		171,008
52	7,063					17,055		1,182,331		1,206,449
Grand Total	148,767	13,811	44,528	36,339	78,335	77,994	52,227	0	1,355,277	1,807,279
July										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5										0
6										0
10										0
11										0
40	8,073	102	2,767	1,424	4,004	6,639	1,720			24,728
41	30,322	4,865	5,905	13,423	18,866	16,564	25,168	5,752		120,864
42			349		9,836			145,866		156,052
50	4,952		1,764	1,632	3,286	1,695	1,126	368		14,823
51	49,453	3,613	18,604	6,005	18,497	19,466	10,783	16,171		142,591
52	5,353					12,343		1,152,183		1,169,880
Grand Total	98,153	8,579	29,390	22,483	54,488	56,706	38,797	0	1,320,341	1,628,937
August										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5										0
6										0
10										0
11										0
40	6,600	108	2,059	1,474	4,384	6,873	2,001			23,499
41	29,612	4,660	5,758	13,609	19,982	17,798	27,710	6,951		126,080
42			369		11,187			146,103		157,659
50	5,697		2,281	1,766	4,375	1,645	1,274	298		17,336
51	58,620	4,041	22,504	6,319	24,975	22,003	12,885	15,135		166,481
52	6,425					19,335		1,260,613		1,286,372
Grand Total	106,953	8,809	32,970	23,168	64,902	67,654	43,871	0	1,429,100	1,777,427

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September Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	6,614	278	1,845	1,349	4,497	7,265	1,799		23,647	
41	29,106	5,011	9,267	17,848	19,123	20,677	27,381	15,997	144,408	
42			421		10,968			212,569	223,958	
50	5,379		1,859	2,345	5,188	1,530	1,394	658	18,353	
51	49,849	4,216	16,404	5,793	26,349	19,661	14,314	12,411	148,996	
52	5,332					18,880		1,229,294	1,253,506	
Grand Total	96,279	9,505	29,796	27,334	66,125	68,012	44,887	0	1,470,929	1,812,868
October Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	14,774	331	1,875	4,242	9,641	18,262	4,061		53,186	
41	52,914	8,548	17,204	30,826	40,347	50,871	47,306	25,929	273,944	
42			2,034		14,625			314,250	330,909	
50	5,453		1,414	2,327	4,505	1,724	1,572	709	17,704	
51	51,206	3,974	17,385	6,089	28,080	21,682	17,708	16,012	162,136	
52	5,282					19,679		1,306,246	1,331,207	
Grand Total	129,629	12,853	39,911	43,484	97,197	112,218	70,647	0	1,663,145	2,169,085
November Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	28,210	951	4,283	9,478	16,616	37,472	9,589		106,599	
41	106,794	16,731	28,387	54,286	85,052	93,584	98,530	40,282	523,646	
42			5,803		21,051			414,682	441,535	
50	5,769		1,335	2,542	4,774	1,794	1,820	595	18,630	
51	58,095	4,691	19,046	6,948	29,972	22,976	22,266	20,202	184,197	
52	5,848					18,464		1,424,081	1,448,393	
Grand Total	204,717	22,373	58,854	73,254	157,466	174,290	132,205	0	1,899,842	2,723,001
December Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	51,831	1,640	9,432	16,959	31,685	71,960	16,658		200,165	
41	190,162	30,486	49,330	85,683	156,368	167,475	134,425	54,630	868,558	
42			10,866		33,991			613,728	658,586	
50	7,690		2,562	3,010	5,820	1,761	2,136	556	23,535	
51	78,587	6,106	20,856	8,644	32,610	27,139	24,497	23,748	222,186	
52	6,237					20,786		1,317,323	1,344,347	
Grand Total	334,507	38,231	93,046	114,295	260,474	289,121	177,716	0	2,009,986	3,317,376

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January 2017 Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5										0
6										0
10										0
11										0
40	82,617	4,943	14,534	25,187	28,457	79,270	16,213			251,219
41	292,677	50,026	64,666	122,865	173,950	183,538	130,346		51,432	1,069,500
42			15,027		40,423				630,498	685,948
50	9,619		2,729	2,763	5,490	2,263	1,970		423	25,256
51	98,323	8,817	25,746	11,587	28,983	28,013	24,333		22,103	247,904
52	8,777					20,484			1,374,574	1,403,835
Grand Total	492,013	63,786	122,702	162,402	277,303	313,567	172,861	0	2,079,029	3,683,662

Annual 2016 Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0
40	412,012	10,848	103,214	120,390	190,167	409,190	87,553	0	0	1,333,374
41	1,632,237	243,152	351,977	668,751	1,033,939	1,077,239	959,268	0	367,954	6,334,517
42	22,234	0	77,530	0	269,720	0	0	0	4,438,710	4,808,193
50	83,287	2,634	24,255	27,560	54,652	29,249	17,312	0	6,300	245,250
51	815,720	67,374	287,714	100,892	333,505	296,087	203,009	0	219,853	2,324,152
52	84,626	0	0	0	0	214,007	0	0	16,039,555	16,338,188
Grand Total	3,050,115	324,008	844,690	917,593	1,881,983	2,025,773	1,267,141	0	21,072,371	31,383,675

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Customers by Cycle - Test Year 2016 Transportation only

January										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	150	5	35	46	53	125	29			443
41	91	9	12	21	46	50	29	8		266
42	1		1		2			20		24
50	24	3	5	6	11	8	3	3		63
51	43	5	12	5	13	17	10	5		110
52	1				1			25		27
Grand Total	310	22	65	78	125	201	71	0	61	933
February										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	152	5	35	46	52	123	30			443
41	91	8	12	24	45	52	29	8		269
42	1		1		3			21		26
50	24	3	4	6	11	8	3	3		62
51	43	5	12	6	12	17	11	5		111
52	1				1			25		27
Grand Total	312	21	64	82	123	201	73	0	62	938
March										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	150	5	35	45	79	124	29			467
41	95	8	12	24	45	53	27	8		272
42			1		3			21		25
50	25	3	4	6	12	8	3	3		64
51	43	5	11	6	12	17	11	5		110
52	1				1			27		29
Grand Total	314	21	63	81	151	203	70	0	64	967
April										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	150	5	36	45	81	123	33			473
41	93	8	12	25	45	53	27	7		270
42			1		3			20		24
50	25	3	4	6	11	8	3	3		63
51	43	5	11	6	12	17	11	5		110
52	1				1			28		30
Grand Total	312	21	64	82	152	202	74	0	63	970

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May										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	153	5	37	45	79	124	32			475
41	95	8	12	25	44	54	27	7		272
42			1		3			20		24
50	25		4	6	12	8	3	3		61
51	43	4	11	6	12	17	11	5		109
52	1				1			28		30
Grand Total	317	17	65	82	150	204	73	0	63	971
June										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	141	5	31	42	69	118	23			429
41	92	8	11	25	42	50	27	7		262
42			1		3			20		24
50	24		4	6	13	8	3	3		61
51	44	4	12	6	12	17	11	5		111
52	1				1			28		30
Grand Total	302	17	59	79	139	194	64	0	63	917
July										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	128	3	27	38	68	117	22			403
41	79	8	10	25	39	41	27	6		235
42			1		3			20		24
50	23		4	6	12	8	3	3		59
51	44	4	11	6	12	17	11	5		110
52	1				1			28		30
Grand Total	275	15	53	75	134	184	63	0	62	861
August										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	126	4	16	38	65	114	20			383
41	75	8	9	25	42	44	27	7		237
42			1		3			20		24
50	23		4	6	15	7	3	3		61
51	44	4	12	6	13	17	11	5		112
52	1				1			28		30
Grand Total	269	16	42	75	138	183	61	0	63	847

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September Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	135	4	17	37	71	118	24			406
41	61	7	10	23	40	47	26	8		222
42			1		3			21		25
50	30		6	9	18	8	5	3		79
51	41	4	10	5	12	16	12	4		104
52	1					1		28		30
Grand Total	268	15	44	74	144	190	67	0	64	866
October Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	145	6	20	41	78	128	27			445
41	78	7	13	24	43	51	26	8		250
42			1		3			20		24
50	25		4	8	16	8	5	3		69
51	45	4	11	6	13	16	13	4		112
52	1					1		28		30
Grand Total	294	17	49	79	153	204	71	0	63	930
November Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	155	5	23	45	80	129	30			467
41	80	7	13	24	44	51	26	9		254
42			1		3			21		25
50	25		4	8	16	8	5	3		69
51	45	4	11	6	13	16	13	4		112
52	1					1		28		30
Grand Total	306	16	52	83	156	205	74	0	65	957
December Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	160	5	25	44	85	138	32			489
41	83	8	14	24	45	53	26	9		262
42			1		3			20		24
50	25		6	8	15	7	5	3		69
51	47	4	11	6	11	16	13	4		112
52	1					1		27		29
Grand Total	316	17	57	82	159	215	76	0	63	985

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Customers by Cycle - Test Year 2016 Transportation only

January 2017										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5										0
6										0
10										0
11										0
40	164	6	25	44	59	139	32			469
41	84	8	14	24	45	52	26		8	261
42			1		3				20	24
50	26		6	7	15	7	5		3	69
51	49	4	11	6	11	16	13		4	114
52	1					1			25	27
Grand Total	324	18	57	81	133	215	76	0	60	964
Annual 2016										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0
40	1,745	57	337	512	860	1,481	331	0	0	5,323
41	1,013	94	140	289	520	599	324	0	92	3,071
42	2	0	12	0	35	0	0	0	244	293
50	298	12	53	81	162	94	44	0	36	780
51	525	52	135	70	147	200	138	0	56	1,323
52	12	0	0	0	0	12	0	0	328	352
Grand Total	3,595	215	677	952	1,724	2,386	837	0	756	11,142

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Sales Therms by Cycle - Test Year 2016 Sales Only

January									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	432,690	154,278	524,063	283,181	583,298	340,429	175,983	0	2,493,922
6	5,094	2,535	4,018	2,800	6,387	5,585	740	0	27,160
10	12,113	8,093	12,750	8,941	15,009	38,238	4,479	0	99,623
11	0	0	0	0	0	59	0	0	59
40	278,893	58,893	113,519	120,301	284,356	197,991	238,465	0	1,292,417
41	253,223	53,389	52,489	115,680	165,059	144,124	248,141	0	1,032,104
42	22,879	27,079	0	40,274	10,882	18,327	33,268	0	134,084
50	30,212	7,383	19,589	12,230	23,224	20,249	19,211	0	132,099
51	67,913	15,754	16,768	20,122	33,773	16,978	40,460	0	211,768
52	0	0	0	6,505	0	20,471	60,659	0	87,635
Grand Total	1,103,019	327,405	743,197	610,033	1,121,988	802,450	821,406	0	5,663,582
February									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	591,125	189,130	664,113	317,085	614,806	323,479	168,657	0	2,868,395
6	6,181	3,043	4,855	3,050	6,030	5,673	474	0	29,306
10	16,409	9,497	16,439	9,499	18,188	46,316	4,091	0	120,440
11	0	0	0	0	0	64	0	0	64
40	413,090	73,260	150,079	139,009	303,280	191,074	219,251	0	1,489,043
41	356,350	73,935	64,337	101,633	177,397	131,973	219,909	0	1,125,534
42	31,010	28,575	0	42,584	0	27,363	39,515	0	63,982
50	36,236	8,111	22,349	13,150	26,254	20,731	18,982	0	145,813
51	80,201	17,967	18,610	16,322	42,767	16,277	36,500	0	228,643
52	0	0	0	7,931	0	27,570	6,254	0	41,755
Grand Total	1,530,601	403,518	940,783	650,263	1,188,723	790,520	713,633	0	6,282,022
March									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	578,038	180,720	542,883	231,208	446,800	240,351	119,473	0	2,339,474
6	5,955	3,026	4,102	2,662	5,244	4,613	367	0	25,969
10	15,804	9,736	14,043	7,400	13,262	39,057	3,346	0	102,649
11	0	0	0	0	0	62	0	0	62
40	391,071	69,676	113,783	97,297	217,850	132,512	149,051	0	1,171,240
41	324,001	73,489	50,257	76,997	128,465	95,254	169,058	0	917,521
42	42,456	27,979	0	30,585	0	28,656	31,548	0	83,881
50	38,148	7,660	20,164	11,174	23,855	19,627	16,619	0	137,247
51	43,803	19,904	18,064	14,810	37,029	15,805	36,051	0	185,466
52	0	0	0	7,875	0	34,263	0	0	42,139
Grand Total	1,439,277	392,191	763,296	480,007	872,504	610,201	525,512	0	5,166,869
April									
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total
5	365,127	117,677	390,393	172,603	312,811	167,565	81,670	0	1,607,846
6	4,620	2,171	4,097	2,158	4,263	3,875	299	0	21,483
10	12,052	6,588	10,455	5,664	11,724	26,641	2,025	0	75,149
11	0	0	0	0	0	62	0	0	62
40	227,469	43,467	82,971	67,659	154,567	86,501	96,769	0	759,403
41	212,416	38,699	39,922	57,623	85,149	60,930	106,650	0	601,388
42	26,839	19,810	0	12,268	0	62,312	18,209	0	70,710
50	33,303	8,240	18,777	10,522	19,622	14,325	13,454	0	118,243
51	60,678	15,433	15,773	13,917	31,340	13,314	29,274	0	179,729
52	0	0	0	6,813	0	22,964	0	0	29,777
Grand Total	942,503	252,085	562,387	349,229	619,475	458,489	348,349	0	3,603,228

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0										
May										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	248,396	71,274	235,519	100,116	180,262	91,673	43,783	0	0	971,024
6	4,027	2,058	4,193	1,734	3,397	2,869	251	0	0	18,529
10	11,728	4,985	9,066	3,093	9,592	19,508	3,030	0	0	61,002
11	0	0	0	0	0	50	0	0	0	50
40	129,720	22,648	45,747	32,350	78,931	40,859	36,527	0	0	386,781
41	124,559	24,070	23,339	35,558	43,911	30,291	57,892	0	0	339,618
42	21,220	13,849	0	12,533	0	36,746	3,988	0	32,307	120,643
50	27,487	6,599	20,144	9,325	18,353	12,051	12,044	0	0	106,003
51	64,652	15,635	14,945	10,801	28,851	11,188	25,215	0	0	171,288
52	0	0	0	5,520	0	18,671	0	0	0	24,191
Grand Total	631,788	161,119	352,952	211,029	363,298	263,906	182,730	0	32,307	2,199,128
0										
June										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	98,581	34,613	114,670	50,262	84,766	42,883	27,810	0	0	453,584
6	3,106	1,823	3,968	1,405	2,805	2,410	208	0	0	15,725
10	2,464	1,757	3,174	693	2,014	5,984	809	0	0	16,895
11	0	44	0	0	0	46	0	0	0	90
40	41,902	7,749	20,867	10,144	30,000	15,998	17,451	0	0	144,110
41	57,318	10,848	9,199	20,600	18,283	10,821	35,024	0	0	162,093
42	7,867	4,380	0	9,377	0	39,631	1,092	0	7,160	69,506
50	25,184	7,702	29,853	8,096	19,451	11,774	12,173	0	0	114,232
51	43,399	15,018	14,376	10,468	24,256	10,469	23,752	0	0	141,737
52	0	0	0	7,233	0	19,502	0	0	0	26,735
Grand Total	279,821	83,934	196,107	118,279	181,574	159,517	118,318	0	7,160	1,144,708
0										
July										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	63,143	24,437	78,327	33,534	60,715	30,576	15,133	0	0	305,866
6	2,617	1,515	5,239	1,004	2,246	1,799	96	0	0	14,514
10	2,278	1,049	1,743	839	1,376	4,165	552	0	0	12,002
11	0	19	0	0	0	44	0	0	0	63
40	19,144	4,669	12,105	5,987	20,095	10,067	5,851	0	0	77,918
41	36,261	6,999	4,840	14,424	12,126	7,832	12,563	0	0	95,044
42	4,080	1,305	0	5,127	0	30,520	1,839	0	4,841	47,711
50	23,750	7,020	31,862	6,586	14,945	8,296	9,664	0	0	102,123
51	34,411	13,241	13,022	7,951	19,786	7,762	19,498	0	0	115,670
52	0	0	0	7,448	0	17,227	0	0	0	24,675
Grand Total	185,683	60,255	147,138	82,898	131,288	118,288	65,195	0	4,841	795,586
0										
August										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	62,468	24,154	82,392	33,425	65,619	32,922	21,779	0	0	322,759
6	2,644	1,557	4,014	995	2,355	1,877	162	0	0	13,602
10	2,310	1,015	1,829	791	1,409	4,409	684	0	0	12,446
11	0	19	0	0	0	44	0	0	0	64
40	18,655	5,609	16,452	5,978	21,460	11,549	10,963	0	154	90,820
41	40,503	6,989	5,036	14,863	13,798	7,682	24,747	0	0	113,618
42	3,572	1,003	0	3,329	0	28,993	3,224	0	4,984	45,106
50	26,000	7,753	38,348	7,062	18,857	9,302	11,850	0	0	119,171
51	38,349	15,356	15,101	8,634	19,299	8,724	23,465	0	555	129,484
52	0	0	0	9,024	0	16,481	0	0	0	25,505
Grand Total	194,501	63,455	163,172	84,101	142,797	121,983	96,874	0	5,693	872,575

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Northern Utilities - New Hampshire Division
Sales Therms by Cycle - Test Year 2016 Sales Only

										0
September										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	55,521	24,003	74,029	36,744	65,850	33,492	21,009	0	0	310,648
6	2,291	1,513	3,946	974	2,341	1,811	117	0	0	12,992
10	1,974	1,049	2,143	884	1,374	4,919	681	0	0	13,024
11	0	21	0	0	0	32	0	0	0	52
40	16,102	4,863	13,944	7,334	23,571	12,007	13,994	0	503	92,317
41	38,041	4,739	3,891	13,350	14,400	10,608	25,398	0	1,151	111,578
42	2,875	1,017	0	4,509	0	0	1,109	0	8,023	17,534
50	23,697	10,393	32,068	7,559	20,784	7,534	9,635	0	0	111,669
51	33,358	15,275	14,871	23,217	17,905	9,381	25,944	0	0	139,951
52	0	0	0	0	0	28,946	0	0	0	28,946
Grand Total	173,858	62,871	144,892	94,571	146,224	108,730	97,888	0	9,677	838,712
										0
October										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	83,845	30,954	111,093	64,031	120,959	75,632	47,553	0	0	534,067
6	2,651	1,276	3,265	1,068	2,777	2,326	165	0	0	13,528
10	2,754	1,590	2,829	1,689	2,748	7,778	1,182	0	0	20,570
11	0	43	0	0	0	32	0	0	0	75
40	29,264	8,378	20,004	17,360	48,781	32,717	36,010	0	1,213	193,726
41	54,426	8,641	7,764	24,721	36,354	26,211	53,683	0	2,857	214,657
42	5,056	3,565	0	8,898	0	0	4,624	0	40,522	62,665
50	23,616	8,484	20,274	8,133	18,846	7,680	11,003	0	0	98,035
51	45,499	14,285	12,507	23,025	18,640	10,882	28,450	0	0	153,288
52	0	0	0	0	0	24,354	0	0	0	24,354
Grand Total	247,112	77,216	177,737	148,925	249,104	187,611	182,670	0	44,592	1,314,966
										0
November										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	183,837	67,175	237,129	135,230	279,647	171,451	110,252	0	0	1,184,720
6	3,035	1,599	3,266	1,298	3,670	2,884	210	0	0	15,963
10	5,030	2,422	4,617	3,139	3,381	11,316	2,163	0	0	32,069
11	0	0	0	0	0	0	0	0	0	0
40	96,799	22,295	46,458	48,822	126,264	91,290	121,242	0	2,584	555,754
41	107,711	18,709	18,365	44,408	68,421	54,162	130,672	0	3,179	445,627
42	9,204	7,077	0	13,115	0	0	11,785	0	82,235	123,416
50	24,449	8,901	15,195	9,935	21,846	9,608	14,612	0	0	104,546
51	38,925	13,524	12,177	26,231	22,265	11,057	37,090	0	0	161,270
52	0	0	0	0	0	33,911	0	0	0	33,911
Grand Total	468,989	141,702	337,207	282,179	525,494	385,680	428,027	0	87,998	2,657,275
										0
December										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	382,649	126,993	475,347	230,778	541,432	314,108	164,322	0	0	2,235,630
6	4,511	2,292	4,536	1,805	5,381	4,078	179	0	0	22,784
10	7,454	4,873	8,876	5,230	7,651	20,709	3,174	0	0	57,967
11	0	0	0	0	0	0	0	0	0	0
40	236,354	50,797	106,573	94,156	257,603	191,502	234,360	0	4,787	1,176,133
41	195,018	35,719	36,163	70,030	136,230	109,890	203,194	0	15,029	801,274
42	16,938	12,598	0	21,681	0	0	17,960	0	120,625	189,802
50	31,324	10,921	17,466	11,304	26,537	12,034	17,387	0	0	126,973
51	44,123	14,922	16,859	28,010	31,935	13,881	43,897	0	0	193,626
52	0	0	0	0	0	44,083	0	0	0	44,083
Grand Total	918,372	259,117	665,820	462,995	1,006,769	710,285	684,473	0	140,441	4,848,272

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Northern Utilities - New Hampshire Division
Sales Therms by Cycle - Test Year 2016 Sales Only

										0
January 2017										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	578,047	218,815	658,408	335,750	597,417	348,937	157,531	0	0	2,894,904
6	5,421	3,155	5,336	2,522	5,789	4,924	204	0	0	27,351
10	13,173	8,199	11,528	8,606	11,103	30,127	2,967	0	0	85,701
11	509,215	103,776	169,113	172,285	335,425	305,757	248,570	0	0	1,844,141
40	517,794	115,537	101,119	206,001	308,081	247,439	316,792	0	3,814	1,816,577
41	-267,244	-29,002	-49,639	-93,198	-133,527	-183,538	-110,898	0	26,236	-840,810
42	46,976	13,790	7,886	17,062	-9,631	15,997	18,306	0	115,193	225,578
50	154,644	27,798	41,823	41,797	59,047	40,877	65,599	0	0	431,585
51	-89,546	-8,817	-25,746	-11,587	-28,983	39,678	-24,333	0	0	-149,334
52	-8,777	0	0	0	0	1,697	0	0	0	-7,080
Grand Total	1,459,702	453,250	919,828	679,239	1,144,720	851,894	674,737	0	145,244	6,328,615
										0
Annual 2016										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	3,145,420	1,045,408	3,529,959	1,688,197	3,356,966	1,864,560	997,425	0	0	15,627,934
6	46,732	24,408	49,500	20,953	46,895	39,800	3,269	0	0	231,556
10	92,372	52,654	87,964	47,860	87,728	229,040	26,216	0	0	623,834
11	0	146	0	0	0	495	0	0	0	641
40	1,898,462	372,304	742,502	646,397	1,566,756	1,014,067	1,179,934	0	9,241	7,429,662
41	1,799,825	356,226	315,602	589,887	899,591	689,778	1,286,930	0	22,216	5,960,055
42	193,997	148,238	0	204,280	10,882	272,547	168,159	0	653,355	1,651,460
50	343,404	99,169	286,088	115,077	252,572	153,211	166,633	0	0	1,416,154
51	595,312	186,314	183,072	203,507	327,847	145,718	369,595	0	555	2,011,920
52	0	0	0	58,349	0	308,445	66,913	0	0	433,706
Grand Total	8,115,524	2,284,866	5,194,687	3,574,508	6,549,237	4,717,660	4,265,074	0	685,366	35,386,923

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Northern Utilities - New Hampshire Division
Customers by Cycle - Test Year 2016 Transportation only

January										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,526	1,397	4,755	2,136	5,134	2,941	1,513	0	0	22,402
6	291	84	194	116	239	221	15	0	0	1,160
10	158	80	116	71	146	327	39	0	0	937
11	0	0	0	0	0	4	0	0	0	4
40	1,271	211	548	410	788	551	648	0	0	4,427
41	132	38	34	36	64	53	95	0	0	452
42	2	2	0	2	1	1	2	0	4	14
50	126	26	119	67	113	127	68	0	0	646
51	41	12	20	12	25	12	26	0	0	148
52	0	0	0	1	0	1	1	0	0	3
Grand Total	6,547	1,850	5,786	2,851	6,510	4,238	2,407	0	4	30,193
										0
February										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,545	1,389	4,742	2,135	5,158	2,945	1,513	0	0	22,427
6	295	84	190	115	238	217	16	0	0	1,155
10	157	83	122	77	146	322	40	0	0	947
11	0	0	0	0	0	4	0	0	0	4
40	1,282	222	559	416	801	552	647	0	0	4,479
41	133	40	33	33	64	51	95	0	0	449
42	2	2	0	2	0	2	3	0	3	14
50	126	26	115	65	112	123	68	0	0	635
51	42	13	20	12	25	12	25	0	0	149
52	0	0	0	1	0	1	1	0	0	3
Grand Total	6,582	1,859	5,781	2,856	6,544	4,229	2,408	0	3	30,262
										0
March										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,546	1,395	4,777	2,136	5,139	2,929	1,512	0	0	22,434
6	286	84	185	113	233	219	15	0	0	1,135
10	158	83	123	80	152	349	39	0	0	984
11	0	0	0	0	0	4	0	0	0	4
40	1,287	216	552	413	773	556	645	0	0	4,442
41	130	40	33	33	65	50	97	0	0	448
42	3	2	0	2	0	2	3	0	3	15
50	134	28	124	67	111	130	68	0	0	662
51	42	12	21	11	25	12	26	0	0	149
52	0	0	0	1	0	1	0	0	0	2
Grand Total	6,586	1,860	5,815	2,856	6,498	4,252	2,405	0	3	30,275
										0
April										
Class / Cycle	1	4	5	8	10	13	16	18	22 Grand Total	
5	4,553	1,407	4,790	2,141	5,134	2,896	1,523	0	0	22,444
6	288	97	218	116	232	215	17	0	0	1,183
10	158	86	125	81	153	364	40	0	0	1,007
11	0	0	0	0	0	4	0	0	0	4
40	1,262	211	541	410	771	540	623	0	0	4,358
41	133	40	33	32	65	50	95	0	0	448
42	3	2	0	1	0	1	3	0	4	14
50	128	32	145	68	111	123	66	0	0	673
51	41	12	21	11	24	13	25	0	0	147
52	0	0	0	1	0	1	0	0	0	2
Grand Total	6,566	1,887	5,873	2,861	6,490	4,207	2,392	0	4	30,280

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Customers by Cycle - Test Year 2016 Transportation only

										0
May										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,523	1,420	4,832	2,130	4,984	2,864	1,508	0	0	22,261
6	296	103	287	112	229	207	18	0	0	1,252
10	156	87	123	82	153	365	40	0	0	1,006
11	0	0	0	0	0	4	0	0	0	4
40	1,205	207	525	396	721	500	569	0	0	4,123
41	131	38	33	32	66	50	96	0	0	446
42	3	2	0	2	0	1	3	0	5	16
50	129	32	180	66	111	122	64	0	0	704
51	42	12	21	11	25	13	24	0	0	148
52	0	0	0	1	0	1	0	0	0	2
Grand Total	6,485	1,901	6,001	2,832	6,289	4,127	2,322	0	5	29,962
										0
June										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,369	1,415	4,644	2,046	4,294	2,492	1,442	0	0	20,702
6	286	114	336	113	216	206	17	0	0	1,288
10	157	87	124	80	126	343	44	0	0	961
11	0	1	0	0	0	4	0	0	0	5
40	1,014	153	455	286	517	317	345	0	0	3,087
41	127	32	34	30	58	44	82	0	0	407
42	3	2	0	2	0	1	3	0	4	15
50	127	33	199	65	109	116	60	0	0	709
51	40	12	20	11	22	13	24	0	0	142
52	0	0	0	1	0	1	0	0	0	2
Grand Total	6,123	1,849	5,812	2,634	5,342	3,537	2,017	0	4	27,318
										0
July										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,099	1,339	4,372	1,987	4,058	2,394	1,368	0	0	19,617
6	271	110	343	107	206	196	18	0	0	1,251
10	153	79	107	76	108	330	38	0	0	891
11	0	1	0	0	0	4	0	0	0	5
40	622	98	326	201	427	261	249	0	0	2,184
41	110	24	30	27	52	39	75	0	0	357
42	3	2	0	2	0	1	3	0	4	15
50	127	32	197	60	105	109	59	0	0	689
51	38	12	19	10	23	13	23	0	0	138
52	0	0	0	1	0	1	0	0	0	2
Grand Total	5,423	1,697	5,394	2,471	4,979	3,348	1,833	0	4	25,149
										0
August										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,028	1,338	4,345	1,979	4,065	2,363	1,443	0	0	19,561
6	274	116	352	108	212	199	17	0	0	1,278
10	149	77	99	72	103	311	40	0	0	851
11	0	1	0	0	0	4	0	0	0	5
40	563	96	318	195	414	261	243	0	1	2,091
41	103	23	28	28	52	38	70	0	0	342
42	3	2	0	1	0	1	3	0	6	16
50	123	34	199	59	104	105	57	0	0	681
51	40	12	18	11	20	12	22	0	1	136
52	0	0	0	1	0	1	0	0	0	2
Grand Total	5,283	1,699	5,359	2,454	4,970	3,295	1,895	0	8	24,963

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										0
September										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,004	1,340	4,360	2,027	4,054	2,413	1,465	0	0	19,663
6	271	114	345	105	205	193	16	0	0	1,249
10	148	80	102	74	100	304	41	0	0	849
11	0	1	0	0	0	3	0	0	0	4
40	557	100	330	223	442	302	351	0	1	2,306
41	85	20	24	23	49	36	61	0	1	299
42	2	1	0	1	0	0	1	0	3	8
50	139	41	205	65	102	93	55	0	0	700
51	33	9	15	9	20	13	26	0	0	125
52	0	0	0	0	0	2	0	0	0	2
Grand Total	5,239	1,706	5,381	2,527	4,972	3,359	2,016	0	5	25,205
										0
October										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,284	1,405	4,667	2,138	4,699	2,760	1,528	0	0	21,481
6	273	112	326	108	216	200	15	0	0	1,250
10	148	82	110	75	128	313	37	0	0	893
11	0	1	0	0	0	3	0	0	0	4
40	884	149	437	335	647	476	573	0	1	3,502
41	109	26	26	29	60	40	74	0	1	365
42	2	1	0	1	0	0	1	0	4	9
50	128	40	189	65	103	98	59	0	0	682
51	41	11	20	12	20	13	25	0	0	142
52	0	0	0	0	0	2	0	0	0	2
Grand Total	5,869	1,827	5,775	2,763	5,873	3,905	2,312	0	6	28,330
										0
November										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,544	1,447	4,846	2,190	5,140	3,020	1,551	0	0	22,738
6	280	104	274	105	224	205	14	0	0	1,206
10	129	61	96	71	83	217	34	0	0	691
11	0	0	0	0	0	0	0	0	0	0
40	1,189	203	526	388	735	554	632	0	1	4,228
41	111	29	26	30	59	40	76	0	1	372
42	2	1	0	1	0	0	1	0	5	10
50	131	41	158	66	103	97	60	0	0	656
51	41	11	21	12	22	14	25	0	0	146
52	0	0	0	0	0	2	0	0	0	2
Grand Total	6,427	1,897	5,947	2,863	6,366	4,149	2,393	0	7	30,049
										0
December										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,624	1,448	4,902	2,218	5,303	3,103	1,563	0	0	23,161
6	287	85	210	111	236	208	14	0	0	1,151
10	115	62	94	71	83	213	34	0	0	672
11	0	0	0	0	0	0	0	0	0	0
40	1,262	220	559	401	766	590	670	0	1	4,469
41	108	29	25	30	60	42	77	0	1	372
42	2	1	0	1	0	0	1	0	4	9
50	137	43	130	64	106	102	63	0	0	645
51	39	11	21	12	24	14	26	0	0	147
52	0	0	0	0	0	2	0	0	0	2
Grand Total	6,574	1,899	5,941	2,908	6,578	4,274	2,448	0	6	30,628

Northern Utilities - New Hampshire Division
Customers by Cycle - Test Year 2016 Transportation only

										0
January 2017										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	4,657	1,437	4,902	2,229	5,311	3,095	1,556	0	0	23,187
6	284	82	182	108	234	206	13	0	0	1,109
10	116	63	91	73	85	223	33	0	0	684
11	0	0	0	0	0	0	0	0	0	0
40	1,315	233	570	412	799	586	670	0	1	4,586
41	106	30	25	30	63	48	76	0	1	379
42	2	1	0	1	0	0	1	0	4	9
50	135	38	119	66	108	105	65	0	0	636
51	39	11	21	12	24	14	26	0	0	147
52	0	0	0	0	0	2	0	0	0	2
Grand Total	6,654	1,895	5,910	2,931	6,624	4,279	2,440	0	6	30,739
										0
Annual 2016										
Class / Cycle	1	4	5	8	10	13	16	18	22	Grand Total
5	52,645	16,740	56,032	25,263	57,162	33,120	17,929	0	0	258,891
6	3,398	1,207	3,260	1,329	2,686	2,486	192	0	0	14,558
10	1,786	947	1,341	910	1,481	3,758	466	0	0	10,689
11	0	5	0	0	0	38	0	0	0	43
40	12,398	2,086	5,676	4,074	7,802	5,460	6,195	0	5	43,696
41	1,412	379	359	363	714	533	993	0	4	4,757
42	30	20	0	18	1	10	27	0	49	155
50	1,555	408	1,960	777	1,290	1,345	747	0	0	8,082
51	480	139	237	134	275	154	297	0	1	1,717
52	0	0	0	8	0	16	2	0	0	26
Grand Total	73,704	21,931	68,865	32,876	71,411	46,920	26,848	0	59	342,614

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Cycle Degree Days Rate 5 & 10 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
		6,221	-	-	6,241	6,350	-	-	6,351	-	6,497	-	-	6,472	-	-	6,523	-	-	6,552

Actual Billing Cycle Sales - Rate 5 & 10

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	444,804			162,371	536,813			292,121		598,307			378,667			180,462		0	0	2,593,545
February	2	607,534			198,627	680,552			326,584		632,994			369,795			172,748		0	0	2,988,834
March	3	593,842			190,456	556,927			238,608		460,062			279,409			122,820		0	0	2,442,123
April	4	377,179			124,265	400,848			178,267		324,535			194,206			83,695		0	0	1,682,995
May	5	260,124			76,259	244,585			103,209		189,855			111,180			46,813		0	0	1,032,025
June	6	101,046			36,370	117,843			50,955		86,780			48,867			28,619		0	0	470,479
July	7	65,421			25,487	80,070			34,372		62,091			34,742			15,685		0	0	317,868
August	8	64,778			25,170	84,221			34,216		67,027			37,331			22,463		0	0	335,205
September	9	57,495			25,052	76,172			37,628		67,224			38,410			21,691		0	0	323,671
October	10	86,599			32,543	113,922			65,721		123,708			83,409			48,735		0	0	554,637
November	11	188,867			69,597	241,746			138,369		283,028			182,767			112,416		0	0	1,216,788
December	12	390,103			131,866	484,223			236,008		549,083			334,817			167,496		0	0	2,293,597
January 17	13	591,220			227,013	669,936			344,356		608,520			379,063			160,497		0	0	2,980,605
12 Months		3,237,792	0	0	1,098,061	3,617,923	0	0	1,736,058	0	3,444,694	0	0	2,093,600	0	0	1,023,641	0	0	0	16,251,768

Sales Weighted Actual Degree Days in Cycle

January	1	1,067
February	2	1,177
March	3	1,035
April	4	738
May	5	492
June	6	145
July	7	19
August	8	2
September	9	18
October	10	267
November	11	555
December	12	942
Total		6,457

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Northern Utilities - New Hampshire Division
Cycle Degree Days Rate 5 & 10 Sales

Normal Degree Days in Cycle
Cycle No.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,269
February	2	1,302
March	3	1,189
April	4	748
May	5	447
June	6	197
July	7	25
August	8	8
September	9	58
October	10	289
November	11	581
December	12	944
Total		7,057

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Northern Utilities - New Hampshire Division
Cycle Degree Days Rate 6 & 11 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate 6 & 11

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	5,094			2,535	4,018			2,800		6,387			5,644			740		0	0	27,219
February	2	6,181			3,043	4,855			3,050		6,030			5,737			474		0	0	29,370
March	3	5,955			3,026	4,102			2,662		5,244			4,675			367		0	0	26,031
April	4	4,620			2,171	4,097			2,158		4,263			3,937			299		0	0	21,545
May	5	4,027			2,058	4,193			1,734		3,397			2,919			251		0	0	18,580
June	6	3,106			1,867	3,968			1,405		2,805			2,457			208		0	0	15,815
July	7	2,617			1,533	5,239			1,004		2,246			1,843			96		0	0	14,577
August	8	2,644			1,576	4,014			995		2,355			1,921			162		0	0	13,666
September	9	2,291			1,533	3,946			974		2,341			1,843			117		0	0	13,045
October	10	2,651			1,319	3,265			1,068		2,777			2,358			165		0	0	13,603
November	11	3,035			1,599	3,266			1,298		3,670			2,884			210		0	0	15,963
December	12	4,511			2,292	4,536			1,805		5,381			4,078			179		0	0	22,784
January 17	13	514,636			106,931	174,449			174,807		341,214			310,681			248,775		0	0	1,871,493
12 Months		46,732	0	0	24,554	49,500	0	0	20,953	0	46,895	0	0	40,296	0	0	3,269	0	0	0	232,198

Sales Weighted Actual Degree Days in Cycle

January	1	1,066
February	2	1,182
March	3	1,025
April	4	738
May	5	489
June	6	147
July	7	19
August	8	2
September	9	14
October	10	253
November	11	531
December	12	931
Total		6,398

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Cycle Degree Days Rate 6 & 11 Sales

Normal Degree Days in Cycle
Cycle No.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,269
February	2	1,308
March	3	1,184
April	4	747
May	5	444
June	6	198
July	7	26
August	8	8
September	9	53
October	10	275
November	11	557
December	12	935
Total		7,004

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Northern Utilities - New Hampshire Division
Cycle Degree Days Rate G40 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G40

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	278,893			58,893	113,519			120,301		284,356			197,991			238,465		0	0	1,292,417
February	2	413,090			73,260	150,079			139,009		303,280			191,074			219,251		0	0	1,489,043
March	3	391,071			69,676	113,783			97,297		217,850			132,512			149,051		0	0	1,171,240
April	4	227,469			43,467	82,971			67,659		154,567			86,501			96,769		0	0	759,403
May	5	129,720			22,648	45,747			32,350		78,931			40,859			36,527		0	0	386,781
June	6	41,902			7,749	20,867			10,144		30,000			15,998			17,451		0	0	144,110
July	7	19,144			4,669	12,105			5,987		20,095			10,067			5,851		0	0	77,918
August	8	18,655			5,609	16,452			5,978		21,460			11,549			10,963		0	154	90,820
September	9	16,102			4,863	13,944			7,334		23,571			12,007			13,994		0	503	92,317
October	10	29,264			8,378	20,004			17,360		48,781			32,717			36,010		0	1,213	193,726
November	11	96,799			22,295	46,458			48,822		126,264			91,290			121,242		0	2,584	555,754
December	12	236,354			50,797	106,573			94,156		257,603			191,502			234,360		0	4,787	1,176,133
January 17	13	517,794			115,537	101,119			206,001		308,081			247,439			316,792		0	3,814	1,816,577
12 Months		1,898,462	0	0	372,304	742,502	0	0	646,397	0	1,566,756	0	0	1,014,067	0	0	1,179,934	0	0	9,241	7,429,662

Sales Weighted Actual Degree Days in Cycle

January	1	1,079
February	2	1,172
March	3	1,032
April	4	724
May	5	493
June	6	139
July	7	20
August	8	3
September	9	23
October	10	284
November	11	591
December	12	959
Total		6,519

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Cycle Degree Days Rate G40 Sales

Normal Degree Days in Cycle
Cycle No.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,257
February	2	1,303
March	3	1,176
April	4	740
May	5	448
June	6	191
July	7	25
August	8	9
September	9	66
October	10	308
November	11	617
December	12	954
Total		7,094

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Northern Utilities - New Hampshire Division
Cycle Degree Days Rate G41 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G41

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	253,223			53,389	52,489			115,680		165,059			144,124			248,141		0	0	1,032,104
February	2	356,350			73,935	64,337			101,633		177,397			131,973			219,909		0	0	1,125,534
March	3	324,001			73,489	50,257			76,997		128,465			95,254			169,058		0	0	917,521
April	4	212,416			38,699	39,922			57,623		85,149			60,930			106,650		0	0	601,388
May	5	124,559			24,070	23,339			35,558		43,911			30,291			57,892		0	0	339,618
June	6	57,318			10,848	9,199			20,600		18,283			10,821			35,024		0	0	162,093
July	7	36,261			6,999	4,840			14,424		12,126			7,832			12,563		0	0	95,044
August	8	40,503			6,989	5,036			14,863		13,798			7,682			24,747		0	0	113,618
September	9	38,041			4,739	3,891			13,350		14,400			10,608			25,398		0	1,151	111,578
October	10	54,426			8,641	7,764			24,721		36,354			26,211			53,683		0	2,857	214,657
November	11	107,711			18,709	18,365			44,408		68,421			54,162			130,672		0	3,179	445,627
December	12	195,018			35,719	36,163			70,030		136,230			109,890			203,194		0	15,029	801,274
January 17	13	-267,244			-29,002	-49,639			-93,198		-133,527			-183,538			-110,898		0	26,236	-840,810
12 Months		1,799,825	0	0	356,226	315,602	0	0	589,887	0	899,591	0	0	689,778	0	0	1,286,930	0	0	22,216	5,960,055

Sales Weighted Actual Degree Days in Cycle

January	1	1,075
February	2	1,166
March	3	1,035
April	4	720
May	5	491
June	6	138
July	7	22
August	8	4
September	9	25
October	10	279
November	11	597
December	12	955
Total		6,509

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Cycle Degree Days Rate G41 Sales

Normal Degree Days in Cycle
Cycle No.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,250
February	2	1,303
March	3	1,172
April	4	742
May	5	447
June	6	189
July	7	28
August	8	9
September	9	65
October	10	302
November	11	623
December	12	954
Total		7,084

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Cycle Degree Days Rate G42 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G42

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	22,879			27,079	0			40,274		10,882			18,327			33,268		0	134,084	286,794
February	2	31,010			28,575	0			42,584		0			27,363			39,515		0	63,982	233,030
March	3	42,456			27,979	0			30,585		0			28,656			31,548		0	83,881	245,104
April	4	26,839			19,810	0			12,268		0			62,312			18,209		0	70,710	210,148
May	5	21,220			13,849	0			12,533		0			36,746			3,988		0	32,307	120,643
June	6	7,867			4,380	0			9,377		0			39,631			1,092		0	7,160	69,506
July	7	4,080			1,305	0			5,127		0			30,520			1,839		0	4,841	47,711
August	8	3,572			1,003	0			3,329		0			28,993			3,224		0	4,984	45,106
September	9	2,875			1,017	0			4,509		0			0			1,109		0	8,023	17,534
October	10	5,056			3,565	0			8,898		0			0			4,624		0	40,522	62,665
November	11	9,204			7,077	0			13,115		0			0			11,785		0	82,235	123,416
December	12	16,938			12,598	0			21,681		0			0			17,960		0	120,625	189,802
January 17	13	46,976			13,790	7,886			17,062		-9,631			15,997			18,306		0	115,193	225,578
12 Months		193,997	0	0	148,238	0	0	0	204,280	0	10,882	0	0	272,547	0	0	168,159	0	0	653,355	1,651,460

Sales Weighted Actual Degree Days in Cycle

January	1	1,139
February	2	1,139
March	3	962
April	4	695
May	5	427
June	6	111
July	7	15
August	8	1
September	9	55
October	10	380
November	11	669
December	12	1,046
Total		6,641

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Cycle Degree Days Rate G42 Sales

Normal Degree Days in Cycle
Cycle No.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,286
February	2	1,261
March	3	1,107
April	4	686
May	5	397
June	6	151
July	7	16
August	8	11
September	9	93
October	10	396
November	11	709
December	12	1,050
Total		7,163

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Cycle Degree Days Rate G50 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G50

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	30,212			7,383	19,589			12,230		23,224			20,249			19,211		0	0	132,099
February	2	36,236			8,111	22,349			13,150		26,254			20,731			18,982		0	0	145,813
March	3	38,148			7,660	20,164			11,174		23,855			19,627			16,619		0	0	137,247
April	4	33,303			8,240	18,777			10,522		19,622			14,325			13,454		0	0	118,243
May	5	27,487			6,599	20,144			9,325		18,353			12,051			12,044		0	0	106,003
June	6	25,184			7,702	29,853			8,096		19,451			11,774			12,173		0	0	114,232
July	7	23,750			7,020	31,862			6,586		14,945			8,296			9,664		0	0	102,123
August	8	26,000			7,753	38,348			7,062		18,857			9,302			11,850		0	0	119,171
September	9	23,697			10,393	32,068			7,559		20,784			7,534			9,635		0	0	111,669
October	10	23,616			8,484	20,274			8,133		18,846			7,680			11,003		0	0	98,035
November	11	24,449			8,901	15,195			9,935		21,846			9,608			14,612		0	0	104,546
December	12	31,324			10,921	17,466			11,304		26,537			12,034			17,387		0	0	126,973
January 17	13	154,644			27,798	41,823			41,797		59,047			40,877			65,599		0	0	431,585
12 Months		343,404	0	0	99,169	286,088	0	0	115,077	0	252,572	0	0	153,211	0	0	166,633	0	0	0	1,416,154

Sales Weighted Actual Degree Days in Cycle

January	1	1,064
February	2	1,172
March	3	1,025
April	4	729
May	5	483
June	6	143
July	7	20
August	8	3
September	9	17
October	10	254
November	11	551
December	12	930
Total		6,391

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Normal Degree Days in Cycle
Cycle No.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,256
February	2	1,303
March	3	1,175
April	4	744
May	5	440
June	6	194
July	7	27
August	8	8
September	9	56
October	10	274
November	11	578
December	12	939
Total		6,993

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Cycle Degree Days Rate G51 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G51

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	67,913			15,754	16,768			20,122		33,773			16,978			40,460		0	0	211,768
February	2	80,201			17,967	18,610			16,322		42,767			16,277			36,500		0	0	228,643
March	3	43,803			19,904	18,064			14,810		37,029			15,805			36,051		0	0	185,466
April	4	60,678			15,433	15,773			13,917		31,340			13,314			29,274		0	0	179,729
May	5	64,652			15,635	14,945			10,801		28,851			11,188			25,215		0	0	171,288
June	6	43,399			15,018	14,376			10,468		24,256			10,469			23,752		0	0	141,737
July	7	34,411			13,241	13,022			7,951		19,786			7,762			19,498		0	0	115,670
August	8	38,349			15,356	15,101			8,634		19,299			8,724			23,465		0	555	129,484
September	9	33,358			15,275	14,871			23,217		17,905			9,381			25,944		0	0	139,951
October	10	45,499			14,285	12,507			23,025		18,640			10,882			28,450		0	0	153,288
November	11	38,925			13,524	12,177			26,231		22,265			11,057			37,090		0	0	161,270
December	12	44,123			14,922	16,859			28,010		31,935			13,881			43,897		0	0	193,626
January 17	13	-89,546			-8,817	-25,746			-11,587		-28,983			39,678			-24,333		0	0	-149,334
12 Months		595,312	0	0	186,314	183,072	0	0	203,507	0	327,847	0	0	145,718	0	0	369,595	0	0	555	2,011,920

Sales Weighted Actual Degree Days in Cycle

January	1	1,048
February	2	1,166
March	3	1,023
April	4	724
May	5	498
June	6	141
July	7	20
August	8	4
September	9	23
October	10	258
November	11	572
December	12	935
Total		6,410

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Normal Degree Days in Cycle
Cycle No.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,244
February	2	1,306
March	3	1,173
April	4	744
May	5	452
June	6	192
July	7	27
August	8	9
September	9	62
October	10	279
November	11	598
December	12	943
Total		7,029

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Cycle Degree Days Rate G52 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G52

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	0			0	0			6,505		0			20,471			60,659		0	0	87,635
February	2	0			0	0			7,931		0			27,570			6,254		0	0	41,755
March	3	0			0	0			7,875		0			34,263			0		0	0	42,139
April	4	0			0	0			6,813		0			22,964			0		0	0	29,777
May	5	0			0	0			5,520		0			18,671			0		0	0	24,191
June	6	0			0	0			7,233		0			19,502			0		0	0	26,735
July	7	0			0	0			7,448		0			17,227			0		0	0	24,675
August	8	0			0	0			9,024		0			16,481			0		0	0	25,505
September	9	0			0	0			0		0			28,946			0		0	0	28,946
October	10	0			0	0			0		0			24,354			0		0	0	24,354
November	11	0			0	0			0		0			33,911			0		0	0	33,911
December	12	0			0	0			0		0			44,083			0		0	0	44,083
January 17	13	-8,777			0	0			0		0			1,697			0		0	0	-7,080
12 Months		0	0	0	0	0	0	0	58,349	0	0	0	0	308,445	0	0	66,913	0	0	0	433,706

Sales Weighted Actual Degree Days in Cycle

January	1	1,162
February	2	1,195
March	3	900
April	4	704
May	5	410
June	6	104
July	7	14
August	8	0
September	9	22
October	10	335
November	11	637
December	12	1,031
Total		6,514

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Cycle Degree Days Rate G52 Sales

Normal Degree Days in Cycle
Cycle No.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,242
February	2	1,308
March	3	1,104
April	4	694
May	5	375
June	6	142
July	7	14
August	8	9
September	9	81
October	10	373
November	11	651
December	12	966
Total		6,960

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Cycle Degree Days Rate T40 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T40

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	55,365			1,492	17,276			21,388		25,160			72,498			13,759		0	0	206,938
February	2	75,759			1,981	20,972			23,634		25,193			67,711			13,738		0	0	228,987
March	3	71,456			1,963	17,036			17,949		28,692			51,773			9,197		0	0	198,067
April	4	48,496			1,209	12,941			12,565		21,192			36,269			7,414		0	0	140,086
May	5	31,001			613	8,354			7,382		12,845			21,960			4,790		0	0	86,946
June	6	13,834			180	4,374			2,547		6,258			10,508			2,824		0	0	40,525
July	7	8,073			102	2,767			1,424		4,004			6,639			1,720		0	0	24,728
August	8	6,600			108	2,059			1,474		4,384			6,873			2,001		0	0	23,499
September	9	6,614			278	1,845			1,349		4,497			7,265			1,799		0	0	23,647
October	10	14,774			331	1,875			4,242		9,641			18,262			4,061		0	0	53,186
November	11	28,210			951	4,283			9,478		16,616			37,472			9,589		0	0	106,599
December	12	51,831			1,640	9,432			16,959		31,685			71,960			16,658		0	0	200,165
January 17	13	82,617			4,943	14,534			25,187		28,457			79,270			16,213		0	0	251,219
12 Months		412,012	0	0	10,848	103,214	0	0	120,390	0	190,167	0	0	409,190	0	0	87,553	0	0	0	1,333,374

Sales Weighted Actual Degree Days in Cycle

January	1	1,067
February	2	1,185
March	3	1,019
April	4	727
May	5	490
June	6	136
July	7	21
August	8	3
September	9	19
October	10	273
November	11	569
December	12	958
Total		6,466

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Normal Degree Days in Cycle
Cycle No.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,252
February	2	1,321
March	3	1,166
April	4	747
May	5	444
June	6	187
July	7	26
August	8	9
September	9	63
October	10	300
November	11	593
December	12	943
Total		7,051

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Cycle Degree Days Rate T41 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T41

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	212,275			34,978	50,586			101,854		177,120			183,791			153,266		0	56,443	970,313
February	2	289,495			41,045	58,583			116,666		189,978			187,663			152,071		0	55,120	1,090,623
March	3	291,440			41,851	49,522			94,709		139,760			147,479			119,121		0	40,781	924,662
April	4	199,270			27,728	37,780			71,829		101,073			104,543			83,494		0	36,904	662,621
May	5	138,380			17,966	26,532			43,936		60,493			61,873			56,250		0	21,369	426,799
June	6	62,466			9,283	13,124			24,084		25,776			24,923			34,546		0	7,796	202,000
July	7	30,322			4,865	5,905			13,423		18,866			16,564			25,168		0	5,752	120,864
August	8	29,612			4,660	5,758			13,609		19,982			17,798			27,710		0	6,951	126,080
September	9	29,106			5,011	9,267			17,848		19,123			20,677			27,381		0	15,997	144,408
October	10	52,914			8,548	17,204			30,826		40,347			50,871			47,306		0	25,929	273,944
November	11	106,794			16,731	28,387			54,286		85,052			93,584			98,530		0	40,282	523,646
December	12	190,162			30,486	49,330			85,683		156,368			167,475			134,425		0	54,630	868,558
January 17	13	292,677			50,026	64,666			122,865		173,950			183,538			130,346		0	51,432	1,069,500
12 Months		1,632,237	0	0	243,152	351,977	0	0	668,751	0	1,033,939	0	0	1,077,239	0	0	959,268	0	0	367,954	6,334,517

Sales Weighted Actual Degree Days in Cycle

January	1	1,086
February	2	1,170
March	3	1,013
April	4	717
May	5	476
June	6	133
July	7	19
August	8	3
September	9	33
October	10	295
November	11	595
December	12	964
Total		6,503

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Cycle Degree Days Rate T41 Transportation

Normal Degree Days in Cycle
Cycle No.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,259
February	2	1,300
March	3	1,160
April	4	731
May	5	434
June	6	182
July	7	23
August	8	10
September	9	76
October	10	318
November	11	621
December	12	958
Total		7,071

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Cycle Degree Days Rate T42 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T42

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	8,741			0	10,902			0		33,804			0			0		0	647,398	700,845
February	2	13,492			0	15,265			0		47,410			0			0		0	651,671	727,838
March	3	0			0	15,123			0		29,040			0			0		0	496,285	540,449
April	4	0			0	9,367			0		24,166			0			0		0	385,563	419,095
May	5	0			0	5,800			0		19,169			0			0		0	256,785	281,754
June	6	0			0	1,231			0		14,473			0			0		0	153,809	169,514
July	7	0			0	349			0		9,836			0			0		0	145,866	156,052
August	8	0			0	369			0		11,187			0			0		0	146,103	157,659
September	9	0			0	421			0		10,968			0			0		0	212,569	223,958
October	10	0			0	2,034			0		14,625			0			0		0	314,250	330,909
November	11	0			0	5,803			0		21,051			0			0		0	414,682	441,535
December	12	0			0	10,866			0		33,991			0			0		0	613,728	658,586
January 17	13	0			0	15,027			0		40,423			0			0		0	630,498	685,948
12 Months		22,234	0	0	0	77,530	0	0	0	0	269,720	0	0	0	0	0	0	0	0	4,438,710	4,808,193

Sales Weighted Actual Degree Days in Cycle

January	1	1,201
February	2	1,076
March	3	858
April	4	667
May	5	315
June	6	69
July	7	13
August	8	0
September	9	93
October	10	436
November	11	706
December	12	1,126
Total		6,560

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Cycle Degree Days Rate T42 Transportation

Normal Degree Days in Cycle
Cycle No.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,313
February	2	1,188
March	3	1,006
April	4	621
May	5	321
June	6	91
July	7	9
August	8	15
September	9	133
October	10	452
November	11	750
December	12	1,116
Total		7,016

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Cycle Degree Days Rate T50 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T50

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	8,330			696	3,105			2,361		4,899			3,623			1,352		0	570	24,936
February	2	10,032			721	2,815			2,565		5,114			3,839			1,573		0	603	27,262
March	3	10,205			747	2,231			2,576		4,844			3,811			1,427		0	505	26,346
April	4	7,902			470	1,625			2,209		4,071			3,188			1,189		0	566	21,219
May	5	5,835			0	1,555			2,029		3,839			2,402			1,213		0	451	17,324
June	6	6,043			0	1,710			2,199		3,936			2,237			1,237		0	421	17,783
July	7	4,952			0	1,764			1,632		3,286			1,695			1,126		0	368	14,823
August	8	5,697			0	2,281			1,766		4,375			1,645			1,274		0	298	17,336
September	9	5,379			0	1,859			2,345		5,188			1,530			1,394		0	658	18,353
October	10	5,453			0	1,414			2,327		4,505			1,724			1,572		0	709	17,704
November	11	5,769			0	1,335			2,542		4,774			1,794			1,820		0	595	18,630
December	12	7,690			0	2,562			3,010		5,820			1,761			2,136		0	556	23,535
January 17	13	9,619			0	2,729			2,763		5,490			2,263			1,970		0	423	25,256
12 Months		83,287	0	0	2,634	24,255	0	0	27,560	0	54,652	0	0	29,249	0	0	17,312	0	0	6,300	245,250

Sales Weighted Actual Degree Days in Cycle

January	1	1,044
February	2	1,177
March	3	1,032
April	4	729
May	5	485
June	6	137
July	7	21
August	8	4
September	9	21
October	10	263
November	11	550
December	12	934
Total		6,397

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Normal Degree Days in Cycle
Cycle No.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,252
February	2	1,314
March	3	1,175
April	4	748
May	5	442
June	6	189
July	7	26
August	8	9
September	9	62
October	10	285
November	11	579
December	12	940
Total		7,020

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Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T51

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	80,467			7,756	31,908			10,333		33,794			29,133			18,780		0	27,656	239,828
February	2	94,215			8,398	36,050			13,817		32,986			31,863			20,203		0	24,113	261,645
March	3	93,855			8,867	31,066			12,037		29,962			29,052			18,932		0	21,663	245,436
April	4	75,201			6,292	26,542			9,694		25,133			26,063			15,284		0	18,040	202,247
May	5	66,813			5,072	23,259			7,702		23,256			23,779			13,738		0	13,781	177,401
June	6	59,361			4,348	24,090			7,509		27,891			23,271			13,620		0	10,919	171,008
July	7	49,453			3,613	18,604			6,005		18,497			19,466			10,783		0	16,171	142,591
August	8	58,620			4,041	22,504			6,319		24,975			22,003			12,885		0	15,135	166,481
September	9	49,849			4,216	16,404			5,793		26,349			19,661			14,314		0	12,411	148,996
October	10	51,206			3,974	17,385			6,089		28,080			21,682			17,708		0	16,012	162,136
November	11	58,095			4,691	19,046			6,948		29,972			22,976			22,266		0	20,202	184,197
December	12	78,587			6,106	20,856			8,644		32,610			27,139			24,497		0	23,748	222,186
January 17	13	98,323			8,817	25,746			11,587		28,983			28,013			24,333		0	22,103	247,904
12 Months		815,720	0	0	67,374	287,714	0	0	100,892	0	333,505	0	0	296,087	0	0	203,009	0	0	219,853	2,324,152

Sales Weighted Actual Degree Days in Cycle

January	1	1,050
February	2	1,163
March	3	1,032
April	4	727
May	5	489
June	6	138
July	7	21
August	8	4
September	9	25
October	10	272
November	11	563
December	12	945
Total		6,429

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Normal Degree Days in Cycle
Cycle No.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,250
February	2	1,304
March	3	1,165
April	4	747
May	5	446
June	6	189
July	7	26
August	8	9
September	9	64
October	10	295
November	11	592
December	12	951
Total		7,037

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Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T52

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	7,853			0	0			0		0			19,520			0		0	1,605,476	1,632,849
February	2	9,991			0	0			0		0			19,370			0		0	1,497,343	1,526,704
March	3	10,212			0	0			0		0			17,223			0		0	1,467,605	1,495,040
April	4	8,224			0	0			0		0			16,949			0		0	1,347,752	1,372,925
May	5	6,805			0	0			0		0			14,404			0		0	1,249,306	1,270,515
June	6	7,063			0	0			0		0			17,055			0		0	1,182,331	1,206,449
July	7	5,353			0	0			0		0			12,343			0		0	1,152,183	1,169,880
August	8	6,425			0	0			0		0			19,335			0		0	1,260,613	1,286,372
September	9	5,332			0	0			0		0			18,880			0		0	1,229,294	1,253,506
October	10	5,282			0	0			0		0			19,679			0		0	1,306,246	1,331,207
November	11	5,848			0	0			0		0			18,464			0		0	1,424,081	1,448,393
December	12	6,237			0	0			0		0			20,786			0		0	1,317,323	1,344,347
January 17	13	8,777			0	0			0		0			20,484			0		0	1,374,574	1,403,835
12 Months		84,626	0	0	0	0	0	0	0	0	0	0	0	214,007	0	0	0	0	0	16,039,555	16,338,188

Sales Weighted Actual Degree Days in Cycle

January	1	1,208
February	2	1,066
March	3	849
April	4	663
May	5	306
June	6	65
July	7	13
August	8	0
September	9	96
October	10	441
November	11	713
December	12	1,132
Total		6,551

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Cycle Degree Days Rate T52 Transportation

Normal Degree Days in Cycle

		Cycle No.																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	1,176	-	-	1,274	1,279	-	-	1,312	-	1,323	-	-	1,266	-	-	1,226	-	-	1,315
February	2	1,363	-	-	1,279	1,286	-	-	1,285	-	1,280	-	-	1,332	-	-	1,230	-	-	1,175
March	3	1,210	-	-	1,250	1,237	-	-	1,184	-	1,167	-	-	1,085	-	-	1,095	-	-	990
April	4	839	-	-	786	775	-	-	712	-	683	-	-	689	-	-	612	-	-	613
May	5	541	-	-	462	452	-	-	411	-	399	-	-	365	-	-	335	-	-	312
June	6	249	-	-	233	225	-	-	180	-	159	-	-	128	-	-	110	-	-	84
July	7	46	-	-	31	27	-	-	16	-	15	-	-	13	-	-	10	-	-	9
August	8	7	-	-	6	7	-	-	7	-	10	-	-	11	-	-	13	-	-	15
September	9	28	-	-	41	43	-	-	65	-	74	-	-	81	-	-	113	-	-	136
October	10	187	-	-	235	247	-	-	293	-	314	-	-	373	-	-	390	-	-	460
November	11	456	-	-	502	511	-	-	587	-	607	-	-	651	-	-	799	-	-	761
December	12	861	-	-	861	942	-	-	907	-	1,003	-	-	966	-	-	1,026	-	-	1,126
		6,963	-	-	6,961	7,032	-	-	6,960	-	7,034	-	-	6,960	-	-	6,959	-	-	6,996

Sales Weighted Normal Degree Days in Cycle

January	1	1,313
February	2	1,178
March	3	992
April	4	616
May	5	314
June	6	85
July	7	9
August	8	15
September	9	135
October	10	457
November	11	758
December	12	1,122
Total		6,996

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Cycle Degree Days Rate 5 & 10 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate 5 & 10

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	444,804			162,371	536,813			292,121		598,307			378,667			180,462		0	0	2,593,545
February	2	607,534			198,627	680,552			326,584		632,994			369,795			172,748		0	0	2,988,834
March	3	593,842			190,456	556,927			238,608		460,062			279,409			122,820		0	0	2,442,123
April	4	377,179			124,265	400,848			178,267		324,535			194,206			83,695		0	0	1,682,995
May	5	260,124			76,259	244,585			103,209		189,855			111,180			46,813		0	0	1,032,025
June	6	101,046			36,370	117,843			50,955		86,780			48,867			28,619		0	0	470,479
July	7	65,421			25,487	80,070			34,372		62,091			34,742			15,685		0	0	317,868
August	8	64,778			25,170	84,221			34,216		67,027			37,331			22,463		0	0	335,205
September	9	57,495			25,052	76,172			37,628		67,224			38,410			21,691		0	0	323,671
October	10	86,599			32,543	113,922			65,721		123,708			83,409			48,735		0	0	554,637
November	11	188,867			69,597	241,746			138,369		283,028			182,767			112,416		0	0	1,216,788
December	12	390,103			131,866	484,223			236,008		549,083			334,817			167,496		0	0	2,293,597
January 17	13	591,220			227,013	669,936			344,356		608,520			379,063			160,497		0	0	2,980,605
12 Months		3,237,792	0	0	1,098,061	3,617,923	0	0	1,736,058	0	3,444,694	0	0	2,093,600	0	0	1,023,641	0	0	0	16,251,768

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate 5 & 10 Sales

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	55.57%
February	2	46.44%
March	3	49.27%
April	4	53.47%
May	5	45.21%
June	6	50.05%
July	7	50.96%
August	8	49.78%
September	9	52.36%
October	10	68.02%
November	11	50.66%
December	12	52.73%

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Cycle Degree Days Rate 6 & 11 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate 6 & 11

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	5,094			2,535	4,018			2,800		6,387			5,644			740		0	0	27,219
February	2	6,181			3,043	4,855			3,050		6,030			5,737			474		0	0	29,370
March	3	5,955			3,026	4,102			2,662		5,244			4,675			367		0	0	26,031
April	4	4,620			2,171	4,097			2,158		4,263			3,937			299		0	0	21,545
May	5	4,027			2,058	4,193			1,734		3,397			2,919			251		0	0	18,580
June	6	3,106			1,867	3,968			1,405		2,805			2,457			208		0	0	15,815
July	7	2,617			1,533	5,239			1,004		2,246			1,843			96		0	0	14,577
August	8	2,644			1,576	4,014			995		2,355			1,921			162		0	0	13,666
September	9	2,291			1,533	3,946			974		2,341			1,843			117		0	0	13,045
October	10	2,651			1,319	3,265			1,068		2,777			2,358			165		0	0	13,603
November	11	3,035			1,599	3,266			1,298		3,670			2,884			210		0	0	15,963
December	12	4,511			2,292	4,536			1,805		5,381			4,078			179		0	0	22,784
January 17	13	514,636			106,931	174,449			174,807		341,214			310,681			248,775		0	0	1,871,493
12 Months		46,732	0	0	24,554	49,500	0	0	20,953	0	46,895	0	0	40,296	0	0	3,269	0	0	0	232,198

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate 6 & 11 Sales

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	55.07%
February	2	46.33%
March	3	50.53%
April	4	53.83%
May	5	45.51%
June	6	49.40%
July	7	48.11%
August	8	47.00%
September	9	48.94%
October	10	64.80%
November	11	46.21%
December	12	48.83%

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Cycle Degree Days Rate G40 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G40

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	278,893			58,893	113,519			120,301		284,356			197,991			238,465		0	0	1,292,417
February	2	413,090			73,260	150,079			139,009		303,280			191,074			219,251		0	0	1,489,043
March	3	391,071			69,676	113,783			97,297		217,850			132,512			149,051		0	0	1,171,240
April	4	227,469			43,467	82,971			67,659		154,567			86,501			96,769		0	0	759,403
May	5	129,720			22,648	45,747			32,350		78,931			40,859			36,527		0	0	386,781
June	6	41,902			7,749	20,867			10,144		30,000			15,998			17,451		0	0	144,110
July	7	19,144			4,669	12,105			5,987		20,095			10,067			5,851		0	0	77,918
August	8	18,655			5,609	16,452			5,978		21,460			11,549			10,963		0	154	90,820
September	9	16,102			4,863	13,944			7,334		23,571			12,007			13,994		0	503	92,317
October	10	29,264			8,378	20,004			17,360		48,781			32,717			36,010		0	1,213	193,726
November	11	96,799			22,295	46,458			48,822		126,264			91,290			121,242		0	2,584	555,754
December	12	236,354			50,797	106,573			94,156		257,603			191,502			234,360		0	4,787	1,176,133
January 17	13	517,794			115,537	101,119			206,001		308,081			247,439			316,792		0	3,814	1,816,577
12 Months		1,898,462	0	0	372,304	742,502	0	0	646,397	0	1,566,756	0	0	1,014,067	0	0	1,179,934	0	0	9,241	7,429,662

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

Northern Utilities - New Hampshire Division
Cycle Degree Days Rate G40 Sales

Sales Weighted Billing Cycle Percentages

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Cycle Degree Days Rate G41 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G41

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	253,223			53,389	52,489			115,680		165,059			144,124			248,141		0	0	1,032,104
February	2	356,350			73,935	64,337			101,633		177,397			131,973			219,909		0	0	1,125,534
March	3	324,001			73,489	50,257			76,997		128,465			95,254			169,058		0	0	917,521
April	4	212,416			38,699	39,922			57,623		85,149			60,930			106,650		0	0	601,388
May	5	124,559			24,070	23,339			43,911		35,558			30,291			57,892		0	0	339,618
June	6	57,318			10,848	9,199			20,600		18,283			10,821			35,024		0	0	162,093
July	7	36,261			6,999	4,840			14,424		12,126			7,832			12,563		0	0	95,044
August	8	40,503			6,989	5,036			14,863		13,798			7,682			24,747		0	0	113,618
September	9	38,041			4,739	3,891			13,350		14,400			10,608			25,398		0	1,151	111,578
October	10	54,426			8,641	7,764			24,721		36,354			26,211			53,683		0	2,857	214,657
November	11	107,711			18,709	18,365			44,408		68,421			54,162			130,672		0	3,179	445,627
December	12	195,018			35,719	36,163			70,030		136,230			109,890			203,194		0	15,029	801,274
January 17	13	-267,244			-29,002	-49,639			-93,198		-133,527			-183,538			-110,898		0	26,236	-840,810
12 Months		1,799,825	0	0	356,226	315,602	0	0	589,887	0	899,591	0	0	689,778	0	0	1,286,930	0	0	22,216	5,960,055

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate G41 Sales

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	60.41%
February	2	49.50%
March	3	52.26%
April	4	55.96%
May	5	47.66%
June	6	51.95%
July	7	49.58%
August	8	50.80%
September	9	54.88%
October	10	70.21%
November	11	55.39%
December	12	59.90%

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Cycle Degree Days Rate G42 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G42

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	22,879			27,079	0			40,274		10,882			18,327			33,268		0	134,084	286,794
February	2	31,010			28,575	0			42,584		0			27,363			39,515		0	63,982	233,030
March	3	42,456			27,979	0			30,585		0			28,656			31,548		0	83,881	245,104
April	4	26,839			19,810	0			12,268		0			62,312			18,209		0	70,710	210,148
May	5	21,220			13,849	0			12,533		0			36,746			3,988		0	32,307	120,643
June	6	7,867			4,380	0			9,377		0			39,631			1,092		0	7,160	69,506
July	7	4,080			1,305	0			5,127		0			30,520			1,839		0	4,841	47,711
August	8	3,572			1,003	0			3,329		0			28,993			3,224		0	4,984	45,106
September	9	2,875			1,017	0			4,509		0			0			1,109		0	8,023	17,534
October	10	5,056			3,565	0			8,898		0			0			4,624		0	40,522	62,665
November	11	9,204			7,077	0			13,115		0			0			11,785		0	82,235	123,416
December	12	16,938			12,598	0			21,681		0			0			17,960		0	120,625	189,802
January 17	13	46,976			13,790	7,886			17,062		-9,631			15,997			18,306		0	115,193	225,578
12 Months		193,997	0	0	148,238	0	0	0	204,280	0	10,882	0	0	272,547	0	0	168,159	0	0	653,355	1,651,460

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Northern Utilities - New Hampshire Division
Cycle Degree Days Rate G42 Sales

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	78.92%
February	2	66.41%
March	3	70.26%
April	4	75.81%
May	5	64.12%
June	6	67.11%
July	7	71.13%
August	8	68.67%
September	9	71.92%
October	10	88.69%
November	11	83.75%
December	12	82.54%

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Cycle Degree Days Rate G50 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G50

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	30,212			7,383	19,589			12,230		23,224			20,249			19,211		0	0	132,099
February	2	36,236			8,111	22,349			13,150		26,254			20,731			18,982		0	0	145,813
March	3	38,148			7,660	20,164			11,174		23,855			19,627			16,619		0	0	137,247
April	4	33,303			8,240	18,777			10,522		19,622			14,325			13,454		0	0	118,243
May	5	27,487			6,599	20,144			9,325		18,353			12,051			12,044		0	0	106,003
June	6	25,184			7,702	29,853			8,096		19,451			11,774			12,173		0	0	114,232
July	7	23,750			7,020	31,862			6,586		14,945			8,296			9,664		0	0	102,123
August	8	26,000			7,753	38,348			7,062		18,857			9,302			11,850		0	0	119,171
September	9	23,697			10,393	32,068			7,559		20,784			7,534			9,635		0	0	111,669
October	10	23,616			8,484	20,274			8,133		18,846			7,680			11,003		0	0	98,035
November	11	24,449			8,901	15,195			9,935		21,846			9,608			14,612		0	0	104,546
December	12	31,324			10,921	17,466			11,304		26,537			12,034			17,387		0	0	126,973
January 17	13	154,644			27,798	41,823			41,797		59,047			40,877			65,599		0	0	431,585
12 Months		343,404	0	0	99,169	286,088	0	0	115,077	0	252,572	0	0	153,211	0	0	166,633	0	0	0	1,416,154

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate G50 Sales

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	56.84%
February	2	48.87%
March	3	52.67%
April	4	55.03%
May	5	47.94%
June	6	51.04%
July	7	49.78%
August	8	48.45%
September	9	49.81%
October	10	65.25%
November	11	47.97%
December	12	51.55%

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Cycle Degree Days Rate G51 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G51

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	67,913			15,754	16,768			20,122		33,773			16,978			40,460		0	0	211,768
February	2	80,201			17,967	18,610			16,322		42,767			16,277			36,500		0	0	228,643
March	3	43,803			19,904	18,064			14,810		37,029			15,805			36,051		0	0	185,466
April	4	60,678			15,433	15,773			13,917		31,340			13,314			29,274		0	0	179,729
May	5	64,652			15,635	14,945			10,801		28,851			11,188			25,215		0	0	171,288
June	6	43,399			15,018	14,376			10,468		24,256			10,469			23,752		0	0	141,737
July	7	34,411			13,241	13,022			7,951		19,786			7,762			19,498		0	0	115,670
August	8	38,349			15,356	15,101			8,634		19,299			8,724			23,465		0	555	129,484
September	9	33,358			15,275	14,871			23,217		17,905			9,381			25,944		0	0	139,951
October	10	45,499			14,285	12,507			23,025		18,640			10,882			28,450		0	0	153,288
November	11	38,925			13,524	12,177			26,231		22,265			11,057			37,090		0	0	161,270
December	12	44,123			14,922	16,859			28,010		31,935			13,881			43,897		0	0	193,626
January 17	13	-89,546			-8,817	-25,746			-11,587		-28,983			39,678			-24,333		0	0	-149,334
12 Months		595,312	0	0	186,314	183,072	0	0	203,507	0	327,847	0	0	145,718	0	0	369,595	0	0	555	2,011,920

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate G51 Sales

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	54.73%
February	2	45.78%
March	3	55.06%
April	4	55.05%
May	5	45.97%
June	6	51.22%
July	7	52.16%
August	8	49.98%
September	9	53.72%
October	10	66.02%
November	11	50.91%
December	12	55.84%

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Cycle Degree Days Rate G52 Sales

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate G52

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	0			0	0			6,505		0			20,471			60,659		0	0	87,635
February	2	0			0	0			7,931		0			27,570			6,254		0	0	41,755
March	3	0			0	0			7,875		0			34,263			0		0	0	42,139
April	4	0			0	0			6,813		0			22,964			0		0	0	29,777
May	5	0			0	0			5,520		0			18,671			0		0	0	24,191
June	6	0			0	0			7,233		0			19,502			0		0	0	26,735
July	7	0			0	0			7,448		0			17,227			0		0	0	24,675
August	8	0			0	0			9,024		0			16,481			0		0	0	25,505
September	9	0			0	0			0		0			28,946			0		0	0	28,946
October	10	0			0	0			0		0			24,354			0		0	0	24,354
November	11	0			0	0			0		0			33,911			0		0	0	33,911
December	12	0			0	0			0		0			44,083			0		0	0	44,083
January 17	13	-8,777			0	0			0		0			1,697			0		0	0	-7,080
12 Months		0	0	0	0	0	0	0	58,349	0	0	0	0	308,445	0	0	66,913	0	0	0	433,706

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate G52 Sales

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	84.40%
February	2	70.26%
March	3	73.73%
April	4	73.15%
May	5	64.37%
June	6	69.70%
July	7	70.69%
August	8	64.44%
September	9	73.33%
October	10	77.57%
November	11	71.02%
December	12	74.44%

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Cycle Degree Days Rate T40 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T40

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	55,365			1,492	17,276			21,388		25,160			72,498			13,759		0	0	206,938
February	2	75,759			1,981	20,972			23,634		25,193			67,711			13,738		0	0	228,987
March	3	71,456			1,963	17,036			17,949		28,692			51,773			9,197		0	0	198,067
April	4	48,496			1,209	12,941			12,565		21,192			36,269			7,414		0	0	140,086
May	5	31,001			613	8,354			7,382		12,845			21,960			4,790		0	0	86,946
June	6	13,834			180	4,374			2,547		6,258			10,508			2,824		0	0	40,525
July	7	8,073			102	2,767			1,424		4,004			6,639			1,720		0	0	24,728
August	8	6,600			108	2,059			1,474		4,384			6,873			2,001		0	0	23,499
September	9	6,614			278	1,845			1,349		4,497			7,265			1,799		0	0	23,647
October	10	14,774			331	1,875			4,242		9,641			18,262			4,061		0	0	53,186
November	11	28,210			951	4,283			9,478		16,616			37,472			9,589		0	0	106,599
December	12	51,831			1,640	9,432			16,959		31,685			71,960			16,658		0	0	200,165
January 17	13	82,617			4,943	14,534			25,187		28,457			79,270			16,213		0	0	251,219
12 Months		412,012	0	0	10,848	103,214	0	0	120,390	0	190,167	0	0	409,190	0	0	87,553	0	0	0	1,333,374

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

Northern Utilities - New Hampshire Division
Cycle Degree Days Rate T40 Transportation

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	57.71%
February	2	48.00%
March	3	52.05%
April	4	54.88%
May	5	47.86%
June	6	52.16%
July	7	53.03%
August	8	53.61%
September	9	55.61%
October	10	67.51%
November	11	52.15%
December	12	56.62%

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Cycle Degree Days Rate T41 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T41

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	212,275			34,978	50,586			101,854		177,120			183,791			153,266		0	56,443	970,313
February	2	289,495			41,045	58,583			116,666		189,978			187,663			152,071		0	55,120	1,090,623
March	3	291,440			41,851	49,522			94,709		139,760			147,479			119,121		0	40,781	924,662
April	4	199,270			27,728	37,780			71,829		101,073			104,543			83,494		0	36,904	662,621
May	5	138,380			17,966	26,532			43,936		60,493			61,873			56,250		0	21,369	426,799
June	6	62,466			9,283	13,124			24,084		25,776			24,923			34,546		0	7,796	202,000
July	7	30,322			4,865	5,905			13,423		18,866			16,564			25,168		0	5,752	120,864
August	8	29,612			4,660	5,758			13,609		19,982			17,798			27,710		0	6,951	126,080
September	9	29,106			5,011	9,267			17,848		19,123			20,677			27,381		0	15,997	144,408
October	10	52,914			8,548	17,204			30,826		40,347			50,871			47,306		0	25,929	273,944
November	11	106,794			16,731	28,387			54,286		85,052			93,584			98,530		0	40,282	523,646
December	12	190,162			30,486	49,330			85,683		156,368			167,475			134,425		0	54,630	868,558
January 17	13	292,677			50,026	64,666			122,865		173,950			183,538			130,346		0	51,432	1,069,500
12 Months		1,632,237	0	0	243,152	351,977	0	0	668,751	0	1,033,939	0	0	1,077,239	0	0	959,268	0	0	367,954	6,334,517

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate T41 Transportation

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	62.25%
February	2	53.72%
March	3	55.71%
April	4	59.60%
May	5	51.59%
June	6	55.06%
July	7	60.76%
August	8	58.95%
September	9	63.21%
October	10	72.91%
November	11	57.86%
December	12	60.00%

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Cycle Degree Days Rate T42 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T42

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	8,741			0	10,902			0		33,804			0			0		0	647,398	700,845
February	2	13,492			0	15,265			0		47,410			0			0		0	651,671	727,838
March	3	0			0	15,123			0		29,040			0			0		0	496,285	540,449
April	4	0			0	9,367			0		24,166			0			0		0	385,563	419,095
May	5	0			0	5,800			0		19,169			0			0		0	256,785	281,754
June	6	0			0	1,231			0		14,473			0			0		0	153,809	169,514
July	7	0			0	349			0		9,836			0			0		0	145,866	156,052
August	8	0			0	369			0		11,187			0			0		0	146,103	157,659
September	9	0			0	421			0		10,968			0			0		0	212,569	223,958
October	10	0			0	2,034			0		14,625			0			0		0	314,250	330,909
November	11	0			0	5,803			0		21,051			0			0		0	414,682	441,535
December	12	0			0	10,866			0		33,991			0			0		0	613,728	658,586
January 17	13	0			0	15,027			0		40,423			0			0		0	630,498	685,948
12 Months		22,234	0	0	0	77,530	0	0	0	0	269,720	0	0	0	0	0	0	0	0	4,438,710	4,808,193

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

Northern Utilities - New Hampshire Division
Cycle Degree Days Rate T42 Transportation

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	96.57%
February	2	94.66%
March	3	96.48%
April	4	96.99%
May	5	95.98%
June	6	96.48%
July	7	97.85%
August	8	97.29%
September	9	98.26%
October	10	98.62%
November	11	97.30%
December	12	97.22%

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Cycle Degree Days Rate T50 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T50

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	8,330			696	3,105			2,361		4,899			3,623			1,352		0	570	24,936
February	2	10,032			721	2,815			2,565		5,114			3,839			1,573		0	603	27,262
March	3	10,205			747	2,231			2,576		4,844			3,811			1,427		0	505	26,346
April	4	7,902			470	1,625			2,209		4,071			3,188			1,189		0	566	21,219
May	5	5,835			0	1,555			2,029		3,839			2,402			1,213		0	451	17,324
June	6	6,043			0	1,710			2,199		3,936			2,237			1,237		0	421	17,783
July	7	4,952			0	1,764			1,632		3,286			1,695			1,126		0	368	14,823
August	8	5,697			0	2,281			1,766		4,375			1,645			1,274		0	298	17,336
September	9	5,379			0	1,859			2,345		5,188			1,530			1,394		0	658	18,353
October	10	5,453			0	1,414			2,327		4,505			1,724			1,572		0	709	17,704
November	11	5,769			0	1,335			2,542		4,774			1,794			1,820		0	595	18,630
December	12	7,690			0	2,562			3,010		5,820			1,761			2,136		0	556	23,535
January 17	13	9,619			0	2,729			2,763		5,490			2,263			1,970		0	423	25,256
12 Months		83,287	0	0	2,634	24,255	0	0	27,560	0	54,652	0	0	29,249	0	0	17,312	0	0	6,300	245,250

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate T50 Transportation

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	52.41%
February	2	44.94%
March	3	49.91%
April	4	53.77%
May	5	49.08%
June	6	51.66%
July	7	52.10%
August	8	49.76%
September	9	53.79%
October	10	66.49%
November	11	48.05%
December	12	50.20%

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Cycle Degree Days Rate T51 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T51

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	80,467			7,756	31,908			10,333		33,794			29,133			18,780		0	27,656	239,828
February	2	94,215			8,398	36,050			13,817		32,986			31,863			20,203		0	24,113	261,645
March	3	93,855			8,867	31,066			12,037		29,962			29,052			18,932		0	21,663	245,436
April	4	75,201			6,292	26,542			9,694		25,133			26,063			15,284		0	18,040	202,247
May	5	66,813			5,072	23,259			7,702		23,256			23,779			13,738		0	13,781	177,401
June	6	59,361			4,348	24,090			7,509		27,891			23,271			13,620		0	10,919	171,008
July	7	49,453			3,613	18,604			6,005		18,497			19,466			10,783		0	16,171	142,591
August	8	58,620			4,041	22,504			6,319		24,975			22,003			12,885		0	15,135	166,481
September	9	49,849			4,216	16,404			5,793		26,349			19,661			14,314		0	12,411	148,996
October	10	51,206			3,974	17,385			6,089		28,080			21,682			17,708		0	16,012	162,136
November	11	58,095			4,691	19,046			6,948		29,972			22,976			22,266		0	20,202	184,197
December	12	78,587			6,106	20,856			8,644		32,610			27,139			24,497		0	23,748	222,186
January 17	13	98,323			8,817	25,746			11,587		28,983			28,013			24,333		0	22,103	247,904
12 Months		815,720	0	0	67,374	287,714	0	0	100,892	0	333,505	0	0	296,087	0	0	203,009	0	0	219,853	2,324,152

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

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Cycle Degree Days Rate T51 Transportation

Percent Current Month Sales

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%

Sales Weighted Billing Cycle Percentages

January	1	55.97%
February	2	47.39%
March	3	51.61%
April	4	55.00%
May	5	48.83%
June	6	52.08%
July	7	53.98%
August	8	51.63%
September	9	54.27%
October	10	67.70%
November	11	50.85%
December	12	53.31%

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Cycle Degree Days Rate T52 Transportation

Actual Degree Days in Cycle

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	896	-	-	987	1,006	-	-	1,106	-	1,168	-	-	1,148	-	-	1,173	-	-	1,210
February	2	1,173	-	-	1,140	1,159	-	-	1,223	-	1,193	-	-	1,210	-	-	1,094	-	-	1,064
March	3	1,149	-	-	1,118	1,085	-	-	962	-	944	-	-	886	-	-	950	-	-	846
April	4	760	-	-	778	777	-	-	731	-	709	-	-	696	-	-	617	-	-	662
May	5	610	-	-	516	497	-	-	446	-	429	-	-	400	-	-	347	-	-	303
June	6	179	-	-	180	175	-	-	130	-	109	-	-	95	-	-	82	-	-	64
July	7	33	-	-	17	17	-	-	15	-	15	-	-	13	-	-	12	-	-	12
August	8	12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
September	9	5	-	-	9	9	-	-	22	-	22	-	-	22	-	-	63	-	-	97
October	10	164	-	-	224	235	-	-	277	-	290	-	-	335	-	-	368	-	-	444
November	11	423	-	-	478	487	-	-	553	-	577	-	-	637	-	-	780	-	-	716
December	12	817	-	-	794	904	-	-	885	-	1,042	-	-	1,031	-	-	1,037	-	-	1,135
January 17	13	1,112	-	-	1,268	1,169	-	-	1,229	-	1,102	-	-	1,077	-	-	1,014	-	-	1,073

Actual Billing Cycle Sales - Rate T52

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	Total
January	1	7,853			0	0			0		0			19,520			0		0	1,605,476	1,632,849
February	2	9,991			0	0			0		0			19,370			0		0	1,497,343	1,526,704
March	3	10,212			0	0			0		0			17,223			0		0	1,467,605	1,495,040
April	4	8,224			0	0			0		0			16,949			0		0	1,347,752	1,372,925
May	5	6,805			0	0			0		0			14,404			0		0	1,249,306	1,270,515
June	6	7,063			0	0			0		0			17,055			0		0	1,182,331	1,206,449
July	7	5,353			0	0			0		0			12,343			0		0	1,152,183	1,169,880
August	8	6,425			0	0			0		0			19,335			0		0	1,260,613	1,286,372
September	9	5,332			0	0			0		0			18,880			0		0	1,229,294	1,253,506
October	10	5,282			0	0			0		0			19,679			0		0	1,306,246	1,331,207
November	11	5,848			0	0			0		0			18,464			0		0	1,424,081	1,448,393
December	12	6,237			0	0			0		0			20,786			0		0	1,317,323	1,344,347
January 17	13	8,777			0	0			0		0			20,484			0		0	1,374,574	1,403,835
12 Months		84,626	0	0	0	0	0	0	0	0	0	0	0	214,007	0	0	0	0	0	16,039,555	16,338,188

Actual Degree Days of Cycle in Current Month

	Cycle No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22
January	1	245	0	0	412	451	0	0	654	0	764	0	0	861	0	0	1,059	0	0	1,210
February	2	208	0	0	341	400	0	0	667	0	746	0	0	862	0	0	942	0	0	1,064
March	3	293	0	0	396	421	0	0	565	0	626	0	0	683	0	0	829	0	0	846
April	4	206	0	0	327	352	0	0	450	0	489	0	0	533	0	0	600	0	0	662
May	5	154	0	0	182	187	0	0	234	0	256	0	0	271	0	0	285	0	0	303
June	6	31	0	0	59	59	0	0	62	0	62	0	0	63	0	0	64	0	0	64
July	7	0	0	0	12	12	0	0	12	0	12	0	0	12	0	0	12	0	0	12
August	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
September	9	5	0	0	9	9	0	0	22	0	22	0	0	22	0	0	63	0	0	97
October	10	72	0	0	136	147	0	0	202	0	215	0	0	260	0	0	334	0	0	444
November	11	51	0	0	170	190	0	0	311	0	348	0	0	452	0	0	670	0	0	716
December	12	152	0	0	248	378	0	0	481	0	675	0	0	767	0	0	991	0	0	1,135
January 17	13	130	0	0	381	412	0	0	575	0	641	0	0	710	0	0	871	0	0	1,073

Northern Utilities - New Hampshire Division
Cycle Degree Days Rate T52 Transportation

Percent Current Month Sales		Cycle No.																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	22	
January	1	27.35%	0.00%	0.00%	41.73%	44.87%	0.00%	0.00%	59.12%	0.00%	65.36%	0.00%	0.00%	75.05%	0.00%	0.00%	90.26%	0.00%	0.00%	100.00%	
February	2	17.70%	0.00%	0.00%	29.95%	34.51%	0.00%	0.00%	54.52%	0.00%	62.55%	0.00%	0.00%	71.18%	0.00%	0.00%	86.13%	0.00%	0.00%	100.00%	
March	3	25.50%	0.00%	0.00%	35.39%	38.82%	0.00%	0.00%	58.76%	0.00%	66.33%	0.00%	0.00%	77.17%	0.00%	0.00%	87.19%	0.00%	0.00%	100.00%	
April	4	27.17%	0.00%	0.00%	42.07%	45.30%	0.00%	0.00%	61.55%	0.00%	68.94%	0.00%	0.00%	76.60%	0.00%	0.00%	97.15%	0.00%	0.00%	100.00%	
May	5	25.32%	0.00%	0.00%	35.25%	37.71%	0.00%	0.00%	52.53%	0.00%	59.77%	0.00%	0.00%	67.87%	0.00%	0.00%	82.14%	0.00%	0.00%	100.00%	
June	6	25.81%	0.00%	0.00%	39.39%	42.42%	0.00%	0.00%	57.58%	0.00%	63.64%	0.00%	0.00%	74.19%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%	
July	7	21.43%	0.00%	0.00%	39.29%	42.86%	0.00%	0.00%	60.71%	0.00%	67.86%	0.00%	0.00%	75.00%	0.00%	0.00%	92.86%	0.00%	0.00%	100.00%	
August	8	24.24%	0.00%	0.00%	35.48%	42.42%	0.00%	0.00%	54.84%	0.00%	63.64%	0.00%	0.00%	69.70%	0.00%	0.00%	84.85%	0.00%	0.00%	100.00%	
September	9	23.33%	0.00%	0.00%	37.50%	43.33%	0.00%	0.00%	56.25%	0.00%	66.67%	0.00%	0.00%	73.33%	0.00%	0.00%	90.00%	0.00%	0.00%	100.00%	
October	10	43.64%	0.00%	0.00%	60.69%	62.52%	0.00%	0.00%	72.95%	0.00%	74.10%	0.00%	0.00%	77.57%	0.00%	0.00%	90.72%	0.00%	0.00%	100.00%	
November	11	11.99%	0.00%	0.00%	35.54%	38.99%	0.00%	0.00%	56.31%	0.00%	60.26%	0.00%	0.00%	71.02%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%	
December	12	18.61%	0.00%	0.00%	31.25%	41.83%	0.00%	0.00%	54.35%	0.00%	64.72%	0.00%	0.00%	74.44%	0.00%	0.00%	95.61%	0.00%	0.00%	100.00%	
January 17	13	11.66%	0.00%	0.00%	30.05%	35.26%	0.00%	0.00%	46.83%	0.00%	58.23%	0.00%	0.00%	65.91%	0.00%	0.00%	85.87%	0.00%	0.00%	100.00%	

Sales Weighted Billing Cycle Percentages

January	1	99.35%
February	2	99.10%
March	3	99.23%
April	4	99.27%
May	5	99.24%
June	6	99.20%
July	7	99.38%
August	8	99.17%
September	9	99.27%
October	10	99.44%
November	11	99.28%
December	12	99.23%

Northern Utilities New Hampshire Division
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Gas Cost of Service Workpapers
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Northern Utilities - NH
Gas Division
Test Year 2016

	TOTAL COMPANY (1)	RESIDENTIAL NON-HEATING RATE R-6 & R-11 (2)	RESIDENTIAL HEATING RATE R-5 & R-10 (3)	HIGH WINTER SMALL G-40 & T-40 (4)-2	LOW WINTER SMALL G-50 & T-50 (5)	HIGH WINTER MEDIUM G-41 & T-41 (6)	LOW WINTER MEDIUM G-51 & T-51 (7)	HIGH WINTER LARGE G-42 & T-42 (8)	LOW WINTER LARGE G-52 & T-52 (9)
ANNUAL NO SALES CUSTOMERS	368,478	16,650.30	282,692	53,198	8,905	5,092	1,768	148	26
ANNUAL NO OF TRANS CUSTOMERS	11,701	0	0	5,727	803	3,173	1,335	303	360
Total Customers	380,179	16,650	282,692	58,925	9,708	8,266	3,103	450	386
ANNUAL NUMBER OF GAS BILLS	388,832	17,097	289,343	60,032	9,954	8,419	3,141	459	387
ANNUAL NO METER EXCL DAILY METERED	380,337	16,599	283,482	59,167	9,746	8,119	3,027	161	36
ANNUAL NO METERS DAILY METERED	852	0	0	12	36	120	48	288	348
Total Meters	381,189	16,599	283,482	59,179	9,782	8,239	3,075	449	384
NUMBER OF SERVICES	22,982	988	16,876	3,523	582	687	256	37	32
RATIO SERVICES TO METERS	22,982	71%	71%	71%	71%	100%	100%	100%	100%

Proportional Responsibility Distribution Investment Allocator DISTR

The Proportional Responsibility Method is a capacity allocation procedure which considers the monthly variation in sales by customer class. Months with higher total usage are given more weight than lower usage months. The method was first developed by Gary H. Grainger of Wisconsin Public Service Corporation and published November 9, 1972 in *Public Utilities Fortnightly*.

The Proportional Responsibility (“PR”) Method is often used to allocate distribution plant to gas utility customers. Each customer class is assigned capacity-related costs based upon the variation of usage across all twelve months of the test year. In this manner, the PR method recognizes that capacity on the distribution system has some value each month throughout the year, though that value is greatly diminished in the summer months when system loads are much lower. By observation, the PR method is generally consistent with the market price for inter-state pipeline capacity as evidenced by the prices commanded for capacity release.

In contrast, the Design Day Allocation Method relates all costs to a single day, a hypothetical day where temperature extremes create the greatest load for which the utility can provide firm delivery service. The Design Day Demand Method is susceptible to errors due to the mis-estimation of class loads under extreme weather conditions. This method assumes that all costs are attributable to a single day, so by inference, there is no value to capacity at any other time. Summer-only users and interruptible customers would have no capacity cost responsibility at any time. In essence, these customers would receive the benefit of free use of the transmission and distribution system. This anomaly is one of the reasons why the FERC has migrated to capacity allocation methods that recognize customer loads throughout the year, such as the Modified Fixed Variable Method.

The following procedure describes the step-by-step calculation of the allocator DISTR shown in the following workpapers:

1. List all firm sales by month by rate class.
2. Normalize monthly sales data by computing the ratio of each rate class's monthly sales to the total monthly sales.
3. Rank the monthly sales, using the rank of 1 for the peak sales month and the rank of 12 for the lowest sales month.
4. Calculate the "% of peak month" defined as the ratio of sales in each month relative to the sales in the peak month. The % of peak factor for the month ranked #1 would equal 100% and the ratio for each subsequent month ranked would be less than unity.
5. Develop individual weighting factors for the twelve months. For each month starting with the 12th ranked month, calculate the difference in the nth ranked month's peak factor, as determined in step 4 above, and the n+1 ranked month's factor. Divide this difference by n and obtain the individual month's weighting factor. For n+1 = 13, use 0 percent as the month's peak factor. Thus, the individual monthly weighting factor for the 12th month is simply the peak factor for that month divided by 12.
6. Develop cumulative weighting factors for the twelve months starting with the 12th ranked month and continuing to the first ranked month. The cumulative weighting factor is computed by adding the month's individual weighting factor to the n-1 month's cumulative weighting factor. Following this process, the sum of the cumulative weighting factor for all 12 months should equal 100%.
7. For each customer class, multiply the normalized sales factor for the customer class developed in step 2 by the respective monthly cumulative weighting factor developed in step 6.

8. For each customer class, sum the twelve monthly proportionality factors, as determined in step 7 and use these percentages as the mains allocation factor.

NORTHERN - NEW HAMPSHIRE
TOTAL SENDOUT BY RATE CLASS
BY RATE CLASS
12 Months Ended Dec 31, 2016

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CALENDAR MO SENDOUT - Therms

DATE	RESIDENTIAL HEATING R-5 & R-10	RESIDENTIAL NON-HEATING R-6 & R-11	HIGH WINTER SMALL G-40 & T-40	LOW WINTER SMALL G-50 & T-50	HIGH WINTER MEDIUM G-41 & T-41	LOW WINTER MEDIUM G-51 & T-51	HIGH WINTER LARGE G-42 & T-42	LOW WINTER LARGE G-52 & T-52	TOTAL SENDOUT
NOV	1,744,355	19,357	957,575	134,132	1,250,264	371,565	613,754	1,516,182	6,607,185
DEC	2,583,393	24,907	1,516,757	151,083	1,904,259	448,178	897,364	1,407,202	8,933,144
JAN	3,468,288	33,607	2,003,006	186,898	2,611,012	548,993	1,117,942	1,794,051	11,763,798
FEB	2,948,497	28,680	1,695,431	169,410	2,232,685	457,020	1,028,131	1,630,778	10,190,633
MAR	2,172,644	24,497	1,208,133	153,448	1,675,772	417,354	850,498	1,607,015	8,109,362
APR	1,459,562	21,816	759,483	142,383	1,121,558	396,798	606,979	1,410,439	5,919,019
MAY	705,068	16,721	308,997	125,641	553,995	323,264	383,091	1,311,590	3,728,367
JUN	418,816	15,819	152,551	127,750	315,846	292,192	240,152	1,245,497	2,808,623
JUL	334,487	14,435	109,648	130,333	231,094	286,173	207,629	1,214,976	2,528,776
AUG	326,185	13,248	112,408	132,534	268,090	313,402	196,068	1,325,529	2,687,464
SEP	357,630	11,315	144,455	106,834	342,859	295,231	273,467	1,305,190	2,836,980
OCT	1,020,723	17,688	488,294	141,582	808,124	388,677	428,348	1,384,207	4,677,642
TOTAL	17,539,649	242,092	9,456,738	1,702,029	13,315,558	4,538,848	6,843,423	17,152,658	70,790,993
WINTER	14,376,740	152,865	8,140,386	937,355	10,795,550	2,639,909	5,114,669	9,365,668	51,523,141
SUMMER	3,162,909	89,227	1,316,352	764,675	2,520,008	1,898,939	1,728,754	7,786,990	19,267,853

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NORTHERN - NEW HAMPSHIRE
TOTAL FIRM SENDOUT
BY RATE CLASS
12 Months Ended Dec 31, 2016

CALENDAR MO SENDOUT - Therms

DATE	RESIDENTIAL HEATING R-5 & R-10	RESIDENTIAL NON-HEATING R-6 & R-11	SMALL G-40 & T-40	LOW WINTER SMALL G-50 & T-50	HIGH WINTER MEDIUM G-41 & T-41	LOW WINTER MEDIUM G-51 & T-51	HIGH WINTER LARGE G-42 & T-42	LOW WINTER LARGE G-52 & T-52	TOTAL FIRM SENDOUT
NOV	1,744,355	19,357	957,575	134,132	1,250,264	371,565	613,754	1,516,182	6,607,185
DEC	2,583,393	24,907	1,516,757	151,083	1,904,259	448,178	897,364	1,407,202	8,933,144
JAN	3,468,288	33,607	2,003,006	186,898	2,611,012	548,993	1,117,942	1,794,051	11,763,798
FEB	2,948,497	28,680	1,695,431	169,410	2,232,685	457,020	1,028,131	1,630,778	10,190,633
MAR	2,172,644	24,497	1,208,133	153,448	1,675,772	417,354	850,498	1,607,015	8,109,362
APR	1,459,562	21,816	759,483	142,383	1,121,558	396,798	606,979	1,410,439	5,919,019
MAY	705,068	16,721	308,997	125,641	553,995	323,264	383,091	1,311,590	3,728,367
JUN	418,816	15,819	152,551	127,750	315,846	292,192	240,152	1,245,497	2,808,623
JUL	334,487	14,435	109,648	130,333	231,094	286,173	207,629	1,214,976	2,528,776
AUG	326,185	13,248	112,408	132,534	268,090	313,402	196,068	1,325,529	2,687,464
SEP	357,630	11,315	144,455	106,834	342,859	295,231	273,467	1,305,190	2,836,980
OCT	1,020,723	17,688	488,294	141,582	808,124	388,677	428,348	1,384,207	4,677,642
TOTAL	17,539,649	242,092	9,456,738	1,702,029	13,315,558	4,538,848	6,843,423	17,152,658	70,790,993
WINTER	14,376,740	152,865	8,140,386	937,355	10,795,550	2,639,909	5,114,669	9,365,668	51,523,141
SUMMER	3,162,909	89,227	1,316,352	764,675	2,520,008	1,898,939	1,728,754	7,786,990	19,267,853

NORTHERN - NEW HAMPSHIRE
TOTAL SENDOUT
BY RATE CLASS NORMALIZED
12 Months Ended Dec 31, 2016

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CALENDAR MO SENDOUT - Therms

DATE	RESIDENTIAL HEATING R-5 & R-10	RESIDENTIAL NON-HEATING R-6 & R-11	SMALL G-40 & T-40	LOW WINTER SMALL G-50 & T-50	HIGH WINTER MEDIUM G-41 & T-41	LOW WINTER MEDIUM G-51 & T-51	HIGH WINTER LARGE G-42 & T-42	LOW WINTER LARGE G-52 & T-52	FIRM SENDOUT
NOV	0.264009	0.002930	0.144929	0.020301	0.189228	0.056237	0.092892	0.229475	1.000000
DEC	0.289192	0.002788	0.169790	0.016913	0.213168	0.050170	0.100453	0.157526	1.000000
JAN	0.294827	0.002857	0.170269	0.015888	0.221953	0.046668	0.095032	0.152506	1.000000
FEB	0.289334	0.002814	0.166372	0.016624	0.219092	0.044847	0.100890	0.160027	1.000000
MAR	0.267918	0.003021	0.148980	0.018922	0.206647	0.051466	0.104879	0.198168	1.000000
APR	0.246588	0.003686	0.128312	0.024055	0.189484	0.067038	0.102547	0.238289	1.000000
MAY	0.189109	0.004485	0.082877	0.033699	0.148589	0.086704	0.102750	0.351787	1.000000
JUN	0.149118	0.005632	0.054315	0.045485	0.112456	0.104034	0.085505	0.443455	1.000000
JUL	0.132272	0.005708	0.043360	0.051540	0.091386	0.113167	0.082107	0.480460	1.000000
AUG	0.121373	0.004930	0.041827	0.049316	0.099756	0.116616	0.072956	0.493227	1.000000
SEP	0.126060	0.003988	0.050919	0.037658	0.120853	0.104065	0.096394	0.460063	1.000000
OCT	0.218213	0.003781	0.104389	0.030268	0.172763	0.083092	0.091573	0.295920	1.000000
TOTAL	0.247767	0.003420	0.133587	0.024043	0.188097	0.064116	0.096671	0.242300	1.000000

NORTHERN - NEW HAMPSHIRE
DEVELOPMENT OF PROPORTIONAL RESPONSIBILITY WEIGHTINGS

24-May-17
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CALENDAR MO SENDOUT - Therms

12 Months Ended Dec 31, 2016

DATE	Total Sendout	Ranking	Percent of Peak Month	Next Ranked Month	Next Ranked Month		Individual Weighting Factors	Cumulative Weighting Factors			
					Percent of Peak Month	Difference					
							weight	rank		rank	
NOV	6,607,185	5	56.1654%	6	50.3155%	5.8499%	1.1700%		5	7.0724%	>=5 rank
DEC	8,933,144	3	75.9376%	4	68.9349%	7.0027%	2.3342%		3	12.5990%	rank >=3
JAN	11,763,798	1	100.0000%	2	86.6271%	13.3729%	13.3729%		1	31.3167%	>=1 rank
FEB	10,190,633	2	86.6271%	3	75.9376%	10.6895%	5.3447%		2	17.9438%	rank >=2
MAR	8,109,362	4	68.9349%	5	56.1654%	12.7695%	3.1924%		4	10.2648%	>=4 rank
APR	5,919,019	6	50.3155%	7	39.7630%	10.5525%	1.7588%		6	5.9025%	rank >=6
MAY	3,728,367	8	31.6936%	9	24.1162%	7.5774%	0.9472%		8	2.9909%	>=8 rank
JUN	2,808,623	10	23.8751%	11	22.8452%	1.0299%	0.1030%		10	2.0170%	rank >=10
JUL	2,528,776	12	21.4963%		0.0000%	21.4963%	1.7914%		12	1.7914%	>=12 rank
AUG	2,687,464	11	22.8452%	12	21.4963%	1.3490%	0.1226%		11	1.9140%	rank >=11
SEP	2,836,980	9	24.1162%	10	23.8751%	0.2411%	0.0268%		9	2.0438%	>=9 rank
OCT	4,677,642	7	39.7630%	8	31.6936%	8.0695%	1.1528%		7	4.1437%	>=7
TOTAL	70,790,993									100.0000%	

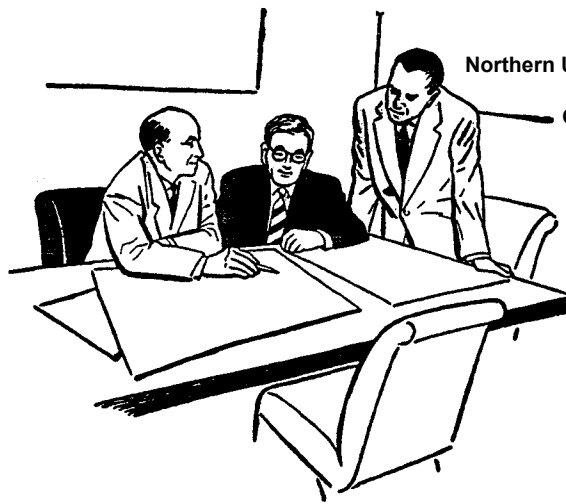
NORTHERN - NEW HAMPSHIRE
PROPORTIONAL RESPONSIBILITY ALLOCATION FACTORS
12 Months Ended Dec 31, 2016

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CALENDAR MO SENDOUT - Therms

DATE	RESIDENTIAL HEATING R-5 & R-10	RESIDENTIAL NON-HEATING R-6 & R-11	SMALL G-40 & T-40	LOW WINTER SMALL G-50 & T-50	HIGH WINTER MEDIUM G-41 & T-41	LOW WINTER MEDIUM G-51 & T-51	HIGH WINTER LARGE G-42 & T-42	LOW WINTER LARGE G-52 & T-52	FIRM SENDOUT
NOV	1.867187%	0.020720%	1.025005%	0.143577%	1.338303%	0.397730%	0.656972%	1.622947%	7.072441%
DEC	3.643542%	0.035128%	2.139189%	0.213084%	2.685711%	0.632097%	1.265616%	1.984676%	12.599042%
JAN	9.233022%	0.089466%	5.332254%	0.497547%	6.950844%	1.461489%	2.976103%	4.775991%	31.316715%
FEB	5.191748%	0.050501%	2.985335%	0.298299%	3.931338%	0.804725%	1.810345%	2.871493%	17.943785%
MAR	2.750128%	0.031009%	1.529252%	0.194234%	2.121188%	0.528286%	1.076559%	2.034157%	10.264814%
APR	1.455480%	0.021755%	0.757360%	0.141985%	1.118422%	0.395689%	0.605282%	1.406495%	5.902468%
MAY	0.565613%	0.013414%	0.247880%	0.100791%	0.444421%	0.259326%	0.307319%	1.052171%	2.990935%
JUN	0.300768%	0.011360%	0.109553%	0.091742%	0.226821%	0.209834%	0.172463%	0.894439%	2.016980%
JUL	0.236946%	0.010226%	0.077673%	0.092326%	0.163705%	0.202722%	0.147082%	0.860675%	1.791355%
AUG	0.232306%	0.009435%	0.080056%	0.094390%	0.190931%	0.223202%	0.139638%	0.944029%	1.913987%
SEP	0.257637%	0.008151%	0.104066%	0.076963%	0.246996%	0.212685%	0.197006%	0.940260%	2.043764%
OCT	0.904213%	0.015669%	0.432558%	0.125421%	0.715881%	0.344311%	0.379454%	1.226207%	4.143715%
	26.638590%	0.316834%	14.820180%	2.070359%	20.134561%	5.672096%	9.733838%	20.613541%	100.000000%
TOTAL WINTER	24.141107%	0.248579%	13.768395%	1.488726%	18.145806%	4.220016%	8.390877%	14.695759%	85.099265%
TOTAL SUMMER	2.497483%	0.068256%	1.051785%	0.581633%	1.988754%	1.452080%	1.342961%	5.917782%	14.900735%



The Proportional Responsibility Method of Capacity Cost Allocation

"Proportional responsibility," a new capacity cost allocation method, is designed to give a realistic and reasonable distribution of imbedded capacity costs, making it ideal for rate design purposes, rate of return determination, and support in rate cases. Other methods of capacity allocation, including their inherent fallacies, are also discussed.

By GARY H. GRAINGER

THE importance of cost-of-service studies has long been recognized in the electric utility industry. This importance is evident when you consider the numerous uses that are made of these studies, as illustrated by the following list:

Uses of Cost-of-service Studies

1. Determination of rate of return by customer group.
2. Rate design.
3. Sales promotion policy.
4. Support in rate cases before regulatory authorities.
5. Cost trends.
6. Engineering policy.

In the preparation of these studies, the allocation of capacity costs is the most significant part of the study for two reasons. First, capacity costs are generally the largest individual segment of costs, and, second, there is no universally accepted method for allocating these costs.

The remainder of this article is devoted to reviewing some of the common methods of capacity allocation, including a discussion of their inherent fallacies and then the development of a new method of capacity cost allocation that I have chosen to call the proportional responsibility method.

To illustrate some of the more common methods

of capacity allocation, assume the customer group load curves and the system load curve shown in Figure I (page 26). Table 1 (page 27) describes the characteristics of each of these customer group loads, and Table 2 (page 27) shows the results of the capacity allocations under various commonly used methods.

Before analyzing the results shown in Table 2, I would like to state briefly the principal criteria of capacity costs. Capacity costs are those created as a result of providing capacity for the customer's maximum demand. In other words, costs associated with property and plant having a specific design or size because of the maximum quantity of power used are considered capacity costs. They are not in any manner related to load factor.

Analyzing the results contained in Table 2 reveals the fallacies of the various methods:

- I. *Peak Responsibility*—Allocates all capacity costs on the basis of the loads as they occur at the time of the system peak. This implies that no capacity is required to serve loads A, B, and C since they were not taking service at the time of the system peak. This is incorrect because even without loads D, E, F, and G, there would still be a need for 300 kilowatts of capacity for loads A, B, and C.

II. *Noncoincident Peak*—Allocates all capacity costs on the basis of the individual customer peaks irrespective of the time of occurrence. Table 2 shows that all loads receive an equal share of capacity costs. Referring to the total

system shown in Figure 1, more capacity is needed to meet the simultaneous peak to 12 A.M. and 4 to 7 P.M. than for the remainder of the day. Therefore, a larger portion of the demand costs should be assigned to the loads

FIGURE I

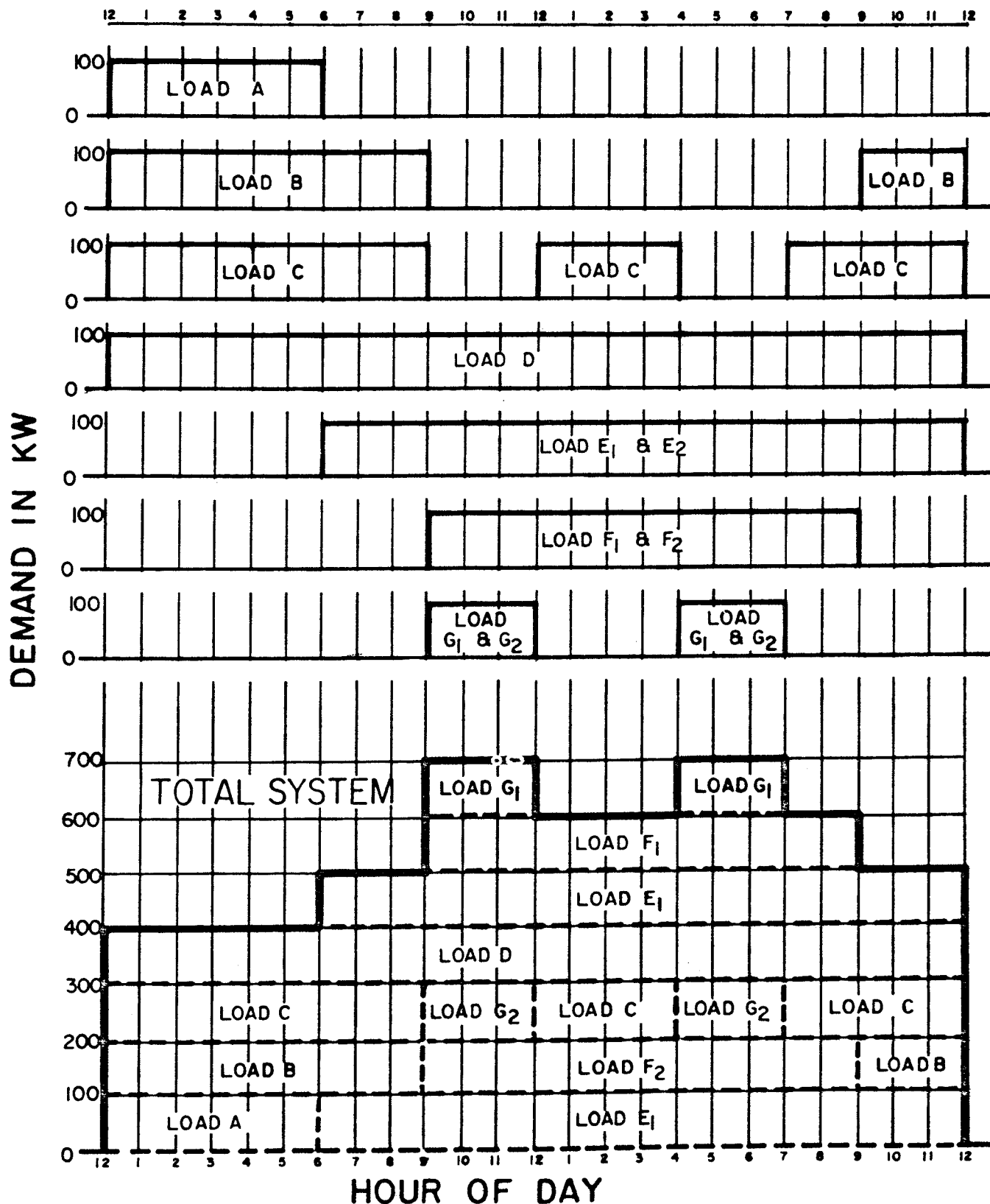


TABLE 1

Northern Utilities New Hampshire Division					
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Gas Cost of Service Workpapers					
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Load	Kwh.	Diversified Peak Kw.	Coincident Peak Kw.	Load Factor	Load Characteristics
A	600	100	0	25%	Nothing on System Peak
B	1,200	100	0	50%	Nothing on System Peak
C	1,800	100	0	75%	Nothing on System Peak
D	2,400	100	100	100%	Entirely on System Peak
E ₁ & E ₂	1,800	100	100	75%	Entirely on System Peak
F ₁ & F ₂	1,200	100	100	50%	Entirely on System Peak
G ₁ & G ₂	600	100	100	25%	Entirely on System Peak

creating the system peak; this is not being done.

III. *Average and Excess*—The portion of facilities required to serve the average load is allocated on the basis of the average demands and the difference between the average loads and the maximum load, being the excess demand, is allocated on the basis of the noncoincident peak. The results are partially dependent on load factor, which, as stated earlier, has no bearing on demand costs.

IV. *Complete Peak*—Manner of capacity cost allocation differs from other methods by putting onus on classes that exceed average demand during periods when system peaks go above average system load. This method is also partially dependent on load factor.

To the best of my knowledge, all currently published methods have somewhat similar fallacies. Recognizing that these fallacies must be overcome, the following method was developed:

Figure II (page 28) shows the same system load curve as in Figure I; the left-hand scale indicates the demand and the bottom scale indicates the hours of the day. On the right-hand scale, percentages are added. Looking at the demand of 400 kilowatts presenting 57.14 per cent of the peak, it is observed that this demand exists for the entire 24-hour period. Since 400 kilowatts represent 57.14 per cent of the peak, it similarly accounts for 57.14 per cent of the capacity costs. Dividing these capacity costs of 57.14 per cent equally to each of these hours (57.14%/24 Hrs.) results in each hour being respon-

sible for 2.38 per cent of the capacity costs. The next break in the load curve (500 kilowatts) is responsible for 14.29 per cent (71.43% - 57.14%) of the capacity costs; this demand is used eighteen hours a day, 6 A.M. to 12 P.M. By similar calculation, each hour is responsible for .79 per cent (14.29%/18 Hrs.) of the capacity costs. Moving up to the 600-kilowatt break, each hour from 9 A.M. to 9 P.M. is responsible for 1.19 per cent of the capacity costs. Finally, at 700 kilowatts, each of the hours from 9 A.M. to 12 A.M. and 4 P.M. to 7 P.M. is responsible for 2.38 per cent of the capacity costs.

By combining these hourly percentages, the six hours from 12 P.M. to 6 A.M. are each responsible for 2.38 per cent, the six hours, 6 A.M. to 9 A.M. and 9 P.M. to 12 P.M. are each responsible for 3.17 per cent (2.38% + .79%), the six hours 12 A.M. to 4 P.M. and 7 P.M. to 9 P.M. for 4.36 per cent (2.38% + .79% + 1.19%) and the six hours 9 A.M. to 12 A.M. and 4 P.M. to 6 P.M. for 6.74 per cent (2.38% + .79% + 1.19% + 2.38%).

These hourly percentages, representing the distribution of the total capacity costs over the twenty-four hours of the day, establish a weighting system that will be used to distribute capacity costs to the various loads.

Figure III (page 28), showing the hourly weighting factors on the bottom scale, reveals that some loads have more than one weighting factor. For example, load D falls in all four weighting areas. It is appropriate that an individual load should be responsible for the maximum weighted demand. Applying this principle to Figure III, the weighted demands shown

TABLE 2

Load	Method I Peak Responsibility		Method II Noncoincident Peak		Method III Average & Excess		Method IV Complete Peak (Oram & Robison)	
	Kw.	%	Kw.	%	Kw.	%	Kw.	%
A	0		70	10	50	7	25	4
B	0		70	10	67	10	50	7
C	0		70	10	83	12	79	11
D	100	14	70	10	100	13	100	14
E ₁	100	14	70	10	83	12	89	13
E ₂	100	14	70	10	83	12	89	13
F ₁	100	14	70	10	67	10	78	11
F ₂	100	14	70	10	67	10	78	11
G ₁	100	15	70	10	50	7	56	8
G ₂	100	15	70	10	50	7	56	8
	700	100	700	100	700	100	700	100

FIGURE II

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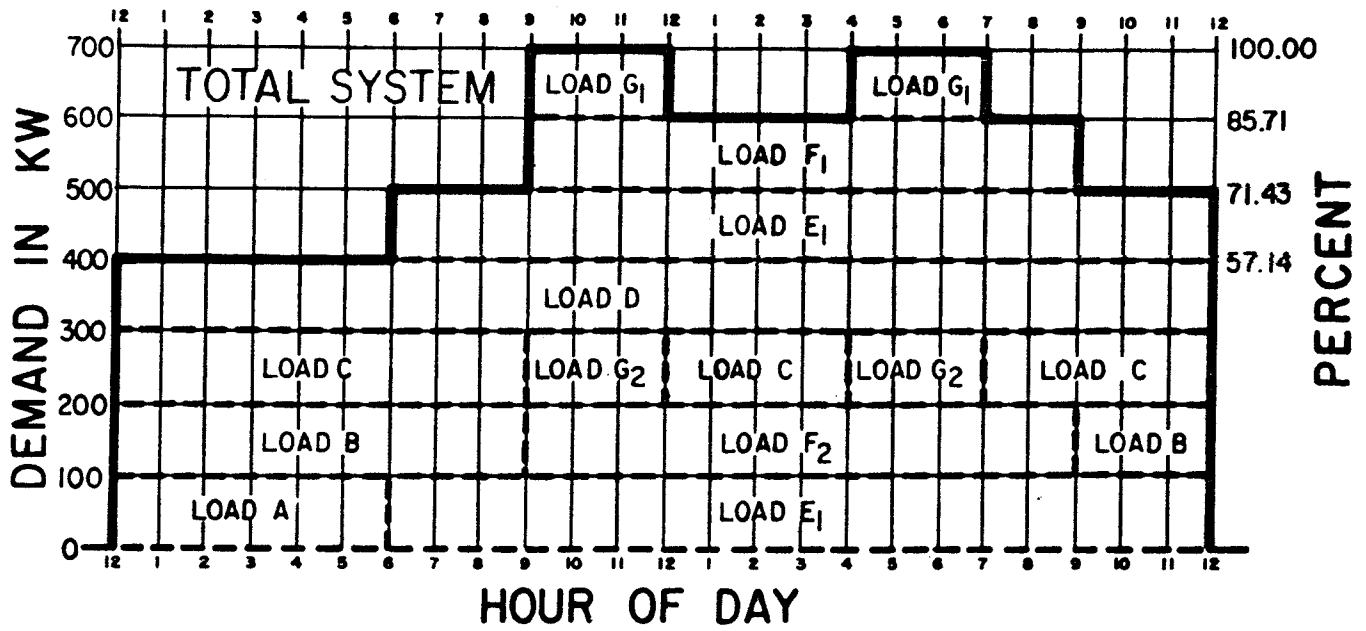


FIGURE III

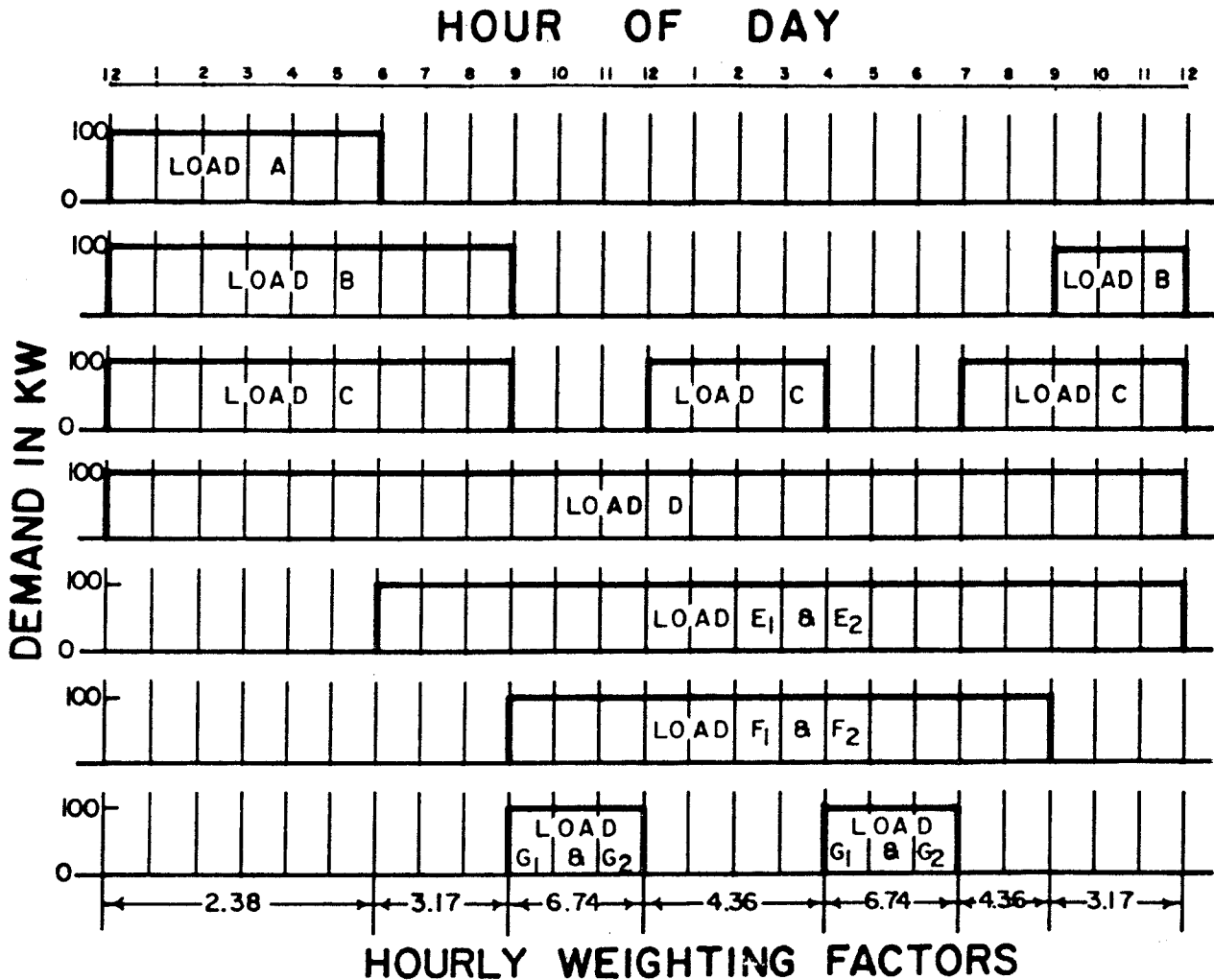


TABLE 3

Load	Highest Hourly Weighting Factor	Weighted Demand	Northern Utilities New Hampshire Division	
			Percentage Distribution	Docket No. DG 17-070 Gas Cost of Service Workpapers Page 232 of 318 Distribution of 700 Kw.
A	2.38	238	4	28
B	3.17	317	5	38
C	4.36	436	7	53
D	6.74	674	12	83
E ₁	6.74	674	12	83
E ₂	6.74	674	12	83
F ₁	6.74	674	12	83
F ₂	6.74	674	12	83
G ₁	6.74	674	12	83
G ₂	6.74	674	12	83
		5,709	100	700

in Table 3 above were determined. In the next to the last column, the percentage distribution of the total weighted demand is shown. These percentages represent the proportional distribution of the capacity costs. Applying these percentages to the total system demand of 700 kilowatts gives the demand allocation shown in the last column.

The end result of this method is to assign all capacity costs to the individual loads proportional to what they individually would cost.

Table 4 (page 30) again shows the results of some of the more common methods of capacity allocation, as well as the proportional responsibility method. The inequities of the common methods described earlier are eliminated under the proportional responsibility method. Each and every load is assigned a proportionate share of the capacity costs. It is not dependent on load factors and it considers the time when the demand was established.

An additional major advantage of the proportional responsibility method is that it can be used to determine the costs associated with successively smaller components of the total load. A logical sequence of studies, each using the results of the earlier study in the listing, would be:

1. Cost of service by jurisdictional area.
2. Cost of service by class of service.
3. Cost of service by rate schedule.

4. Cost of service by homogeneous groups within the rate schedule (could be by annual consumption or connected appliances).

5. Cost of service by individual appliance or specific load.

None of the common methods described earlier in this article will give reasonable answers if applied to the above series of studies.

The actual application of the proportional responsibility method is more complex than described above as each hour of the year has a specific weighting factor, and complete day-by-day load curves are required both for the system and for the various customer groups. However, with modern computer technology, this is not an insurmountable problem.

If desired, the proportional responsibility method can be simplified by reducing the number of load curves resulting in fewer weighting factors. For example, instead of using the daily load curves, average monthly load curves or monthly peak-day load curves could be used. As might be expected, this simplification will alter the proportional allocation and limit the scope of application because it does not fully consider the daily, monthly, and seasonal shifts of the load curves of the system or the customer groups.

However, compared to the known fallacies of the results of commonly used methods, this altera-



Gary H. Grainger is electric rates and research supervisor for the Wisconsin Public Service Corporation. After receiving his BA degree in electrical engineering from the University of Wisconsin in 1960, he joined the utility and, in 1972, was appointed to his present position. Currently, a member of the Rate Research Committee of the Edison Electric Institute, he has testified in regulatory matters before the Federal Power Commission and the Wisconsin and Michigan Public Service commissions.

TABLE 4

Northern Utilities New Hampshire Division

Docket No. DG 17-070

Gas Cost of Service Worksheets

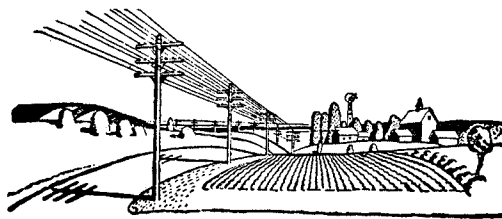
Page 233 of 318

Load	Method I Peak Responsibility		Method II Noncoincident Peak		Method III Average & Excess		Method IV Complete Peak (Oram & Robison)		Method V Prop. Resp. Gas Cost	
	Kw.	%	Kw.	%	Kw.	%	Kw.	%	Kw.	%
A	0		70	10	50	7	25	4	28	4
B	0		70	10	67	10	50	7	38	5
C	0		70	10	83	12	79	11	53	7
D	100	14	70	10	100	13	100	14	83	12
E ₁	100	14	70	10	83	12	89	13	83	12
E ₂	100	14	70	10	83	12	89	13	83	12
F ₁	100	14	70	10	67	10	78	11	83	12
F ₂	100	14	70	10	67	10	78	11	83	12
G ₁	100	15	70	10	50	7	56	8	83	12
G ₂	100	15	70	10	50	7	56	8	83	12
	<u>700</u>	<u>100</u>	<u>700</u>	<u>100</u>	<u>700</u>	<u>100</u>	<u>700</u>	<u>100</u>	<u>700</u>	<u>100</u>

tion of the proportional allocation and limitation of scope is minor.

Finally, I want to point out that the proportional responsibility method is designed to give a realistic and reasonable distribution of imbedded capacity costs. This makes it ideal for purposes of

rate design, determination of rate of return, and support in rate cases. It does not evaluate the incremental added costs of new loads or the long-range future costs of existing or added loads. These types of evaluations require separate special studies utilizing appropriate capacity allocation methods.



Outline of General Environmental Impact of Utility Operations

	Air Quality	Water Quality	Land Use	Noise
Electric	Stack emissions Nuclear radiation Transport and storage of nuclear materials	Thermal effect of coolant uses Secondary effect of fossil fuel used (coal-oil)	Lines and structures Dams and reservoirs Cooling towers Strip mining	Negligible
Natural gas	Negligible	Secondary effect from allied oil processing	Buildings and compressor stations	Compressors
Telephone	Negligible	Negligible	Lines and structures Radio towers	Relay stations
Rail & air carriers	Considerable emissions	Secondary effect of fossil fuels used or transported	Track and terminal structures	Considerable impact

SUMMARY OF THE PROPORTIONAL RESPONSIBILITY METHOD

The "Proportional Responsibility Method" is a capacity-related cost allocation method developed by Gary H. Grainger of Wisconsin Public Service Corporation. This method utilizes system load data (curve) to calculate a demand cost responsibility for each month, day or hour as the cost allocator to be used in the cost of service studies.

Exhibits 1 and 2 illustrate how this method works for the annual proportional responsibility. First, each monthly peak demand is calculated as a percentage of the annual system peak. This percentage is the demand cost responsibility. Second, the demand cost responsibility is spread over the month(s) it occurs. For example, the lowest demand cost responsibility is 83.65% (May, 1976) in Exhibit 1. This occurs in 12 months of the year and should be spread over the 12 months, i.e., 6.97083% per month. The second lowest responsibility is 84.08% (April, 1976). The difference between 84.08% and 83.65% (0.43%) occurs for 11 months of the year. Therefore, the second lowest demand month gets the cost responsibility of the lowest demand over 12 months (6.97083%) plus the responsibility of the second lowest demand spread over 11 months (0.03909%) as shown in Exhibit 2. This calculation continues until the highest demand month is done. Third, by adding the winter months' and summer months' responsibilities, two seasonal allocators are derived. The relationship between on-peak and off-peak periods within the month can also be quantified by using proportional responsibility method. This is shown in Exhibit 3.

The procedures of developing the allocators as described above are computerized and incorporated in Gilbert's Hourly Load Program in Fortran Language. Some sample print-outs labeled Exhibit 4 show the development of monthly proportional responsibility allocators on page 1 and diurnal allocators on pages 2 and 3.

Attached for reference is the article entitled "The Proportional Responsibility Method of Capacity Cost Allocation" by Gary H. Grainger from the November 9, 1972 issue of Public Utilities Fortnightly. This article introduced proportional responsibility method and also briefly discussed other capacity allocation methods.

EXHIBIT 1

PROPORTIONAL RESPONSIBILITY

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Jan, 1972	711	688	666	659	655	762	794	809	742	662	683	730
Jan, 1976	844	821	799	792	788	895	927	942	875	795	816	854
% of Peak	89.60	87.16	84.82	84.08	83.65	95.01	98.41	100.0	92.89	84.40	86.62	90.66

Lowest

83.65% ÷ 12	-	6.97083
(84.08 - 83.65) ÷ 11	-	.03909
(84.40 - 84.08) ÷ 10	-	.03200
(84.82 - 84.40) ÷ 9	-	.04667
(86.62 - 84.82) ÷ 8	-	.22500
(87.16 - 86.62) ÷ 7	-	.07714
(89.60 - 87.16) ÷ 6	-	.40667
(90.66 - 89.60) ÷ 5	-	.21200
(92.89 - 90.66) ÷ 4	-	.55750
(95.01 - 92.89) ÷ 3	-	.70667
(98.41 - 95.01) ÷ 2	-	1.70000

Highest

(100.00 - 98.41) ÷ 1	-	1.59000

Source: Peak-load Pricing Workshop paper by Wisconsin Public Service Corporation.

EXHIBIT 2

ANNUAL PROPORTIONAL RESPONSIBILITY

	<u>%</u> <u>Distrib</u>
Jan = 6.971 + .039 + .032 + .047 + .225 + .077 + .407	= 7.7974
Feb = 6.971 + .039 + .032 + .047 + .225 + .077	= 7.3907
Mar = 6.971 + .039 + .032 + .047	= 7.0886
Apr = 6.971 + .039	= 7.0099
May = 6.971	= 6.9708
Jun = 6.971 + .039 + .032 + .047 + .225 + .077 + .407 + .212 + .558 + .707	= 9.2736
Jul = 6.971 + .039 + .032 + .047 + .225 + .077 + .407 + .212 + .558 + .707 + 1.7	= 10.9736
Aug = 6.971 + .039 + .032 + .047 + .225 + .077 + .407 + .212 + .558 + .707 + 1.7 + 1.59	= 12.5636
Sep = 6.971 + .039 + .032 + .047 + .225 + .077 + .407 + .212 + .558	= 8.5669
Oct = 6.971 + .039 + .032	= 7.0419
Nov = 6.971 + .039 + .032 + .047 + .225	= 7.3136
Dec = 6.971 + .039 + .032 + .047 + .225 + .077 + .407 + .212	= <u>8.0094</u>
Total	<u><u>100.0000</u></u>

Source: Peak-load Pricing Workshop paper by Wisconsin Public Service Corporation.

EXHIBIT 3

MONTHLY PROPORTIONAL RESPONSIBILITY

WINTER

Base Load	62.25%	428.55 Hrs.
Intermediate Load	87.70%	200.97 Hrs.
Peak Load	92.90%	100.48 Hrs.

730 Hrs. = 30.42 Days = 4.35 Weeks

67.008 ÷ 730.00	=	.09179%
27.395 ÷ 301.45	=	.09088%
5.597 ÷ 100.48	=	.05570%

Base Load	.09179%	1.00000	.38507
Intermediate Load	.18267%	1.99009	.76633
Peak Load	.23837%	2.59691	1.00000

SUMMER

Base Load	58.37%	406.38 Hrs.
Intermediate Load	83.35%	222.62 Hrs.
Peak Load	89.35%	101.000 Hrs.

65.072 ÷ 730.00	=	.08914
27.848 ÷ 323.62	=	.08605
7.079 ÷ 101.00	=	.07009

Base Load	.08914	1.00000	.36342
Intermediate Load	.17519	1.96534	.71424
Peak Load	.24528	2.75163	1.00000

Source: Peak-load Pricing Workshop paper by Wisconsin Public Service Corporation.

EXHIBIT 4

Page 1 of 3

DEVELOPMENT OF MONTHLY PROPORTIONAL RESPONSIBILITY ALLOCATOR

REFER TO PUBLIC UTILITIES
FORTNIGHTLY, NOV. 9, 1972
FOR A DETAILED DISCUSSION
OF THE PROCEDURE EMPLOYED

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
PEAK MW	869	862	795	769	800	915	934	1055	864	585	650	742
% OF PK	82.3697	81.7061	75.3554	72.8910	75.8294	86.7298	88.5308	100.0000	81.8957	55.4502	61.6114	70.3317
INVERSE RANK	9	7	5	4	6	10	11	12	8	1	2	3
SUCCESSIVE DIFFERENCE BY RANK	0.4739	5.0768	2.4645	2.5592	0.4739	4.3602	1.8009	11.4692	0.1896	55.4502	6.1611	8.7204
RANK	4	6	8	9	7	3	2	1	5	12	11	10
INCREMENT ALLOCATION IN %	0.1185	0.9795	0.3081	0.2844	0.0677	1.4534	0.9005	11.4692	0.0379	4.6209	0.5601	0.8720
CUMULATIVE ALLOCATION IN %	7.8490	7.6926	6.6454	6.3374	6.7131	9.3024	10.2028	21.6720	7.7305	4.6209	5.1810	6.0530
ALLOCATION IN MW	82	81	70	66	70	98	107	228	81	48	54	63

EXHIBIT 4

Page 2 of 3

DEVELOPMENT OF HOURLY PROPORTIONAL RESPONSIBILITY ALLOCATOR
MORNING HOURS- PAGE 1 OF 2

REFER TO PUBLIC UTILITIES
FORTNIGHTLY, NOV 9, 1972
FOR A DETAILED DISCUSSION
OF THE PROCEDURE EMPLOYED

HOURLY ENDING	1 AM	2 AM	3 AM	4 AM	5 AM	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 AM
PEAK MW	727	720	674	671	673	689	751	816	855	893	953	995
% OF PK	68.9099	68.2464	63.8862	63.6019	63.7915	65.3080	71.1848	77.3460	81.0426	84.6445	90.3317	94.3128
INVERSE RANK	6	5	3	1	2	4	7	8	10	12	13	16
SUCCESSIVE DIFFERENCE BY RANK	0.6635	2.9384	0.0948	63.6019	0.1896	1.4218	2.2749	6.1611	1.0427	0.5687	5.6872	0.6635
RANK	19	20	22	24	23	21	18	17	15	13	12	9
INCREMENT ALLOCATION IN %	0.0349	0.1469	0.0043	2.6501	0.0082	0.0677	0.1264	0.3624	0.0695	0.0437	0.4739	0.0737
CUMULATIVE ALLOCATION IN %	2.9122	2.8773	2.6626	2.6501	2.6583	2.7303	3.0386	3.4010	3.6364	3.8968	4.3707	4.7676
ALLOCATION IN MW	30	30	28	27	28	28	32	35	38	41	46	50

EXHIBIT 4

Page 3 of 3

DEVELOPMENT OF ANALYSIS OF 1979 DATA
HOURLY PROPORTIONAL RESPONSIBILITY ALLOCATOR
EVENING HOURS- PAGE 2 OF 2

REFER TO PUBLIC UTILITIES
FORTNIGHTLY, NOV. 9, 1972
FOR A DETAILED DISCUSSION
OF THE PROCEDURE EMPLOYED

HOURLY ENDING	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	MIDNIGHT
PEAK MW	1021	1045	1045	1037	1030	1055	1027	988	1003	963	887	844
% OF PK	96.7772	99.0521	99.0521	98.4938	97.6303	100.0000	97.3460	93.6493	95.0711	91.2796	84.0758	80.0000
INVERSE RANK	18	23	22	21	20	24	19	15	17	14	11	9
SUCCESSIVE DIFFERENCE BY RANK	1.7062	0.0	0.7583	0.6635	0.2844	0.9479	0.5687	2.3697	0.7583	0.9479	3.0332	2.6540
RANK	7	2	3	4	5	1	6	10	8	11	14	16
INCREMENT ALLOCATION IN %	0.2437	0.0	0.2528	0.1059	0.0569	0.9479	0.0948	0.2370	0.0948	0.0862	0.2167	0.1659
CUMULATIVE ALLOCATION IN %	5.1061	5.6764	5.6764	5.4236	5.2577	6.6243	5.2009	4.6938	4.8623	4.4569	3.8530	3.5868
ALLOCATION IN MW	53	59	59	57	55	69	54	49	51	47	40	37

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

January 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,450	\$479,528.22	\$21.36	\$479,528.22	\$0.00	0.00%
		Summer First 50 therms	419.59	\$228.65	\$0.5449	\$228.63	-\$0.02	-0.01%
		Summer Excess therms	43.29	\$23.59	\$0.5449	\$23.59	\$0.00	-0.01%
		Winter First 50 therms	1,024,928.10	\$639,542.12	\$0.6239	\$639,452.64	-\$89.48	-0.01%
		Winter Excess therms	1,873,000.87	\$749,393.52	\$0.5103	\$955,792.34	\$206,398.82	27.54%
		Total therms only	2,898,391.85	\$1,389,187.88		\$1,595,497.21	\$206,309.33	14.85%
R-10	Residential Heating, Low Income	Customers	1,022	\$8,727.33	\$8.54	\$8,727.33	\$0.00	0.00%
		Summer First 50 therms	445.01	\$96.95	\$0.2179	\$96.97	\$0.02	0.02%
		Summer Excess therms	121.21	\$26.42	\$0.2179	\$26.41	-\$0.01	-0.03%
		Winter First 50 therms	46,736.08	\$11,665.40	\$0.2496	\$11,665.33	-\$0.07	0.00%
		Winter Excess therms	68,837.55	\$10,678.55	\$0.2041	\$14,049.74	\$3,371.19	31.57%
		Total therms only	116,139.85	\$22,467.32		\$25,838.45	\$3,371.13	15.00%
R-6	Residential Non-Heating	Customers	1,366	\$29,177.69	\$21.36	\$29,177.69	\$0.00	0.00%
		Summer First 10 therms	17.33	\$7.31	\$0.4214	\$7.30	-\$0.01	-0.10%
		Summer Excess therms	96.04	\$40.47	\$0.4214	\$40.47	\$0.00	0.00%
		Winter First 10 therms	9,433.42	\$3,971.87	\$0.4214	\$3,975.24	\$3.37	0.08%
		Winter Excess therms	20,329.20	\$7,422.18	\$0.4214	\$8,566.72	\$1,144.54	15.42%
		Total therms only	29,875.99	\$11,441.83		\$12,589.74	\$1,147.91	10.03%
R-11	Residential Non-Heating, Low Income	Customers	5	\$77.60	\$15.52	\$77.60	\$0.00	0.00%
		Summer First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter First 10 therms	40.00	\$12.80	\$0.3196	\$12.78	-\$0.02	-0.13%
		Winter Excess therms	19.05	\$6.10	\$0.3196	\$6.09	-\$0.01	-0.19%
		Total therms only	59.05	\$18.90		\$18.87	-\$0.03	-0.15%
G-40/T-40	Low Annual, High Winter Use	Customers	4,990	\$336,598.07	\$67.45	\$336,598.07	\$0.00	0.00%
		Summer First 75 therms	509.33	\$82.25	\$0.1615	\$82.26	\$0.01	0.01%
		Summer Excess therms	305.88	\$49.41	\$0.1615	\$49.40	-\$0.01	-0.02%
		Winter First 75 therms	327,998.67	\$52,962.46	\$0.1615	\$52,971.79	\$9.33	0.02%
		Winter Excess therms	1,386,549.88	\$189,042.28	\$0.1615	\$223,927.81	\$34,885.53	18.45%
		Total therms only	1,715,363.76	\$242,136.40		\$277,031.25	\$34,894.85	14.41%
G-50/T-50	Low Annual, Low Winter Use	Customers	796	\$53,665.48	\$67.45	\$53,665.48	\$0.00	0.00%
		Summer First 75 therms	15.52	\$2.52	\$0.1615	\$2.51	-\$0.01	-0.54%
		Summer Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter First 75 therms	36,893.23	\$5,957.36	\$0.1615	\$5,958.26	\$0.90	0.02%
		Winter Excess therms	126,752.12	\$19,400.33	\$0.1615	\$20,470.47	\$1,070.14	5.52%
		Total therms only	163,660.87	\$25,360.21		\$26,431.23	\$1,071.02	4.22%
G-41/T-41	Medium Annual, High Winter Use	Customers	721	\$141,894.80	\$196.73	\$141,894.80	\$0.00	0.00%
		Summer All therms	(1,455.09)	-\$228.39	\$0.1622	-\$236.02	-\$7.63	3.34%
		Winter All therms	2,281,359.28	\$420,392.36	\$0.2098	\$478,629.18	\$58,236.82	13.85%
		Total therms only	2,279,904.19	\$420,163.97		\$478,393.16	\$58,229.19	13.86%
G-51/T-51	Medium Annual, Low Winter Use	Customers	259	\$50,861.26	\$196.73	\$50,861.26	\$0.00	0.00%
		Summer First 1,000 therms	0.00	\$0.00	\$0.1183	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.0958	\$0.00	\$0.00	0.00%
		Winter First 1,300 therms	282,847.23	\$42,992.83	\$0.1520	\$42,992.78	-\$0.05	0.00%
		Winter Excess therms	200,191.47	\$20,891.14	\$0.1238	\$24,783.70	\$3,892.56	18.63%
		Total therms only	483,038.70	\$63,883.97		\$67,776.48	\$3,892.51	6.09%
G-42/T-42	High Annual, High Winter Use	Customers	38	\$42,719.22	\$1,124.19	\$42,719.22	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1066	\$0.00	\$0.00	0.00%
		Winter All therms	1,069,828.82	\$174,219.54	\$0.1764	\$188,717.80	\$14,498.26	8.32%
		Total therms only	1,069,828.82	\$174,219.54		\$188,717.80	\$14,498.26	8.32%
G-52/T-52	High Annual, Low Winter Use	Customers	33	\$37,098.27	\$1,124.19	\$37,098.27	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.0707	\$0.00	\$0.00	0.00%
		Winter All therms	1,770,022.58	\$265,126.67	\$0.1541	\$272,760.48	\$7,633.81	2.88%
		Total therms only	1,770,022.58	\$265,126.67		\$272,760.48	\$7,633.81	2.88%
Total		Customers	31,680	\$1,180,347.94		\$1,180,347.94	\$0.00	0.00%
		Summer First Block therms	(48.31)	\$189.29		\$181.65	-\$7.64	-4.03%
		Summer Excess therms	566.42	\$139.89		\$139.87	-\$0.02	-0.01%
		Winter First Block therms	6,850,087.42	\$1,616,843.41		\$1,697,136.28	\$80,292.87	4.97%
		Winter Excess therms	3,675,680.14	\$996,834.10		\$1,247,596.88	\$250,762.78	25.16%
		Total therms only	10,526,285.66	\$2,614,006.69		\$2,945,054.68	\$331,047.99	12.66%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

February 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,359	\$477,590.21	\$21.36	\$477,590.21	\$0.00	0.00%
		Summer First 50 therms	(83.33)	-\$45.37	\$0.5449	-\$45.41	-\$0.04	0.08%
		Summer Excess therms	(382.73)	-\$208.54	\$0.5449	-\$208.55	-\$0.01	0.00%
		Winter First 50 therms	1,040,844.89	\$649,477.45	\$0.6239	\$649,383.13	-\$94.32	-0.01%
		Winter Excess therms	2,094,890.73	\$932,837.86	\$0.5103	\$1,069,022.74	\$136,184.88	14.60%
		Total therms only	3,135,269.56	\$1,582,061.40		\$1,718,151.91	\$136,090.51	8.60%
R-10	Residential Heating, Low Income	Customers	1,134	\$9,681.85	\$8.54	\$9,681.85	\$0.00	0.00%
		Summer First 50 therms	509.28	\$110.99	\$0.2179	\$110.97	-\$0.02	-0.02%
		Summer Excess therms	122.89	\$26.78	\$0.2179	\$26.78	\$0.00	-0.01%
		Winter First 50 therms	52,150.53	\$13,016.88	\$0.2496	\$13,016.77	-\$0.11	0.00%
		Winter Excess therms	78,991.84	\$13,808.84	\$0.2041	\$16,122.23	\$2,313.39	16.75%
		Total therms only	131,774.54	\$26,963.49		\$29,276.76	\$2,313.27	8.58%
R-6	Residential Non-Heating	Customers	1,347	\$28,762.40	\$21.36	\$28,762.40	\$0.00	0.00%
		Summer First 10 therms	(46.04)	-\$19.40	\$0.4214	-\$19.40	\$0.00	0.01%
		Summer Excess therms	(16.51)	-\$6.95	\$0.4214	-\$6.96	-\$0.01	0.11%
		Winter First 10 therms	9,325.26	\$3,926.60	\$0.4214	\$3,929.66	\$3.06	0.08%
		Winter Excess therms	21,796.88	\$8,446.02	\$0.4214	\$9,185.21	\$739.19	8.75%
		Total therms only	31,059.59	\$12,346.27		\$13,088.51	\$742.24	6.01%
R-11	Residential Non-Heating, Low Income	Customers	5	\$77.60	\$15.52	\$77.60	\$0.00	0.00%
		Summer First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter First 10 therms	40.00	\$12.80	\$0.3196	\$12.78	-\$0.02	-0.13%
		Winter Excess therms	24.46	\$7.81	\$0.3196	\$7.82	\$0.01	0.09%
		Total therms only	64.46	\$20.61		\$20.60	-\$0.01	-0.04%
G-40/T-40	Low Annual, High Winter Use	Customers	5,025	\$338,918.43	\$67.45	\$338,918.43	\$0.00	0.00%
		Summer First 75 therms	586.51	\$94.71	\$0.1615	\$94.72	\$0.01	0.01%
		Summer Excess therms	304.21	\$49.12	\$0.1615	\$49.13	\$0.01	0.02%
		Winter First 75 therms	341,541.38	\$55,148.94	\$0.1615	\$55,158.93	\$9.99	0.02%
		Winter Excess therms	1,546,395.86	\$222,159.34	\$0.1615	\$249,742.93	\$27,583.59	12.42%
		Total therms only	1,888,827.96	\$277,452.11		\$305,045.72	\$27,593.61	9.95%
G-50/T-50	Low Annual, Low Winter Use	Customers	791	\$53,334.98	\$67.45	\$53,334.98	\$0.00	0.00%
		Summer First 75 therms	107.54	\$17.37	\$0.1615	\$17.37	\$0.00	-0.01%
		Summer Excess therms	62.30	\$10.06	\$0.1615	\$10.06	\$0.00	0.01%
		Winter First 75 therms	37,429.10	\$6,043.84	\$0.1615	\$6,044.80	\$0.96	0.02%
		Winter Excess therms	141,544.27	\$21,879.34	\$0.1615	\$22,859.40	\$980.06	4.48%
		Total therms only	179,143.21	\$27,950.61		\$28,931.63	\$981.02	3.51%
G-41/T-41	Medium Annual, High Winter Use	Customers	720	\$141,684.95	\$196.73	\$141,684.95	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1622	\$0.00	\$0.00	0.00%
		Winter All therms	2,438,286.40	\$464,949.92	\$0.2098	\$511,552.49	\$46,602.57	10.02%
		Total therms only	2,438,286.40	\$464,949.92		\$511,552.49	\$46,602.57	10.02%
G-51/T-51	Medium Annual, Low Winter Use	Customers	259	\$50,900.63	\$196.73	\$50,900.63	\$0.00	0.00%
		Summer First 1,000 therms	0.00	\$0.00	\$0.1183	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.0958	\$0.00	\$0.00	0.00%
		Winter First 1,300 therms	291,219.10	\$44,265.30	\$0.1520	\$44,265.30	\$0.00	0.00%
		Winter Excess therms	223,390.93	\$24,644.81	\$0.1238	\$27,655.80	\$3,010.99	12.22%
		Total therms only	514,610.03	\$68,910.11		\$71,921.10	\$3,010.99	4.37%
G-42/T-42	High Annual, High Winter Use	Customers	40	\$44,742.76	\$1,124.19	\$44,742.76	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1066	\$0.00	\$0.00	0.00%
		Winter All therms	1,039,235.66	\$169,497.09	\$0.1764	\$183,321.17	\$13,824.08	8.16%
		Total therms only	1,039,235.66	\$169,497.09		\$183,321.17	\$13,824.08	8.16%
G-52/T-52	High Annual, Low Winter Use	Customers	33	\$36,536.18	\$1,124.19	\$36,536.18	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.0707	\$0.00	\$0.00	0.00%
		Winter All therms	1,613,159.49	\$241,699.49	\$0.1541	\$248,587.88	\$6,888.39	2.85%
		Total therms only	1,613,159.49	\$241,699.49		\$248,587.88	\$6,888.39	2.85%
Total		Customers	31,711	\$1,182,229.99		\$1,182,229.99	\$0.00	0.00%
		Summer First Block therms	1,073.96	\$158.30		\$158.25	-\$0.05	-0.03%
		Summer Excess therms	90.16	-\$129.53		-\$129.54	-\$0.01	0.01%
		Winter First Block therms	6,863,231.80	\$1,648,038.31		\$1,715,272.92	\$67,234.61	4.08%
		Winter Excess therms	4,107,034.98	\$1,223,784.02		\$1,394,596.13	\$170,812.11	13.96%
		Total therms only	10,971,430.90	\$2,871,851.10		\$3,109,897.76	\$238,046.66	8.29%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

March 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,475	\$480,068.29	\$21.36	\$480,068.29	\$0.00	0.00%
		Summer First 50 therms	179.12	\$97.66	\$0.5449	\$97.60	-\$0.06	-0.06%
		Summer Excess therms	(8.62)	-\$4.70	\$0.5449	-\$4.70	\$0.00	-0.06%
		Winter First 50 therms	1,007,628.75	\$628,747.42	\$0.6239	\$628,659.58	-\$87.84	-0.01%
		Winter Excess therms	1,625,375.18	\$679,554.17	\$0.5103	\$829,428.95	\$149,874.78	22.05%
		Total therms only	2,633,174.43	\$1,308,394.55		\$1,458,181.44	\$149,786.89	11.45%
R-10	Residential Heating, Low Income	Customers	1,134	\$9,682.95	\$8.54	\$9,682.95	\$0.00	0.00%
		Summer First 50 therms	272.67	\$59.40	\$0.2179	\$59.41	\$0.01	0.02%
		Summer Excess therms	53.46	\$11.65	\$0.2179	\$11.65	\$0.00	-0.01%
		Winter First 50 therms	51,282.47	\$12,800.26	\$0.2496	\$12,800.10	-\$0.16	0.00%
		Winter Excess therms	64,212.29	\$10,417.20	\$0.2041	\$13,105.73	\$2,688.53	25.81%
		Total therms only	115,820.89	\$23,288.51		\$25,976.90	\$2,688.39	11.54%
R-6	Residential Non-Heating	Customers	1,372	\$29,314.74	\$21.36	\$29,314.74	\$0.00	0.00%
		Summer First 10 therms	36.89	\$15.55	\$0.4214	\$15.55	\$0.00	-0.03%
		Summer Excess therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Winter First 10 therms	9,197.23	\$3,872.52	\$0.4214	\$3,875.71	\$3.19	0.08%
		Winter Excess therms	18,804.43	\$7,052.13	\$0.4214	\$7,924.19	\$872.06	12.37%
		Total therms only	28,038.55	\$10,940.20		\$11,815.44	\$875.24	8.00%
R-11	Residential Non-Heating, Low Income	Customers	5	\$77.60	\$15.52	\$77.60	\$0.00	0.00%
		Summer First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter First 10 therms	40.00	\$12.80	\$0.3196	\$12.78	-\$0.02	-0.13%
		Winter Excess therms	21.89	\$6.99	\$0.3196	\$7.00	\$0.01	0.09%
		Total therms only	61.89	\$19.79		\$19.78	-\$0.01	-0.05%
G-40/T-40	Low Annual, High Winter Use	Customers	5,010	\$337,890.87	\$67.45	\$337,890.87	\$0.00	0.00%
		Summer First 75 therms	90.40	\$14.60	\$0.1615	\$14.60	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter First 75 therms	327,809.63	\$52,931.79	\$0.1615	\$52,941.26	\$9.47	0.02%
		Winter Excess therms	1,204,802.55	\$168,187.32	\$0.1615	\$194,575.61	\$26,388.29	15.69%
		Total therms only	1,532,702.58	\$221,133.71		\$247,531.47	\$26,397.76	11.94%
G-50/T-50	Low Annual, Low Winter Use	Customers	792	\$53,422.67	\$67.45	\$53,422.67	\$0.00	0.00%
		Summer First 75 therms	59.98	\$9.69	\$0.1615	\$9.69	\$0.00	-0.03%
		Summer Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter First 75 therms	38,515.84	\$6,219.33	\$0.1615	\$6,220.31	\$0.98	0.02%
		Winter Excess therms	130,706.67	\$20,190.26	\$0.1615	\$21,109.13	\$918.87	4.55%
		Total therms only	169,282.49	\$26,419.28		\$27,339.12	\$919.84	3.48%
G-41/T-41	Medium Annual, High Winter Use	Customers	726	\$142,773.51	\$196.73	\$142,773.51	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1622	\$0.00	\$0.00	0.00%
		Winter All therms	2,059,633.62	\$386,490.08	\$0.2098	\$432,111.13	\$45,621.05	11.80%
		Total therms only	2,059,633.62	\$386,490.08		\$432,111.13	\$45,621.05	11.80%
G-51/T-51	Medium Annual, Low Winter Use	Customers	262	\$51,451.45	\$196.73	\$51,451.45	\$0.00	0.00%
		Summer First 1,000 therms	0.00	\$0.00	\$0.1183	\$0.00	\$0.00	0.00%
		Summer Excess therms	(20,787.38)	-\$1,941.63	\$0.0958	-\$1,991.43	-\$49.80	2.56%
		Winter First 1,300 therms	295,711.72	\$43,779.83	\$0.1520	\$44,948.18	\$1,168.35	2.67%
		Winter Excess therms	175,542.23	\$20,358.94	\$0.1238	\$21,732.13	\$1,373.19	6.74%
		Total therms only	450,466.56	\$62,197.14		\$64,688.88	\$2,491.74	4.01%
G-42/T-42	High Annual, High Winter Use	Customers	38	\$42,719.22	\$1,124.19	\$42,719.22	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1066	\$0.00	\$0.00	0.00%
		Winter All therms	880,650.07	\$138,571.49	\$0.1764	\$155,346.67	\$16,775.18	12.11%
		Total therms only	880,650.07	\$138,571.49		\$155,346.67	\$16,775.18	12.11%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.0707	\$0.00	\$0.00	0.00%
		Winter All therms	1,593,141.00	\$236,879.27	\$0.1541	\$245,503.03	\$8,623.76	3.64%
		Total therms only	1,593,141.00	\$236,879.27		\$245,503.03	\$8,623.76	3.64%
Total		Customers	31,845	\$1,183,375.38		\$1,183,375.38	\$0.00	0.00%
		Summer First Block therms	639.06	\$196.90		\$196.85	-\$0.05	-0.03%
		Summer Excess therms	(20,742.54)	-\$1,934.68		-\$1,984.48	-\$49.80	2.57%
		Winter First Block therms	6,263,610.33	\$1,510,304.79		\$1,582,418.76	\$72,113.97	4.77%
		Winter Excess therms	3,219,465.24	\$905,767.01		\$1,087,882.73	\$182,115.72	20.11%
		Total therms only	9,462,972.08	\$2,414,334.02		\$2,668,513.86	\$254,179.84	10.53%

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Gas Cost of Service Workpapers
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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

April 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,409	\$478,647.45	\$21.36	\$478,647.45	\$0.00	0.00%
		Summer First 50 therms	(605.75)	-\$323.73	\$0.5449	-\$330.07	-\$6.34	1.96%
		Summer Excess therms	(161.20)	-\$85.54	\$0.5449	-\$87.84	-\$2.30	2.69%
		Winter First 50 therms	931,270.96	\$581,109.14	\$0.6239	\$581,019.95	-\$89.19	-0.02%
		Winter Excess therms	693,911.00	\$345,702.73	\$0.5103	\$354,102.78	\$8,400.05	2.43%
		Total therms only	1,624,415.01	\$926,402.60		\$934,704.82	\$8,302.22	0.90%
R-10	Residential Heating, Low Income	Customers	1,135	\$9,692.35	\$8.54	\$9,692.35	\$0.00	0.00%
		Summer First 50 therms	207.04	\$45.13	\$0.2179	\$45.11	-\$0.02	-0.04%
		Summer Excess therms	66.40	\$14.47	\$0.2179	\$14.47	\$0.00	-0.01%
		Winter First 50 therms	48,064.48	\$11,997.05	\$0.2496	\$11,996.89	-\$0.16	0.00%
		Winter Excess therms	27,624.72	\$5,472.26	\$0.2041	\$5,638.20	\$165.94	3.03%
		Total therms only	75,962.64	\$17,528.91		\$17,694.68	\$165.77	0.95%
R-6	Residential Non-Heating	Customers	1,348	\$28,801.82	\$21.36	\$28,801.82	\$0.00	0.00%
		Summer First 10 therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Winter First 10 therms	9,231.09	\$3,886.51	\$0.4214	\$3,889.98	\$3.47	0.09%
		Winter Excess therms	12,353.91	\$5,162.96	\$0.4214	\$5,205.94	\$42.98	0.83%
		Total therms only	21,585.00	\$9,049.47		\$9,095.92	\$46.45	0.51%
R-11	Residential Non-Heating, Low Income	Customers	5	\$77.60	\$15.52	\$77.60	\$0.00	0.00%
		Summer First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter First 10 therms	39.26	\$12.56	\$0.3196	\$12.55	-\$0.01	-0.10%
		Winter Excess therms	22.49	\$7.19	\$0.3196	\$7.19	\$0.00	-0.03%
		Total therms only	61.75	\$19.75		\$19.74	-\$0.01	-0.07%
G-40/T-40	Low Annual, High Winter Use	Customers	4,991	\$336,629.47	\$67.45	\$336,629.47	\$0.00	0.00%
		Summer First 75 therms	(13.08)	-\$1.78	\$0.1615	-\$2.11	-\$0.33	18.68%
		Summer Excess therms	(43.12)	-\$6.46	\$0.1615	-\$6.96	-\$0.50	7.80%
		Winter First 75 therms	293,138.59	\$47,333.47	\$0.1615	\$47,341.88	\$8.41	0.02%
		Winter Excess therms	621,947.44	\$97,926.16	\$0.1615	\$100,444.51	\$2,518.35	2.57%
		Total therms only	915,029.83	\$145,251.39		\$147,777.32	\$2,525.93	1.74%
G-50/T-50	Low Annual, Low Winter Use	Customers	794	\$53,566.60	\$67.45	\$53,566.60	\$0.00	0.00%
		Summer First 75 therms	141.96	\$22.92	\$0.1615	\$22.93	\$0.01	0.03%
		Summer Excess therms	368.39	\$59.50	\$0.1615	\$59.49	-\$0.01	-0.01%
		Winter First 75 therms	37,014.63	\$5,976.92	\$0.1615	\$5,977.86	\$0.94	0.02%
		Winter Excess therms	102,252.52	\$16,462.69	\$0.1615	\$16,513.78	\$51.09	0.31%
		Total therms only	139,777.50	\$22,522.03		\$22,574.07	\$52.04	0.23%
G-41/T-41	Medium Annual, High Winter Use	Customers	725	\$142,622.68	\$196.73	\$142,622.68	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1622	\$0.00	\$0.00	0.00%
		Winter All therms	1,287,647.51	\$265,189.08	\$0.2098	\$270,148.45	\$4,959.37	1.87%
		Total therms only	1,287,647.51	\$265,189.08		\$270,148.45	\$4,959.37	1.87%
G-51/T-51	Medium Annual, Low Winter Use	Customers	259	\$51,012.09	\$196.73	\$51,012.09	\$0.00	0.00%
		Summer First 1,000 therms	0.00	\$0.00	\$0.1183	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.0958	\$0.00	\$0.00	0.00%
		Winter First 1,300 therms	261,060.61	\$39,479.96	\$0.1520	\$39,681.21	\$201.25	0.51%
		Winter Excess therms	123,570.49	\$15,133.22	\$0.1238	\$15,298.03	\$164.81	1.09%
		Total therms only	384,631.09	\$54,613.18		\$54,979.24	\$366.06	0.67%
G-42/T-42	High Annual, High Winter Use	Customers	38	\$42,719.22	\$1,124.19	\$42,719.22	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1066	\$0.00	\$0.00	0.00%
		Winter All therms	608,983.95	\$110,998.59	\$0.1764	\$107,424.77	-\$3,573.82	-3.22%
		Total therms only	608,983.95	\$110,998.59		\$107,424.77	-\$3,573.82	-3.22%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.0707	\$0.00	\$0.00	0.00%
		Winter All therms	1,392,370.89	\$216,156.44	\$0.1541	\$214,564.35	-\$1,592.09	-0.74%
		Total therms only	1,392,370.89	\$216,156.44		\$214,564.35	-\$1,592.09	-0.74%
Total		Customers	31,736	\$1,179,743.36		\$1,179,743.36	\$0.00	0.00%
		Summer First Block therms	(269.83)	-\$257.46		-\$264.15	-\$6.69	2.60%
		Summer Excess therms	230.47	-\$18.03		-\$20.84	-\$2.81	15.58%
		Winter First Block therms	4,868,821.97	\$1,282,139.72		\$1,282,057.90	-\$81.82	-0.01%
		Winter Excess therms	1,581,682.56	\$485,867.21		\$497,210.43	\$11,343.22	2.33%
		Total therms only	6,450,465.17	\$1,767,731.44		\$1,778,983.35	\$11,251.91	0.64%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

May 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Avg Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,379	\$478,018.27	\$21.36	\$478,018.27	\$0.00	0.00%
		Summer First 50 therms	343,489.71	\$217,954.16	\$0.5449	\$187,167.55	-\$30,786.61	-14.13%
		Summer Excess therms	104,237.06	\$56,797.51	\$0.5449	\$56,798.77	\$1.26	0.00%
		Winter First 50 therms	347,882.68	\$217,043.31	\$0.6239	\$217,044.00	\$0.69	0.00%
		Winter Excess therms	118,906.82	\$60,656.25	\$0.5103	\$60,678.15	\$21.90	0.04%
		Total therms only	914,516.27	\$552,451.23		\$521,688.47	-\$30,762.76	-5.57%
R-10	Residential Heating, Low Income	Customers	1,273	\$10,867.96	\$8.54	\$10,867.96	\$0.00	0.00%
		Summer First 50 therms	16,492.09	\$4,502.20	\$0.2179	\$3,593.63	-\$908.57	-20.18%
		Summer Excess therms	3,650.85	\$795.50	\$0.2179	\$795.52	\$0.02	0.00%
		Winter First 50 therms	23,130.29	\$5,773.51	\$0.2496	\$5,773.32	-\$0.19	0.00%
		Winter Excess therms	13,558.99	\$2,767.43	\$0.2041	\$2,767.39	-\$0.04	0.00%
		Total therms only	56,832.22	\$13,838.64		\$12,929.86	-\$908.78	-6.57%
R-6	Residential Non-Heating	Customers	1,403	\$29,958.99	\$21.36	\$29,958.99	\$0.00	0.00%
		Summer First 10 therms	5,043.54	\$2,125.37	\$0.4214	\$2,125.35	-\$0.02	0.00%
		Summer Excess therms	4,297.32	\$1,991.11	\$0.4214	\$1,810.89	-\$180.22	-9.05%
		Winter First 10 therms	4,449.02	\$1,874.41	\$0.4214	\$1,874.82	\$0.41	0.02%
		Winter Excess therms	4,311.61	\$1,816.89	\$0.4214	\$1,816.91	\$0.02	0.00%
		Total therms only	18,101.49	\$7,807.78		\$7,627.97	-\$179.81	-2.30%
R-11	Residential Non-Heating, Low Income	Customers	5	\$77.60	\$15.52	\$77.60	\$0.00	0.00%
		Summer First 10 therms	31.72	\$10.12	\$0.3196	\$10.14	\$0.02	0.18%
		Summer Excess therms	8.12	\$2.58	\$0.3196	\$2.60	\$0.02	0.59%
		Winter First 10 therms	8.28	\$2.64	\$0.3196	\$2.65	\$0.01	0.24%
		Winter Excess therms	2.11	\$0.68	\$0.3196	\$0.67	-\$0.01	-0.83%
		Total therms only	50.23	\$16.02		\$16.05	\$0.03	0.21%
G-40/T-40	Low Annual, High Winter Use	Customers	4,931	\$332,604.91	\$67.45	\$332,604.91	\$0.00	0.00%
		Summer First 75 therms	119,452.88	\$19,294.79	\$0.1615	\$19,291.64	-\$3.15	-0.02%
		Summer Excess therms	106,090.33	\$21,330.25	\$0.1615	\$17,133.59	-\$4,196.66	-19.67%
		Winter First 75 therms	100,908.94	\$16,299.28	\$0.1615	\$16,296.79	-\$2.49	-0.02%
		Winter Excess therms	121,290.61	\$19,593.34	\$0.1615	\$19,588.43	-\$4.91	-0.03%
		Total therms only	447,742.76	\$76,517.66		\$72,310.46	-\$4,207.20	-5.50%
G-50/T-50	Low Annual, Low Winter Use	Customers	810	\$54,636.87	\$67.45	\$54,636.87	\$0.00	0.00%
		Summer First 75 therms	19,979.00	\$3,227.03	\$0.1615	\$3,226.61	-\$0.42	-0.01%
		Summer Excess therms	46,987.89	\$7,607.44	\$0.1615	\$7,588.54	-\$18.90	-0.25%
		Winter First 75 therms	16,264.79	\$2,626.97	\$0.1615	\$2,626.76	-\$0.21	-0.01%
		Winter Excess therms	40,008.26	\$6,467.18	\$0.1615	\$6,461.33	-\$5.85	-0.09%
		Total therms only	123,239.94	\$19,928.62		\$19,903.25	-\$25.37	-0.13%
G-41/T-41	Medium Annual, High Winter Use	Customers	725	\$142,544.03	\$196.73	\$142,544.03	\$0.00	0.00%
		Summer All therms	388,077.91	\$70,008.38	\$0.1622	\$62,946.24	-\$7,062.14	-10.09%
		Winter All therms	334,799.62	\$70,241.10	\$0.2098	\$70,240.96	-\$0.14	0.00%
		Total therms only	722,877.53	\$140,249.48		\$133,187.20	-\$7,062.28	-5.04%
G-51/T-51	Medium Annual, Low Winter Use	Customers	245	\$48,289.07	\$196.73	\$48,289.07	\$0.00	0.00%
		Summer First 1,000 therms	116,163.78	\$13,742.19	\$0.1183	\$13,742.18	-\$0.01	0.00%
		Summer Excess therms	63,165.38	\$6,613.81	\$0.0958	\$6,051.24	-\$562.57	-8.51%
		Winter First 1,300 therms	110,311.58	\$16,769.98	\$0.1520	\$16,767.36	-\$2.62	-0.02%
		Winter Excess therms	53,175.11	\$6,583.11	\$0.1238	\$6,583.08	-\$0.03	0.00%
		Total therms only	342,815.85	\$43,709.09		\$43,143.86	-\$565.23	-1.29%
G-42/T-42	High Annual, High Winter Use	Customers	41	\$45,754.53	\$1,124.19	\$45,754.53	\$0.00	0.00%
		Summer All therms	333,912.27	\$35,926.71	\$0.1066	\$35,595.05	-\$331.66	-0.92%
		Winter All therms	65,372.95	\$11,531.82	\$0.1764	\$11,531.79	-\$0.03	0.00%
		Total therms only	399,285.22	\$47,458.53		\$47,126.84	-\$331.69	-0.70%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	1,242,428.38	\$87,760.22	\$0.0707	\$87,839.69	\$79.47	0.09%
		Winter All therms	53,401.39	\$8,229.16	\$0.1541	\$8,229.15	-\$0.01	0.00%
		Total therms only	1,295,829.77	\$95,989.38		\$96,068.84	\$79.46	0.08%
Total		Customers	31,843	\$1,178,726.31		\$1,178,726.31	\$0.00	0.00%
		Summer First Block therms	2,585,071.28	\$454,551.17		\$415,538.05	-\$39,013.12	-8.58%
		Summer Excess therms	328,436.95	\$95,138.20		\$90,181.16	-\$4,957.04	-5.21%
		Winter First Block therms	1,056,529.54	\$350,392.18		\$350,387.61	-\$4.57	0.00%
		Winter Excess therms	351,253.51	\$97,884.88		\$97,895.97	\$11.09	0.01%
		Total therms only	4,321,291.28	\$997,966.43		\$954,002.79	-\$43,963.64	-4.41%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

June 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,428	\$479,056.48	\$21.36	\$479,056.48	\$0.00	0.00%
		Summer First 50 therms	463,966.56	\$229,456.73	\$0.5449	\$252,815.38	\$23,358.65	10.18%
		Summer Excess therms	32,142.17	\$17,514.31	\$0.5449	\$17,514.27	-\$0.04	0.00%
		Winter First 50 therms	60.51	\$38.58	\$0.6239	\$37.75	-\$0.83	-2.15%
		Winter Excess therms	296.31	\$153.33	\$0.5103	\$151.21	-\$2.12	-1.38%
		Total therms only	496,465.55	\$247,162.95		\$270,518.61	\$23,355.66	9.45%
R-10	Residential Heating, Low Income	Customers	1,044	\$8,917.48	\$8.54	\$8,917.48	\$0.00	0.00%
		Summer First 50 therms	19,156.49	\$3,854.68	\$0.2179	\$4,174.20	\$319.52	8.29%
		Summer Excess therms	244.81	\$53.33	\$0.2179	\$53.34	\$0.01	0.03%
		Winter First 50 therms	36.51	\$9.11	\$0.2496	\$9.11	\$0.00	0.03%
		Winter Excess therms	(1,076.75)	-\$219.76	\$0.2041	-\$219.76	\$0.00	0.00%
		Total therms only	18,361.06	\$3,697.36		\$4,016.89	\$319.53	8.64%
R-6	Residential Non-Heating	Customers	1,419	\$30,304.16	\$21.36	\$30,304.16	\$0.00	0.00%
		Summer First 10 therms	9,389.85	\$3,953.92	\$0.4214	\$3,956.88	\$2.96	0.07%
		Summer Excess therms	6,829.85	\$2,669.93	\$0.4214	\$2,878.10	\$208.17	7.80%
		Winter First 10 therms	(0.71)	-\$0.30	\$0.4214	-\$0.30	\$0.00	-0.27%
		Winter Excess therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Total therms only	16,218.99	\$6,623.55		\$6,834.68	\$211.13	3.19%
R-11	Residential Non-Heating, Low Income	Customers	5	\$77.60	\$15.52	\$77.60	\$0.00	0.00%
		Summer First 10 therms	49.25	\$15.76	\$0.3196	\$15.74	-\$0.02	-0.12%
		Summer Excess therms	41.11	\$13.14	\$0.3196	\$13.14	\$0.00	-0.01%
		Winter First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Total therms only	90.36	\$28.90		\$28.88	-\$0.02	-0.07%
G-40/T-40	Low Annual, High Winter Use	Customers	4,804	\$324,050.18	\$67.45	\$324,050.18	\$0.00	0.00%
		Summer First 75 therms	121,012.10	\$17,351.50	\$0.1615	\$19,543.45	\$2,191.95	12.63%
		Summer Excess therms	72,053.13	\$11,636.46	\$0.1615	\$11,636.58	\$0.12	0.00%
		Winter First 75 therms	440.72	\$71.17	\$0.1615	\$71.18	\$0.01	0.01%
		Winter Excess therms	4,700.37	\$759.09	\$0.1615	\$759.11	\$0.02	0.00%
		Total therms only	198,206.32	\$29,818.22		\$32,010.32	\$2,192.10	7.35%
G-50/T-50	Low Annual, Low Winter Use	Customers	833	\$56,194.88	\$67.45	\$56,194.88	\$0.00	0.00%
		Summer First 75 therms	36,462.70	\$5,887.91	\$0.1615	\$5,888.73	\$0.82	0.01%
		Summer Excess therms	96,100.28	\$15,431.40	\$0.1615	\$15,520.19	\$88.80	0.58%
		Winter First 75 therms	2.77	\$0.44	\$0.1615	\$0.45	\$0.01	1.67%
		Winter Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Total therms only	132,565.75	\$21,319.75		\$21,409.37	\$89.62	0.42%
G-41/T-41	Medium Annual, High Winter Use	Customers	721	\$141,796.39	\$196.73	\$141,796.39	\$0.00	0.00%
		Summer All therms	403,354.63	\$59,060.99	\$0.1622	\$65,424.12	\$6,363.13	10.77%
		Winter All therms	(0.34)	-\$0.07	\$0.2098	-\$0.07	\$0.00	1.90%
		Total therms only	403,354.29	\$59,060.92		\$65,424.05	\$6,363.13	10.77%
G-51/T-51	Medium Annual, Low Winter Use	Customers	264	\$51,967.46	\$196.73	\$51,967.46	\$0.00	0.00%
		Summer First 1,000 therms	212,733.42	\$24,528.90	\$0.1183	\$25,166.36	\$637.46	2.60%
		Summer Excess therms	111,343.07	\$10,083.47	\$0.0958	\$10,666.67	\$583.19	5.78%
		Winter First 1,300 therms	197.23	\$28.09	\$0.1520	\$29.98	\$1.89	6.72%
		Winter Excess therms	0.00	\$0.00	\$0.1238	\$0.00	\$0.00	0.00%
		Total therms only	324,273.72	\$34,640.46		\$35,863.01	\$1,222.54	3.53%
G-42/T-42	High Annual, High Winter Use	Customers	40	\$44,967.60	\$1,124.19	\$44,967.60	\$0.00	0.00%
		Summer All therms	252,783.04	\$25,576.24	\$0.1066	\$26,946.67	\$1,370.43	5.36%
		Winter All therms	0.00	\$0.00	\$0.1764	\$0.00	\$0.00	0.00%
		Total therms only	252,783.04	\$25,576.24		\$26,946.67	\$1,370.43	5.36%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	1,232,194.69	\$87,116.16	\$0.0707	\$87,116.16	\$0.00	0.00%
		Winter All therms	0.00	\$0.00	\$0.1541	\$0.00	\$0.00	0.00%
		Total therms only	1,232,194.69	\$87,116.16		\$87,116.16	\$0.00	0.00%
Total		Customers	31,590	\$1,173,306.31		\$1,173,306.31	\$0.00	0.00%
		Summer First Block therms	2,751,102.74	\$456,802.79		\$491,047.71	\$34,244.91	7.50%
		Summer Excess therms	318,754.42	\$57,402.04		\$58,282.29	\$880.25	1.53%
		Winter First Block therms	736.69	\$147.02		\$148.10	\$1.08	0.73%
		Winter Excess therms	3,919.93	\$692.66		\$690.55	-\$2.11	-0.30%
		Total therms only	3,074,513.77	\$515,044.51		\$550,168.65	\$35,124.13	6.82%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

July 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,500	\$480,610.59	\$21.36	\$480,610.59	\$0.00	0.00%
		Summer First 50 therms	291,035.11	\$158,590.03	\$0.5449	\$158,585.03	-\$5.00	0.00%
		Summer Excess therms	14,237.04	\$7,757.74	\$0.5449	\$7,757.76	\$0.02	0.00%
		Winter First 50 therms	463.89	\$289.44	\$0.6239	\$289.42	-\$0.02	-0.01%
		Winter Excess therms	130.43	\$66.56	\$0.5103	\$66.56	\$0.00	0.00%
		Total therms only	305,866.47	\$166,703.77		\$166,698.77	-\$5.00	0.00%
R-10	Residential Heating, Low Income	Customers	1,011	\$8,629.96	\$8.54	\$8,629.96	\$0.00	0.00%
		Summer First 50 therms	11,884.68	\$2,589.60	\$0.2179	\$2,589.67	\$0.07	0.00%
		Summer Excess therms	120.77	\$26.32	\$0.2179	\$26.32	\$0.00	-0.02%
		Winter First 50 therms	(12.05)	-\$3.00	\$0.2496	-\$3.01	-\$0.01	0.26%
		Winter Excess therms	8.40	\$1.71	\$0.2041	\$1.71	\$0.00	0.26%
		Total therms only	12,001.80	\$2,614.63		\$2,614.69	\$0.06	0.00%
R-6	Residential Non-Heating	Customers	1,454	\$31,056.74	\$21.36	\$31,056.74	\$0.00	0.00%
		Summer First 10 therms	8,986.01	\$3,784.22	\$0.4214	\$3,786.70	\$2.48	0.07%
		Summer Excess therms	5,490.94	\$2,314.05	\$0.4214	\$2,313.88	-\$0.17	-0.01%
		Winter First 10 therms	34.97	\$14.73	\$0.4214	\$14.74	\$0.01	0.04%
		Winter Excess therms	2.42	\$1.02	\$0.4214	\$1.02	\$0.00	-0.02%
		Total therms only	14,514.34	\$6,114.02		\$6,116.34	\$2.32	0.04%
R-11	Residential Non-Heating, Low Income	Customers	5	\$77.60	\$15.52	\$77.60	\$0.00	0.00%
		Summer First 10 therms	47.18	\$15.09	\$0.3196	\$15.08	-\$0.01	-0.07%
		Summer Excess therms	15.40	\$4.93	\$0.3196	\$4.92	-\$0.01	-0.17%
		Winter First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Total therms only	62.58	\$20.02		\$20.00	-\$0.02	-0.10%
G-40/T-40	Low Annual, High Winter Use	Customers	4,730	\$319,023.78	\$67.45	\$319,023.78	\$0.00	0.00%
		Summer First 75 therms	70,236.92	\$11,343.24	\$0.1615	\$11,343.26	\$0.02	0.00%
		Summer Excess therms	33,750.99	\$5,450.86	\$0.1615	\$5,450.78	-\$0.08	0.00%
		Winter First 75 therms	(438.20)	-\$70.76	\$0.1615	-\$70.77	-\$0.01	0.01%
		Winter Excess therms	(903.97)	-\$145.99	\$0.1615	-\$145.99	\$0.00	0.00%
		Total therms only	102,645.74	\$16,577.35		\$16,577.29	-\$0.06	0.00%
G-50/T-50	Low Annual, Low Winter Use	Customers	825	\$55,673.25	\$67.45	\$55,673.25	\$0.00	0.00%
		Summer First 75 therms	35,176.34	\$5,680.11	\$0.1615	\$5,680.98	\$0.87	0.02%
		Summer Excess therms	81,769.28	\$13,205.81	\$0.1615	\$13,205.74	-\$0.07	0.00%
		Winter First 75 therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Total therms only	116,945.62	\$18,885.92		\$18,886.72	\$0.79	0.00%
G-41/T-41	Medium Annual, High Winter Use	Customers	697	\$137,142.44	\$196.73	\$137,142.44	\$0.00	0.00%
		Summer All therms	222,013.37	\$36,011.41	\$0.1622	\$36,010.57	-\$0.84	0.00%
		Winter All therms	(6,136.21)	-\$1,236.19	\$0.2098	-\$1,287.38	-\$51.19	4.14%
		Total therms only	215,877.16	\$34,775.22		\$34,723.19	-\$52.03	-0.15%
G-51/T-51	Medium Annual, Low Winter Use	Customers	264	\$51,949.84	\$196.73	\$51,949.84	\$0.00	0.00%
		Summer First 1,000 therms	187,032.25	\$22,125.96	\$0.1183	\$22,125.92	-\$0.04	0.00%
		Summer Excess therms	70,565.49	\$6,760.17	\$0.0958	\$6,760.17	\$0.01	0.00%
		Winter First 1,300 therms	612.32	\$93.07	\$0.1520	\$93.07	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1238	\$0.00	\$0.00	0.00%
		Total therms only	258,210.06	\$28,979.20		\$28,979.16	-\$0.03	0.00%
G-42/T-42	High Annual, High Winter Use	Customers	40	\$44,967.60	\$1,124.19	\$44,967.60	\$0.00	0.00%
		Summer All therms	202,855.39	\$21,624.40	\$0.1066	\$21,624.38	-\$0.02	0.00%
		Winter All therms	0.00	\$0.00	\$0.1764	\$0.00	\$0.00	0.00%
		Total therms only	202,855.39	\$21,624.40		\$21,624.38	-\$0.02	0.00%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	1,195,544.16	\$84,525.00	\$0.0707	\$84,524.97	-\$0.03	0.00%
		Winter All therms	0.00	\$0.00	\$0.1541	\$0.00	\$0.00	0.00%
		Total therms only	1,195,544.16	\$84,525.00		\$84,524.97	-\$0.03	0.00%
Total		Customers	31,558	\$1,165,105.88		\$1,165,105.88	\$0.00	0.00%
		Summer First Block therms	2,224,811.41	\$346,289.06		\$346,286.57	-\$2.49	0.00%
		Summer Excess therms	205,949.91	\$35,519.88		\$35,519.58	-\$0.30	0.00%
		Winter First Block therms	(5,475.28)	-\$912.71		-\$963.92	-\$51.21	5.61%
		Winter Excess therms	(762.72)	-\$76.70		-\$76.70	\$0.00	0.00%
		Total therms only	2,424,523.32	\$380,819.53		\$380,765.53	-\$54.00	-0.01%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

August 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,445	\$479,431.27	\$21.36	\$479,431.27	\$0.00	0.00%
		Summer First 50 therms	308,446.32	\$168,080.92	\$0.5449	\$168,072.40	-\$8.52	-0.01%
		Summer Excess therms	14,234.11	\$7,756.10	\$0.5449	\$7,756.17	\$0.07	0.00%
		Winter First 50 therms	67.32	\$45.63	\$0.6239	\$42.00	-\$3.63	-7.95%
		Winter Excess therms	11.28	\$7.47	\$0.5103	\$5.76	-\$1.71	-22.94%
		Total therms only	322,759.03	\$175,890.12		\$175,876.32	-\$13.80	-0.01%
R-10	Residential Heating, Low Income	Customers	988	\$8,439.79	\$8.54	\$8,439.79	\$0.00	0.00%
		Summer First 50 therms	12,251.88	\$2,669.51	\$0.2179	\$2,669.68	\$0.17	0.01%
		Summer Excess therms	194.56	\$42.39	\$0.2179	\$42.39	\$0.00	0.01%
		Winter First 50 therms	0.00	\$0.00	\$0.2496	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.2041	\$0.00	\$0.00	0.00%
		Total therms only	12,446.44	\$2,711.90		\$2,712.08	\$0.18	0.01%
R-6	Residential Non-Heating	Customers	1,435	\$30,653.02	\$21.36	\$30,653.02	\$0.00	0.00%
		Summer First 10 therms	9,300.25	\$3,916.43	\$0.4214	\$3,919.13	\$2.70	0.07%
		Summer Excess therms	4,301.91	\$1,812.74	\$0.4214	\$1,812.82	\$0.08	0.00%
		Winter First 10 therms	0.29	\$0.12	\$0.4214	\$0.12	\$0.00	1.84%
		Winter Excess therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Total therms only	13,602.45	\$5,729.29		\$5,732.07	\$2.78	0.05%
R-11	Residential Non-Heating, Low Income	Customers	5	\$75.53	\$15.52	\$75.53	\$0.00	0.00%
		Summer First 10 therms	48.20	\$15.42	\$0.3196	\$15.40	-\$0.02	-0.10%
		Summer Excess therms	15.32	\$4.90	\$0.3196	\$4.90	\$0.00	-0.08%
		Winter First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Total therms only	63.52	\$20.32		\$20.30	-\$0.02	-0.09%
G-40/T-40	Low Annual, High Winter Use	Customers	4,703	\$317,242.20	\$67.45	\$317,242.20	\$0.00	0.00%
		Summer First 75 therms	72,521.87	\$11,710.87	\$0.1615	\$11,712.28	\$1.41	0.01%
		Summer Excess therms	42,172.07	\$6,810.77	\$0.1615	\$6,810.79	\$0.02	0.00%
		Winter First 75 therms	(346.34)	-\$55.93	\$0.1615	-\$55.93	\$0.00	0.01%
		Winter Excess therms	(28.41)	-\$4.59	\$0.1615	-\$4.59	\$0.00	-0.04%
		Total therms only	114,319.19	\$18,461.12		\$18,462.55	\$1.43	0.01%
G-50/T-50	Low Annual, Low Winter Use	Customers	827	\$55,794.65	\$67.45	\$55,794.65	\$0.00	0.00%
		Summer First 75 therms	36,259.09	\$5,854.77	\$0.1615	\$5,855.84	\$1.07	0.02%
		Summer Excess therms	100,247.37	\$16,189.95	\$0.1615	\$16,189.95	\$0.00	0.00%
		Winter First 75 therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Total therms only	136,506.46	\$22,044.72		\$22,045.79	\$1.07	0.00%
G-41/T-41	Medium Annual, High Winter Use	Customers	716	\$140,898.08	\$196.73	\$140,898.08	\$0.00	0.00%
		Summer All therms	239,697.46	\$38,878.98	\$0.1622	\$38,878.93	-\$0.05	0.00%
		Winter All therms	0.00	\$0.00	\$0.2098	\$0.00	\$0.00	0.00%
		Total therms only	239,697.46	\$38,878.98		\$38,878.93	-\$0.05	0.00%
G-51/T-51	Medium Annual, Low Winter Use	Customers	258	\$50,769.45	\$196.73	\$50,769.45	\$0.00	0.00%
		Summer First 1,000 therms	201,408.49	\$23,826.58	\$0.1183	\$23,826.62	\$0.04	0.00%
		Summer Excess therms	94,556.37	\$9,058.49	\$0.0958	\$9,058.50	\$0.01	0.00%
		Winter First 1,300 therms	0.00	\$0.00	\$0.1520	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1238	\$0.00	\$0.00	0.00%
		Total therms only	295,964.86	\$32,885.07		\$32,885.12	\$0.05	0.00%
G-42/T-42	High Annual, High Winter Use	Customers	39	\$44,255.61	\$1,124.19	\$44,255.61	\$0.00	0.00%
		Summer All therms	202,764.90	\$21,614.76	\$0.1066	\$21,614.74	-\$0.02	0.00%
		Winter All therms	0.00	\$0.00	\$0.1764	\$0.00	\$0.00	0.00%
		Total therms only	202,764.90	\$21,614.76		\$21,614.74	-\$0.02	0.00%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	1,311,877.59	\$92,749.73	\$0.0707	\$92,749.75	\$0.02	0.00%
		Winter All therms	0.00	\$0.00	\$0.1541	\$0.00	\$0.00	0.00%
		Total therms only	1,311,877.59	\$92,749.73		\$92,749.75	\$0.02	0.00%
Total		Customers	31,450	\$1,163,533.68		\$1,163,533.68	\$0.00	0.00%
		Summer First Block therms	2,394,576.05	\$369,317.97		\$369,314.78	-\$3.19	0.00%
		Summer Excess therms	255,721.71	\$41,675.34		\$41,675.52	\$0.18	0.00%
		Winter First Block therms	(278.73)	-\$10.18		-\$13.81	-\$3.63	35.67%
		Winter Excess therms	(17.13)	\$2.88		\$1.17	-\$1.71	-59.45%
		Total therms only	2,650,001.90	\$410,986.01		\$410,977.66	-\$8.35	0.00%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

September 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,415	\$478,777.18	\$21.36	\$478,777.18	\$0.00	0.00%
		Summer First 50 therms	295,844.32	\$161,215.18	\$0.5449	\$161,205.57	-\$9.61	-0.01%
		Summer Excess therms	15,464.48	\$8,426.64	\$0.5449	\$8,426.60	-\$0.04	0.00%
		Winter First 50 therms	(385.91)	-\$240.80	\$0.6239	-\$240.77	\$0.03	-0.01%
		Winter Excess therms	(275.11)	-\$140.39	\$0.5103	-\$140.39	\$0.00	0.00%
		Total therms only	310,647.78	\$169,260.63		\$169,251.01	-\$9.62	-0.01%
R-10	Residential Heating, Low Income	Customers	985	\$8,413.62	\$8.54	\$8,413.62	\$0.00	0.00%
		Summer First 50 therms	14,461.72	\$2,659.71	\$0.2179	\$3,151.21	\$491.50	18.48%
		Summer Excess therms	156.03	\$34.00	\$0.2179	\$34.00	\$0.00	0.00%
		Winter First 50 therms	385.91	\$96.32	\$0.2496	\$96.32	\$0.00	0.00%
		Winter Excess therms	275.11	\$56.15	\$0.2041	\$56.15	\$0.00	0.00%
		Total therms only	15,278.77	\$2,846.18		\$3,337.68	\$491.50	17.27%
R-6	Residential Non-Heating	Customers	1,402	\$29,956.01	\$21.36	\$29,956.01	\$0.00	0.00%
		Summer First 10 therms	8,784.01	\$3,698.70	\$0.4214	\$3,701.58	\$2.88	0.08%
		Summer Excess therms	4,208.39	\$1,773.42	\$0.4214	\$1,773.42	\$0.00	0.00%
		Winter First 10 therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Total therms only	12,992.40	\$5,472.12		\$5,475.00	\$2.88	0.05%
R-11	Residential Non-Heating, Low Income	Customers	4	\$62.08	\$15.52	\$62.08	\$0.00	0.00%
		Summer First 10 therms	37.19	\$11.90	\$0.3196	\$11.89	-\$0.01	-0.12%
		Summer Excess therms	15.19	\$4.86	\$0.3196	\$4.85	-\$0.01	-0.11%
		Winter First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Total therms only	52.38	\$16.76		\$16.74	-\$0.02	-0.12%
G-40/T-40	Low Annual, High Winter Use	Customers	4,795	\$323,411.55	\$67.45	\$323,411.55	\$0.00	0.00%
		Summer First 75 therms	76,683.03	\$11,990.58	\$0.1615	\$12,384.31	\$393.73	3.28%
		Summer Excess therms	41,715.87	\$6,737.14	\$0.1615	\$6,737.11	-\$0.03	0.00%
		Winter First 75 therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Total therms only	118,398.90	\$18,727.72		\$19,121.42	\$393.70	2.10%
G-50/T-50	Low Annual, Low Winter Use	Customers	836	\$56,415.29	\$67.45	\$56,415.29	\$0.00	0.00%
		Summer First 75 therms	36,957.50	\$5,967.74	\$0.1615	\$5,968.64	\$0.90	0.02%
		Summer Excess therms	93,177.58	\$15,048.23	\$0.1615	\$15,048.18	-\$0.05	0.00%
		Winter First 75 therms	(80.00)	-\$24.98	\$0.1615	-\$12.92	\$12.06	-48.28%
		Winter Excess therms	(32.99)	-\$8.73	\$0.1615	-\$5.33	\$3.40	-38.97%
		Total therms only	130,022.09	\$20,982.26		\$20,998.57	\$16.31	0.08%
G-41/T-41	Medium Annual, High Winter Use	Customers	622	\$122,405.41	\$196.73	\$122,405.41	\$0.00	0.00%
		Summer All therms	327,443.24	\$41,521.07	\$0.1622	\$53,111.29	\$11,590.22	27.91%
		Winter All therms	0.00	\$0.00	\$0.2098	\$0.00	\$0.00	0.00%
		Total therms only	327,443.24	\$41,521.07		\$53,111.29	\$11,590.22	27.91%
G-51/T-51	Medium Annual, Low Winter Use	Customers	256	\$50,448.13	\$196.73	\$50,448.13	\$0.00	0.00%
		Summer First 1,000 therms	199,109.94	\$23,554.78	\$0.1183	\$23,554.71	-\$0.07	0.00%
		Summer Excess therms	145,917.33	\$8,606.31	\$0.0958	\$13,978.88	\$5,372.57	62.43%
		Winter First 1,300 therms	0.00	\$0.00	\$0.1520	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1238	\$0.00	\$0.00	0.00%
		Total therms only	345,027.27	\$32,161.09		\$37,533.59	\$5,372.50	16.70%
G-42/T-42	High Annual, High Winter Use	Customers	35	\$39,346.65	\$1,124.19	\$39,346.65	\$0.00	0.00%
		Summer All therms	267,422.72	\$25,743.09	\$0.1066	\$28,507.26	\$2,764.17	10.74%
		Winter All therms	0.00	\$0.00	\$0.1764	\$0.00	\$0.00	0.00%
		Total therms only	267,422.72	\$25,743.09		\$28,507.26	\$2,764.17	10.74%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	1,292,957.75	\$90,669.37	\$0.0707	\$91,412.11	\$742.74	0.82%
		Winter All therms	0.00	\$0.00	\$0.1541	\$0.00	\$0.00	0.00%
		Total therms only	1,292,957.75	\$90,669.37		\$91,412.11	\$742.74	0.82%
Total		Customers	31,383	\$1,145,210.00		\$1,145,210.00	\$0.00	0.00%
		Summer First Block therms	2,519,701.42	\$367,032.12		\$383,008.57	\$15,976.45	4.35%
		Summer Excess therms	300,654.87	\$40,630.60		\$46,003.04	\$5,372.44	13.22%
		Winter First Block therms	(80.00)	-\$169.46		-\$157.37	\$12.09	-7.14%
		Winter Excess therms	(32.99)	-\$92.97		-\$89.57	\$3.40	-3.66%
		Total therms only	2,820,243.30	\$407,400.29		\$428,764.67	\$21,364.38	5.24%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

October 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	22,588	\$482,489.01	\$21.36	\$482,489.01	\$0.00	0.00%
		Summer First 50 therms	505,313.47	\$267,012.42	\$0.5449	\$275,345.31	\$8,332.89	3.12%
		Summer Excess therms	44,093.63	\$24,027.12	\$0.5449	\$24,026.62	-\$0.50	0.00%
		Winter First 50 therms	4.04	\$2.52	\$0.6239	\$2.52	\$0.00	0.02%
		Winter Excess therms	0.00	\$0.00	\$0.5103	\$0.00	\$0.00	0.00%
		Total therms only	549,411.14	\$291,042.06		\$299,374.45	\$8,332.39	2.86%
R-10	Residential Heating, Low Income	Customers	929	\$7,931.37	\$8.54	\$7,931.37	\$0.00	0.00%
		Summer First 50 therms	20,236.57	\$4,245.98	\$0.2179	\$4,409.55	\$163.57	3.85%
		Summer Excess therms	1,086.59	\$236.81	\$0.2179	\$236.77	-\$0.04	-0.02%
		Winter First 50 therms	0.00	\$0.00	\$0.2496	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.2041	\$0.00	\$0.00	0.00%
		Total therms only	21,323.16	\$4,482.79		\$4,646.32	\$163.53	3.65%
R-6	Residential Non-Heating	Customers	1,383	\$29,545.86	\$21.36	\$29,545.86	\$0.00	0.00%
		Summer First 10 therms	8,991.31	\$3,786.60	\$0.4214	\$3,788.94	\$2.34	0.06%
		Summer Excess therms	4,537.02	\$1,912.33	\$0.4214	\$1,911.90	-\$0.43	-0.02%
		Winter First 10 therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.4214	\$0.00	\$0.00	0.00%
		Total therms only	13,528.33	\$5,698.93		\$5,700.84	\$1.91	0.03%
R-11	Residential Non-Heating, Low Income	Customers	4	\$62.08	\$15.52	\$62.08	\$0.00	0.00%
		Summer First 10 therms	39.25	\$12.56	\$0.3196	\$12.54	-\$0.02	-0.13%
		Summer Excess therms	35.77	\$11.43	\$0.3196	\$11.43	\$0.00	0.02%
		Winter First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Total therms only	75.02	\$23.99		\$23.98	-\$0.01	-0.06%
G-40/T-40	Low Annual, High Winter Use	Customers	4,844	\$326,755.00	\$67.45	\$326,755.00	\$0.00	0.00%
		Summer First 75 therms	144,940.28	\$22,667.42	\$0.1615	\$23,407.86	\$740.44	3.27%
		Summer Excess therms	109,340.53	\$17,236.44	\$0.1615	\$17,658.50	\$422.06	2.45%
		Winter First 75 therms	(151.15)	-\$24.41	\$0.1615	-\$24.41	\$0.00	0.00%
		Winter Excess therms	(25.09)	-\$4.05	\$0.1615	-\$4.05	\$0.00	0.05%
		Total therms only	254,104.57	\$39,875.40		\$41,037.89	\$1,162.49	2.92%
G-50/T-50	Low Annual, Low Winter Use	Customers	820	\$55,322.52	\$67.45	\$55,322.52	\$0.00	0.00%
		Summer First 75 therms	35,225.89	\$5,688.25	\$0.1615	\$5,688.98	\$0.73	0.01%
		Summer Excess therms	80,513.42	\$13,002.95	\$0.1615	\$13,002.92	-\$0.03	0.00%
		Winter First 75 therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Total therms only	115,739.31	\$18,691.20		\$18,691.90	\$0.70	0.00%
G-41/T-41	Medium Annual, High Winter Use	Customers	629	\$123,749.76	\$196.73	\$123,749.76	\$0.00	0.00%
		Summer All therms	508,685.03	\$79,251.06	\$0.1622	\$82,508.71	\$3,257.65	4.11%
		Winter All therms	0.00	\$0.00	\$0.2098	\$0.00	\$0.00	0.00%
		Total therms only	508,685.03	\$79,251.06		\$82,508.71	\$3,257.65	4.11%
G-51/T-51	Medium Annual, Low Winter Use	Customers	258	\$50,802.24	\$196.73	\$50,802.24	\$0.00	0.00%
		Summer First 1,000 therms	204,144.96	\$24,150.38	\$0.1183	\$24,150.35	-\$0.03	0.00%
		Summer Excess therms	113,944.36	\$10,660.62	\$0.0958	\$10,915.87	\$255.25	2.39%
		Winter First 1,300 therms	0.00	\$0.00	\$0.1520	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.1238	\$0.00	\$0.00	0.00%
		Total therms only	318,089.32	\$34,811.00		\$35,066.22	\$255.22	0.73%
G-42/T-42	High Annual, High Winter Use	Customers	33	\$37,098.27	\$1,124.19	\$37,098.27	\$0.00	0.00%
		Summer All therms	401,576.84	\$41,955.01	\$0.1066	\$42,808.09	\$853.08	2.03%
		Winter All therms	0.00	\$0.00	\$0.1764	\$0.00	\$0.00	0.00%
		Total therms only	401,576.84	\$41,955.01		\$42,808.09	\$853.08	2.03%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	1,359,334.54	\$95,838.15	\$0.0707	\$96,104.95	\$266.80	0.28%
		Winter All therms	0.00	\$0.00	\$0.1541	\$0.00	\$0.00	0.00%
		Total therms only	1,359,334.54	\$95,838.15		\$96,104.95	\$266.80	0.28%
Total		Customers	31,521	\$1,149,730.19		\$1,149,730.19	\$0.00	0.00%
		Summer First Block therms	3,188,488.14	\$544,607.83		\$558,225.28	\$13,617.45	2.50%
		Summer Excess therms	353,551.32	\$67,087.70		\$67,764.00	\$676.30	1.01%
		Winter First Block therms	(147.11)	-\$21.89		-\$21.89	\$0.00	0.00%
		Winter Excess therms	(25.09)	-\$4.05		-\$4.05	\$0.00	0.05%
		Total therms only	3,541,867.26	\$611,669.59		\$625,963.34	\$14,293.75	2.34%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

November 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	23,016	\$491,613.14	\$21.36	\$491,613.14	\$0.00	0.00%
		Summer First 50 therms	434,127.19	\$236,550.66	\$0.5449	\$236,555.91	\$5.25	0.00%
		Summer Excess therms	158,106.43	\$86,151.95	\$0.5449	\$86,152.19	\$0.24	0.00%
		Winter First 50 therms	402,578.64	\$251,174.37	\$0.6239	\$251,168.81	-\$5.56	0.00%
		Winter Excess therms	228,136.74	\$96,910.84	\$0.5103	\$116,418.18	\$19,507.34	20.13%
		Total therms only	1,222,949.00	\$670,787.82		\$690,295.09	\$19,507.27	2.91%
R-10	Residential Heating, Low Income	Customers	710	\$6,059.86	\$8.54	\$6,059.86	\$0.00	0.00%
		Summer First 50 therms	12,124.70	\$2,641.77	\$0.2179	\$2,641.97	\$0.20	0.01%
		Summer Excess therms	2,885.98	\$628.97	\$0.2179	\$628.86	-\$0.11	-0.02%
		Winter First 50 therms	14,050.91	\$3,234.42	\$0.2496	\$3,507.11	\$272.69	8.43%
		Winter Excess therms	4,100.30	\$836.85	\$0.2041	\$836.87	\$0.02	0.00%
		Total therms only	33,161.89	\$7,342.01		\$7,614.81	\$272.80	3.72%
R-6	Residential Non-Heating	Customers	1,343	\$28,677.17	\$21.36	\$28,677.17	\$0.00	0.00%
		Summer First 10 therms	5,032.05	\$2,120.45	\$0.4214	\$2,120.51	\$0.06	0.00%
		Summer Excess therms	3,710.04	\$1,563.36	\$0.4214	\$1,563.41	\$0.05	0.00%
		Winter First 10 therms	3,972.58	\$1,674.23	\$0.4214	\$1,674.05	-\$0.18	-0.01%
		Winter Excess therms	3,373.62	\$1,368.87	\$0.4214	\$1,421.64	\$52.77	3.86%
		Total therms only	16,088.29	\$6,726.91		\$6,779.61	\$52.70	0.78%
R-11	Residential Non-Heating, Low Income	Customers	0	\$0.00	\$15.52	\$0.00	\$0.00	0.00%
		Summer First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Total therms only	0.00	\$0.00		\$0.00	\$0.00	0.00%
G-40/T-40	Low Annual, High Winter Use	Customers	5,000	\$337,230.34	\$67.45	\$337,230.34	\$0.00	0.00%
		Summer First 75 therms	123,083.54	\$19,876.36	\$0.1615	\$19,877.99	\$1.63	0.01%
		Summer Excess therms	171,058.64	\$27,625.49	\$0.1615	\$27,625.97	\$0.48	0.00%
		Winter First 75 therms	126,733.16	\$20,466.30	\$0.1615	\$20,467.41	\$1.11	0.01%
		Winter Excess therms	261,322.67	\$38,998.55	\$0.1615	\$42,203.61	\$3,205.06	8.22%
		Total therms only	682,198.01	\$106,966.70		\$110,174.98	\$3,208.28	3.00%
G-50/T-50	Low Annual, Low Winter Use	Customers	792	\$53,416.04	\$67.45	\$53,416.04	\$0.00	0.00%
		Summer First 75 therms	18,840.62	\$3,042.52	\$0.1615	\$3,042.76	\$0.24	0.01%
		Summer Excess therms	46,711.22	\$7,543.91	\$0.1615	\$7,543.86	-\$0.05	0.00%
		Winter First 75 therms	15,625.81	\$2,523.34	\$0.1615	\$2,523.57	\$0.23	0.01%
		Winter Excess therms	42,005.44	\$6,782.70	\$0.1615	\$6,783.88	\$1.18	0.02%
		Total therms only	123,183.09	\$19,892.47		\$19,894.07	\$1.60	0.01%
G-41/T-41	Medium Annual, High Winter Use	Customers	630	\$123,933.37	\$196.73	\$123,933.37	\$0.00	0.00%
		Summer All therms	420,387.54	\$68,186.83	\$0.1622	\$68,186.86	\$0.03	0.00%
		Winter All therms	580,656.39	\$115,156.12	\$0.2098	\$121,821.71	\$6,665.59	5.79%
		Total therms only	1,001,043.93	\$183,342.95		\$190,008.57	\$6,665.62	3.64%
G-51/T-51	Medium Annual, Low Winter Use	Customers	258	\$50,756.34	\$196.73	\$50,756.34	\$0.00	0.00%
		Summer First 1,000 therms	114,023.33	\$13,488.80	\$0.1183	\$13,488.96	\$0.16	0.00%
		Summer Excess therms	57,879.93	\$5,544.92	\$0.0958	\$5,544.90	-\$0.02	0.00%
		Winter First 1,300 therms	116,735.29	\$17,526.99	\$0.1520	\$17,743.76	\$216.77	1.24%
		Winter Excess therms	59,686.85	\$7,211.77	\$0.1238	\$7,389.23	\$177.46	2.46%
		Total therms only	348,325.40	\$43,772.48		\$44,166.85	\$394.37	0.90%
G-42/T-42	High Annual, High Winter Use	Customers	35	\$39,384.13	\$1,124.19	\$39,384.13	\$0.00	0.00%
		Summer All therms	49,549.90	\$5,282.02	\$0.1066	\$5,282.02	\$0.00	0.00%
		Winter All therms	538,444.19	\$90,916.85	\$0.1764	\$94,981.55	\$4,064.70	4.47%
		Total therms only	587,994.09	\$96,198.87		\$100,263.57	\$4,064.70	4.23%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	65,626.55	\$4,639.76	\$0.0707	\$4,639.80	\$0.04	0.00%
		Winter All therms	1,430,791.65	\$218,310.15	\$0.1541	\$220,484.99	\$2,174.84	1.00%
		Total therms only	1,496,418.20	\$222,949.91		\$225,124.79	\$2,174.88	0.98%
Total		Customers	31,814	\$1,167,044.47		\$1,167,044.47	\$0.00	0.00%
		Summer First Block therms	1,242,795.42	\$355,829.17		\$355,836.77	\$7.60	0.00%
		Summer Excess therms	440,352.24	\$129,058.60		\$129,059.19	\$0.59	0.00%
		Winter First Block therms	3,229,588.63	\$720,982.77		\$734,372.96	\$13,390.19	1.86%
		Winter Excess therms	598,625.61	\$152,109.58		\$175,053.41	\$22,943.83	15.08%
		Total therms only	5,511,361.90	\$1,357,980.12		\$1,394,322.34	\$36,342.22	2.68%

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Northern Utilities - NH Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

December 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	23,176	\$495,033.01	\$21.36	\$495,033.01	\$0.00	0.00%
		Summer First 50 therms	155.38	\$84.72	\$0.5449	\$84.67	-\$0.05	-0.06%
		Summer Excess therms	8.28	\$4.48	\$0.5449	\$4.51	\$0.03	0.71%
		Winter First 50 therms	1,034,335.89	\$645,409.66	\$0.6239	\$645,322.16	-\$87.50	-0.01%
		Winter Excess therms	1,205,379.26	\$612,937.48	\$0.5103	\$615,105.04	\$2,167.56	0.35%
		Total therms only	2,239,878.81	\$1,258,436.34		\$1,260,516.38	\$2,080.04	0.17%
R-10	Residential Heating, Low Income	Customers	689	\$5,882.72	\$8.54	\$5,882.72	\$0.00	0.00%
		Summer First 50 therms	158.54	\$34.57	\$0.2179	\$34.55	-\$0.02	-0.07%
		Summer Excess therms	96.12	\$20.94	\$0.2179	\$20.94	\$0.00	0.02%
		Winter First 50 therms	31,179.15	\$7,782.36	\$0.2496	\$7,782.32	-\$0.04	0.00%
		Winter Excess therms	26,646.07	\$5,415.32	\$0.2041	\$5,438.46	\$23.14	0.43%
		Total therms only	58,079.88	\$13,253.19		\$13,276.27	\$23.08	0.17%
R-6	Residential Non-Heating	Customers	1,330	\$28,419.47	\$21.36	\$28,419.47	\$0.00	0.00%
		Summer First 10 therms	16.09	\$6.78	\$0.4214	\$6.78	\$0.00	0.00%
		Summer Excess therms	8.04	\$3.38	\$0.4214	\$3.39	\$0.01	0.24%
		Winter First 10 therms	9,204.37	\$3,875.50	\$0.4214	\$3,878.72	\$3.22	0.08%
		Winter Excess therms	13,597.71	\$5,712.22	\$0.4214	\$5,730.07	\$17.85	0.31%
		Total therms only	22,826.21	\$9,597.88		\$9,618.96	\$21.08	0.22%
R-11	Residential Non-Heating, Low Income	Customers	0	\$0.00	\$15.52	\$0.00	\$0.00	0.00%
		Summer First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter First 10 therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Winter Excess therms	0.00	\$0.00	\$0.3196	\$0.00	\$0.00	0.00%
		Total therms only	0.00	\$0.00		\$0.00	\$0.00	0.00%
G-40/T-40	Low Annual, High Winter Use	Customers	5,102	\$344,141.29	\$67.45	\$344,141.29	\$0.00	0.00%
		Summer First 75 therms	5.94	\$0.96	\$0.1615	\$0.96	\$0.00	-0.07%
		Summer Excess therms	0.00	\$0.00	\$0.1615	\$0.00	\$0.00	0.00%
		Winter First 75 therms	322,265.39	\$52,036.83	\$0.1615	\$52,045.86	\$9.03	0.02%
		Winter Excess therms	1,047,000.85	\$170,225.74	\$0.1615	\$169,090.64	-\$1,135.10	-0.67%
		Total therms only	1,369,272.18	\$222,263.53		\$221,137.46	-\$1,126.07	-0.51%
G-50/T-50	Low Annual, Low Winter Use	Customers	791	\$53,330.49	\$67.45	\$53,330.49	\$0.00	0.00%
		Summer First 75 therms	(28.73)	-\$4.64	\$0.1615	-\$4.64	\$0.00	0.00%
		Summer Excess therms	(218.00)	-\$35.21	\$0.1615	-\$35.21	\$0.00	-0.01%
		Winter First 75 therms	36,732.36	\$5,931.31	\$0.1615	\$5,932.28	\$0.97	0.02%
		Winter Excess therms	114,252.86	\$18,414.72	\$0.1615	\$18,451.84	\$37.12	0.20%
		Total therms only	150,738.49	\$24,306.18		\$24,344.27	\$38.09	0.16%
G-41/T-41	Medium Annual, High Winter Use	Customers	633	\$124,628.45	\$196.73	\$124,628.45	\$0.00	0.00%
		Summer All therms	769.24	\$124.77	\$0.1622	\$124.77	\$0.00	0.00%
		Winter All therms	1,664,292.62	\$350,169.37	\$0.2098	\$349,168.59	-\$1,000.78	-0.29%
		Total therms only	1,665,061.86	\$350,294.14		\$349,293.36	-\$1,000.78	-0.29%
G-51/T-51	Medium Annual, Low Winter Use	Customers	260	\$51,215.38	\$196.73	\$51,215.38	\$0.00	0.00%
		Summer First 1,000 therms	0.00	\$0.00	\$0.1183	\$0.00	\$0.00	0.00%
		Summer Excess therms	0.00	\$0.00	\$0.0958	\$0.00	\$0.00	0.00%
		Winter First 1,300 therms	272,625.38	\$41,439.08	\$0.1520	\$41,439.06	-\$0.02	0.00%
		Winter Excess therms	144,169.59	\$17,726.55	\$0.1238	\$17,848.20	\$121.65	0.69%
		Total therms only	416,794.97	\$59,165.63		\$59,287.25	\$121.62	0.21%
G-42/T-42	High Annual, High Winter Use	Customers	33	\$37,360.58	\$1,124.19	\$37,360.58	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.1066	\$0.00	\$0.00	0.00%
		Winter All therms	844,704.16	\$149,655.63	\$0.1764	\$149,005.81	-\$649.82	-0.43%
		Total therms only	844,704.16	\$149,655.63		\$149,005.81	-\$649.82	-0.43%
G-52/T-52	High Annual, Low Winter Use	Customers	32	\$35,974.08	\$1,124.19	\$35,974.08	\$0.00	0.00%
		Summer All therms	0.00	\$0.00	\$0.0707	\$0.00	\$0.00	0.00%
		Winter All therms	1,385,912.42	\$213,956.98	\$0.1541	\$213,569.10	-\$387.88	-0.18%
		Total therms only	1,385,912.42	\$213,956.98		\$213,569.10	-\$387.88	-0.18%
Total		Customers	32,047	\$1,175,985.47		\$1,175,985.47	\$0.00	0.00%
		Summer First Block therms	1,076.46	\$247.16		\$247.08	-\$0.08	-0.03%
		Summer Excess therms	(105.56)	-\$6.41		-\$6.36	\$0.05	-0.74%
		Winter First Block therms	5,601,251.74	\$1,470,256.72		\$1,468,143.90	-\$2,112.82	-0.14%
		Winter Excess therms	2,551,046.33	\$830,432.03		\$831,664.24	\$1,232.21	0.15%
		Total therms only	8,153,268.97	\$2,300,929.50		\$2,300,048.86	-\$880.64	-0.04%
Grand Totals		Customers	380,179	\$14,044,338.98				
		Summer First Block therms	16,909,017.80	\$2,894,964.30		\$2,919,777.41	\$24,813.11	0.86%
		Summer Excess therms	2,183,460.37	\$464,563.60		\$466,483.43	\$1,919.83	0.41%
		Winter First Block therms	34,727,877.00	\$8,597,990.68		\$8,828,781.44	\$230,790.76	2.68%
		Winter Excess therms	16,087,870.37	\$4,693,200.65		\$5,332,421.20	\$639,220.55	13.62%
		Total therms only	69,908,225.53	\$16,650,719.23		\$17,547,463.48	\$896,744.25	5.39%

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Northern Utilities - New Hampshire Division
Test Year 2016
Gas Accuracy Factor of Test Year Billing Determinants with Weather Normalization
Therms (does not include special contract customers)

Annual 2016

<u>Rate Class</u>	<u>Description</u>		<u>Billing Units</u>	<u>Billed Revenue</u>	<u>Billing Rate</u>	<u>Calculated Revenue</u>	<u>Variance</u>	<u>Percent Variance</u>
R-5	Residential Heating	Customers	270,640	\$5,780,863.12	\$21.36	\$5,780,863.12	\$0.00	0.00%
		Summer First 50 therms	2,642,287.70	\$1,438,902.03	\$0.5449	\$1,439,782.57	\$880.54	0.06%
		Summer Excess therms	382,013.94	\$208,160.66	\$0.5449	\$208,159.40	-\$1.26	0.00%
		Winter First 50 therms	5,789,679.76	\$3,612,638.84	\$0.6239	\$3,612,181.20	-\$457.64	-0.01%
		Winter Excess therms	7,839,763.50	\$3,478,079.82	\$0.5103	\$4,000,631.32	\$522,551.50	15.02%
		Total therms only	16,653,744.90	\$8,737,781.35		\$9,260,754.48	\$522,973.13	5.99%
R-10	Residential Heating, Low Income	Customers	12,052	\$102,927.24	\$8.54	\$102,927.24	\$0.00	0.00%
		Summer First 50 therms	108,200.68	\$23,510.49	\$0.2179	\$23,576.93	\$66.44	0.28%
		Summer Excess therms	8,799.67	\$1,917.58	\$0.2179	\$1,917.45	-\$0.13	-0.01%
		Winter First 50 therms	267,004.28	\$66,372.31	\$0.2496	\$66,644.27	\$271.96	0.41%
		Winter Excess therms	283,178.52	\$49,234.55	\$0.2041	\$57,796.74	\$8,562.19	17.39%
		Total therms only	667,183.15	\$141,034.93		\$149,935.38	\$8,900.45	6.31%
R-6	Residential Non-Heating	Customers	16,602	\$354,628.07	\$21.36	\$354,628.07	\$0.00	0.00%
		Summer First 10 therms	55,551.29	\$23,395.93	\$0.4214	\$23,409.31	\$13.38	0.06%
		Summer Excess therms	33,463.04	\$14,073.84	\$0.4214	\$14,101.33	\$27.49	0.20%
		Winter First 10 therms	54,847.52	\$23,096.19	\$0.4214	\$23,112.74	\$16.55	0.07%
		Winter Excess therms	94,569.77	\$36,982.29	\$0.4214	\$39,851.70	\$2,869.41	7.76%
		Total therms only	238,431.63	\$97,548.25		\$100,475.09	\$2,926.84	3.00%
R-11	Residential Non-Heating, Low Income	Customers	48	\$742.89	\$15.52	\$742.89	\$0.00	0.00%
		Summer First 10 therms	252.79	\$80.85	\$0.3196	\$80.79	-\$0.06	-0.07%
		Summer Excess therms	130.91	\$41.84	\$0.3196	\$41.84	\$0.00	0.00%
		Winter First 10 therms	167.54	\$53.60	\$0.3196	\$53.55	-\$0.05	-0.10%
		Winter Excess therms	90.00	\$28.77	\$0.3196	\$28.76	-\$0.01	-0.02%
		Total therms only	641.24	\$205.06		\$204.94	-\$0.12	-0.06%
G-40/T-40	Low Annual, High Winter Use	Customers	58,925	\$3,974,496.09	\$67.45	\$3,974,496.09	\$0.00	0.00%
		Summer First 75 therms	729,109.71	\$114,425.50	\$0.1615	\$117,751.22	\$3,325.72	2.91%
		Summer Excess therms	576,748.53	\$96,919.48	\$0.1615	\$93,144.89	-\$3,774.59	-3.89%
		Winter First 75 therms	1,839,900.79	\$297,099.14	\$0.1615	\$297,143.98	\$44.84	0.02%
		Winter Excess therms	6,193,052.75	\$906,737.19	\$0.1615	\$1,000,178.02	\$93,440.83	10.31%
		Total therms only	9,338,811.78	\$1,415,181.31		\$1,508,218.10	\$93,036.79	6.57%
G-50/T-50	Low Annual, Low Winter Use	Customers	9,708	\$654,773.72	\$67.45	\$654,773.72	\$0.00	0.00%
		Summer First 75 therms	219,197.41	\$35,396.19	\$0.1615	\$35,400.38	\$4.19	0.01%
		Summer Excess therms	545,719.73	\$88,064.04	\$0.1615	\$88,133.74	\$69.70	0.08%
		Winter First 75 therms	218,398.53	\$35,254.53	\$0.1615	\$35,271.36	\$16.83	0.05%
		Winter Excess therms	697,489.15	\$109,588.49	\$0.1615	\$112,644.50	\$3,056.01	2.79%
		Total therms only	1,680,804.81	\$268,303.25		\$271,449.98	\$3,146.73	1.17%
G-41/T-41	Medium Annual, High Winter Use	Customers	8,266	\$1,626,073.87	\$196.73	\$1,626,073.87	\$0.00	0.00%
		Summer All therms	2,508,973.34	\$392,815.10	\$0.1622	\$406,955.48	\$14,140.38	3.60%
		Winter All therms	10,640,538.90	\$2,071,351.77	\$0.2098	\$2,232,385.06	\$161,033.29	7.77%
		Total therms only	13,149,512.24	\$2,464,166.87		\$2,639,340.54	\$175,173.67	7.11%
G-51/T-51	Medium Annual, Low Winter Use	Customers	3,103	\$610,423.34	\$196.73	\$610,423.34	\$0.00	0.00%
		Summer First 1,000 therms	1,234,616.17	\$145,417.59	\$0.1183	\$146,055.09	\$637.50	0.44%
		Summer Excess therms	636,584.56	\$55,386.16	\$0.0958	\$60,984.80	\$5,598.64	10.11%
		Winter First 1,300 therms	1,631,320.45	\$246,375.13	\$0.1520	\$247,960.71	\$1,585.58	0.64%
		Winter Excess therms	979,726.67	\$112,549.54	\$0.1238	\$121,290.16	\$8,740.62	7.77%
		Total therms only	4,482,247.85	\$559,728.42		\$576,290.76	\$16,562.34	2.96%
G-42/T-42	High Annual, High Winter Use	Customers	450	\$506,035.39	\$1,124.19	\$506,035.39	\$0.00	0.00%
		Summer All therms	1,710,865.05	\$177,722.23	\$0.1066	\$182,378.21	\$4,655.98	2.62%
		Winter All therms	5,047,219.81	\$845,391.01	\$0.1764	\$890,329.57	\$44,938.56	5.32%
		Total therms only	6,758,084.86	\$1,023,113.24		\$1,072,707.79	\$49,594.55	4.85%
G-52/T-52	High Annual, Low Winter Use	Customers	386	\$433,375.25	\$1,124.19	\$433,375.25	\$0.00	0.00%
		Summer All therms	7,699,963.65	\$543,298.39	\$0.0707	\$544,387.43	\$1,089.04	0.20%
		Winter All therms	9,238,799.42	\$1,400,358.16	\$0.1541	\$1,423,698.99	\$23,340.83	1.67%
		Total therms only	16,938,763.07	\$1,943,656.55		\$1,968,086.42	\$24,429.87	1.26%
Total		Customers	380,179	\$14,044,338.98		\$14,044,338.98	\$0.00	0.00%
		Summer First Block therms	16,909,017.80	\$2,894,964.30		\$2,919,777.41	\$24,813.11	0.86%
		Summer Excess therms	2,183,460.37	\$464,563.60		\$466,483.43	\$1,919.83	0.41%
		Winter First Block therms	34,727,877.00	\$8,597,990.68		\$8,828,781.44	\$230,790.76	2.68%
		Winter Excess therms	16,087,870.37	\$4,693,200.65		\$5,332,421.20	\$639,220.55	13.62%
		Total therms only	69,908,225.53	\$16,650,719.23		\$17,547,463.48	\$896,744.25	5.39%

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Line	TEST YEAR 2016	G-40	G-41	G-42	G-50	G-51	G-52	R-10	R-11	R-5	R-6	TOTAL
1	BD - P	40,709.36	30,825.42	8,314.95	4,823.62	7,520.54	1,776.90	3,109.21	1.44	80,060.57	899.55	178,041.56
2	BD - OP	1,041.66	1,079.22	313.68	660.95	772.99	157.16	123.34	0.37	3,000.59	84.50	7,234.46
3	COG - D - P	1,219,227.25	919,475.95	248,604.34	95,895.34	147,862.17	35,358.42	86,683.93	39.80	2,259,880.45	25,347.09	5,038,374.74
4	COG - C - P	3,215,482.20	2,470,122.11	676,955.87	413,892.89	646,735.87	147,036.76	263,621.86	143.46	6,445,131.09	74,142.59	14,353,264.70
5	COG - D - OP	142,257.50	147,538.45	46,380.82	37,921.78	47,387.52	9,036.75	11,025.41	36.05	283,823.51	8,357.48	733,765.27
6	COG - C - OP	269,487.88	280,008.46	85,840.54	172,229.42	215,472.17	41,128.15	29,646.30	98.78	780,628.59	23,071.89	1,897,612.18
7	COG - P&S - P	81,495.44	62,178.48	16,728.11	9,657.71	15,098.17	3,532.88	6,443.23	3.27	160,814.27	1,817.80	357,769.36
8	COG - Misc OH - P	77,619.26	59,178.46	15,925.74	9,198.06	14,371.79	3,366.98	6,118.49	3.06	153,123.13	1,730.64	340,635.61
9	COG - Misc OH - OP	12,431.27	12,891.62	4,035.65	7,848.74	9,844.31	1,870.20	1,391.04	4.56	35,964.59	1,058.14	87,340.12
10	COG-WC-P	3,337.48	2,540.57	684.69	394.04	614.29	145.19	260.96	0.11	6,568.74	67.40	14,613.47
11	COG-WC-OP	191.46	215.76	67.12	129.00	161.33	31.43	13.00	0.02	387.61	4.26	1,200.99
12	Recon - P	(254,264.17)	(201,549.29)	(53,643.55)	(30,157.23)	(46,612.01)	(10,602.67)	(23,936.93)	(15.48)	(511,509.08)	(5,962.37)	(1,138,252.78)
13	Recon - OP	2,326.72	2,503.37	1,354.70	1,465.18	2,276.54	361.49	95.87	0.91	6,979.71	195.31	17,559.80
14	SR	5.50	33.23	-	2.20	131.40	-	-	-	5.02	-	177.35
15	RLIAP	86,224.65	121,073.59	63,541.34	16,385.80	42,831.39	165,200.30	6,142.29	6.30	153,735.97	2,272.53	657,414.16
16	EE	127,256.25	178,623.70	93,765.44	24,175.99	63,103.95	243,747.58	18,797.64	19.07	473,764.46	6,976.12	1,230,230.20
17	ERC	(5,668.59)	(9,788.94)	(3,573.69)	(2,032.76)	(5,087.14)	(15,018.35)	(775.27)	(1.42)	(12,319.98)	(270.64)	(54,536.78)
18	RCE	(5.98)	(29.06)	-	(4.37)	(86.97)	-	-	-	(4.89)	-	(131.27)
19	RECOUP	(23.32)	(111.33)	-	(16.69)	(333.41)	-	-	-	(18.81)	-	(503.56)
20	Total Flowthru	5,019,131.82	4,076,809.77	1,205,295.75	762,469.67	1,162,064.90	627,129.17	408,760.37	340.30	10,320,015.54	139,792.29	23,721,809.58
21	Total Base	5,389,677.40	4,090,240.74	1,529,148.63	923,076.97	1,170,151.76	2,377,031.80	243,962.17	947.95	14,518,644.47	452,176.32	30,695,058.21
22	Total New Hampshire Divis	10,408,809.22	8,167,050.51	2,734,444.38	1,685,546.64	2,332,216.66	3,004,160.97	652,722.54	1,288.25	24,838,660.01	591,968.61	54,416,867.79

1	BD - P	\$ 40,709.36	\$ 30,825.42	\$ 8,314.95	\$ 4,823.62	\$ 7,520.54	\$ 1,776.90	\$ 3,109.21	\$ 1.44	\$ 80,060.57	\$ 899.55	\$ 178,041.56
2	BD - OP	\$ 1,041.66	\$ 1,079.22	\$ 313.68	\$ 660.95	\$ 772.99	\$ 157.16	\$ 123.34	\$ 0.37	\$ 3,000.59	\$ 84.50	\$ 7,234.46
	Bad Debt Total	\$ 41,751.02	\$ 31,904.64	\$ 8,628.63	\$ 5,484.57	\$ 8,293.53	\$ 1,934.06	\$ 3,232.55	\$ 1.81	\$ 83,061.16	\$ 984.05	\$ 185,276.02
	% total	22.53%	17.22%	4.66%	2.96%	4.48%	1.04%	1.74%	0.00%	44.83%	0.53%	100.00%
		\$ 29,106.71	\$ 22,242.31	\$ 6,015.45	\$ 3,823.57	\$ 5,781.83	\$ 1,348.33	\$ 2,253.57	\$ 1.26	\$ 57,906.05	\$ 686.03	\$ 129,165.10

3	COG - D - P	\$ 1,219,227.25	\$ 919,475.95	\$ 248,604.34	\$ 95,895.34	\$ 147,862.17	\$ 35,358.42	\$ 86,683.93	\$ 39.80	\$ 2,259,880.45	\$ 25,347.09	\$ 5,038,374.74
4	COG - C - P	\$ 3,215,482.20	\$ 2,470,122.11	\$ 676,955.87	\$ 413,892.89	\$ 646,735.87	\$ 147,036.76	\$ 263,621.86	\$ 143.46	\$ 6,445,131.09	\$ 74,142.59	\$ 14,353,264.70
5	COG - D - OP	\$ 142,257.50	\$ 147,538.45	\$ 46,380.82	\$ 37,921.78	\$ 47,387.52	\$ 9,036.75	\$ 11,025.41	\$ 36.05	\$ 283,823.51	\$ 8,357.48	\$ 733,765.27
6	COG - C - OP	\$ 269,487.88	\$ 280,008.46	\$ 85,840.54	\$ 172,229.42	\$ 215,472.17	\$ 41,128.15	\$ 29,646.30	\$ 98.78	\$ 780,628.59	\$ 23,071.89	\$ 1,897,612.18
	Total COG C&D	\$ 4,846,454.83	\$ 3,817,144.97	\$ 1,057,781.57	\$ 719,939.43	\$ 1,057,457.73	\$ 232,560.08	\$ 390,977.50	\$ 318.09	\$ 9,769,463.64	\$ 130,919.05	\$ 22,023,016.89
		22.01%	17.33%	4.80%	3.27%	4.80%	1.06%	1.78%	0.00%	44.36%	0.59%	100.00%
		\$ 5,555,054.10	\$ 4,375,249.03	\$ 1,212,439.62	\$ 825,201.64	\$ 1,212,068.43	\$ 266,562.65	\$ 448,142.25	\$ 364.60	\$ 11,197,855.12	\$ 150,060.70	\$ 25,242,998.14

7	COG-P&S - P	\$ 81,495.44	\$ 62,178.48	\$ 16,728.11	\$ 9,657.71	\$ 15,098.17	\$ 3,532.88	\$ 6,443.23	\$ 3.27	\$ 160,814.27	\$ 1,817.80	\$ 357,769.36
8	MISC OH - P	\$ 77,619.26	\$ 59,178.46	\$ 15,925.74	\$ 9,198.06	\$ 14,371.79	\$ 3,366.98	\$ 6,118.49	\$ 3.06	\$ 153,123.13	\$ 1,730.64	\$ 340,635.61
	Total Indirect	\$ 159,114.70	\$ 121,356.94	\$ 32,653.85	\$ 18,855.77	\$ 29,469.96	\$ 6,899.86	\$ 12,561.72	\$ 6.33	\$ 313,937.40	\$ 3,548.44	\$ 698,404.97

	% COG-P&S	11.67%	8.90%	2.40%	1.38%	2.16%	0.51%	0.92%	0.00%	23.03%	0.26%	51.23%
	% MISC OH	11.11%	8.47%	2.28%	1.32%	2.06%	0.48%	0.88%	0.00%	21.92%	0.25%	48.77%
		22.78%	17.38%	4.68%	2.70%	4.22%	0.99%	1.80%	0.00%	44.95%	0.51%	100.00%

	\$ COG-P&S	\$ 95,702.70	\$ 73,018.18	\$ 19,644.36	\$ 11,341.36	\$ 17,730.26	\$ 4,148.77	\$ 7,566.49	\$ 3.84	\$ 188,849.35	\$ 2,134.70	
	\$ MISC OH	\$ 91,150.78	\$ 69,495.16	\$ 18,702.11	\$ 10,801.58	\$ 16,877.25	\$ 3,953.95	\$ 7,185.14	\$ 3.59	\$ 179,817.39	\$ 2,032.35	
		\$ 186,853.49	\$ 142,513.34	\$ 38,346.46	\$ 22,142.93	\$ 34,607.52	\$ 8,102.73	\$ 14,751.63	\$ 7.43	\$ 368,666.74	\$ 4,167.05	\$ 820,159.32

9	MISC OH - OP	\$ 12,431.27	\$ 12,891.62	\$ 4,035.65	\$ 7,848.74	\$ 9,844.31	\$ 1,870.20	\$ 1,391.04	\$ 4.56	\$ 35,964.59	\$ 1,058.14	\$ 87,340.12
		14.23%	14.76%	4.62%	8.99%	11.27%	2.14%	1.59%	0.01%	41.18%	1.21%	100.00%
		\$ 16,776.66	\$ 17,397.93	\$ 5,446.32	\$ 10,592.29	\$ 13,285.42	\$ 2,523.93	\$ 1,877.28	\$ 6.15	\$ 48,536.13	\$ 1,428.02	\$ 117,870.14

\$ 938,029.46

Northern Utilities, Inc.
Gas Inc Stmt - NH - YTD
R_NU_4_B_FTXM_NH
NEW HAMPSHIRE DIVISION

	Commodity Demand COG Peak	Commodity Demand COG Off Peak	Working Capital Peak	Working Capital Off Peak	Bad Debt Peak	Bad Debt Off Peak	Supplier Refund	Residential Low Income Assistance	Energy Efficiency	Environ Response Costs	Rate Case Exp	Recoup	Total Flowthru	Total Base	Total New Hampshire Division
OPERATING REVENUES															
Sales:															
Residential (480)	\$ 8,943,620.30	\$ 1,182,378.14	\$ 6,897.21	\$ 404.89	\$ 84,070.77	\$ 3,208.80	\$ 5.02	\$ 162,157.09	\$ 499,557.29	\$ (14,002.14)	\$ 126.38	\$ 484.75	\$ 10,868,908.50	\$ 15,215,730.91	\$ 26,084,639.41
General Service (481)	10,008,171.33	1,553,899.23	7,716.26	796.10	93,970.79	4,025.66	172.33	186,248.27	274,709.13	(15,710.98)	(122.25)	(468.98)	12,113,406.89	8,947,067.19	21,060,474.08
Firm Transport Revenues (484, 489) (External Sup)	-	-	-	-	-	-	-	309,008.80	455,963.78	(25,458.49)	(4.13)	(15.77)	739,494.19	7,672,202.95	8,411,697.14
Sales for Resale (483)	4,623,753.83	75,705.07	-	-	-	-	(1,317,037.12)	-	-	-	-	-	3,382,421.78	-	3,382,421.78
Other Sales (495)	(526,989.86)	320,489.56	1,120.37	1,383.71	(56,315.09)	204.17	5,362,228.19	(42,839.44)	227,986.59	-	-	-	5,287,268.20	(154,095.19)	5,133,173.01
Total Sales	23,048,555.60	3,132,472.00	15,733.84	2,584.70	121,726.47	7,438.63	4,045,368.42	614,574.72	1,458,216.79	(55,171.61)	-	-	32,391,499.56	31,680,905.86	64,072,405.42
Other Operating Revenues:															
Late Charge (487)	-	-	-	-	-	-	-	-	-	-	-	-	-	104,863.25	104,863.25
Misc. Service Revenues (488)	-	-	-	-	-	-	-	-	-	-	-	-	-	721,443.51	721,443.51
Rent from Property (493 & 457)	-	-	-	-	-	-	-	-	-	-	-	-	-	152,772.00	152,772.00
Other Revenues	(103,524.35)	(618.60)	-	-	-	-	-	-	-	-	-	-	(104,142.95)	-	(104,142.95)
Total Other Operating Revenues	(103,524.35)	(618.60)	-	-	-	-	-	-	-	-	-	-	(104,142.95)	979,078.76	874,935.81
TOTAL OPERATING REVENUES	22,945,031.25	3,131,853.40	15,733.84	2,584.70	121,726.47	7,438.63	4,045,368.42	614,574.72	1,458,216.79	(55,171.61)	-	-	32,287,356.61	32,659,984.62	64,947,341.23
OPERATING EXPENSES															
Operation & Maint. Expenses:															
Production (710-813)	22,398,475.15	2,738,537.80	-	-	-	-	4,045,368.42	-	-	(55,171.61)	-	-	29,127,209.76	409,175.74	29,536,385.50
Transmission (850-857)	-	-	-	-	-	-	-	-	-	-	-	-	-	394,724.12	394,724.12
Distribution (870-894) (586)	-	-	-	-	-	-	-	-	-	-	-	-	-	2,994,785.46	2,994,785.46
Cust. Accounting (901-905)	-	-	-	-	122,665.79	6,499.31	-	-	-	-	-	-	129,165.10	1,725,290.21	1,854,455.31
Cust. Service & Info (906-910)	-	-	-	-	-	-	-	-	1,346,435.63	-	-	-	1,346,435.63	2,569.60	1,349,005.23
Admin. & General (920-935)	-	-	-	-	-	-	-	248,135.01	-	-	-	-	248,135.01	6,111,515.35	6,359,650.36
Total O & M Expenses	22,398,475.15	2,738,537.80	-	-	122,665.79	6,499.31	4,045,368.42	248,135.01	1,346,435.63	(55,171.61)	-	-	30,850,945.50	11,638,060.48	42,489,005.98
Other Operating Expenses:															
Deptrn. & Amort. (403-407)	-	-	-	-	-	-	-	-	-	-	-	-	-	6,193,310.03	6,193,310.03
Taxes-Other Than Inc. (408)	-	-	-	-	-	-	-	-	-	-	-	-	-	3,763,930.25	3,763,930.25
Federal Income Tax (409)	-	-	-	-	-	-	-	-	-	-	-	-	-	3,227,137.28	3,227,137.28
State Franchise Tax (409)	-	-	-	-	-	-	-	-	-	-	-	-	-	(269,172.51)	(269,172.51)
Def. Income Taxes (410,411)	-	-	-	-	-	-	-	-	-	-	-	-	-	4,698.76	4,698.76
Total Other Operating Expenses	-	-	-	-	-	-	-	-	-	-	-	-	-	12,919,903.81	12,919,903.81
TOTAL OPERATING EXPENSES	22,398,475.15	2,738,537.80	-	-	122,665.79	6,499.31	4,045,368.42	248,135.01	1,346,435.63	(55,171.61)	-	-	30,850,945.50	24,557,964.29	55,408,909.79
NET UTILITY OPERATING INCOME	546,556.10	393,315.60	15,733.84	2,584.70	(939.32)	939.32	-	366,439.71	111,781.16	-	-	-	1,436,411.11	8,102,020.33	9,538,431.44
Returns in Net Utility Operating Income	939,871.70		18,318.54		0.00			366,439.71	111,781.16						
Less: Inventory Finance Charge, below	(1,842.24)		Working Capital		Bad Debt			Costs in Base	Incentives						
Indirect Costs and Returns in COSS	938,029.46														

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NORTHERN - NH
REVENUES BY RATE CLASS FOR COST OF SERVICE
12 MONTHS ENDED DECEMBER 31, 2016

Description	Total Company	Rate R-5 & 10	Rate R-6 & 11	R G40/T40	R G50/T50	R G41/T41	R G51/T51	R G42/T42	R G52/T52	Sales for Resale	Other Sales	Late Charges	Misc Service Revenue	Other Revenue	Rent from Property
1 Total Operating Revenues per Books	\$64,947,341	\$25,491,383	\$593,257	\$10,408,809	\$1,685,547	\$8,167,051	\$2,332,217	\$2,734,444	\$3,004,161	\$3,382,422	\$5,133,173	\$104,863	\$721,444	-\$104,143	\$152,772
2															
3 Less: Flow Thru Revenues															
4 Cost of Gas	\$29,331,707	\$9,655,623	\$125,522	\$4,607,719	\$691,226	\$3,627,131	\$1,013,744	\$1,007,770	\$222,573	\$3,382,422	\$5,102,121			-\$104,143	
5															
6 LDAC Residential Low Income	\$614,575	\$159,878	\$2,279	\$86,225	\$16,386	\$121,074	\$42,831	\$63,541	\$165,200		-\$42,839				
7 LDAC Energy Efficiency	\$1,458,217	\$492,562	\$6,995	\$127,256	\$24,176	\$178,624	\$63,104	\$93,765	\$243,748		\$227,987				
8 LDAC ERC	-\$55,172	-\$13,730	-\$272	-\$5,669	-\$2,033	-\$9,789	-\$5,087	-\$3,574	-\$15,018						
9 LDAC Rate Case Exp	\$0	\$126	\$0	-\$6	-\$4	-\$29	-\$87	\$0	\$0						
10 LDAC Recoupment Revenues	\$0	\$485	\$0	-\$23	-\$17	-\$111	-\$333	\$0	\$0						
11 Total LDAC Flow Thru	\$2,017,620	\$639,321	\$9,002	\$207,783	\$38,508	\$289,768	\$100,428	\$153,733	\$393,930	\$0	\$185,147	\$0	\$0	\$0	\$0
12															
13 Production Revenues	\$938,029	\$433,832	\$5,609	\$203,630	\$32,735	\$159,911	\$47,893	\$43,793	\$10,627						
14															
15 Total Flow Thru	\$32,287,357	\$10,728,776	\$140,133	\$5,019,132	\$762,470	\$4,076,810	\$1,162,065	\$1,205,296	\$627,129	\$3,382,422	\$5,287,268	\$0	\$0	-\$104,143	\$0
16															
17 Base Revenues incl Other Rev	\$32,659,985	\$14,762,607	\$453,124	\$5,389,677	\$923,077	\$4,090,241	\$1,170,152	\$1,529,149	\$2,377,032	\$0	-\$154,095	\$104,863	\$721,444	\$0	\$152,772
18															
19 Less: Other Revenue Adj - Base															
20 Accrued Non Distr Bad Debt	-\$2,498										-\$2,498				
21 Unbilled Revenue	-\$151,597										-\$151,597				
22															
23 Base Revenues incl Special Contract	\$32,814,080	\$14,762,607	\$453,124	\$5,389,677	\$923,077	\$4,090,241	\$1,170,152	\$1,529,149	\$2,377,032	\$0	\$0	\$104,863	\$721,444	\$0	\$152,772
24															
25 Less: Other Oper Rev & Special Cont	\$2,119,022											\$104,863	\$721,444	\$0	\$152,772
26															
27 Book Base Rate Rev for Cost of Service	\$30,695,058	\$14,762,607	\$453,124	\$5,389,677	\$923,077	\$4,090,241	\$1,170,152	\$1,529,149	\$2,377,032	\$0	\$0	\$0	\$0	\$0	\$0
28															
29															
30 Tot Rev per Rev Req before Pro Forma	\$33,598,014	\$15,196,438	\$458,733	\$5,593,308	\$955,812	\$4,250,152	\$1,218,045	\$1,572,941	\$2,387,658	\$0	-\$154,095	\$104,863	\$721,444	\$0	\$152,772
31 Line 13 + 17															
32		\$32,618,935										\$979,079			
33															
34 Total Base Revenues per Books															
35 Transportation Base Revenues per Books	\$6,532,260	\$0	\$0	\$601,630	\$93,777	\$1,889,572	\$556,906	\$1,095,736	\$2,294,638						
36 Sales Base Revenues per Books	\$24,162,798	\$14,762,607	\$453,124	\$4,788,047	\$829,300	\$2,200,668	\$613,245	\$433,413	\$82,394						
37 Total Base Rev per Books	\$30,695,058	\$14,762,607	\$453,124	\$5,389,677	\$923,077	\$4,090,241	\$1,170,152	\$1,529,149	\$2,377,032						
38															
39 Total Flow Thru Rev per Books															
40 Transportation Flow Thru Rev per Books	\$739,494	\$0	\$0	\$31,560	\$5,677	\$149,564	\$54,065	\$114,861	\$383,767						
41 Sales Flow Thru Revenues per Books	\$22,982,315	\$10,728,776	\$140,133	\$4,987,572	\$756,793	\$3,927,246	\$1,107,999	\$1,090,434	\$243,362						
42 Total Flow Thru Rev per Books	\$23,721,810	\$10,728,776	\$140,133	\$5,019,132	\$762,470	\$4,076,810	\$1,162,065	\$1,205,296	\$627,129						
43															
44 Total Operating Rev per Books															
45 Total Transportation Rev per Books	\$7,271,754	\$0	\$0	\$633,190	\$99,454	\$2,039,136	\$610,972	\$1,210,597	\$2,678,405						
46 Total Sales Rev per Books	\$47,145,113	\$25,491,383	\$593,257	\$9,775,619	\$1,586,092	\$6,127,914	\$1,721,245	\$1,523,847	\$325,756						
47 Total Operating Rev per Books	\$54,416,868	\$25,491,383	\$593,257	\$10,408,809	\$1,685,547	\$8,167,051	\$2,332,217	\$2,734,444	\$3,004,161						
48															
49 CGA Bad Debt Revenues															
50 CGA Bad Debt Revenue	\$129,165	\$60,160	\$687	\$29,107	\$3,824	\$22,242	\$5,782	\$6,015	\$1,348						

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		<u>PER BOOKS</u>	<u>LESS COST OF GAS EXCL PROD</u>	<u>LESS OTHER FLOW THRU</u>	<u>TEST YEAR DISTRIBUTION, WITH PROD</u>	<u>PRO FORMA ADJUSTMENTS</u>	<u>PRO FORMA DISTRIBUTION, WITH PROD</u>	<u>PRODUCTION PRO FORMA ADJUSTMENTS</u>	<u>COS PRO FORMA WITH PROD</u>	<u>REVENUE INCREASE</u>	<u>COS CLAIMED WITH PROD</u>
INCOME TAXES-17 FEDERAL & STATE TAX CALCULAT											
1	OPERATING REVENUES	64,947,341	29,331,707	2,017,620	33,598,014	1,460,779	35,058,793	21,154,948	56,213,741	4,728,445	60,942,186
	OPERATING EXPENSES										
2	OPERATION & MAINTENANCE EXP	42,489,006	29,311,546	1,539,399	11,638,061	1,067,774	12,705,834	21,154,948	33,860,782		33,860,782
3	DEPRECIATION & AMORTIZATION	6,193,310			6,193,310	1,227,214	7,420,524		7,420,524		7,420,524
4	TAXES OTHER THAN INCOME	3,763,930			3,763,930	703,526	4,467,456		4,467,456		4,467,456
5	INTEREST ON CUSTOMER DEPOSITS	13,346			13,346		13,346		13,346		13,346
6	PLUS: OTHER	0			0		0		0		0
7	OPERATING INC BEFORE FED TAX	12,487,749	20,161	478,221	11,989,367		10,451,633		10,451,633		15,180,078
	LESS:										
8	INTEREST EXPENSE	4,634,187			4,634,187	(615,281)	4,018,906		4,018,906		4,018,906
9	OTHER ADJ	0			0		0		0		0
10	NET OPERATING INC BEFORE TXS	7,853,562			7,355,180		6,432,727		6,432,727		11,161,172
	PERMANENT ITEMS										
11	LOBBYING	33,398			33,398		33,398		33,398		33,398
12	PENALTIES	133,500			133,500		133,500		133,500		133,500
13	UNALLOWABLE MEALS	0			0		0		0		0
14	TOTAL PERMANENT ITEMS	166,898			166,898		166,898		166,898		166,898
	TEMPORY DIFFERENCES										
15	ACCRUED REVENUE	64,773			64,773		64,773		64,773		64,773
16	BAD DEBT	(19,155)			(19,155)		(19,155)		(19,155)		(19,155)
17	DEFERRED RATE CASE	55,173			55,173		55,173		55,173		55,173
18	INSURANCE CLAIM RESERVE	5,184			5,184		5,184		5,184		5,184
19	FASB 87-PENSIONS	(232,970)			(232,970)		(232,970)		(232,970)		(232,970)
20	PNGTS REFUND	(5,277,371)			(5,277,371)		(5,277,371)		(5,277,371)		(5,277,371)
21	PREPAID PROPERTY TAXES	(130,091)			(130,091)		(130,091)		(130,091)		(130,091)
22	REMEDICATION	(665,432)			(665,432)		(665,432)		(665,432)		(665,432)
23	PBOP SFAS 106	269,865			269,865		269,865		269,865		269,865
24	TRANSACTION COSTS	318,988			318,988		318,988		318,988		318,988
25	TRANSITION COSTS	269,361			269,361		269,361		269,361		269,361
26	UTILITY PLANT DIFFERENCES	(13,435,718)			(13,435,718)		(13,435,718)		(13,435,718)		(13,435,718)
27	TOTAL TEMPORARY DIFF	(18,777,394)			(18,777,394)		(18,777,394)		(18,777,394)		(18,777,394)
	INVESTMENT TAX CREDIT AMORT										
28	UNAMORTIZED ITC	0			0		0		0		0
	FEDERAL AND STATE TAX DIFF										
29	TAX DEPRECIATION	1,767,276			1,767,276		1,767,276		1,767,276		1,767,276
30	STATE TAXABLE BASE INCOME	(8,989,658)			(9,488,039)		(10,410,492)		(10,410,492)		(5,682,048)

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		<u>PER</u> <u>BOOKS</u>	<u>LESS</u> <u>COST OF GAS</u> <u>EXCL PROD</u>	<u>LESS</u> <u>OTHER</u> <u>FLOW THRU</u>	<u>TEST YEAR</u> <u>DISTRIBUTION,</u> <u>WITH PROD</u>	<u>PRO FORMA</u> <u>ADJUSTMENTS</u>	<u>PRO FORMA</u> <u>DISTRIBUTION,</u> <u>WITH PROD</u>	<u>PRODUCTION</u> <u>PRO FORMA</u> <u>ADJUSTMENTS</u>	<u>COS</u> <u>PRO FORMA</u> <u>WITH PROD</u>	<u>REVENUE</u> <u>INCREASE</u>	<u>COS</u> <u>CLAIMED</u> <u>WITH PROD</u>
INCOME TAXES CONT-18											
1	STATE TAXABLE BASE INCOME		(8,989,658)		(9,488,039)		(10,410,492)		(10,410,492)		(5,682,048)
2	STATE INCOME TAX @ 8.20%		(737,152)		(737,152)		(853,660)		(853,660)		(465,928)
3	ST TAX ADJ LOBBING & PENALTIES	REVCLAIM	(13,686)		(13,686)		(13,686)		(13,686)		(13,686)
4	STATE CURRENT/DEF ADJ	REVCLAIM	481,665		481,665		481,665		481,665		481,665
5	TOTAL STATE TAX EXPENSE		(269,173)		(269,173)		(385,681)		(385,681)		2,051
6	FED TAX INC BEF FED & STA TAX DIFF		(9,215,836)		(9,714,217)		(10,520,162)		(10,520,162)		(6,179,450)
7	LESS: FEDERAL AND STATE TAX DIFF		1,767,276		1,767,276		1,767,276		1,767,276		1,767,276
8	FEDERAL TAXABLE INCOME BASE		(10,983,112)		(11,481,494)		(12,287,438)		(12,287,438)		(7,946,726)
9	FED TAX ADJ LOBBING & PENALTIES	REVCLAIM	(45,964)		(45,964)		(45,964)		(45,964)		(45,964)
10	FED CURRENT/DEF ADJ		7,007,359		7,007,359		7,007,359		7,007,359		7,007,359
11	FEDERAL INCOME TAX @ 34.00%		3,227,137		3,227,137		2,783,666		2,783,666		4,259,508
TOT DEF FEDERAL & STATE INC TAX											
12	ACCELERATED DEPRECIATION	PLANT	5,199,640		5,199,640		5,199,640		5,199,640		5,199,640
13	PBOP	LABOR	(106,359)		(106,359)		(106,359)		(106,359)		(106,359)
14	PENSION	LABOR	91,818		91,818		91,818		91,818		91,818
15	BAD DEBTS EXPENSE	EXP904	7,549		7,549		7,549		7,549		7,549
16	ACCRUED REVENUE	REVCLAIM	(25,528)		(25,528)		(25,528)		(25,528)		(25,528)
17	PREPAID PROPERTY TAXES	PLANT	51,272		51,272		51,272		51,272		51,272
18	DEFERRED RATE CASE	REVCLAIM	(21,745)		(21,745)		(21,745)		(21,745)		(21,745)
19	REMEDATION	PSPLT	262,260		262,260		262,260		262,260		262,260
20	TRANSITION COSTS	PLANT	(106,161)		(106,161)		(106,161)		(106,161)		(106,161)
21	TRANSACTION COSTS	PLANT	(125,720)		(125,720)		(125,720)		(125,720)		(125,720)
22	INSURANCE CLAIM RESERVE	EXP9245	(2,043)		(2,043)		(2,043)		(2,043)		(2,043)
23	DEF FED & STATE CURRENT/DEF ADJ	DEFTAX	(5,220,285)		(5,220,285)		(5,220,285)		(5,220,285)		(5,220,285)
24	TOTAL DEFERRED INCOME TAXES		4,699		4,699		4,699		4,699		4,699
25	TAX ADJ LOBBYING & PENALTIES	REVCLAIM	0		0		0		0		0
26	TOTAL INCOME TAX EXPENSE		2,962,664		2,962,664		2,402,684		2,402,684		4,266,259
27	TOTAL OPERATING INCOME		9,525,085		9,026,704		8,048,949		8,048,949		10,913,819
EFFECTIVE STATE TAX RATE											
			8.20%								
			FEDERAL TAX RATE - CURRENT								
			34.00%								
			1 - INCREMENTAL TAX RATE								
			0.60588								
			INCREMENTAL TAX RATE								
			0.39412								
			EFFECTIVE INCREMENTAL FEDERAL RATE								
			0.31212								
			FACTOR FOR TAXABLE BASIS								
			1.65049								
			INTEREST EXPENSE PERCENTAGE								
			3.3600%								

	Northern - New Hampshire Division			<u>Account Activity:</u>
	Total	Transportation	Supply	
USC Labor & Overhead:				
Energy Contracts charges - 813:	\$ 403,550	\$ 172,598	\$ 230,952	30.40.10.00.813.01.00: USC-GAS PRODUCTION OTHER Note: See USC 813 tab for detail
Energy Measurement & Control charges- 851:	\$ 349,400	\$ 337,514	\$ 11,886	30.40.10.00.851.02.00: USC-GAS DISTRIBUTION, net of capitalization Note: See USC 851 tab for detail
Outside Services for IRP program:	\$ 61,850	\$ 61,850	\$ -	30.40.13.00.923.06.00: OS IRP EXPENSE-NH
Legal for Power Supply litigation (typical):	\$ -	\$ -	\$ -	30.40.13.00.928.03.00: REG COMM EXP - LEGAL
Supply-related legal costs are being deferred and amortized through CGAC upon approval				Note: Estimated amount of time related to litigation (supply)
			\$ 242,838	

Purpose of this schedule : To calculate supply-related Dispatch, Acquisition, & FERC Proceedings amounts to be collected from Supply customers through the CGAC mechanism. Transportation customers would otherwise be paying for the cost of supply related activities in base rates if not for this reclass from base to flowthru.

Employee		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Supply Related	
#7504 Director, Energy Contracts	Billed	15,028	15,607	20,316	14,756	14,515	14,029	14,485	14,916	14,503	15,343	15,637	16,882	186,015	55,805	#7504 (Furino)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Director, Energy Contr
	30% Total	15,028	15,607	20,316	14,756	14,515	14,029	14,485	14,916	14,503	15,343	15,637	16,882	186,015	-	
#7938 Manager, Gas Supply	Billed	20,876	21,091	27,685	19,911	18,780	18,353	19,284	19,158	19,084	20,848	21,223	23,858	250,152	237,644	#7938 (Hardigan)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Manager, Gas Supply
	95% Total	20,876	21,091	27,685	19,911	18,780	18,353	19,284	19,158	19,084	20,848	21,223	23,858	250,152	-	
#7547 Manager, Energy Planning	Billed	14,651	15,411	20,480	14,581	14,668	14,174	14,356	14,706	14,512	15,573	15,583	17,134	185,829	92,915	#7547 (Wells)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Manager, Energy Plann
	50% Total	-	-	-	-	-	-	-	-	-	-	-	-	-	92,915	
#7868 Sr. Energy Analyst I	Billed	6,353	5,820	7,548	6,221	6,919	5,448	4,586	5,401	5,394	5,334	5,066	5,809	69,898	17,475	#7868 (Goodwin)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Sr. Energy Analyst I
	25% Total	6,353	5,820	7,548	6,221	6,919	5,448	4,586	5,401	5,394	5,334	5,066	5,809	69,898	17,475	
#7773 Energy Analyst II	Billed	1,474	1,548	2,034	1,507	1,440	1,460	1,445	1,498	1,499	1,521	1,618	1,774	18,818	-	#7773 (Glover)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Energy Analyst II
	0% Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
#8444 Electric Energy Analyst II	Billed		742	1,727	1,248	1,168	1,223	1,273	1,213	1,304	1,723	1,457	1,723	14,800	740	#8444 (Pentz)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Electric Energy Analyst
	5% Total	4,409	3,749	6,136	3,547	3,480	4,245	3,446	3,531	4,413	3,732	3,749	4,102	14,800	740	
#8331 Scheduling Analyst II	Billed	8,100	8,549	11,139	8,027	7,925	7,744	7,816	8,024	8,024	8,497	8,537	9,323	101,705	96,620	#8331 (Routon)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Scheduling Analyst II
	95% Total	8,100	8,549	11,139	8,027	7,925	7,744	7,816	8,024	8,024	8,497	8,537	9,323	101,705	96,620	
Energy Analyst	Billed													-	-	Open
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Energy Analyst
	75% Total	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
#8301 Assoc. Energy Analyst	Billed	4,409	3,749	6,136	3,547	3,480	4,245	3,446	3,531	4,413	3,732	3,749	4,102	48,541	-	(Chaput)
Approx Time on Supply:	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Assoc. Energy Analyst
	0% Total	-	-	-	-	-	-	-	-	-	-	-	-	48,541	-	
	Billed	70,891	72,517	97,064	69,799	68,895	66,677	66,691	68,446	68,732	72,572	72,871	80,606	875,760	501,198	
	Capitalized	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	Total	70,891	72,517	97,064	69,799	68,895	66,677	66,691	68,446	68,732	72,572	72,871	80,606	875,760	501,198	

Employee		Supply %	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	Supply Related
#7755	EISFELLER	Billed	718	725	949	717	676	660	650	717	717	756	725	782	8,795	
EM&C - Director		Capitalized	(251)	(254)	(332)	(251)	(237)	(231)	(228)	(251)	(251)	(265)	(254)	(274)	(3,078)	
Approx Time on Supply:		0% Total	467	471	617	466	439	429	423	466	466	492	471	508	5,717	
#2962	RIVERS	Billed	3,456	3,576	4,682	3,384	3,319	3,239	3,287	4,803	-	-	-	-	29,746	
EM&C - Dispatch - Manager		Capitalized	(1,209)	(1,252)	(1,639)	(1,184)	(1,162)	(1,134)	(1,151)	(1,681)	-	-	-	-	(10,411)	
Approx Time on Supply:		2% Total	2,246	2,324	3,044	2,199	2,158	2,106	2,137	3,122	-	-	-	-	19,335	387
#7520	KNOWLES	Billed	-	-	-	-	4,955	6,115	4,907	-	-	-	-	-	15,976	
EM&C - Supervisor, Gas Dispatch		Capitalized	-	-	-	-	(3,716)	(4,586)	(3,680)	-	-	-	-	-	(11,982)	
Approx Time on Supply:		0% Total	-	-	-	-	1,239	1,529	1,227	-	-	-	-	-	3,994	
#7955	PRATTE	Billed	4,903	5,135	7,598	5,195	4,986	4,920	5,295	5,743	4,857	5,135	5,080	5,670	64,517	
EM&C - Supervisor, Gas Dispatch		Capitalized	(1,716)	(1,797)	(2,659)	(1,818)	(1,745)	(1,722)	(1,853)	(2,010)	(1,700)	(1,797)	(1,778)	(1,985)	(22,581)	
Approx Time on Supply:		5% Total	3,187	3,338	4,938	3,377	3,241	3,198	3,442	3,733	3,157	3,338	3,302	3,686	41,936	2,097
#7949	HIGGINS	Billed	1,068	1,255	1,509	1,092	1,043	1,018	1,033	1,013	956	1,073	1,085	1,149	13,294	
EM&C - Dispatch Analyst - Gas		Capitalized	(374)	(439)	(528)	(382)	(365)	(356)	(362)	(355)	(335)	(375)	(380)	(402)	(4,653)	
Approx Time on Supply:		0% Total	694	816	981	710	678	662	672	659	621	697	705	747	8,641	
#8409	BRODEUR	Billed	1,207	1,393	1,699	1,225	1,179	1,151	1,168	1,089	1,043	1,086	1,078	1,245	14,564	
EM&C - Dispatch Analyst - Gas		Capitalized	(423)	(488)	(595)	(429)	(413)	(403)	(409)	(381)	(365)	(380)	(377)	(436)	(5,097)	
Approx Time on Supply:		0% Total	785	905	1,104	796	766	748	759	708	678	706	701	810	9,466	
#7874	BROOKS	Billed	5,088	5,171	7,067	5,461	4,595	4,604	5,181	4,808	5,459	5,175	5,216	6,437	64,262	
EM&C - Dispatch - Gas Controller		Capitalized	(1,781)	(1,810)	(2,474)	(1,911)	(1,608)	(1,611)	(1,813)	(1,683)	(1,911)	(1,811)	(1,826)	(2,253)	(22,492)	
Approx Time on Supply:		5% Total	3,307	3,361	4,594	3,550	2,987	2,992	3,367	3,125	3,548	3,364	3,391	4,184	41,771	2,089
#7910	LACOUTURE	Billed	5,212	5,293	7,727	5,216	4,630	5,467	5,740	5,354	5,033	5,148	6,521	6,097	67,436	
EM&C - Dispatch - Gas Controller		Capitalized	(1,824)	(1,852)	(2,704)	(1,826)	(1,621)	(1,913)	(2,009)	(1,874)	(1,761)	(1,802)	(2,282)	(2,134)	(23,603)	
Approx Time on Supply:		5% Total	3,388	3,440	5,022	3,390	3,010	3,553	3,731	3,480	3,271	3,346	4,239	3,963	43,833	2,192
#3095	SEVERANS	Billed	4,647	2,916	2,942	2,334	6,662	-	-	-	-	-	-	-	19,501	
EM&C - Dispatch - Gas Controller		Capitalized	(1,626)	(1,021)	(1,030)	(817)	(2,332)	-	-	-	-	-	-	-	(6,825)	
Approx Time on Supply:		5% Total	3,020	1,895	1,912	1,517	4,330	-	-	-	-	-	-	-	12,676	634
#8306	BORDELEAU	Billed	3,891	4,091	6,086	4,111	3,989	4,777	5,298	3,469	4,179	4,448	4,165	4,997	53,500	
EM&C - Dispatch - Gas Controller		Capitalized	(1,362)	(1,432)	(2,130)	(1,439)	(1,396)	(1,672)	(1,854)	(1,214)	(1,463)	(1,557)	(1,458)	(1,749)	(18,725)	
Approx Time on Supply:		5% Total	2,529	2,659	3,956	2,672	2,593	3,105	3,443	2,255	2,717	2,891	2,707	3,248	34,775	1,739
#8330	TARDIF	Billed	3,577	3,996	5,222	3,488	3,100	3,465	3,531	3,540	3,819	3,425	4,455	4,590	46,209	
EM&C - Dispatch - Gas Controller		Capitalized	(1,252)	(1,399)	(1,828)	(1,221)	(1,085)	(1,213)	(1,236)	(1,239)	(1,337)	(1,199)	(1,559)	(1,606)	(16,173)	
Approx Time on Supply:		5% Total	2,325	2,598	3,395	2,267	2,015	2,252	2,295	2,301	2,482	2,226	2,896	2,983	30,036	1,502
#8442	KEACH	Billed	1,365	3,277	4,409	3,014	3,221	3,097	3,469	3,244	3,006	3,418	3,158	3,721	38,398	
EM&C - Dispatch - Gas Controller		Capitalized	(478)	(1,147)	(1,543)	(1,055)	(1,127)	(1,084)	(1,214)	(1,135)	(1,052)	(1,196)	(1,105)	(1,302)	(13,439)	
Approx Time on Supply:		5% Total	887	2,130	2,866	1,959	2,094	2,013	2,255	2,109	1,954	2,222	2,052	2,418	24,959	1,248
#7865	MARTINAGE	Billed	2,573	2,564	3,383	2,642	2,281	2,564	2,849	2,665	2,678	2,690	2,322	2,542	31,752	
EM&C - Dispatch - Gas Field Services Coordinator		Capitalized	(901)	(897)	(1,184)	(925)	(798)	(898)	(997)	(933)	(937)	(941)	(813)	(890)	(11,113)	
Approx Time on Supply:		0% Total	1,672	1,667	2,199	1,717	1,482	1,667	1,852	1,732	1,740	1,748	1,509	1,652	20,639	
#7867	TALIS	Billed	1,205	1,470	1,841	1,263	1,336	1,384	1,227	1,355	1,257	1,165	1,335	1,501	16,340	
EM&C - Dispatch - Gas Field Services Coordinator		Capitalized	(422)	(514)	(644)	(442)	(468)	(484)	(430)	(474)	(440)	(408)	(467)	(525)	(5,719)	
Approx Time on Supply:		0% Total	784	955	1,197	821	868	900	798	881	817	757	868	976	10,621	
#7866	JONES	Billed	2,977	2,582	4,483	-	2,192	2,599	2,642	2,714	3,012	2,735	2,758	3,296	31,990	
EM&C - Dispatch - Gas Field Services Coordinator		Capitalized	(1,042)	(904)	(1,569)	-	(767)	(910)	(925)	(950)	(1,054)	(957)	(965)	(1,153)	(11,197)	
Approx Time on Supply:		0% Total	1,935	1,679	2,914	-	1,425	1,689	1,717	1,764	1,958	1,778	1,793	2,142	20,794	
#8337	COPP	Billed	2,257	2,471	3,971	2,272	2,191	2,356	2,387	2,684	2,565	2,499	2,435	3,001	31,089	
EM&C - Dispatch - Gas Field Services Coordinator		Capitalized	(790)	(865)	(1,390)	(795)	(767)	(825)	(836)	(939)	(898)	(875)	(852)	(1,050)	(10,881)	
Approx Time on Supply:		0% Total	1,467	1,606	2,581	1,477	1,424	1,531	1,552	1,744	1,667	1,625	1,583	1,951	20,208	
USC Audit Report		Billed	44,145	45,916	63,568	41,415	50,355	47,416	48,663	43,197	38,580	38,753	40,333	45,027	547,369	
USC Capitalized Audit Report		Capitalized	(15,451)	(16,071)	(22,249)	(14,495)	(19,606)	(19,041)	(18,995)	(15,119)	(13,503)	(13,563)	(14,117)	(15,760)	(197,970)	
Check: s/b zero		Total	28,694	29,845	41,319	26,919	30,749	28,374	29,668	28,078	25,077	25,189	26,217	29,268	349,400	11,886
USC Audit Report		Billed	44,145	45,916	63,568	41,415	50,355	47,416	48,663	43,197	38,580	38,753	40,333	45,027	547,369	
USC Capitalized Audit Report		Capitalized	(15,451)	(16,071)	(22,249)	(14,495)	(19,606)	(19,041)	(18,995)	(15,119)	(13,503)	(13,563)	(14,117)	(15,760)	(197,970)	
Check: s/b zero		Total	-	-	-	-	-	-	-	-	-	-	-	0	0	

Job Descriptions for USC Employees - Energy Measurement & Control:

Director, EM&C:

The Energy Measurement & Control function is responsible for constructing, operating and maintaining Unitil's electric and gas metering systems and electric substations, and is responsible for gas and electric system operation and control functions. This shall include installation, maintenance, and testing of all gas and electric meters; monthly procurement of energy usage data from all company meters (meter reading); installation, operation and maintenance of the Company's Advanced Metering Infrastructure (AMI) and Automated Meter Reading (AMR) systems; construction and maintenance of electric substations including related AMI and SCADA technology; and development of metering system standards to optimize efficiency and performance. Gas control shall be responsible for system monitoring & control via Supervisory Control and Data Acquisition (SCADA); monitoring and dispatching of LNG and LPG plant operation; load forecasting and daily nominations; tracking of gas inventories; and daily estimating and telemetering the Company at

Electric system operations shall include system monitoring & control via Supervisory Control and Data Acquisition (SCADA); radio operation; outage reporting; and evaluation and procurement of advanced metering and advanced system operations technologies.

The Director is responsible for ensuring the effective management and performance of the Company's energy measurement and control functions in order to meet Unitil's Mission and Goals. The Director is accountable for the reliable, efficient and safe provision of metering, meter reading, substation maintenance, gas control, and electric system operations services. This position is also conceived as a highly strategic position with a heavy focus on next generation utility technologies, Smart Grid applications, integration and control of distributed energy resources including both generation and demand response technologies, and the development of smart metering and new time-based or real time pricing programs. The Director is responsible for staying abreast of the latest trends and industry developments including state and federal legislation, formulating corporate policy direction, attending and testifying at related regulatory proceedings, developing and executing new programs and technology systems, and positioning the Company at the forefront of industry and public policy direction.

Manager, Gas Dispatch - EM&C:

Provides management oversight, coordination, and training for Gas Control Operations, Gas Work Order Dispatch, Emergency Response Dispatch and Gas SCADA system operation in accordance with Company programs, policies and procedures, federal, state and local regulations, pipeline tariffs, contract obligations, and applicable industry guidelines. Ensures real-time utilization of Gas SCADA, GTRAC, and Mobile Data systems as well as timely and accurate upkeep of operating documentation and record keeping.

Dispatch Supervisor - EM&C:

Provides direct supervision, coordination, and training for System Dispatch in support of Gas and Electric system operations in accordance with Company programs, policies and procedures, federal, state and local regulations, pipeline tariffs, ISO-NE operating procedures, and applicable industry guidelines. Ensures real-time utilization of SCADA and EMS network. Ensures timely and accurate upkeep of operating documentation and record keeping.

Gas Controller, EM&C:

This position is responsible for the operation and control of the Company's gas transmission distribution system; and the managing of pipeline and peak shaving supplies. The incumbent must ensure that the system is operated within the constraints of Federal, State and Company codes and standards as well tariff constraints for the receipt and control of the system supply.

Gas Supply Coordinator, EM&C:

Primarily responsible for the efficient and accurate scheduling, accounting, and reconciliation of purchased and transported natural gas both on and off the company's system. Interact with the supply, planning, and gas control functions on a regular basis to ensure that all operational needs are met in order to provide safe, reliable service.

Gas Field Services Coordinator, EM&C:

This position is responsible for the distribution of all gas meter and service work orders to include emergency response to gas leaks and dig safe in a timely and efficient manner. This will include the creating, prioritizing and assigning field service requests to ensure timely emergency response and exceptional customer service. The incumbent will be responsible to oversee the field work force and monitor and address response efficiency in order to meet state and federal requirements and company policies and procedures. Coordination of field and construction work force when emergency conditions arise.

SCADA Specialist, EM&C:

This position is responsible for managing the Gas SCADA operating system software and daily support of SCADA field devices. The primary function is the support of the Gas Supervisory Control and Data Acquisition (SCADA), energy measurement systems and associated field devices. Job also includes the involvement in the development of business applications, system interfaces, and other duties related to SCADA. Assume full responsibility for on-going SCADA maintenance including contractor coordination. Work with Engineering, IS, and Operations on enhancements to existing systems and applications, new project implementations, and system availability and integrity. Secondary functions include support of Electric SCADA systems, AMI and AMR software and devices.

AMI Project Manager - EM&C:

Provide project management for implementation of the Advanced Metering Infrastructure (AMI). Insure compliance with vendor agreements, coordinate all activities, insure that budget expectations are met and that implementation meets project plan milestones. Provide leadership for the AMI Implementation team and insure that all team members are well informed regarding expectations, project plan revisions, and project status. Provide project status reports to management. Collaborate with Meter & Service, Operations, Engineering, Customer Service, Billing, IS, AMI systems, and other stakeholders to insure that best practice business processes and practices are utilized and that all project goals are achieved. Ensure that all work activities and interactions with all involved parties reflect the highest standards for conduct and professionalism.

AMI Systems Specialist - EM&C:

Operate and apply AMR systems software to insure the accurate collection of energy usage information, meet all meter reading metrics and fill data requests. Conduct system failure investigations and provide problem resolution. Insure that all work practices conform to established internal controls.

Manager, AMI Systems- EM&C

Manage the AMI Systems group in full support of the metering function. Establish appropriate technical criteria and standards and manage resources to ensure efficient and effective work practices resulting in the timely procurement of energy usage data from customer meters and system supply points. Insure that all AMI systems reflect the highest level of reliability and effectiveness while fully considering safety, economy, and efficiency. Collaborate with operations and engineering colleagues and Customer Service, Business Development and IS personnel to insure the effectiveness of operations business processes and practices, and to foster successful relationships between Unitil and its service area communities and customers. Ensure that all work activities and interactions with customers, community leaders, and regulators reflect the highest standards for conduct and professionalism.

Northern Utilities, Inc.
Summary of Write-Offs 2016

* Columns are linked to Sch 8 tab *

Rate Class	Period NH
Write-Offs Distribution Related	
NH R5 & ME R2 - Total	\$175,590
NH R6 & ME R1 - Total	\$8,481
R10 - Total	\$11,209
R11 - Total	\$157
G40 - Total	\$20,113
G50 - Total	\$3,727
G41 - Total	\$5,976
G51 - Total	\$500
G42	\$0
G52	\$0
Non Rate Class Specific	\$16,198
Total Write-Offs Distribution Related	\$241,951
Write-Offs Non Distribution Related	
NH R5 & ME R2 - Total	\$112,786
NH R6 & ME R1 - Total	\$2,588
R10 - Total	\$18,917
R11 - Total	\$90
G40 - Total	\$12,613
G50 - Total	\$2,141
G41 - Total	\$12,376
G51 - Total	\$38
G42	\$0
G52	\$0
Total Write-Offs Non-Distribution Related	\$161,549
Total Write-Offs per above	\$403,500
Total Write-Offs per Schedule 8	\$403,500
Difference	-

Note: The above schedule shows gross write off and does not include recoveries. See tab "Sch 8" to recovery data.

Late Payment Fee Analysis NU-NH 2016

Row Labels	Sum of UTTAMT
05	\$ 73,541.10
06	\$ 2,498.69
10	\$ 1,556.31
3C	\$ 3.44
40	\$ 13,735.66
41	\$ 5,380.44
42	\$ 1,197.00
50	\$ 1,393.73
51	\$ 3,188.22
52	\$ 1,793.71
AC	\$ 9.86
EC	\$ 20.57
MC	\$ 42.77
RB	\$ 137.78
RH	\$ 363.97
Grand Total	\$ 104,863.25
Total Firm	\$ 104,284.86

GL Check	
30.40.08.00.487.00.01	\$ (78,300.47)
30.40.08.00.487.00.02	\$ (26,562.78)
30.40.08.00.487.00.03	\$ -
	\$ (104,863.25)

Rate Class Key

Class	Description
5	R5 RES HEAT
6	R6 RES NON HEAT
10	R10 RES LI HEAT
3C	3-MOS INSTALLMENT CARE
40	G40 C&I LO ANNUAL/HI WINT
41	G41 C&I MED ANUAL/HI WINT
42	G42 C&I HI ANNUAL/HI WINT
50	G50 C&I LOW ANUAL/LO WINT
51	G51 C&I MED ANUAL/LO WINT
52	G52 C&I HI ANNUAL/LO WINT
AC	ANNUAL CARE
EC	EASY CARE GAS LINE PLANS
MC	MONTHLY CARE
RB	RENTAL CONVERSION BURNER
RH	RENTAL WATER HEATER

Deposit Data Analysis NU-NH 2016

Row Labels	Sum of UTDEPA
05	\$ 72,282.13
06	\$ 3,977.50
10	\$ 3,585.18
40	\$ 137,790.51
41	\$ 107,395.00
42	\$ -
50	\$ 31,250.00
51	\$ 55,835.00
52	\$ -
AC	\$ -
EC	\$ -
MC	\$ -
RB	\$ -
RH	\$ -
Grand Total	\$ 412,115.32

GL Check	
30.40.00.00.235.01.00	\$ (412,115.32)
Variance	\$ -

Rate Class Key

Class	Description
5	R5 RES HEAT
6	R6 RES NON HEAT
10	R10 RES LI HEAT
40	G40 C&I LO ANNUAL/HI WINT
41	G41 C&I MED ANUAL/HI WINT
42	G42 C&I HI ANNUAL/HI WINT
50	G50 C&I LOW ANUAL/LO WINT
51	G51 C&I MED ANUAL/LO WINT
52	G52 C&I HI ANNUAL/LO WINT
AC	ANNUAL CARE
EC	EASY CARE GAS LINE PLANS
MC	MONTHLY CARE
RB	RENTAL CONVERSION BURNER
RH	RENTAL WATER HEATER

Northern Utilities New Hampshire Division
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Gas Cost of Service Workpapers
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NORTHERN UTILITIES - NEW HAMPSHIRE
GAS DIVISION COST OF SERVICE SCHEDULES
FOR THE 12 MONTHS ENDED DECEMBER 31, 2016

GAS LABOR ALLOCATOR

Labor by Account	Allocated Clearing,		Total Labor by	Per Revenue		Incentive			Total USC	Total Labor		
	Union & Non-	Unproductive Time		Requirements	Increase	Total Direct	Compensation at	Labor				
	Union Distribution	MDS and Inc Comp		Account	Requirements	Increase	Total Direct	USC O&M Labor			Target	Increase
Acct 163	\$ 187,117	\$ (187,117)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 52,373	\$ 6,884	\$ 2,632	\$ 61,889	\$ 61,889
Acct 710	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 717	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 718	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 735	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 740	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 741	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 742	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 813	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 181,937	\$ 23,914	\$ 9,142	\$ 214,992	\$ 214,992
Acct 851	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 157,611	\$ 20,716	\$ 7,919	\$ 186,247	\$ 186,247
Acct 857	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -	\$ -
Acct 870	\$ 27,461	\$ 2,154	\$ 29,615	\$ 29,615	\$ 1,959	\$ 31,573					\$ -	\$ 31,573
Acct 874	\$ 367,561	\$ 84,309	\$ 451,870	\$ 451,870	\$ 29,886	\$ 481,755					\$ -	\$ 481,755
Acct 875	\$ 186,084	\$ 14,593	\$ 200,677	\$ 200,677	\$ 13,272	\$ 213,949					\$ -	\$ 213,949
Acct 878	\$ 329,727	\$ 521,528	\$ 851,255	\$ 851,255	\$ 56,300	\$ 907,555					\$ -	\$ 907,555
Acct 879	\$ 244	\$ 45,177	\$ 45,420	\$ 45,420	\$ 3,004	\$ 48,424					\$ -	\$ 48,424
Acct 880	\$ 16,643	\$ 1,305	\$ 17,948	\$ 17,948	\$ 1,187	\$ 19,135	\$ 196,368	\$ 25,811	\$ 9,867	\$ 232,045	\$ 251,180	\$ 251,180
Acct 881	\$ 466	\$ 37	\$ 503	\$ 503	\$ 33	\$ 536					\$ -	\$ 536
Acct 885	\$ 30,080	\$ 2,359	\$ 32,439	\$ 32,439	\$ 2,145	\$ 34,584					\$ -	\$ 34,584
Acct 886	\$ 2,852	\$ 224	\$ 3,076	\$ 3,076	\$ 203	\$ 3,279					\$ -	\$ 3,279
Acct 887	\$ 5,203	\$ 408	\$ 5,611	\$ 5,611	\$ 371	\$ 5,982					\$ -	\$ 5,982
Acct 889	\$ 19,818	\$ 1,554	\$ 21,372	\$ 21,372	\$ 1,414	\$ 22,786					\$ -	\$ 22,786
Acct 890	\$ 213	\$ 17	\$ 230	\$ 230	\$ 15	\$ 245					\$ -	\$ 245
Acct 891	\$ 23,428	\$ 1,837	\$ 25,266	\$ 25,266	\$ 1,671	\$ 26,937					\$ -	\$ 26,937
Acct 892	\$ 17,657	\$ 13,904	\$ 31,561	\$ 31,561	\$ 2,087	\$ 33,648					\$ -	\$ 33,648
Acct 893	\$ 524	\$ 41	\$ 565	\$ 565	\$ 37	\$ 602					\$ -	\$ 602
Acct 894	\$ 39	\$ 104,300	\$ 104,338	\$ 104,338	\$ 6,901	\$ 111,239					\$ -	\$ 111,239
Acct 901	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -					\$ -	\$ -
Acct 902	\$ 70,446	\$ 12,658	\$ 83,104	\$ 83,104	\$ 5,496	\$ 88,600					\$ -	\$ 88,600
Acct 903	\$ 13,218	\$ 53,900	\$ 67,118	\$ 67,118	\$ 4,439	\$ 71,557	\$ 492,743	\$ 64,766	\$ 24,758	\$ 582,268	\$ 653,826	\$ 653,826
Acct 907	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -					\$ -	\$ -
Acct 908	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 135,525	\$ 17,813	\$ 6,810	\$ 160,148	\$ 160,148	\$ 160,148
Acct 920	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -					\$ -	\$ -
Acct 921	\$ 22,104	\$ 1,733	\$ 23,837	\$ 23,837	\$ 1,577	\$ 25,414					\$ -	\$ 25,414
Acct 923	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,595,945	\$ 209,772	\$ 80,190	\$ 1,885,906	\$ 1,885,906	\$ 1,885,906
Acct 925	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -					\$ -	\$ -
Acct 926	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -					\$ -	\$ -
Acct 935	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -					\$ -	\$ -
	\$ 1,320,884	\$ 674,919	\$ 1,995,803	\$ 1,995,803	\$ 131,998	\$ 2,127,801	\$ 2,812,501	\$ 369,676	\$ 141,317	\$ 3,323,495	\$ 5,451,296	\$ 5,451,296
			\$ 1,995,803	\$ 1,995,803	\$ 131,998	\$ 2,127,801	\$ 2,812,501	\$ 369,676	\$ 141,317	\$ 3,323,494	\$ 5,451,296	

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NORTHERN UTILITIES - NEW HAMPSHIRE
GAS DIVISION COST OF SERVICE SCHEDULES
FOR THE 12 MONTHS ENDED DECEMBER 31, 2016

GAS LABOR ALLOCATOR

<u>Labor by Account</u>	<u>Union & Non- Union Distribution by Account</u>	<u>Allocated Clearing, Unproductive Time MDS and Inc Comp at target</u>	<u>Total Labor by Account</u>	<u>Per Revenue Requirements</u>	<u>Increase</u>	<u>Total Direct</u>	<u>USC O&M Labor</u>	<u>Incentive Compensation at Target</u>	<u>Increase</u>	<u>Total USC Labor</u>	<u>Total Labor</u>
			\$ -	\$ -	\$ -	\$ (0)	\$ 0	\$ 0	\$ -	\$ 0	
Other Accounts not used in labor allocator above:							\$ 532,138	Incentive Comp at Target			
							30.53%	Percentage of USC Charges to Construction			
Acct 107	\$ 528,149	\$ -	\$ 528,149							\$ -	
Acct 184	\$ 967,334	\$ 337,633	\$ 1,304,968				\$ 1,235,962	\$ 162,462	\$ -	\$ 1,398,423	
	\$ 1,495,483	\$ 337,633	\$ 1,833,116				\$ 1,235,962	\$ 162,462	\$ -	\$ 1,398,423	
Acct 186	\$ 815,391	\$ (815,391)	\$ -				\$ -	\$ -	\$ 62,105	\$ 62,105	Capitalization on i
Acct 242	\$ 31,770	\$ -	\$ 31,770				\$ -	\$ -	\$ -	\$ -	
Acct 242 Inc Comp	\$ 66,173	\$ (52,923)	\$ 13,250				\$ -	\$ -	\$ -	\$ -	
Acct 416	\$ 17,232	\$ 3,845	\$ 21,077				\$ -	\$ -	\$ -	\$ -	
Acct 418			\$ -				\$ -	\$ -	\$ -	\$ -	
Acct 426	\$ 186	\$ 305	\$ 491				\$ -	\$ -	\$ -	\$ -	
Acct 885 Unprod Time	\$ 148,083	\$ (148,083)	\$ -				\$ -	\$ -	\$ -	\$ -	
	\$ 1,078,836	\$ (1,012,247)	\$ 66,588				\$ -	\$ -	\$ 62,105	\$ 62,105	
	\$ 3,895,203	\$ 305	\$ 3,895,508	Total Sch 27 Labor			\$ 4,048,463	\$ 532,138	\$ 203,422	\$ 4,784,023	

NU - NH - Average Cost of Service								Current	Current	Book	Book
Rate Class			\$	Service Cost	Meter Cost	No Services	No Meters	Service Cost	Meter Cost	Service Cost	Meter Cost
R6	Residential Non Heating Regular		\$6,419.50	\$5,686.20	\$414.24	17,862	25,007	\$101,566,576	\$10,358,837	\$44,967,656	\$14,540,540
R11	Residential Non Heating Low Income										
R5	Residential Heating Regular										
R10	Residential Heating Low Income										
G40	General Small, High Winter Use	< 8,000 Therms	\$7,471.10	\$6,433.62	\$666.16	4,105	5,747	\$26,408,822	\$3,828,258	\$11,692,260	\$5,373,667
G50	General Small, Low Winter Use	< 8,000 Therms									
G41	General Medium, High Winter Use	8,000 to < 80,000 Therms	\$10,193.94	\$6,939.30	\$2,747.99	943	943	\$6,542,606	\$2,590,894	\$2,896,678	\$3,636,798
G51	General Medium, Low Winter Use	8,000 to < 80,000 Therms									
G42	General Large, High Winter Use	> 80,000 Therms	\$32,815.54	\$22,572.09	\$8,612.50	69	69	\$1,566,879	\$597,851	\$693,721	\$839,195
G52	General Large, Low Winter Use	> 80,000 Therms									
						22,979	31,766	\$136,084,884	\$17,375,840	\$60,250,315	\$24,390,199
										\$60,250,315	\$24,390,199

NU - NH Rate Class:		Residential - R1, R2, R3, & R4		
		Base \$	Direct OH \$	Gross \$
SERVICE COSTS	Labor	\$220.24	\$182.80	\$403.04
	Transport	\$79.16	\$0.00	\$79.16
	Material	\$212.85	\$161.77	\$374.62
	Invoices	\$3,084.00	\$0.00	\$3,084.00
	Sub Total	\$3,596.25	\$344.57	\$3,940.82
METERING COSTS	Labor	\$34.25	\$28.43	\$62.68
	Material	\$48.43	\$36.80	\$85.23
	Invoices	\$139.18	\$0.00	\$139.18
	Sub Total	\$221.86	\$65.23	\$287.09
AVERAGE COST OF SERVICE	Sub Total (with Direct Overheads)			\$4,227.90
	<i>General Construction Overheads</i>			\$2,191.59
	Expense (Meter Testing)			\$0.00
	Total Average Cost of Service			\$6,419.50

Service Cost Meter Cost

\$403.04	
\$79.16	
\$374.62	
\$3,084.00	
\$3,940.82	
	\$62.68
	\$85.23
	\$139.18
	\$287.09
\$3,940.82	\$287.09
\$1,745.39	\$127.15
	\$0.00
\$5,686.20	\$414.24

DETAIL			
SERVICE DESCRIPTION	File Name	R1-R4 LP	R1-R4 HP
	Meter Standard	G1-01-01	G1-02-01
	Pressure	LP	HP
	Diameter	1.25" HDPE	1/2" HDPE
	Average Length (Ft)	80	80
	Delivery Pressure	5" wc	7" wc
	Meter	AC-250	AC-250
	Regulator	N/A	Schlumberger B42
	Demand (scfh)	154	244
	Consumption (Th/Yr)	1,042	1,189
	# of Services	2,234	19,800
	Weighting	10.14%	89.86%
SERVICE	Inspector (hrs)	2.00	2.00
	Inspector Rate (\$/Hr)	\$110.12	\$110.12
	Labor	\$220.24	\$220.24
	Transport	\$79.16	\$79.16
	Material (Stock)	\$535.00	\$362.00
	Invoices	\$3,084.00	\$3,084.00
METERING	Construction (hrs)	1.00	1.00
	Service Fitter (\$/Hr)	\$34.25	\$34.25
	Labor	\$34.25	\$34.25
	Meter set	\$55.31	\$47.65
	Meter/ with AMR	\$139.18	\$139.18
	Corrector	\$0.00	\$0.00
	Meter Testing	\$0.00	\$0.00

NU - NH Rate Class:		Commercial (Small) - G41 and G51		
		Base \$	Direct OH \$	Gross \$
SERVICE COSTS	Labor	\$220.24	\$182.80	\$403.04
	Transport	\$79.16	\$0.00	\$79.16
	Material	\$494.72	\$375.99	\$870.71
	Invoices	\$3,105.90	\$0.00	\$3,105.90
	Sub Total	\$3,900.02	\$558.79	\$4,458.81
METERING COSTS	Labor	\$34.25	\$28.43	\$62.68
	Material	\$5.61	\$4.26	\$9.87
	Invoices	\$389.13	\$0.00	\$389.13
	Sub Total	\$428.99	\$32.69	\$461.68
AVERAGE COST OF SERVICE	Sub Total (with Direct Overheads)			\$4,920.49
	<i>General Construction Overheads</i>			\$2,550.61
	Expense (Meter Testing)			\$0.00
	Total Average Cost of Service			\$7,471.10

Service Cost	Meter Cost
\$403.04	
\$79.16	
\$870.71	
\$3,105.90	
\$4,458.81	
	\$62.68
	\$9.87
	\$389.13
	\$461.68
\$4,458.81	\$461.68
\$1,974.81	\$204.48
	\$0.00
\$6,433.62	\$666.16

DETAIL			
SERVICE DESCRIPTION	File Name	G41-G51 LP	G41-G51 HP
	Meter Standard	G1-01-02	G1-02-03
	Pressure	LP	HP
	Diameter	2" HDPE	1.25" HDPE
	Average Length (Ft)	80	80
	Delivery Pressure	5" wc	7" wc
	Meter	AC250	AC250
	Regulator	Schlumberger B42	
	Demand (scfh)	369 scfh	560 scfh
	Consumption (Th/Yr)	2,661	3,722
	# of Services	2,234	19,800
	Weighting	10.14%	89.86%
SERVICE	Inspector (hrs)	2.00	2.00
	Inspector Rate (\$/Hr)	\$110.12	\$110.12
	Labor	\$220.24	\$220.24
	Transport	\$79.16	\$79.16
	Material (Stock)	\$510.00	\$493.00
	Invoices	\$3,300.00	\$3,084.00
METERING	Construction (hrs)	1.00	1.00
	Service Fitter (\$/Hr)	\$34.25	\$34.25
	Labor	\$34.25	\$34.25
	Meter set	\$55.31	\$47.65
	Meter/with AMR	\$346.32	\$346.32
	Corrector	\$0.00	\$0.00
	Meter Testing	\$0.00	\$0.00

NU - NH Rate Class:		Commercial (Medium) - G42 and G52		
		Base \$	Direct OH \$	Gross \$
SERVICE COSTS	Labor	\$230.75	\$191.52	\$422.27
	Transport	\$82.94	\$0.00	\$82.94
	Material	\$546.97	\$415.70	\$962.67
	Invoices	\$3,341.41	\$0.00	\$3,341.41
	Sub Total	\$4,202.06	\$607.22	\$4,809.28
METERING COSTS	Labor	\$137.00	\$113.71	\$250.71
	Material	\$154.21	\$117.20	\$271.41
	Invoices	\$1,382.37	\$0.00	\$1,382.37
	Sub Total	\$1,673.58	\$230.91	\$1,904.49
AVERAGE COST OF SERVICE	Sub Total (with Direct Overheads)			\$6,713.76
	<i>General Construction Overheads</i>			\$3,480.17
	Expense (Meter Testing)			\$0.00
	Total Average Cost of Service			\$10,193.94

Service Cost Meter Cost

\$422.27	
\$82.94	
\$962.67	
\$3,341.41	
\$4,809.28	
	\$250.71
	\$271.41
	\$1,382.37
	\$1,904.49
\$4,809.28	\$1,904.49
\$2,130.03	\$843.50
	\$0.00
\$6,939.30	\$2,747.99

DETAIL			
SERVICE DESCRIPTION	File Name	G41-G51 LP	G41-G51 HP
	Meter Standard	G1-01-02	G1-02-06
	Pressure	LP	HP
	Diameter	4" HDPE	2" HDPE
	Average Length (Ft)	80	80
	Delivery Pressure	7" wc	7" wc
	Meter	3M	3M
	Regulator	Fisher 99	Fisher S202
	Demand (scfh)		
	Consumption (Th/Yr)		
	# of Services	27	539
	Weighting	4.77%	95.23%
SERVICE	Inspector (hrs)	4.00	2.00
	Inspector Rate (\$/Hr)	\$110.12	\$110.12
	Labor	\$440.48	\$220.24
	Transport	\$158.32	\$79.16
	Material (Stock)	\$1,285.00	\$510.00
	Invoices	\$4,168.00	\$3,300.00
METERING	Construction (hrs)	4.00	4.00
	Service Fitter (\$/Hr)	\$34.25	\$34.25
	Labor	\$137.00	\$137.00
	Meter set	\$154.21	\$154.21
	Meter/ with AMR	\$1,228.16	\$1,228.16
	Corrector	\$0.00	\$0.00
	Meter Testing	\$0.00	\$0.00

NU NH Rate Class:		Commercial (Large) - G43 and G53		
		Base \$	Direct OH \$	Gross \$
SERVICE COSTS	Labor	\$880.96	\$731.20	\$1,612.16
	Transport	\$316.64	\$0.00	\$316.64
	Material	\$6,538.50	\$4,969.26	\$11,507.76
	Invoices	\$2,207.00	\$0.00	\$2,207.00
	Sub Total	\$9,943.10	\$5,700.46	\$15,643.56
METERING COSTS	Labor	\$411.00	\$341.13	\$752.13
	Material	\$389.60	\$296.10	\$685.70
	Invoices	\$4,531.06	\$0.00	\$4,531.06
	Sub Total	\$5,331.66	\$637.23	\$5,968.88
AVERAGE COST OF SERVICE	Sub Total (with Direct Overheads)			\$21,612.44
	<i>General Construction Overheads</i>			\$11,203.10
	Expense (Meter Testing)			\$0.00
	Total Average Cost of Service			\$32,815.54

Service Cost Meter Cost

\$1,612.16	
\$316.64	
\$11,507.76	
\$2,207.00	
\$15,643.56	
	\$752.13
	\$685.70
	\$4,531.06
	\$5,968.88
\$15,643.56	\$5,968.88
\$6,928.53	\$2,643.62
	\$0.00
\$22,572.09	\$8,612.50

DETAIL			
SERVICE DESCRIPTION	File Name	G43-G53 #1	G43-G53 #2
	Meter Standard	G1-03-02	FHS
	Pressure	HP	HP
	Diameter	4" HDPE	4" HDPE
	Average Length (Ft)	650	1,800
	Delivery Pressure	14" wc	44" wc
	Meter	3M	16M
	Regulator	Fisher S209	Fisher 99
	Demand (scfh)	9,000	26,200
	Consumption (Th/Yr)	85,035	0
	# of Services	1	1
	Weighting	50.00%	50.00%
SERVICE	Construction (hrs)	8.00	8.00
	3 Man Team (\$/Hr)	\$110.12	\$110.12
	Labor	\$880.96	\$880.96
	Transport	\$316.64	\$316.64
	Material (Stock)	\$5,240.00	\$7,837.00
METERING	Invoices	\$2,207.00	\$2,207.00
	Construction (hrs)	8.00	16.00
	Service Fitter (\$/Hr)	\$34.25	\$34.25
	Labor	\$274.00	\$548.00
	Meter set	\$389.60	\$389.60
	Meter w/ instrument adaptor	\$2,415.96	\$2,415.96
	Corrector w/ AMR	\$ 1,725.50	\$ 1,725.50
	Meter Testing	\$0.00	\$0.00

NU NH - Gas Overhead Rates

SUMMARY		
#	Category	OH
1	Transportation	0.00%
2	Labor	83.00%
3	Materials	76.00%
4	Invoices	0.00%

DETAIL		
A	Transportation	
	Automobile (per mile)	\$0.00
	Light Truck (per mile)	\$0.63
	Heavy Truck (\$/Hr)	\$39.58
B	Small Tools	6.00%
C	Exempt Stock	
	Common	0.00%
	Gas	26.00%
	Electric	0.00%
D1	E&O Overheads	
	Gas	44.29%
	Electric	0.00%
D1	General Overheads	
	Gas	5.23%
	Electric	0.00%
E	Unproductive Time	
	Payroll Load code 1	0.00%
F	Storeroom	40.00%
G	Workers Comp	3.42%
H	AFUDC	0.13%
I	Pension Costs/Payroll Taxes	
	Pension Costs	24%
	Payroll Taxes	9.94%
J	Medical Costs	23.51%
K	401K Capitalized	4.70%
L	PBOP	11.32%

Northern NH 3-Man Team Rates	
LABOR	
Description	Rate/Hr
Grade 10 Inspector	\$39.67
Grade 9	\$37.16
Grade 8	\$33.29
Total	\$110.12
Transportation	
Street Truck	\$39.58
Dump Truck	\$39.58
Back-Hoe	\$39.58
Total	\$118.74

<i>Description</i>	<i>Meter Invoice Cost</i>	<i>AMR Device</i>	<i>AMR Device (including</i>	<i>Total Meter Invoiced Costs</i>		<i>Instrument Drive Adaptor</i>	<i>Instrument</i>	<i>Instrument AMR</i>	<i>With Instrument Installed</i>
AC-250TC	\$ 67.37	\$ 64.50	\$ 3.50	\$ 135.37					
AL-425TC	\$ 215.55	\$ 64.50	\$ 3.50	\$ 283.55					
AL1000TC	\$ 961.91	\$ 84.50	\$ 6.75	\$ 1,053.16					
3M	\$ 1,223.00	\$ 64.50	\$ 19.00	\$ 1,306.50		\$ 225.65	\$ 1,641.00	\$ 84.50	\$ 3,174.15
5M	\$ 1,478.00	\$ 64.50	\$ 19.00	\$ 1,561.50		\$ 225.65	\$ 1,641.00	\$ 84.50	\$ 3,429.15
7M	\$ 1,878.00	\$ 64.50	\$ 19.00	\$ 1,961.50		\$ 225.65	\$ 1,641.00	\$ 84.50	\$ 3,829.15
11M	\$ 2,176.00	\$ 64.50	\$ 19.00	\$ 2,259.50		\$ 225.65	\$ 1,641.00	\$ 84.50	\$ 4,127.15
16M	\$ 2,984.00	\$ 64.50	\$ 19.00	\$ 3,067.50		\$ 225.65	\$ 1,641.00	\$ 84.50	\$ 4,935.15
23M	\$ 3,923.50			\$ 3,923.50		\$ 225.65	\$ 1,641.00	\$ 84.50	\$ 5,874.65
38M	\$ 7,591.00			\$ 7,591.00		\$ 225.65	\$ 1,641.00	\$ 84.50	\$ 9,542.15

NU - NH - Average Cost of Service					
Rate Class			Avg Meter Cost	Most Common Meter Cost	Diff
R6	Residential Non Heating Regular		\$ 139.18	\$ 135.37	\$ 3.81
R11	Residential Non Heating Low Income				
R5	Residential Heating Regular				
R10	Residential Heating Low Income				
G40	General Small, High Winter Use	< 8,000 Therms	\$ 346.32	\$ 135.37	\$ 210.95
G50	General Small, Low Winter Use	< 8,000 Therms			
G41	General Medium, High Winter Use	8,000 to < 80,000 Therms	\$1,228.16	\$ 1,306.50	\$ (78.34)
G51	General Medium, Low Winter Use	8,000 to < 80,000 Therms			
G42	General Large, High Winter Use	> 80,000 Therms	\$2,190.31	\$ 2,259.50	\$ (69.19)
G52	General Large, Low Winter Use	> 80,000 Therms			

Instrument drive		
adaptor	\$	225.65
Instrument Cost	\$	1,641.00
Instrument AMR	\$	84.50
Small AMR Install	\$	3.50
Large AMR Install	\$	6.75
Rotary ERT Install	\$	19.00 ** - done by company employees
Small AMR Cost	\$	64.50
Large AMR Cost	\$	84.50
strument AMR Co	\$	84.50

Description	R1-R4	G40 - G50	G41 - G51	G42 - G52	
AC-250TC	24401	3861	22		
AL-425TC	175	1173	48		
AL1000TC	69	756	234	0	
3M	4	322	439	16	
5M		30	94	13	
7M		5	40	9	
11M		0	16	17	
16M			0	6	
23M			0	1	
38M			1	3	
	24649	6147	894	65	31755

Description	R1-R4	Weight	Per Unit Cost	Total Cost	
AC-250TC	24401	0.9899387	\$ 135.37	\$ 3,303,163.37	
AL-425TC	175	0.0070997	\$ 283.55	\$ 49,621.25	
AL1000TC	69	0.0027993	\$ 1,053.16	\$ 72,668.04	
3M	4	0.0001623	\$ 1,306.50	\$ 5,226.00	
	24649			\$ 3,430,678.66	\$ 139.18

Description	G40 - G50	Weight	Per Unit Cost	Total Cost	
AC-250TC	3861	0.1908248	\$ 135.37	\$ 522,663.57	
AL-425TC	1173	0.1229868	\$ 283.55	\$ 332,604.15	
AL1000TC	756	0.0523833	\$ 1,053.16	\$ 796,188.96	
3M	322	0.0048804	\$ 1,306.50	\$ 420,693.00	
5M	30	0.0008134	\$ 1,561.50	\$ 46,845.00	
7M	5	0	\$ 1,961.50	\$ 9,807.50	
	6147			\$ 2,128,802.18	\$ 346.32

Description	G41 - G51	Weight	Per Unit Cost	Total Cost	
AC-250TC	22	0.0246085	\$ 135.37	\$ 2,978.14	
AL-425TC	48	0.0536913	\$ 283.55	\$ 13,610.40	
AL1000TC	234	0.261745	\$ 1,053.16	\$ 246,439.44	
3M	439	0.4910515	\$ 1,306.50	\$ 573,553.50	
5M	94	0.1051454	\$ 1,561.50	\$ 146,781.00	
7M	40	0.0447427	\$ 1,961.50	\$ 78,460.00	
11M	16	0.0178971	\$ 2,259.50	\$ 36,152.00	
16M	0	0	\$ 3,067.50	\$ -	
38M	1	0.0011186	\$ 7,591.00	\$ 7,591.00	
	894			\$ 1,097,974.48	\$1,228.16

Description	G42 - G52	Weight	Per Unit Cost	Total Cost	
AL1000TC	0	0	\$ 1,053.16	\$ -	
3M	16	0.2461538	\$ 1,306.50	\$ 20,904.00	
5M	13	0.2	\$ 1,561.50	\$ 20,299.50	
7M	9	0.1384615	\$ 1,961.50	\$ 17,653.50	
11M	17	0.2615385	\$ 2,259.50	\$ 38,411.50	
16M	6	0.0923077	\$ 3,067.50	\$ 18,405.00	
23M	1	0.0153846	\$ 3,923.50	\$ 3,923.50	
38M	3	0.0461538	\$ 7,591.00	\$ 22,773.00	
	65			\$ 142,370.00	\$2,190.31

Sum of act_cost	
description3	Total
Corr Sys Sac Anode	734,157.71
Joint Clamping Iron Pipe	542,145.01
Non-unitized	1,341,288.52
Pipe, Ci Tr, 3 in.	12,863.68
Pipe, Ci Tr, 4 in.	5,664.93
Pipe, Ci Tr, 6 in.	5,640.93
Pipe, Ci Tr, 8 in.	9,812.38
Pipe, Ci Tr, 10 in.	1,837.46
Pipe, Ci Tr, 12 in.	168.39
Pipe, Pl, 1/2 in.	16,236.63
Pipe, Pl, 1 1/4 in.	49,638.94
Pipe, Pl, 2 in.	23,394,309.73
Pipe, Pl, 4 in.	20,488,349.45
Pipe, Pl, 6 in.	27,325,762.94
Pipe, Pl, 8 in.	11,178,407.03
pipe, pl, 12 in.	963,348.97
Pipe, St Pe, 2 in.	130,527.26
Pipe, St Pe, 4 in.	51,982.59
Pipe, St Pe, 6 in.	6,768.63
Pipe, St Pe, 8 in.	3,022.94
Pipe, St Tr Wl, 2 in.	1,028,599.53
Pipe, St Tr Wl, 4 in.	2,375,579.22
Pipe, St Tr Wl, 5 in.	6,616.45
Pipe, St Tr Wl, 6 in.	2,425,511.78
Pipe, St Tr Wl, 8 in.	11,187,954.70
Pipe, St Tr Wl, 10 in.	207,702.76
Pipe, St Tr Wl, 12 in.	625,629.16
Pipe, St Tr Wl, 16 in.	22,233.13
Plastic Pvc, 24 in.	931.61
valve box	1,237,337.12
valves	1,469,836.90
Grand Total	106,849,866.48

Total Cost of 2" & below 24,619,312.09

Tot Percent of 2" & below 23.04%

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Table - 1
Northern Utilities- New Hampshire
Marginal Cost Study

Production Investment Summary

Line No.	Description	Company Total

Not used in Distribution Marginal Cost Study

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Page 1 of 6

Table - 2
Northern Utilities- New Hampshire
Marginal Cost Study

Summary of Estimates for Distribution Capacity Cost

Line No.	Description	Quantity
	(1)	(2) (3)
1		
2	PROSPECTIVE ADDITIONS	
3	REINFORCEMENT (From Stoner Analysis) {1}	
4	Estimate of upgrades	
5	to existing facilities.	\$5,789,662
6	Estimated Additional Load, Therm/Design Day	67,504
7	Average Cost for Upgrades (5)/(6)	\$85.77
8	Trended Cost for Upgrades {1}	\$85.77
9		
10	NEW MAIN EXTENSIONS	
11	Unit Cost for New Main Extensions {2}	\$132.63
12		
13	UNIT COSTS	
14	Unit Costs per Design Day Therm for Prospective Additions (8) + (11)	<u>\$218.40</u>
15		
16	ALTERNATE ANALYSIS	
17	HISTORICAL INVESTMENTS {3}	
18	CAPACITY INCREMENT - 1996 to 2012	
19	2012 Design Day Sendout	576,557
20	1996 Design Day Sendout	519,260
21	Increase in Design Day Sendout (22)-(21)	57,297
22		
23	PLANT INVESTMENTS	
24	Investments to Increase Capacity, Current \$'s	
25	Total Investment 1996 2012	13,592,462
26		
27	UNIT COST	
28	Avg Unit Cost for Historical Investments (27)/(23)	<u>\$237.23</u>
29		
30		
31		
32		
33		

For purposes of further study, assume long run marginal costs will be estimated by prospective additions, line (14). \$218.40 /Design Day Therms

NOTES:

- Source: Table - 2, Page 4.
- Source: Table - 2, Page 5.
- Source: Cost data from Table - 2, Page 2.

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Table - 2
Northern Utilities- New Hampshire
Marginal Cost Study

Historical Plant T&D Investment Data - Capacity-Related

Line No.	Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	DISTRIBUTION INVESTMENT	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
	PLANT BALANCES													
1	375- Distribution Structures	\$0	\$1,907,261	\$1,946,802	\$1,970,765	\$1,977,191	\$2,011,929	\$2,078,973	\$2,092,137	\$2,100,422	\$2,172,031	\$2,203,295	\$2,257,157	\$2,259,457
2	376- Mains	9,396,338	10,797,337	12,353,883	15,264,009	19,514,509	22,527,044	24,376,933	27,050,294	30,884,264	36,225,118	37,568,970	39,178,319	40,532,171
3	378- Distribution M&R Equip	295,732	345,623	421,515	544,570	587,436	672,030	736,918	857,679	938,019	1,051,946	1,137,147	1,195,858	1,262,572
4	379- Distribution M&R Take Station Equip													
5	382- Meter Installations	1,408,166	1,548,984	1,797,248	2,190,979	2,582,968	2,860,471	3,138,624	3,531,975	3,855,111	4,161,512	4,583,446	4,996,024	5,445,660
6	383- Dist House Regulators	0	0	0	0	0	0	0	0	0	0	0	0	6,776
7	386- Dist. Wtr Htr & Conv. Brn	156,516	207,275	378,308	653,700	1,048,110	1,342,183	1,657,512	1,865,584	1,953,335	2,139,929	3,359,028	3,377,491	3,425,650
8	Net Capacity-related													
9	Distribution Plant													
10	Balances Sum (1) thru (7)	11,256,752	14,806,481	16,897,757	20,624,023	25,710,215	29,413,657	31,988,960	35,397,669	39,731,151	45,750,536	48,851,887	51,004,849	52,932,285
11														
12	Net Plant Additions {2}		3,549,728	2,091,276	3,726,267	5,086,192	3,703,442	2,575,303	3,408,709	4,333,482	6,019,386	3,101,350	2,152,962	1,927,436
13														
14														
15	Handy-Whitman - Jan 1 {3}	247	261	277	283	294	296	307	313	319	325	333	341	346
16	Index - Mains - Jul 1 {3}	247	261	280	289	299	302	310	315	322	330	337	344	351
17	Wtd. Avg. Annual Index	250.50	265.00	280.00	288.75	297.00	301.75	310.00	315.50	322.00	329.50	337.00	343.75	350.50
18	(14i)/4+(15i)/2+(14j)/4													
19														
20	Current Cost of Additions													
21	(12)*(17)/Current Index	\$0	\$7,238,432	\$4,035,976	\$6,973,442	\$9,254,043	\$6,632,138	\$4,489,126	\$5,838,293	\$7,272,376	\$9,871,701	\$4,972,974	\$3,384,456	\$2,971,579
22														
23	Cumulative Net Additions	0	7,238,432	11,274,407	18,247,849	27,501,892	34,134,030	38,623,157	44,461,449	51,733,826	61,605,526	66,578,500	69,962,956	72,934,535
24														
25	Correction Factor for Replm'ts {2}		21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%	21%
26														
27	Cum Growth Related Invest	0	1,538,410	2,396,190	3,878,280	5,845,075	7,254,627	8,208,717	9,449,550	10,995,174	13,093,242	14,150,166	14,869,476	15,501,037

NOTES:

- 1 Source: Annual Reports
- 2 Source: Table 2 page 5
- 3 Handy-Whitman for Plastic Mains

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Table - 2
Northern Utilities- New Hampshire
Marginal Cost Study

Historical Plant T&D Investment Data - Capacity-Related

Line No.	Description	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
	DISTRIBUTION INVESTMENT	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)				
	PLANT BALANCES													
1	375- Distribution Structures	\$2,259,457	\$2,235,888	\$2,250,950	\$2,250,950	\$2,295,667	\$2,295,667	\$2,332,194	\$2,332,194	\$2,332,194	\$2,334,042	\$2,820,320	\$2,811,122	\$2,846,744
2	376- Mains	42,573,536	43,946,403	45,608,517	47,288,473	49,392,846	50,531,680	54,591,098	57,186,366	59,131,775	59,604,088	65,458,022	\$70,372,992	\$74,654,043
3	378- Distribution M&R Equip	1,397,118	1,449,677	1,467,946	1,553,479	1,611,260	1,636,689	1,744,560	1,770,112	1,770,112	1,770,570	1,787,578	\$1,801,208	\$2,092,466
4	379- Distribution M&R Take Station Equip												19,835	19,835
5	382- Meter Installations	5,767,414	6,202,545	6,771,415	7,315,947	7,771,080	8,360,751	9,196,256	9,814,274	10,622,593	10,703,831	12,313,745	12,161,236	13,984,486
6	383- Dist House Regulators	10,520	43,097	86,332	118,546	158,413	185,195	185,195	185,195	185,195	185,195	222,731	325,257	389,444
7	386- Dist. Wtr Htr & Conv. Bm	3,520,935	3,497,800	3,538,176	3,589,462	3,052,832	2,868,870	2,307,938	2,362,713	2,444,161	2,447,385	2,523,018	2,461,818	2,542,099
8	Net Capacity-related													
9	Distribution Plant													
10	Balances Sum (1) thru (7)	55,528,980	57,375,410	59,723,337	62,116,857	64,282,099	65,878,851	70,357,241	73,650,854	76,486,030	77,045,113	85,125,415	89,953,468	96,529,119
11														
12	Net Plant Additions {2}	2,596,695	1,846,430	2,347,927	2,393,520	2,165,242	1,596,753	4,478,390	3,293,613	2,835,176	559,083	8,080,302	4,828,053	6,575,651
13														
14														
15	Handy-Whitman - Jan 1 {3}	354	364	369	376	389	411	433	460	480	514	502	519	536
16	Index - Mains - Jul 1 {3}	357	367	376	379	394	421	440	465	486	516	502	519	543
17	Wtd. Avg. Annual Index	358.00	366.75	374.25	380.75	397.00	421.50	443.25	467.50	491.50	512.00	506.25	523.25	540.38
18	(14i)/4+(15i)/2+(14j)/4													
19														
20	Current Cost of Additions													
21	(12)*(17)/Current Index	\$3,919,523	\$2,720,557	\$3,390,143	\$3,396,976	\$2,947,210	\$2,047,083	\$5,459,695	\$3,807,029	\$3,117,107	\$590,067	\$8,624,974	\$4,986,066	\$6,575,651
22														
23	Cumulative Net Additions	76,854,058	79,574,616	82,964,759	86,361,734	89,308,944	91,356,027	96,815,722	100,622,751	103,739,858	104,329,926	112,954,900	117,940,966	124,516,617
24														
25	Correction Factor for Replm'ts {2}	21%	21%	21%	29%	18%	25%	17%	21%	21%	12%	18%	21%	29%
26														
27	Cum Growth Related Invest	16,334,067	16,912,277	17,632,796	18,633,981	19,169,495	19,680,246	20,619,183	21,427,882	22,090,371	22,159,864	23,686,688	24,750,932	26,685,704

NOTES:

- Source: Annual Reports
- Source: Table 2 page 5
- Handy-Whitman for Plastic Mains

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Table - 2
Northern Utilities- New Hampshire
Marginal Cost Study

Development of Capacity Related Investment - Distribution Reinforcement

Line No.	Year	Peak Vol	Reinf Cost Current \$	Reinf Cost Constant \$	Cumulative Total
	(1)	(2)		(3)	(4)
1	INVESTMENT FOR REINFORCEMENT		{1}{3}		
2	2013	2014	682,582	0	0
3	2014	2015	671,131	575,600	575,600
4	2015	2016	680,527	536,250	1,111,850
5	2016	2017	690,055	259,305	1,371,155
6	2017	2018	699,715	513,084	1,884,239
7	2018	2019	709,511	452,546	2,336,785
8	2019	2020	719,445	1,714,349	4,051,134
9	2020	2021	729,517	587,200	4,638,334
10	2021	2022	739,730	604,205	5,242,539
11	2022	2023	750,086	547,123	5,789,662
12					
13					
14	Total Reinforcement Cost		67,504	\$5,789,662	
15					
16					
17	REGRESSION RESULTS			Cum Invest Col. (4) vs Peak Vol Col. (2)	
18	Slope			74.93575	
19	Y Intercept			(50,296,683)	
20	Coefficient of Determination (RSQR)			95.13%	
21	t-value			12.5	
22					
23	Regression Estimate		(18)	\$74.9358	
24					
25	Incremental Average Cost		(14), col. (3) / col. (2)	\$85.77	
26					
27	UNIT COSTS FOR REINFORCEMENT				
28	\$'s per Design Day Therms		{3}	<u>\$85.77</u>	

NOTES:

- 1 Baseline forecast used to develop marginal distribution investment taken from engineer's estimates.
- 2 Results of Stoner model which identifies pressure problems on design hours. Areas with identified pressure deficiencies are reinforced, based on engineer's assessment of needed improvements. All such cost estimates based on test year costs.
- 3 The incremental average cost was used for Marginal Cost.

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Table - 2
Northern Utilities- New Hampshire
Marginal Cost Study

Development of Distribution Main Extension Investment

Line No.	Year	Installed Footage	Cumulative Footage	Cost	Cost per Foot	Cost Index	Costs in 2012 \$'s	Costs Per Foot	Cum Investm't	Design Day Demand
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		{1}		{2}	(3)/(1)	{3}	(3)*(5)	(6)/(1)		
1	1988	92,477	92,477	739,849	\$8.00	0.589	435,840	\$4.71	435,840	238,345
2	1989	67,087	159,564	666,629	\$9.94	0.612	407,978	\$6.08	843,817	258,590
3	1990	127,869	287,433	1,929,950	\$15.09	0.635	1,224,831	\$9.58	2,068,648	263,940
4	1991	149,721	437,154	2,511,300	\$16.77	0.656	1,646,810	\$11.00	3,715,458	278,779
5	1992	131,940	569,094	2,353,876	\$17.84	0.671	1,578,766	\$11.97	5,294,224	314,832
6	1993	62,342	631,436	1,245,811	\$19.98	0.687	855,459	\$13.72	6,149,683	351,346
7	1994	106,802	738,238	1,871,916	\$17.53	0.701	1,312,756	\$12.29	7,462,439	387,860
8	1995	110,443	848,681	1,503,358	\$13.61	0.716	1,076,270	\$9.75	8,538,709	395,180
9	1996	114,414	963,095	1,652,233	\$14.44	0.729	1,204,441	\$10.53	9,743,150	519,260
10	1997	75,444	1,038,539	1,319,759	\$17.49	0.741	978,537	\$12.97	10,721,687	534,600
11	1998	60,250	1,098,789	1,214,964	\$20.17	0.750	910,621	\$15.11	11,632,308	541,340
12	1999	80,731	1,179,520	1,178,658	\$14.60	0.761	896,924	\$11.11	12,529,232	528,554
13	2000	69,649	1,249,169	945,822	\$13.58	0.778	736,121	\$10.57	13,265,353	523,049
14	2001	50,631	1,299,800	768,493	\$15.18	0.796	611,740	\$12.08	13,877,093	520,528
15	2002	29,404	1,329,204	492,769	\$16.76	0.808	398,276	\$13.54	14,275,369	530,923
16	2003	37,997	1,367,201	1,058,375	\$27.85	0.824	872,485	\$22.96	15,147,854	541,265
17	2004	60,024	1,427,225	1,181,435	\$19.68	0.847	1,000,707	\$16.67	16,148,561	570,670
18	2005	46,258	1,473,483	1,927,746	\$41.67	0.874	1,685,398	\$36.43	17,833,959	548,700
19	2006	88,152	1,561,635	2,229,499	\$25.29	0.901	2,009,103	\$22.79	19,843,063	515,471
20	2007	51,972	1,613,607	1,906,485	\$36.68	0.925	1,763,740	\$33.94	21,606,803	574,795
21	2008	49,352	1,662,959	1,807,051	\$36.62	0.943	1,704,541	\$34.54	23,311,344	585,678
22	2009	37,462	1,700,421	1,154,455	\$30.82	0.950	1,097,237	\$29.29	24,408,582	568,673
23	2010	51,331	1,751,752	1,511,100	\$29.44	0.962	1,453,750	\$28.32	25,862,332	572,626
24	2011	36,187	1,787,939	1,196,766	\$33.07	0.982	1,175,109	\$32.47	27,037,441	587,098
25	2012	40,800	1,828,739	1,501,667	\$36.81	1.000	1,501,667	\$36.81	28,539,108	576,557
26										
27	Totals	1,828,739		35,869,965	\$19.61		28,539,108	\$15.61		
28										
29	REGRESSION RESULTS									
30				Cumulative footage col. (2) vs Design Day col. (9)					Cumulative Additions col. (8) vs De	
31	Slope				4.18				\$60.7595	
32	Y Intercept				(854,376.88)				(\$15,136,459.8)	
33	Coefficient of Determination (RSQR)				90%				75.88%	
34	t Statistic				14.1				8.5	
35										
36	Recent average cost per foot			\$	31.72				\$'s / DDMMBtu	
37	Trended Cost Per Design Day Therms		(31)*(36)	\$	132.63				\$60.76	
38										
39	MARGINAL COST ESTIMATES									
40										
41	Trended Cost Per Design Day Therms		(27)*(28)		\$60.76					
42										
43	Average Cost Per Design Day Therms									
44	1988-2012				\$83.09					
45	2003-2012				\$379.44					
46	2009-2012				\$523.94					
47	Marginal Cost for Main Additions			{4}	\$ 132.63					

NOTES:

- 1 Source: Total annual new footage installed that pertains to load growth only.
- 2 Source: CPR Records
- 3 Source: Handy Whitman Index of Plastic Mains
- 4 Regression results are fair. The regression was chosen instead of the average costs.

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Table - 2
Northern Utilities- New Hampshire
Marginal Cost Study

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Regression Analysis of Distribution Capacity Costs

Line No.	Year	Cumulative Growth Related Investment	Design Day Sendout
		(1)	(2)
1	1989	1,538,410	258,590
2	1990	2,396,190	263,940
3	1991	3,878,280	278,779
4	1992	5,845,075	314,832
5	1993	7,254,627	351,346
6	1994	8,208,717	387,860
7	1995	9,449,550	395,180
8	1996	10,995,174	519,260
9	1997	13,093,242	534,600
10	1998	14,150,166	541,340
11	1999	14,869,476	528,554
12	2000	15,501,037	523,049
13	2001	16,334,067	520,528
14	2002	16,912,277	530,923
15	2003	17,632,796	541,265
16	2004	18,633,981	570,670
17	2005	19,169,495	548,700
18	2006	19,680,246	515,471
19	2007	20,619,183	574,795
20	2008	21,427,882	585,678
21	2009	22,090,371	568,673
22	2010	22,159,864	572,626
23	2011	23,686,688	587,098
24	2012	24,750,932	576,557
25			
26			
27			
28			
29			
30			
31	REGRESSION RESULTS		Investment col. (1) vs Design Day col. (2)
32	Slope =		\$58.23603
33	Y Intercept =		(\$13,529,011.0)
34	Coefficient of Determination (RSQR)		87.78%
35	t Probability		12.6
36			
37	MARGINAL COST ESTIMATES		
38	Trended Cost Per Design Day Therms		\$58.24
39			
40	Average Cost Per Design Day Therms		
41	1996-2012		\$240.08
42	2003-2012		\$201.69
43	2009-2012		\$337.48
44			
45			
46	Marginal cost estimate (38)		<u>\$58.24</u>

NOTES:

- Source: Successive Differences in Table 2, page 2, line 3 adjusted by Handy Whitman Index
- Source: Table 2, Page 5
- Source: Table - 2, Pages 2 & 3.
- Based on the average of the ratios (mains extension investments over mains total investment)
- This estimate is provided for comparison purposes only. Refer to pages 4 & 5 of this table for the development of a more accurate estimate, eliminating the error associated with estimating replacements.

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Table - 3
Northern Utilities- New Hampshire
Marginal Cost Study

Services and Meters Investment

Line No.	Description	----- Residential -----		----- Small C&I -----		----- Medium C&I -----		----- Large C&I -----	
		ResNonHt&LI R-6&R-11	ResHt&LI R-5&R-10	SmHiW G-40	SmLoW G-50	MdHiW G-41	MdLoW G-51	LgHiW G-42	LgLoW G-52
		(1)	(2)	(4)	(5)	(6)	(7)	(8)	(9)
1	SERVICE COSTS								
2									
3									
4	Representative Cost {1}	\$4,896	\$4,896	\$5,880	\$5,880	\$7,930	\$7,930	\$12,395	\$12,395
5									
6									
7									
8	Services per Customer {2}	0.75	0.75	0.75	0.75	1.00	1.00	1.00	1.00
9									
10									
11									
12	Average Service Cost per Cust.	<u>\$3,651</u>	<u>\$3,651</u>	<u>\$4,386</u>	<u>\$4,386</u>	<u>\$7,930</u>	<u>\$7,930</u>	<u>\$12,395</u>	<u>\$12,395</u>
13	(4)*(8)								
14									
15									
16	METER COSTS								
17									
18									
19	Current Unit Cost for Metering {3}	\$400	\$400	\$532	\$532	\$2,573	\$2,573	\$8,613	\$8,613
20									
21									
22									
23	Customer Count								
24									
25									
26	Meters per Customer	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16
27									
28									
29									
30	Avg Metering Cost per Cust.	<u>\$464</u>	<u>\$464</u>	<u>\$616</u>	<u>\$616</u>	<u>\$2,983</u>	<u>\$2,983</u>	<u>\$9,984</u>	<u>\$9,984</u>
31	(19)*(26)								

NOTES:

- Source: Typical service costs as estimated by the Engineering Department as 2012 costs including overhead loading.
- Source: Services per Customer computed by assigning one service to each medium and large C&I customer and computing the ratio of remaining services to the total of residential and small C&I customers.
- Source: Typical meter costs as estimated by the Engineering Department as 2012 costs including overhead loading.

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Table - 4
Northern Utilities- New Hampshire
Marginal Cost Study

Summary of Marginal Commodity Costs

Line No.	Description	----- Residential -----		----- Small C&I -----		----- Medium C&I -----		----- Large C&I -----		Total Company
		ResNonHt&LI R-6&R-11	ResHt&LI R-5&R-10	SmHiW G-40	SmLoW G-50	MdHiW G-41	MdLoW G-51	LgHiW G-42	LgLoW G-52	
	LOAD WEIGHTED MARGINAL COMMODITY	(1)	(2)	(3)	(5)	(6)	(7)	(8)	(9)	(10)

1
2
3
4
5
6
7
8
9
10

MARGINAL COMMODITY COSTS NOT COMPUTED FOR DISTRIBUTION MARGINAL COST STUDY

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Table - 4
Northern Utilities- New Hampshire
Marginal Cost Study
NOT USED IN MARGINAL COST STUDY
Development of Capacity Related Production Expense

Line No.	Year	Total Capacity Related Expenses	Cost Index	Expense 2012 Dollars	Design Day Sendout, Therm	Average Cost per Design Day Therm
	(1)	(2)	(3)	(4)	(5)	(6)
		{1}				
1						
2						
3						
4						
5						
6						
7						
8						
9	1997	63,064	0.7415	46,759	519,260	0.09
10	1998	54,851	0.7495	41,111	534,600	0.08
11	1999	52,127	0.7610	39,667	541,340	0.07
12	2000	23,619	0.7783	18,382	528,554	0.03
13	2001	20,574	0.7960	16,377	523,049	0.03
14	2002	17,212	0.8082	13,911	520,528	0.03
15	2003	20,754	0.8244	17,108	530,923	0.03
16	2004	28,986	0.8470	24,552	541,265	0.05
17	2005	21,038	0.8743	18,393	570,670	0.03
18	2006	29,043	0.9011	26,172	548,700	0.05
19	2007	27,962	0.9251	25,868	515,471	0.05
20	2008	20,111	0.9433	18,970	574,795	0.03
21	2009	5	0.9504	5	585,678	0.00
22	2010	6,964	0.9620	6,700	568,673	0.01
23						
24	REGRESSION RESULTS			Expense (4)	Avg Cost (6)	
25				vs Demand (5)	vs Year (1)	
26	Slope =			-0.28623	-0.00441	
27	Y Intercept =			177880.3224	8.8763	
28	Coefficient of Determination (R**2)			25.85%	55.55%	
29	t Value			(2.0)	(3.9)	
30						
31	MARGINAL COST ESTIMATES					
32	Trended Cost Per Design Day Therms			(\$0.29)		
33	Time Series Predicted Avg Cost (2008*slope)+intercept					(\$0.02)
34						
35	Average Cost Per Design Day Therms					
36	1996-2012					\$0.04
37	2003-2012					\$0.03
38	2007-2012					\$0.03
39	Current Average Cost per Design Day Therms					\$0.01
40						
41	Assumed Marginal Cost			(35)		\$0.03
42						
43						
44	Percentage Related to Transportation			{2}		0.0%
45	Transportation Related Investment			(39)*(42)		<u>\$0.00</u>
46	Gas Supply Related Investment			(39)*[1-(42)]		<u>\$0.03</u>

NOTES:

- Source: Booked maintenance and other expenses for Manufactured Gas.
- Source: Table - 1, page 3.

Table - 5
Northern Utilities- New Hampshire
Marginal Cost Study

Development of Capacity Related Expense - T & D

Line No.	Year	Capacity Related Expenses	Cost Index	Expense 2012 Dollars	Design Day Sendout	Avg Cost Per Des'n Day Therm
	(1)	(2)	(3)	(4)	(5)	(6)
		(1) (4)	(2)			
1	1996	760,781	0.7290	554,592	519,260	1.07
2	1997	457,448	0.7415	339,176	534,600	0.63
3	1998	442,526	0.7495	331,675	541,340	0.61
4	1999	677,886	0.7610	515,851	528,554	0.98
5	2000	806,519	0.7783	627,704	523,049	1.20
6	2001	738,972	0.7960	588,240	520,528	1.13
7	2002	613,748	0.8082	496,056	530,923	0.93
8	2003	737,781	0.8244	608,199	541,265	1.12
9	2004	612,561	0.8470	518,855	570,670	0.91
10	2005	576,831	0.8743	504,315	548,700	0.92
11	2006	609,676	0.9011	549,407	515,471	1.07
12	2007	590,679	0.9251	546,453	574,795	0.95
13	2008	764,750	0.9433	721,368	585,678	1.23
14	2009	1,402,178	0.9504	1,332,683	568,673	2.34
15	2010	1,319,234	0.9620	1,269,167	572,626	2.22
16	2011	1,682,336	0.9819	1,651,893	587,098	2.81
17	2012	1,502,144	1.0000	1,502,144	576,557	2.61
18						
19						
20	REGRESSION RESULTS				Expense (4)	Avg Cost (6)
21					vs Demand (5)	vs Year (1)
22	Slope =				10.54500	0.10711
23	Y Intercept =				-5048839.4088	-213.3071
24	Coefficient of Determination (RSQR)				41.3%	61.1%
25	t Statistic				3.25	4.85
26						
27	MARGINAL COST ESTIMATES					
28	Trended Cost Per Design Day Therms				\$10.54	
29	Time Series Predicted Avg Cost = 2012 * Slope + Intercept					\$2.19
30						
31	Average Cost Per Design Day Therms					
32	1996-2012					\$1.36
33	2003-2012					\$1.63
34	2009-2012					\$2.50
35	Current Average Cost per Design Day Therms					\$2.61
36						
37	Assumed Marginal Cost		{3}		(34)	<u>\$2.50</u>

NOTES:

- Source: Table - 5, Page 2.
- Source: GDP Implicit Price Deflator.
- Acquisition in 2008/2009 resulted in significant accounting changes causing a large increase in accounting expenses. The data from 2009 and 2012 is representative of Northern's operations and the large increase will continue to be present on a going forward basis.
- Regression results show low R Squared so the recent average cost was used.

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Table - 5
Northern Utilities- New Hampshire
Marginal Cost Study

Operations Expense Data - T&D

Line No.	Acct No.	Description		1996	1997	1998	1999	2000	2001	2002	2003	2004
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
TRANS & DIST EXPENSE {1}												
1	850	Operation Supervision and Eng.	{2}	0	0	0	0	188,593	170,002	177,162	227,097	212,621
2	851	System Control and Load Disp.	capacity	0	0	0	0	0	2,487	184	0	0
3	852	Communication System Exp.	{3}	0	0	0	0	10,757	17,793	19,335	16,199	16,898
4	856	Mains Expenses	{3}	0	0	0	0	0	0	0	0	0
5	857	Meas. and Reg. Station Exp.	capacity	0	0	0	0	42,830	53,918	26,935	39,238	41,226
6	863	Maint. Of Mains	capacity	0	0	0	0	0	2,043	22	340	0
7		Total Transmission		0	0	0	0	242,180	246,244	223,639	282,874	270,745
8												
OPERATIONS EXPENSE												
10	870	Operation Supervision and Eng	{2}	870,955	648,480	754,097	678,706	0	0	0	0	0
11	874	Mains and Services Expenses	{3}	0	0	0	0	434,731	412,373	418,784	409,564	410,614
12	875	Measuring and Reg. Station Exp.-Gen.	capacity	0	0	0	0	0	0	0	0	0
13	876	Measuring and Reg. Station Exp. - Ind.	capacity	0	0	0	0	0	0	0	0	0
14	877	Meas. & Reg. Station Exp.-City Gate	capacity	0	0	0	0	83,805	88,895	79,121	81,127	75,260
15	878	Meter and House Regulator Exp.	customer	407,945	429,494	434,752	376,374	381,417	364,462	365,756	430,472	424,806
16	879	Customer Installations Exp.	customer	25,581	69,794	166,355	73,746	591,125	535,694	361,310	332,784	419,791
17	880	Other Expenses	{2}	0	0	0	0	(416,495)	(399,888)	(496,264)	(453,877)	(568,926)
18	881	Rents	{2}	0	0	0	0	1,747	1,928	1,046	1,852	1,063
19												
20		Marginal Oper Exp	Sum(10-18)	1,304,481	1,147,768	1,355,204	1,128,826	1,076,331	1,003,465	729,754	801,922	762,608
21												
MAINTENANCE EXPENSE												
22	885	Maintenance Supervision and Engineering	{2}	0	0	0	0	563	0	0	0	0
24	886	Maint.of Structures and Improvements	capacity	15,729	17,355	19,089	21,047	21,407	32,541	20,411	28,250	23,106
25	887	Maintenance of Mains	capacity	377,670	243,851	226,720	379,282	283,709	205,860	216,906	298,390	253,869
26	889	Maint. of Meas. and Reg. Sta. Equip.-Gen.	capacity	0	0	0	0	29,433	37,182	20,697	25,662	24,821
27	890	Maint. of Meas. and Reg. Sta. Equip.-Ind.	capacity	0	0	0	0	0	0	0	0	0
28	891	Maint. of Meas. and Reg. Sta. Equip.-City Gate	capacity	0	0	0	0	0	0	0	0	0
29	892	Maintenance of Services	customer	94,173	79,118	60,743	107,983	118,231	137,131	103,593	79,878	91,727
30	893	Maintenance of Meters and House Reg.	customer	11,535	23,539	34,628	20,487	12,875	3,719	5,460	27,656	43,674
31	894	Maintenance of Other Equipment	{2}	0	0	0	0	312,407	266,739	178,107	148,373	87,894
32												
33		Marginal Maint Exp	Sum(23-31)	499,107	363,863	341,180	528,799	778,625	683,171	545,175	608,210	525,092
34												
35		MARGINAL T & D Exp & Superintendence	(20)+(33)	1,803,588	1,511,631	1,696,384	1,657,625	2,097,136	1,932,880	1,498,568	1,693,005	1,558,446
36												
37			{2}	870,955	648,480	754,097	678,706	86,815	38,781	(139,948)	(76,555)	(267,347)
38			{3}	0	0	0	0	445,488	430,166	438,119	425,763	427,512
39			Capacity	393,399	261,206	245,809	400,329	461,184	422,926	364,277	473,007	418,284
40			Customer	539,234	601,945	696,478	578,590	1,103,649	1,041,006	836,120	870,790	979,998
41												
Allocation of Dist Lines to Customer Component												
43		Services Investment		14,215,570	15,343,058	16,395,084	17,316,520	18,225,158	19,031,262	20,121,536	20,957,811	21,950,166
44		Mains Investment		36,225,118	37,568,970	39,178,319	40,532,171	42,573,536	43,946,403	45,608,517	47,288,473	49,392,846
45		Services/(Services+Mains)	(43)/[(43)+(44)]	28.18%	29.00%	29.50%	29.93%	29.98%	29.98%	29.98%	29.98%	29.98%
46		Customer-related Dist Lines Expense	(38)*(56)	0	0	0	0	133,541	128,948	131,332	127,628	128,152
47		Capacity-related Dist Lines Expense		0	0	0	0	311,948	301,219	306,788	298,135	299,360
Customer Related Allocation of Superintendence Expense												
49		Customer %		57.82%	69.74%	73.91%	59.10%	61.54%	61.77%	59.04%	56.42%	60.69%
50		Customer Super & Other		503,573	452,238	557,380	401,149	53,428	23,955	(82,632)	(43,194)	(162,264)
51		Capacity %		42.18%	30.26%	26.09%	40.90%	38.46%	38.23%	40.96%	43.58%	39.31%
52		Capacity Superintendence & Other		367,382	196,242	196,717	277,557	33,388	14,827	(57,317)	(33,361)	(105,083)
53												
54		Total Customer - Related		1,042,807	1,054,183	1,253,858	979,739	1,290,617	1,193,908	884,820	955,224	945,886
55												
56		Total Capacity - Related Expenses		760,781	457,448	442,526	677,886	806,519	738,972	613,748	737,781	612,561
57		Non-Marginal		0	0	0	0	0	0	0	0	0

NOTES:

- 1 Source: Annual Reports
- 2 Costs in this account are joint between customer and capacity components. Individual component costs are computed by allocating on remaining expenses.
- 3 Costs in these accounts are joint between customer & capacity components. Individual component costs are computed by allocating nonplant investment in mains and services.

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Table - 5
Northern Utilities- New Hampshire
Marginal Cost Study

Operations Expense Data - T&D

Line No.	Acct No.	Description		2005	2006	2007	2008	2009	2010	2011	2012
		(1)	(2)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
TRANS & DIST EXPENSE {1}											
1	850	Operation Supervision and Eng.	{2}	236,483	255,882	248,821	307,171	0	0	0	0
2	851	System Control and Load Disp.	capacity	0	0	0	0	0	0	218,878	326,524
3	852	Communication System Exp.	{3}	10,702	12,104	13,632	26,943	20,261	30,680	44,122	46,604
4	856	Mains Expenses	{3}	0	0	0	0	395	3	0	0
5	857	Meas. and Reg. Station Exp.	capacity	42,983	39,233	35,709	41,266	0	821	7	129
6	863	Maint. Of Mains	capacity	547	0	0	0	67	0	0	0
7		Total Transmission		290,716	307,219	298,161	375,380	20,724	31,504	263,007	373,256
8											
OPERATIONS EXPENSE											
10	870	Operation Supervision and Eng	{2}	0	0	0	155,548	64,421	30,859	34,488	24,751
11	874	Mains and Services Expenses	{3}	402,560	441,251	456,114	489,191	512,608	562,176	604,619	574,155
12	875	Measuring and Reg. Station Exp.-Gen.	capacity	0	0	0	3,766	160,482	152,142	157,931	145,645
13	876	Measuring and Reg. Station Exp. - Ind.	capacity	0	0	0	0	0	0	0	0
14	877	Meas. & Reg. Station Exp.-City Gate	capacity	78,488	67,653	74,184	58,111	0	0	2,875	0
15	878	Meter and House Regulator Exp.	customer	466,131	560,865	560,268	546,903	817,734	804,803	904,425	954,525
16	879	Customer Installations Exp.	customer	347,791	309,904	300,100	311,003	108,556	39,486	60,052	45,049
17	880	Other Expenses	{2}	(563,836)	(563,928)	(541,638)	(557,208)	783,922	711,532	577,292	353,543
18	881	Rents	{2}	2,080	2,289	2,283	2,821	0	0	0	0
19											
20		Marginal Oper Exp	Sum(10-18)	733,214	818,035	851,311	1,010,135	2,447,724	2,300,999	2,341,682	2,097,668
21											
MAINTENANCE EXPENSE											
23	885	Maintenance Supervision and Engineering	{2}	0	0	0	7,628	111,800	68,440	77,272	72,030
24	886	Maint.of Structures and Improvements	capacity	38,069	39,649	33,298	37,351	8,234	5,588	5,781	13,831
25	887	Maintenance of Mains	capacity	221,887	182,359	192,097	249,701	284,070	257,655	328,988	207,686
26	889	Maint. of Meas. and Reg. Sta. Equip.-Gen.	capacity	23,419	69,957	27,549	35,649	31,393	20,567	26,898	14,309
27	890	Maint. of Meas. and Reg. Sta. Equip.-Ind.	capacity	0	0	0	0	4,289	(526)	1,835	1,341
28	891	Maint. of Meas. and Reg. Sta. Equip.-City Gate	capacity	0	0	0	4,109	28,801	28,896	24,975	33,901
29	892	Maintenance of Services	customer	75,714	85,714	105,441	104,878	42,538	71,698	141,039	115,222
30	893	Maintenance of Meters and House Reg.	customer	57,077	70,242	62,231	28,066	33,576	103,807	15,376	21,256
31	894	Maintenance of Other Equipment	{2}	25,585	26,056	18,635	18,889	218,606	225,249	265,701	237,518
32											
33		Marginal Maint Exp	Sum(23-31)	441,752	473,976	439,250	486,271	763,307	781,373	887,863	717,094
34											
35		MARGINAL T & D Exp & Superintendence	(20)+(33)	1,465,681	1,599,230	1,588,723	1,871,786	3,231,754	3,113,876	3,492,551	3,188,018
36											
37			{2}	(299,688)	(279,700)	(271,899)	(65,151)	1,178,748	1,036,080	954,753	687,843
38			{3}	413,262	453,355	469,745	516,134	533,265	592,860	648,741	620,759
39			Capacity	405,394	398,851	362,836	429,952	517,336	465,143	768,166	743,365
40			Customer	946,713	1,026,725	1,028,040	990,850	1,002,405	1,019,794	1,120,892	1,136,052
41											
Allocation of Dist Lines to Customer Component											
42		Services Investment		22,501,256	23,747,433	24,504,110	25,310,140	25,924,573	31,874,279	32,837,776	37,710,079
44		Mains Investment		50,531,680	54,591,098	57,186,366	59,131,775	59,604,088	65,458,022	70,372,992	74,654,043
45		Services/(Services+Mains)	(43)/[(43)+(44)]	29.98%	29.98%	29.98%	29.98%	29.98%	29.98%	29.98%	29.98%
46		Customer-related Dist Lines Expense	(38)*(56)	123,880	135,899	140,812	154,718	159,853	177,717	194,468	186,080
47		Capacity-related Dist Lines Expense		289,382	317,456	328,933	361,417	373,413	415,143	454,273	434,679
Customer Related Allocation of Superintendence Expense											
49		Customer %		60.64%	61.88%	62.82%	59.14%	56.61%	57.63%	51.83%	52.88%
50		Customer Super & Other		(181,743)	(173,070)	(170,809)	(38,532)	667,319	597,131	494,855	363,742
51		Capacity %		39.36%	38.12%	37.18%	40.86%	43.39%	42.37%	48.17%	47.12%
52		Capacity Superintendence & Other		(117,945)	(106,630)	(101,091)	(26,619)	511,430	438,949	459,897	324,101
53											
54		Total Customer - Related		888,850	989,554	998,044	1,107,035	1,829,576	1,794,642	1,810,215	1,685,874
55											
56		Total Capacity - Related Expenses		576,831	609,676	590,679	764,750	1,402,178	1,319,234	1,682,336	1,502,144
57		Non-Marginal		0	0	0	0	0	0	0	0

NOTES:

- 1 Source: Annual Reports
- 2 Costs in this account are joint between customer and capacity components.
- 3 Costs in these accounts are joint between customer & capacity components allocating nonplant investment in mains and services.

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Table - 6
Northern Utilities- New Hampshire
Marginal Cost Study

Development of Customer-Related Plant Expense

Line No.	Year	Services and Meters Expenses	Mains Customer Related Expenses	Total Customer Related Expenses	Cost Index	Expense 2012 Dollars	Annual Customers	Average Cost per Customer
	(1)	(2) {1} {4}	(3)	(4) (2)+(3)	(5) {2}	(6) (4)*(5)	(7)	(8) (6)/(7)
1	1996	1,042,807	0	1,042,807	0.7290	760,183	21,885	\$34.74
2	1997	1,054,183	0	1,054,183	0.7415	781,625	22,490	\$34.75
3	1998	1,253,858	0	1,253,858	0.7495	939,773	23,307	\$40.32
4	1999	979,739	0	979,739	0.7610	745,553	23,622	\$31.56
5	2000	1,290,617	0	1,290,617	0.7783	1,004,471	25,564	\$39.29
6	2001	1,193,908	0	1,193,908	0.7960	950,382	25,952	\$36.62
7	2002	884,820	0	884,820	0.8082	715,148	26,439	\$27.05
8	2003	955,224	0	955,224	0.8244	787,451	26,843	\$29.34
9	2004	945,886	0	945,886	0.8470	801,190	26,676	\$30.03
10	2005	888,850	0	888,850	0.8743	777,108	27,172	\$28.60
11	2006	989,554	0	989,554	0.9011	891,732	27,510	\$32.41
12	2007	998,044	0	998,044	0.9251	923,316	27,626	\$33.42
13	2008	1,107,035	0	1,107,035	0.9433	1,044,236	27,925	\$37.39
14	2009	1,829,576	0	1,829,576	0.9504	1,738,897	28,276	\$61.50
15	2010	1,794,642	0	1,794,642	0.9620	1,726,532	28,134	\$61.37
16	2011	1,810,215	0	1,810,215	0.9819	1,777,458	28,303	\$62.80
17	2012	1,685,874	0	1,685,874	1.0000	1,685,874	28,471	\$59.21
18								
19				Expense (6)		Unit Cost (8)		
20	REGRESSION RESULTS			vs Customers (7)		vs Year (1)		
21	Slope =			109.39688		1.61990		
22	Y Intercept =			-1809495		-3206		
23	Coefficient of Determination (RSQR)			35.4%		41.7%		
24	t Value			2.87		3.28		
25								
26	MARGINAL COST ESTIMATES							
27	Trended Cost Per Customer			\$109.40		52.98		
28								
29	Average Cost Per Customer:							
30	1996-2012					\$40.46		
31	2003-2012					\$43.89		
32	2009-2012					\$61.22		
33	Current Average Cost per Customer					\$59.21		
34	Time Series Test Year Prediction					\$62.70		
35								
36	Assumed Marginal Cost {3}					\$61.22		

NOTES:

- Source: Table - 5, Page 2.
- Source: GDP Implicit Price Deflator.
- Regression results for time series are not sufficiently robust for marginal cost estimate. Employed near-term ('09-'12) average marginal cost estimate as most representative.

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Table - 6
Northern Utilities- New Hampshire
Marginal Cost Study

Class Weighted Customer Plant Related Expense

----- Customer Weightings -----				----- Customer Weightings -----			
Line No.	Customer Groups	Number of Customers	Service & Meter Cost Assigned	Total Cost	Relative Weight Per Cust	System Avg Marginal Cost per Cust	Marginal Costs Per Cust
(1)		(2) {1}	(3) {2}	(4)=(3)*(2)	(5)=(3)/avg(3) {3}	(6) {4}	(7)=(5)*(6)
1	ResNonHt	1,213	\$4,115	4,990,680	0.909	\$61.22	\$55.66
2	ResHt	21,461	4,115	88,313,495	0.909	\$61.22	\$55.66
3	SmHiW	4,085	5,002	20,432,267	1.105	\$61.22	\$67.66
4	SmLoW	739	5,002	3,693,889	1.105	\$61.22	\$67.66
5	MdHiW	652	10,913	7,119,036	2.411	\$61.22	\$147.61
6	MdLoW	253	10,913	2,764,674	2.411	\$61.22	\$147.61
7	LgHiW	37	22,379	835,483	4.945	\$61.22	\$302.70
8	LgLoW	32	22,379	704,939	4.945	\$61.22	\$302.70
9							
10							
11							
12							
13							
14	Total	28,471	84,818	128,854,463	1.000	\$61.22	\$61.22
15							
16	Avg Cost per cust		\$4,525.76				
17	(4) Total / (2) Total						

NOTES:

- 1 Source: Sales and Demand Model.
- 2 Source: Meters plus services investment from Table - 3 , page 1.
- 3 Relative weights based on average cost per customer, and service and meter cost assigned.
- 4 Source: Table 6, Page 1.

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Table - 6
Northern Utilities- New Hampshire
Marginal Cost Study

Development of Customer Accounting & Marketing Expense

Line No.	Year	Customer Accounting Expenses (Excl. Uncoll & DSM)	Marketing Services Expenses 911-916	Total Customer Related Expenses	Cost Index	Expense in 2012 Dollars	Annual Customers	Average Cost per Customer
	(1)	(2) {1}	(3) {1}	(4) (2)+(3)	(5) {2}	(6) (4)*(5)	(7)	(8) (6)/(7)
1	1996	1,222,490	672,083	1,894,573	0.7290	1,381,101	21,885	63.11
2	1997	978,181	883,078	1,861,259	0.7415	1,380,033	22,490	61.36
3	1998	560,965	438,631	999,596	0.7495	749,202	23,307	32.14
4	1999	602,857	585,758	1,188,615	0.7610	904,501	23,622	38.29
5	2000	540,036	471,626	1,011,662	0.7783	787,364	25,564	30.80
6	2001	581,715	515,751	1,097,466	0.7960	873,611	25,952	33.66
7	2002	618,924	846,724	1,465,648	0.8082	1,184,597	26,439	44.80
8	2003	441,107	773,860	1,214,966	0.8244	1,001,573	26,843	37.31
9	2004	288,736	667,404	956,139	0.8470	809,876	26,676	30.36
10	2005	340,161	473,121	813,282	0.8743	711,040	27,172	26.17
11	2006	273,863	534,380	808,243	0.9011	728,345	27,510	26.48
12	2007	254,478	612,788	867,266	0.9251	802,330	27,626	29.04
13	2008	375,772	453,970	829,742	0.9433	782,673	27,925	28.03
14	2009	908,217	0	908,217	0.9504	863,203	28,276	30.53
15	2010	1,239,221	0	1,239,221	0.9620	1,192,190	28,134	42.38
16	2011	1,333,504	0	1,333,504	0.9819	1,309,373	28,303	46.26
17	2012	1,498,857	0	1,498,857	1.0000	1,498,857	28,471	52.64
18								
19	REGRESSION RESULTS					Expense (6)	Unit Cost (8)	
20						vs Customers (7)	vs Year (1)	
21	Slope =					-18.71673	-0.58720	
22	Y Intercept =					1488893	1215	
23	Coefficient of Determination (RSQR)					2.3%	6.41%	
24	t Probability					-0.59	-1.01	
25								
26	MARGINAL COST ESTIMATES							
27	Trended Cost Per Customer					(\$18.72)		
28	Time Series predicted Average Cost (2012)*slope+intercept						\$33.74	
29								
30	Average Cost Per Customer:							
31	1996-2012					\$38.01		
32	2003-2012					\$35.02		
33	2009-2012					\$42.97		
34	Current Average Cost per Customer					\$52.64		
35								
36								
37	Assumed Marginal Cost			{3}		<u>\$42.97</u>		

NOTES:

- Source: Cost data from Annual Reports, ACCTS 901-910 excluding Uncollectible Accounts Expense in Account 904 & 908.
- Source: GDP Implicit Price Deflator.
- Regression results for time series are insufficiently robust for marginal cost. Post merger shifted costs from outside services to in house costs. 2009 - 2012 best reflect costs in the future.

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Table - 6
Northern Utilities- New Hampshire
Marginal Cost Study

Class Weighted Customer Accounting

Line No.	Customer Groups	Number of Customers	Allocated Customer Accounting	Average Costs Per Cust	Relative Weight Per Cust	Company Avg Cost per Cust	Marginal Costs Per Cust
	(1)	(2)	(3)	(4)= (3)/(2)	(5)=(4)/avg(4)	(6)	(7)= (5)*(6)
			{1}		{2}	{3}	
1	ResNonHt	1,213	\$10,106	\$8.33	0.630	\$42.97	\$27.09
2	ResHt	21,461	\$263,804	\$12.29	0.930	\$42.97	\$39.96
3	SmHiW	4,085	\$51,268	\$12.55	0.950	\$42.97	\$40.80
4	SmLoW	739	\$7,925	\$10.73	0.812	\$42.97	\$34.89
5	MdHiW	652	\$28,987	\$44.44	3.362	\$42.97	\$144.47
6	MdLoW	253	\$6,417	\$25.33	1.916	\$42.97	\$82.35
7	LgHiW	37	\$6,141	\$164.50	12.446	\$42.97	\$534.80
8	LgLoW	32	\$1,661	\$52.73	3.989	\$42.97	\$171.43
9							
10							
11							
12							
13							
14	Total	28,471	376,308	\$13.22	0.308	\$42.97	\$42.97

NOTES:

- 1 From the Accounting Cost Study.
- 2 Based on Column 4. Each class verses the 2016 total average cost per customer.
- 3 Source: Table 6, Page 3.

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Table - 6
Northern Utilities- New Hampshire
Marginal Cost Study

Class Weighted Uncollectible Accounts Expense

Line No.	Customer Groups	Acct. 904		Total Normalized Revenues	Write-off Percentage	
	(1)	(2)	(3) {1}	(4)	(5) {2}	(6) (6)=(3)/(5)
1	ResNonHt		\$396		\$903,352	0.04%
2	ResHt		\$34,688		\$18,516,675	0.19%
3	SmHiW		\$16,783		\$5,718,474	0.29%
4	SmLoW		\$2,205		\$888,412	0.25%
5	MdHiW		\$12,825		\$4,273,306	0.30%
6	MdLoW		\$3,334		\$1,332,032	0.25%
7	LgHiW		\$3,468		\$1,613,549	0.21%
8	LgLoW		\$777		\$3,132,286	0.02%
9						
10						
11						
12						
13						
14	Total		\$74,476		\$36,378,086	0.20%
15						
Adjusted Pro forma writeoff rate					0.20%	

NOTES:

- 1 Total account 904 less Gas Costs.
- 2 Total normalized delivery revenues provided by 2016 ACOS Study.

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Table - 7
Northern Utilities- New Hampshire
Marginal Cost Study

Development of A & G Loading Factors

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Line No.	Description	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
1	<u>Nonplant Related Expenses</u>													
2	920 Salary	377,195	564,700	350,345	346,351	536,249	411,410	511,776	147,472	55,658	92,274	206,331	211,213	(37,353)
3	921 Office Supplies	474,724	417,796	474,381	366,115	406,798	219,748	536,028	491,618	422,080	394,120	221,377	295,388	262,722
4	922 Admin Exp - Transf (Credit)	(2,735,969)	(2,350,559)	(1,334,118)	(1,093,635)	(1,328,173)	(1,112,188)	(869,552)	(848,848)	(843,265)	(796,476)	(1,113,567)	(1,113,137)	(907,934)
5	923 Outside Services	2,994,222	2,493,162	3,164,747	3,004,239	3,637,219	3,702,888	3,647,580	3,037,300	3,881,628	3,564,501	4,034,655	4,645,578	3,711,622
6	926 Pension	843,461	956,655	762,195	1,065,461	783,982	693,074	1,139,598	1,372,359	1,376,018	1,213,675	1,484,008	1,190,594	930,259
7	927 Franchise Requirements	0	0	0	0	0	0	0	0	0	0	0	0	0
8	928 Regulatory Exp	60,779	80,360	94,232	79,230	92,600	65,340	103,798	42,498	165,512	250,414	289,961	191,533	242,391
9	930 Misc	166,028	600,256	780,242	699,324	354,694	315,897	166,096	45,420	596,972	494,334	588,530	602,033	467,986
10														
11														
12														
13	Total Non-Plant	2,180,440	2,762,370	4,292,024	4,467,085	4,483,369	4,296,169	5,235,324	4,287,818	5,654,602	5,212,843	5,711,296	6,023,201	4,669,694
14														
15	<u>Plant Related Expenses</u>													
16														
17														
18	924 Property Ins	0	0	0	0	0	0	0	0	0	0	0	49,034	47,135
19	925 Injury & Damages	179,576	247,527	197,850	98,199	203,433	142,471	108,826	751,284	(283,904)	556,078	432,130	297,661	358,054
20	929 Duplicate Charges	0	0	0	0	0	0	0	0	0	0	0	0	0
21	931 Rents	0	0	0	0	0	0	0	(18,000)	(15,285)	(18,837)	(19,478)	(19,478)	354
22	932 Gen Plt Maint	0	0	0	0	0	0	0	0	0	0	0	0	0
23	935 Maint. Of General Plant	<u>77,712</u>	<u>61,873</u>	<u>51,480</u>	<u>56,457</u>	<u>51,627</u>	<u>54,025</u>	<u>49,652</u>	<u>652,561</u>	<u>549,338</u>	<u>662,682</u>	<u>572,079</u>	<u>556,794</u>	<u>358,185</u>
24														
25	Total Plant Related Expenses	\$257,288	\$309,400	\$249,330	\$154,656	\$255,060	\$196,496	\$158,478	\$1,385,845	\$250,149	\$1,199,923	\$984,731	\$884,012	\$763,729
26														
27	Total Allocable O&M (Total O&M less non-labor production													
28	costs and A&G expenses)	3,908,662	3,989,118	3,087,130	3,372,440	3,258,611	3,132,725	3,334,653	3,320,476	2,890,000	2,587,997	2,758,835	2,895,945	2,994,655
29														
30	A & G Loading Factor Nonplant Rel Exp													
31	Line (13)/(25)	55.78%	69.25%	139.03%	132.46%	137.59%	137.14%	157.00%	129.13%	195.66%	201.42%	207.02%	207.99%	155.93%
32	Average 2009 - 2012 = 64.36%													
33														
34														
35	Total Gross Plant \$	63,624,556	68,271,573	71,823,646	74,905,563	78,585,950	80,881,339	84,400,533	89,451,213	92,538,749	94,753,557	100,650,010	104,956,224	108,799,813
36														
37														
38	A & G Loading Factor Plant Rel Exp													
39	Line (25)/(35)	0.40%	0.45%	0.35%	0.21%	0.32%	0.24%	0.19%	1.55%	0.27%	1.27%	0.98%	0.84%	0.70%
40	Average 2009 - 2012 = 0.28%													

NOTES:

1 Source: Annual Reports

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Table - 7
Northern Utilities- New Hampshire
Marginal Cost Study

Development of A & G Loading Factor:

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Line No.	Description	2009	2010	2011	2012
1	<u>Nonplant Related Expenses</u>				
2	920 Salary	13,488	29,106	21,623	17,731
3	921 Office Supplies	276,238	293,391	256,470	346,975
4	922 Admin Exp - Transf (Credit)	0	0	0	0
5	923 Outside Services	1,066,578	2,160,518	2,041,388	2,482,610
6	926 Pension	1,128,809	1,050,249	1,438,502	1,394,825
7	927 Franchise Requirements	0	0	0	0
8	928 Regulatory Exp	368,611	111,270	457,204	327,733
9	930 Misc	61,078	79,439	134,983	154,768
10					
11					
12					
13	Total Non-Plant	2,914,802	3,723,972	4,350,172	4,724,642
14					
15	<u>Plant Related Expenses</u>				
16					
17					
18	924 Property Ins	13,255	8,015	8,785	6,365
19	925 Injury & Damages	215,233	328,719	188,407	188,845
20	929 Duplicate Charges	0	0	0	0
21	931 Rents	36,875	12,961	14,722	14,489
22	932 Gen Plt Maint	0	0	91,536	113,839
23	935 Maint. Of General Plant	<u>42,396</u>	<u>129,841</u>	<u>5,819</u>	<u>0</u>
24					
25	Total Plant Related Expenses	\$307,760	\$479,536	\$309,269	\$323,539
26					
27	Total Allocable O&M (Total O&M less non-labc costs and A&G expenses)	5,966,163	6,136,291	6,221,983	6,057,744
28					
29					
30	A & G Loading Factor Nonplant Rel Exp				
31	Line (13)/(25)	48.86%	60.69%	69.92%	77.99%
32	Average 2009 - 2012 = 64.36%				
33					
34					
35	Total Gross Plant \$	110,983,542	126,627,083	130,918,886	143,352,562
36					
37					
38	A & G Loading Factor Plant Rel Exp				
39	Line (25)/(35)	0.28%	0.38%	0.24%	0.23%
40	Average 2009 - 2012 = 0.28%				

NOTES:

1 Source: Annual Reports

Table - 7
Northern Utilities- New Hampshire
Marginal Cost Study

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Development of Miscellaneous Loading Factors

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Line No.	Description	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	Materials and Supplies and Prepayments Loader											
2	Materials and Supplies	501,725	592,798	670,629	674,451	774,134	497,805	455,452	460,284	667,900	806,875	791,806
3												
4	Prepayments	1,988,580	1,798,306	2,098,238	2,359,041	2,148,760	2,100,142	14,643	493,514	620,302	563,007	386,167
5												
6	Total Utility Plant	63,624,556	68,271,573	71,823,646	74,905,563	78,585,950	80,881,339	84,400,533	89,451,213	92,538,749	94,753,557	100,650,010
7												
8	Non-Fuel Loader (2-3+4-5)/(6)	3.91%	3.50%	3.86%	4.05%	3.72%	3.21%	0.56%	1.07%	1.39%	1.45%	1.17%
9	Average 2009 - 2012 = 1.38%											
10												
11												
12												
13	General Plant Loading Factor											
14	Total General Plant	2,102,512	2,362,936	2,555,764	2,620,695	2,675,448	2,281,051	2,310,365	4,077,153	3,976,035	3,984,419	4,113,313
15	Total Utility Plant	63,624,556	68,271,573	71,823,646	74,905,563	78,585,950	80,881,339	84,400,533	89,451,213	92,538,749	94,753,557	100,650,010
16												
17	Gen Plant Factor (14)/(15-14)	3.42%	3.59%	3.69%	3.63%	3.52%	2.90%	2.81%	4.78%	4.49%	4.39%	4.26%
18	Average 2009 - 2012 = 4.44%											

NOTES:

1 Source: Annual Reports

Table - 7
Northern Utilities- New Hampshire
Marginal Cost Study

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Development of Miscellaneous Loading Factors

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Line No.	Description	2007	2008	2009	2010	2011	2012
1	Materials and Supplies and Prepayments Lo						
2	Materials and Supplies	871,400	1,648,857	738,076	778,820	1,010,473	1,483,199
3							
4	Prepayments	320,941	528,546	542,134	633,521	931,620	1,028,905
5							
6	Total Utility Plant	104,956,224	108,799,813	110,983,542	126,627,083	130,918,886	143,352,562
7							
8	Non-Fuel Loader (2-3+4-5)/(6)	1.14%	2.00%	1.15%	1.12%	1.48%	1.75%
9	Average 2009 - 2012 = 1.38%						
10							
11							
12							
13	General Plant Loading Factor						
14	Total General Plant	4,158,083	4,280,158	5,290,372	6,121,350	4,894,375	5,214,204
15	Total Utility Plant	104,956,224	108,799,813	110,983,542	126,627,083	130,918,886	143,352,562
16							
17	Gen Plant Factor (14)/(15-14)	4.13%	4.10%	5.01%	5.08%	3.88%	3.77%
18	Average 2009 - 2012 = 4.44%						

NOTES:

1 Source: Annual Reports

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Table - 8
Northern Utilities- New Hampshire
Marginal Cost Study

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Summary of Levelized Fixed Charge Rates

Line No.	Description	Engineer's Fixed Charge Rate	Economist's Fixed Charge Rate
	(1)	(2)	(3)
1	FIXED CHARGE RATE RESULTS		
2			Over
3	Levelized Cost for: {1}		Book Life
4	Production Plant		
5	Mains (Cap-related Dist)	10.01%	8.05%
6	Services Investment	10.03%	8.10%
7	Meters Investment	11.34%	9.50%
8			
9			
10	INCREMENTAL COST OF CAPITAL {2}		
11	Debt	4.42%	48.30%
12	Preferred	0.00%	0.00%
13	Common	10.30%	51.70%
14	Other	0.00%	0.00%
15	Weighted Cost of Incremental Capital		7.46%
16			
17			
18	After Tax Cost of New Capital {3}		6.62%
19	Incremental Tax Rate {4}		39.41%
20	Tax Effectuated Cost of Capital {5}		10.92%
21	Property Tax Rate {6}		1.45%
22	Gross Receipts Tax Rate		0.00%
23	Inflation Rate {7}		1.60%
24	Property Tax Escalation Rate {8}		2.10%

NOTES:

- Source: Table - 8, pages 3, 4, 5, & 6.
- Weighted average current cost of raising capital in 2016.
- Wtd Cost of Capital (15) less tax savings on debt interest.
- Incremental tax rate assumed to be 34% Federal and 8.2% State tax which results in a combined effective rate of 39.41%.
- Tax effected cost of capital, (15) plus tax component on return.
- Tax rate provided in Schedule RevReq-3-26.
- Inflation rate estimated for 2018, net of technical progress of .05%
- Inflation rate estimated for 2018

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Table - 8
Northern Utilities- New Hampshire
Marginal Cost Study
LEVELIZED FIXED CHARGE ANALYSIS
INPUT DATA

LINE NO.	VARIABLE	Peaking Plant	Capacity - Related Distribution	Services	Meters
1	Plant Data		47	45	33
2					
3	CAPITALIZED COST	\$1,000	\$1,000	\$1,000	\$1,000
4	BOOK LIFE	0	47	45	33
5	SALVAGE VALUE	0%	-33%	-75%	-8%
6	MACRS LIFE	20	20	20	20
7					
8					
9	Capital Structure				
10					
11	DEBT RATIO	48.30%	48.30%	48.30%	48.30%
12	PREFERRED RATIO	0.00%	0.00%	0.00%	0.00%
13	COMMON RATIO	51.70%	51.70%	51.70%	51.70%
14	OTHER _____	0.00%	0.00%	0.00%	0.00%
15					
16	Cost of Capital				
17					
18	DEBT COST	4.42%	4.42%	4.42%	4.42%
19	PREFERRED COST	0.00%	0.00%	0.00%	0.00%
20	COMMON COST	10.30%	10.30%	10.30%	10.30%
21	OTHER	0.00%	0.00%	0.00%	0.00%
22	WTD COST OF CAPITAL	7.46%	7.46%	7.46%	7.46%
23	AFTER TAX COST / CAP	6.62%	6.62%	6.62%	6.62%
24					
25	Tax Data				
26					
27	TAX RATE	39.41%	39.41%	39.41%	39.41%
28	ITC RATE	0.00%	0.00%	0.00%	0.00%
29	REVENUE TAX RATE	0.00%	0.00%	0.00%	0.00%
30	PROPERTY TAX RATE	1.45%	1.45%	1.45%	1.45%
31	PROPERTY INSURANCE	0.00%	0.00%	0.00%	0.00%
32	PROPERTY TAX BASIS	2	2	2	2
33	1 = Original Cost				
34	2 = Depreciated Bal				
35					
36	Misc. Data				
37					
38	INFLATION RATE	1.60%	1.60%	1.60%	1.60%
39	PROP TAX ESC RATE	2.10%	2.10%	2.10%	2.10%
40	RETURN BASIS	2	2	2	2
41	1 = Begin of Year				
42	2 = Avg Begin & End				
43	3 = End of Year				

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Table - 8
Northern Utilities- New Hampshire
Marginal Cost Study
LEVELIZED FIXED CHARGE ANALYSIS
Peaker Plant

NOT USED

-- Current Dollars --
(Engineer's FCR)

-- Constant Dollars --
(Economist's FCR)

LINE NO.	ITEM	CURRENT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT		CONSTANT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT
1	INTEREST ON DEBT	\$0.00	0.00%		\$0.00	0.00%
2	RETURN ON PREF	\$0.00	0.00%		\$0.00	0.00%
3	RETURN ON COMMON	<u>\$0.00</u>	<u>0.00%</u>		<u>\$0.00</u>	<u>0.00%</u>
4						
5	RETURN	\$0.00	0.00%		\$0.00	0.00%
6						
7	DEPRECIATION	\$0.00	0.00%		\$0.00	0.00%
8						
9	INCOME TAX	\$0.00	0.00%		\$0.00	0.00%
10	DEFERRED TAXES	<u>\$0.00</u>	<u>0.00%</u>		<u>\$0.00</u>	<u>0.00%</u>
11						
12	INCOME TAX	\$0.00	0.00%		\$0.00	0.00%
13						
14	REVENUE TAX	\$0.00	0.00%		\$0.00	0.00%
15	PROPERTY TAX	\$0.00	0.00%		\$0.00	0.00%
16	PROPERTY INSURANCE	<u>\$0.00</u>	<u>0.00%</u>		<u>\$0.00</u>	<u>0.00%</u>
17						
18	OTHER	<u>\$0.00</u>	<u>0.00%</u>		<u>\$0.00</u>	<u>0.00%</u>
19						
20						
21	TOTAL REVENUE REQ'D	\$0.00	0.00%		\$0.00	0.00%

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Table - 8
Northern Utilities- New Hampshire
Marginal Cost Study
LEVELIZED FIXED CHARGE ANALYSIS
Capacity Related Distribution

LINE NO.	ITEM	-- Current Dollars -- (Engineer's FCR)			-- Constant Dollars -- (Economist's FCR)	
		CURRENT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT		CONSTANT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT
1	INTEREST ON DEBT	\$11.85	1.18%		\$9.53	0.95%
2	RETURN ON PREF	\$0.00	0.00%		\$0.00	0.00%
3	RETURN ON COMMON	<u>\$29.55</u>	<u>2.96%</u>		<u>\$23.77</u>	<u>2.38%</u>
4						
5	RETURN	\$41.40	4.14%		\$33.30	3.33%
6						
7	DEPRECIATION	\$28.30	2.83%		\$22.76	2.28%
8						
9	INCOME TAX	\$14.60	1.46%		\$11.75	1.17%
10	DEFERRED TAXES	<u>\$4.62</u>	<u>0.46%</u>		<u>\$3.72</u>	<u>0.37%</u>
11						
12	INCOME TAX	\$19.22	1.92%		\$15.46	1.55%
13						
14	REVENUE TAX	\$0.00	0.00%		\$0.00	0.00%
15	PROPERTY TAX	\$11.14	1.11%		\$8.96	0.90%
16	PROPERTY INSURANCE	<u>\$0.00</u>	<u>0.00%</u>		<u>\$0.00</u>	<u>0.00%</u>
17						
18	OTHER	<u>\$11.14</u>	<u>1.11%</u>		<u>\$8.96</u>	<u>0.90%</u>
19						
20						
21	TOTAL REVENUE REQ'D	\$100.07	10.01%		\$80.49	8.05%

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Table - 8
Northern Utilities- New Hampshire
Marginal Cost Study
LEVELIZED FIXED CHARGE ANALYSIS
Services Investment

LINE NO.	ITEM	-- Current Dollars -- (Engineer's FCR)		-- Constant Dollars -- (Economist's FCR)	
		CURRENT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT	CONSTANT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT
1	INTEREST ON DEBT	\$10.19	1.02%	\$8.24	0.82%
2	RETURN ON PREF	\$0.00	0.00%	\$0.00	0.00%
3	RETURN ON COMMON	<u>\$25.43</u>	<u>2.54%</u>	<u>\$20.55</u>	<u>2.05%</u>
4					
5	RETURN	\$35.62	3.56%	\$28.79	2.88%
6					
7	DEPRECIATION	\$38.89	3.89%	\$31.43	3.14%
8					
9	INCOME TAX	\$15.32	1.53%	\$12.38	1.24%
10	DEFERRED TAXES	<u>\$1.22</u>	<u>0.12%</u>	<u>\$0.99</u>	<u>0.10%</u>
11					
12	INCOME TAX	\$16.54	1.65%	\$13.37	1.34%
13					
14	REVENUE TAX	\$0.00	0.00%	\$0.00	0.00%
15	PROPERTY TAX	\$9.22	0.92%	\$7.45	0.75%
16	PROPERTY INSURANCE	<u>\$0.00</u>	<u>0.00%</u>	<u>\$0.00</u>	<u>0.00%</u>
17					
18	OTHER	<u>\$9.22</u>	<u>0.92%</u>	<u>\$7.45</u>	<u>0.75%</u>
19					
20					
21	TOTAL REVENUE REQ'D	\$100.27	10.03%	\$81.03	8.10%

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Table - 8
Northern Utilities- New Hampshire
Marginal Cost Study
LEVELIZED FIXED CHARGE ANALYSIS
Metering Equipment

LINE NO.	ITEM	-- Current Dollars -- (Engineer's FCR)		-- Constant Dollars -- (Economist's FCR)	
		CURRENT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT	CONSTANT LEVELIZED DOLLARS	PERCENT OF CAPITAL INVESTMENT
1	INTEREST ON DEBT	\$12.27	1.23%	\$10.27	1.03%
2	RETURN ON PREF	\$0.00	0.00%	\$0.00	0.00%
3	RETURN ON COMMON	<u>\$30.60</u>	<u>3.06%</u>	<u>\$25.62</u>	<u>2.56%</u>
4					
5	RETURN	\$42.86	4.29%	\$35.89	3.59%
6					
7	DEPRECIATION	\$32.84	3.28%	\$27.50	2.75%
8					
9	INCOME TAX	\$15.96	1.60%	\$13.36	1.34%
10	DEFERRED TAXES	<u>\$3.94</u>	<u>0.39%</u>	<u>\$3.30</u>	<u>0.33%</u>
11					
12	INCOME TAX	\$19.90	1.99%	\$16.67	1.67%
13					
14	REVENUE TAX	\$0.00	0.00%	\$0.00	0.00%
15	PROPERTY TAX	\$17.79	1.78%	\$14.90	1.49%
16	PROPERTY INSURANCE	<u>\$0.00</u>	<u>0.00%</u>	<u>\$0.00</u>	<u>0.00%</u>
17					
18	OTHER	<u>\$17.79</u>	<u>1.78%</u>	<u>\$14.90</u>	<u>1.49%</u>
19					
20					
21	TOTAL REVENUE REQ'D	\$113.40	11.34%	\$94.95	9.50%

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Table - 8
Northern Utilities- New Hampshire
Development of Revenue Requirements Stream

Peaker Plant
NOT USED

Year No.	Rate Base	Interest On Debt	Return On Preferred	Return On Common	Tax Deprec'N	Book Deprec'N	Deferred Tax	Taxable Income	Inc Tax Payable	Revenue Tax	Property Tax	Property Insurance	ANNUAL	% of	Present
													Reveue Req'm'Ts	Original Investm'T	Worth Of Rev Req'Mt
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	992.61	21.19	0.00	52.86	37.50	0.00	14.78	49.74	19.60	0.00	0.00	0.00	108.43	10.84%	101.70
2	971.00	20.73	0.00	51.71	72.19	0.00	28.45	13.15	5.18	0.00	0.00	0.00	106.07	10.61%	93.31
3	943.61	20.14	0.00	50.25	66.77	0.00	26.32	16.16	6.37	0.00	0.00	0.00	103.08	10.31%	85.05
4	918.28	19.60	0.00	48.90	61.77	0.00	24.34	18.94	7.47	0.00	0.00	0.00	100.31	10.03%	77.63
5	894.85	19.10	0.00	47.65	57.13	0.00	22.52	21.52	8.48	0.00	0.00	0.00	97.75	9.78%	70.95
6	873.18	18.64	0.00	46.50	52.85	0.00	20.83	23.90	9.42	0.00	0.00	0.00	95.39	9.54%	64.94
7	853.13	18.21	0.00	45.43	48.88	0.00	19.27	26.10	10.29	0.00	0.00	0.00	93.20	9.32%	59.51
8	834.59	17.82	0.00	44.44	45.22	0.00	17.82	28.13	11.09	0.00	0.00	0.00	91.17	9.12%	54.60
9	816.88	17.44	0.00	43.50	44.62	0.00	17.58	27.18	10.71	0.00	0.00	0.00	89.24	8.92%	50.12
10	799.30	17.06	0.00	42.56	44.62	0.00	17.58	25.64	10.10	0.00	0.00	0.00	87.31	8.73%	46.00
11	781.72	16.69	0.00	41.63	44.62	0.00	17.58	24.09	9.49	0.00	0.00	0.00	85.39	8.54%	42.20
12	764.13	16.31	0.00	40.69	44.62	0.00	17.58	22.54	8.89	0.00	0.00	0.00	83.47	8.35%	38.69
13	746.55	15.94	0.00	39.75	44.62	0.00	17.58	21.00	8.28	0.00	0.00	0.00	81.55	8.16%	35.45
14	728.97	15.56	0.00	38.82	44.62	0.00	17.58	19.45	7.67	0.00	0.00	0.00	79.63	7.96%	32.47
15	711.38	15.19	0.00	37.88	44.62	0.00	17.58	17.91	7.06	0.00	0.00	0.00	77.71	7.77%	29.72
16	693.80	14.81	0.00	36.95	44.62	0.00	17.58	16.36	6.45	0.00	0.00	0.00	75.79	7.58%	27.18
17	676.21	14.44	0.00	36.01	44.62	0.00	17.58	14.82	5.84	0.00	0.00	0.00	73.87	7.39%	24.85
18	658.63	14.06	0.00	35.07	44.62	0.00	17.58	13.27	5.23	0.00	0.00	0.00	71.95	7.19%	22.70
19	641.05	13.69	0.00	34.14	44.62	0.00	17.58	11.73	4.62	0.00	0.00	0.00	70.03	7.00%	20.72
20	623.46	13.31	0.00	33.20	44.62	0.00	17.58	10.18	4.01	0.00	0.00	0.00	68.11	6.81%	18.90
21	610.28	13.03	0.00	32.50	22.31	0.00	8.79	31.33	12.35	0.00	0.00	0.00	66.67	6.67%	17.35
22	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	16.16
23	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	15.16
24	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	14.22
25	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	13.33
26	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	12.51
27	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	11.73
28	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	11.00
29	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	10.32
30	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	9.68
31	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	9.08
32	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	8.51
33	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	7.99
34	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	7.49
35	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	7.02
36	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	6.59
37	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	6.18
38	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	5.80
39	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	5.44
40	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	5.10
41	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	4.78
42	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	4.49
43	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	4.21
44	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	3.95
45	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	3.70
46	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	3.47
47	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	3.26
48	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	3.05
49	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	2.86
50	605.88	12.93	0.00	32.26	0.00	0.00	0.00	53.25	20.99	0.00	0.00	0.00	66.19	6.62%	2.69

TOTAL		\$922.10	\$0.00	\$2,300.04	\$1,000.00	\$0.00	\$394.12	\$2,796.19	\$1,102.03	\$0.00	\$0.00	\$0.00	\$4,718.29		1,259
PRESENT WORTH		\$246.01	\$0.00	\$613.65	\$559.72	\$0.00	\$220.60	\$453.10	\$178.58	\$0.00	\$0.00	\$0.00	\$1,258.83	125.88%	
LEVELIZED PAYMENT		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	NUNH 2016 MCS 05-19-17.xls 8

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Table - 8
Northern Utilities- New Hampshire
Development of Revenue Requirements Stream

Capacity Related Distribution

Year No.	Rate Base	Interest On Debt	Return On Preferred	Return On Common	Tax Deprec'N	Book Deprec'N	Deferred Tax	Taxable Income	Inc Tax Payable	Revenue Tax	Property Tax	Property Insurance	ANNUAL	% of	Present
													Reveue Reqm'Ts	Original Investm'T	Worth Of Rev Req'Mt
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	984.04	21.01	0.00	52.40	37.50	28.30	3.63	77.29	30.46	0.00	14.50	0.00	150.29	15.03%	140.96
2	945.28	20.18	0.00	50.34	72.19	28.30	17.30	39.19	15.45	0.00	14.38	0.00	145.94	14.59%	128.38
3	900.75	19.23	0.00	47.97	66.77	28.30	15.16	40.69	16.04	0.00	14.26	0.00	140.95	14.10%	116.30
4	858.27	18.32	0.00	45.70	61.77	28.30	13.19	41.97	16.54	0.00	14.12	0.00	136.17	13.62%	105.38
5	817.69	17.46	0.00	43.54	57.13	28.30	11.36	43.03	16.96	0.00	13.97	0.00	131.59	13.16%	95.51
6	778.88	16.63	0.00	41.48	52.85	28.30	9.68	43.91	17.30	0.00	13.81	0.00	127.19	12.72%	86.59
7	741.68	15.83	0.00	39.50	48.88	28.30	8.11	44.60	17.58	0.00	13.63	0.00	122.95	12.30%	78.51
8	705.99	15.07	0.00	37.59	45.22	28.30	6.67	45.13	17.79	0.00	13.44	0.00	118.87	11.89%	71.19
9	671.14	14.33	0.00	35.74	44.62	28.30	6.43	42.67	16.82	0.00	13.24	0.00	114.86	11.49%	64.51
10	636.41	13.59	0.00	33.89	44.62	28.30	6.43	39.62	15.61	0.00	13.03	0.00	110.85	11.08%	58.40
11	601.68	12.85	0.00	32.04	44.62	28.30	6.43	36.57	14.41	0.00	12.79	0.00	106.82	10.68%	52.78
12	566.95	12.10	0.00	30.19	44.62	28.30	6.43	33.51	13.21	0.00	12.55	0.00	102.78	10.28%	47.63
13	532.22	11.36	0.00	28.34	44.62	28.30	6.43	30.46	12.01	0.00	12.28	0.00	98.72	9.87%	42.91
14	497.49	10.62	0.00	26.49	44.62	28.30	6.43	27.41	10.80	0.00	12.00	0.00	94.65	9.46%	38.59
15	462.76	9.88	0.00	24.64	44.62	28.30	6.43	24.36	9.60	0.00	11.71	0.00	90.56	9.06%	34.63
16	428.04	9.14	0.00	22.79	44.62	28.30	6.43	21.30	8.40	0.00	11.39	0.00	86.45	8.65%	31.01
17	393.31	8.40	0.00	20.94	44.62	28.30	6.43	18.25	7.19	0.00	11.06	0.00	82.32	8.23%	27.69
18	358.58	7.66	0.00	19.09	44.62	28.30	6.43	15.20	5.99	0.00	10.71	0.00	78.18	7.82%	24.67
19	323.85	6.91	0.00	17.25	44.62	28.30	6.43	12.15	4.79	0.00	10.34	0.00	74.01	7.40%	21.90
20	289.12	6.17	0.00	15.40	44.62	28.30	6.43	9.09	3.58	0.00	9.95	0.00	69.83	6.98%	19.38
21	258.78	5.52	0.00	13.78	22.31	28.30	(2.36)	28.74	11.33	0.00	9.53	0.00	66.10	6.61%	17.21
22	237.24	5.06	0.00	12.63	0.00	28.30	(11.15)	49.15	19.37	0.00	9.10	0.00	63.31	6.33%	15.46
23	220.09	4.70	0.00	11.72	0.00	28.30	(11.15)	47.64	18.78	0.00	8.64	0.00	60.98	6.10%	13.97
24	202.95	4.33	0.00	10.81	0.00	28.30	(11.15)	46.14	18.18	0.00	8.16	0.00	58.63	5.86%	12.59
25	185.80	3.97	0.00	9.89	0.00	28.30	(11.15)	44.63	17.59	0.00	7.66	0.00	56.25	5.63%	11.33
26	168.66	3.60	0.00	8.98	0.00	28.30	(11.15)	43.12	17.00	0.00	7.13	0.00	53.85	5.39%	10.18
27	151.51	3.23	0.00	8.07	0.00	28.30	(11.15)	41.62	16.40	0.00	6.57	0.00	51.42	5.14%	9.11
28	134.36	2.87	0.00	7.16	0.00	28.30	(11.15)	40.11	15.81	0.00	5.99	0.00	48.97	4.90%	8.14
29	117.22	2.50	0.00	6.24	0.00	28.30	(11.15)	38.60	15.21	0.00	5.39	0.00	46.49	4.65%	7.25
30	100.07	2.14	0.00	5.33	0.00	28.30	(11.15)	37.09	14.62	0.00	4.75	0.00	43.98	4.40%	6.43
31	82.93	1.77	0.00	4.42	0.00	28.30	(11.15)	35.59	14.03	0.00	4.08	0.00	41.44	4.14%	5.68
32	65.78	1.40	0.00	3.50	0.00	28.30	(11.15)	34.08	13.43	0.00	3.39	0.00	38.87	3.89%	5.00
33	48.63	1.04	0.00	2.59	0.00	28.30	(11.15)	32.57	12.84	0.00	2.66	0.00	36.27	3.63%	4.38
34	31.49	0.67	0.00	1.68	0.00	28.30	(11.15)	31.07	12.24	0.00	1.90	0.00	33.64	3.36%	3.81
35	14.34	0.31	0.00	0.76	0.00	28.30	(11.15)	29.56	11.65	0.00	1.11	0.00	30.98	3.10%	3.29
36	(2.80)	(0.06)	0.00	(0.15)	0.00	28.30	(11.15)	28.05	11.06	0.00	0.29	0.00	28.28	2.83%	2.81
37	(19.95)	(0.43)	0.00	(1.06)	0.00	28.30	(11.15)	26.55	10.46	0.00	0.00	0.00	26.12	2.61%	2.44
38	(37.10)	(0.79)	0.00	(1.98)	0.00	28.30	(11.15)	25.04	9.87	0.00	0.00	0.00	24.25	2.42%	2.12
39	(54.24)	(1.16)	0.00	(2.89)	0.00	28.30	(11.15)	23.53	9.27	0.00	0.00	0.00	22.37	2.24%	1.84
40	(71.39)	(1.52)	0.00	(3.80)	0.00	28.30	(11.15)	22.03	8.68	0.00	0.00	0.00	20.50	2.05%	1.58
41	(88.53)	(1.89)	0.00	(4.71)	0.00	28.30	(11.15)	20.52	8.09	0.00	0.00	0.00	18.63	1.86%	1.35
42	(105.68)	(2.26)	0.00	(5.63)	0.00	28.30	(11.15)	19.01	7.49	0.00	0.00	0.00	16.75	1.68%	1.14
43	(122.83)	(2.62)	0.00	(6.54)	0.00	28.30	(11.15)	17.50	6.90	0.00	0.00	0.00	14.88	1.49%	0.95
44	(139.97)	(2.99)	0.00	(7.45)	0.00	28.30	(11.15)	16.00	6.30	0.00	0.00	0.00	13.01	1.30%	0.78
45	(157.12)	(3.35)	0.00	(8.37)	0.00	28.30	(11.15)	14.49	5.71	0.00	0.00	0.00	11.14	1.11%	0.62
46	(174.26)	(3.72)	0.00	(9.28)	0.00	28.30	(11.15)	12.98	5.12	0.00	0.00	0.00	9.26	0.93%	0.49
47	(191.41)	(4.09)	0.00	(10.19)	0.00	28.30	(11.15)	11.48	4.52	0.00	0.00	0.00	7.39	0.74%	0.36
48	65.04	1.39	0.00	3.46	330.07	0.00	130.09	(324.35)	(127.83)	0.00	0.00	0.00	7.11	0.71%	0.33
49	(0.00)	(0.00)	0.00	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	0.00%	(0.00)
50	(0.00)	(0.00)	0.00	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	0.00%	(0.00)

TOTAL		\$286.36	\$0.00	\$714.30	\$1,330.07	\$1,330.07	(\$0.00)	\$1,178.94	\$464.64	\$0.00	\$339.51	\$0.00	\$3,134.89		1,438
PRESENT WORTH		\$170.20	\$0.00	\$424.55	\$574.95	\$406.54	\$66.37	\$532.31	\$209.79	\$0.00	\$160.08	\$0.00	\$1,437.54	143.75%	
LEVELIZED PAYMENT		\$11.85	\$0.00	\$29.55	\$40.02	\$28.30	\$4.62	\$37.05	\$14.60	\$0.00	\$11.14	\$0.00	\$100.07	10.01%	

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Development of Revenue Requirements Stream

Services Investment

Year No.	Rate Base	Interest On Debt	Return On Preferred	Return On Common	Tax Deprec'N	Book Deprec'N	Deferred Tax	Taxable Income	Inc Tax Payable	Revenue Tax	Property Tax	Property Insurance	ANNUAL	% of	Present
													Reveue Reqm'Ts	Original Investm'T	Worth Of Rev Req'Mt
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
		1,000.00													
1	980.83	20.94	0.00	52.23	37.50	38.89	(0.55)	87.59	34.52	0.00	14.50	0.00	160.53	16.05%	150.56
2	935.65	19.97	0.00	49.82	72.19	38.89	13.12	48.94	19.29	0.00	14.22	0.00	155.32	15.53%	136.64
3	884.71	18.89	0.00	47.11	66.77	38.89	10.99	49.87	19.66	0.00	13.94	0.00	149.47	14.95%	123.33
4	835.81	17.84	0.00	44.51	61.77	38.89	9.02	50.58	19.94	0.00	13.63	0.00	143.82	14.38%	111.30
5	788.82	16.84	0.00	42.01	57.13	38.89	7.19	51.09	20.13	0.00	13.30	0.00	138.36	13.84%	100.43
6	743.59	15.87	0.00	39.60	52.85	38.89	5.50	51.40	20.26	0.00	12.96	0.00	133.07	13.31%	90.59
7	699.98	14.94	0.00	37.27	48.88	38.89	3.94	51.53	20.31	0.00	12.59	0.00	127.94	12.79%	81.69
8	657.87	14.04	0.00	35.03	45.22	38.89	2.49	51.49	20.29	0.00	12.20	0.00	122.96	12.30%	73.64
9	616.61	13.16	0.00	32.83	44.62	38.89	2.26	48.47	19.10	0.00	11.79	0.00	118.04	11.80%	66.30
10	575.46	12.29	0.00	30.64	44.62	38.89	2.26	44.85	17.68	0.00	11.36	0.00	113.11	11.31%	59.59
11	534.32	11.41	0.00	28.45	44.62	38.89	2.26	41.23	16.25	0.00	10.90	0.00	108.16	10.82%	53.45
12	493.17	10.53	0.00	26.26	44.62	38.89	2.26	37.62	14.83	0.00	10.43	0.00	103.19	10.32%	47.82
13	452.02	9.65	0.00	24.07	44.62	38.89	2.26	34.00	13.40	0.00	9.92	0.00	98.19	9.82%	42.68
14	410.88	8.77	0.00	21.88	44.62	38.89	2.26	30.39	11.98	0.00	9.39	0.00	93.16	9.32%	37.98
15	369.73	7.89	0.00	19.69	44.62	38.89	2.26	26.77	10.55	0.00	8.83	0.00	88.11	8.81%	33.69
16	328.59	7.01	0.00	17.50	44.62	38.89	2.26	23.15	9.13	0.00	8.25	0.00	83.03	8.30%	29.78
17	287.44	6.14	0.00	15.31	44.62	38.89	2.26	19.54	7.70	0.00	7.64	0.00	77.92	7.79%	26.21
18	246.30	5.26	0.00	13.12	44.62	38.89	2.26	15.92	6.27	0.00	6.99	0.00	72.79	7.28%	22.97
19	205.15	4.38	0.00	10.92	44.62	38.89	2.26	12.30	4.85	0.00	6.32	0.00	67.62	6.76%	20.01
20	164.00	3.50	0.00	8.73	44.62	38.89	2.26	8.69	3.42	0.00	5.62	0.00	62.42	6.24%	17.33
21	127.25	2.72	0.00	6.78	22.31	38.89	(6.54)	27.77	10.94	0.00	4.88	0.00	57.67	5.77%	15.01
22	99.30	2.12	0.00	5.29	0.00	38.89	(15.33)	47.62	18.77	0.00	4.11	0.00	53.85	5.38%	13.15
23	75.73	1.62	0.00	4.03	0.00	38.89	(15.33)	45.55	17.95	0.00	3.31	0.00	50.47	5.05%	11.56
24	52.17	1.11	0.00	2.78	0.00	38.89	(15.33)	43.47	17.13	0.00	2.47	0.00	47.06	4.71%	10.11
25	28.61	0.61	0.00	1.52	0.00	38.89	(15.33)	41.40	16.32	0.00	1.59	0.00	43.61	4.36%	8.78
26	5.05	0.11	0.00	0.27	0.00	38.89	(15.33)	39.33	15.50	0.00	0.68	0.00	40.12	4.01%	7.58
27	(18.51)	(0.40)	0.00	(0.99)	0.00	38.89	(15.33)	37.26	14.69	0.00	0.00	0.00	36.87	3.69%	6.53
28	(42.08)	(0.90)	0.00	(2.24)	0.00	38.89	(15.33)	35.19	13.87	0.00	0.00	0.00	34.29	3.43%	5.70
29	(65.64)	(1.40)	0.00	(3.50)	0.00	38.89	(15.33)	33.12	13.05	0.00	0.00	0.00	31.72	3.17%	4.94
30	(89.20)	(1.90)	0.00	(4.75)	0.00	38.89	(15.33)	31.05	12.24	0.00	0.00	0.00	29.14	2.91%	4.26
31	(112.76)	(2.41)	0.00	(6.00)	0.00	38.89	(15.33)	28.98	11.42	0.00	0.00	0.00	26.57	2.66%	3.64
32	(136.32)	(2.91)	0.00	(7.26)	0.00	38.89	(15.33)	26.91	10.60	0.00	0.00	0.00	24.00	2.40%	3.09
33	(159.89)	(3.41)	0.00	(8.51)	0.00	38.89	(15.33)	24.84	9.79	0.00	0.00	0.00	21.42	2.14%	2.58
34	(183.45)	(3.92)	0.00	(9.77)	0.00	38.89	(15.33)	22.77	8.97	0.00	0.00	0.00	18.85	1.88%	2.13
35	(207.01)	(4.42)	0.00	(11.02)	0.00	38.89	(15.33)	20.69	8.16	0.00	0.00	0.00	16.28	1.63%	1.73
36	(230.57)	(4.92)	0.00	(12.28)	0.00	38.89	(15.33)	18.62	7.34	0.00	0.00	0.00	13.70	1.37%	1.36
37	(254.13)	(5.43)	0.00	(13.53)	0.00	38.89	(15.33)	16.55	6.52	0.00	0.00	0.00	11.13	1.11%	1.04
38	(277.70)	(5.93)	0.00	(14.79)	0.00	38.89	(15.33)	14.48	5.71	0.00	0.00	0.00	8.55	0.86%	0.75
39	(301.26)	(6.43)	0.00	(16.04)	0.00	38.89	(15.33)	12.41	4.89	0.00	0.00	0.00	5.98	0.60%	0.49
40	(324.82)	(6.93)	0.00	(17.30)	0.00	38.89	(15.33)	10.34	4.08	0.00	0.00	0.00	3.41	0.34%	0.26
41	(348.38)	(7.44)	0.00	(18.55)	0.00	38.89	(15.33)	8.27	3.26	0.00	0.00	0.00	0.83	0.08%	0.06
42	(371.94)	(7.94)	0.00	(19.81)	0.00	38.89	(15.33)	6.20	2.44	0.00	0.00	0.00	(1.74)	-0.17%	(0.12)
43	(395.51)	(8.44)	0.00	(21.06)	0.00	38.89	(15.33)	4.13	1.63	0.00	0.00	0.00	(4.32)	-0.43%	(0.27)
44	(419.07)	(8.95)	0.00	(22.32)	0.00	38.89	(15.33)	2.06	0.81	0.00	0.00	0.00	(6.89)	-0.69%	(0.41)
45	(442.63)	(9.45)	0.00	(23.57)	0.00	38.89	(15.33)	(0.01)	(0.01)	0.00	0.00	0.00	(9.46)	-0.95%	(0.53)
46	147.79	3.16	0.00	7.87	750.00	0.00	295.59	(737.01)	(290.47)	0.00	0.00	0.00	16.14	1.61%	0.85
47	(0.00)	(0.00)	0.00	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	0.00%	(0.00)
48	(0.00)	(0.00)	0.00	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	0.00%	(0.00)
49	(0.00)	(0.00)	0.00	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	0.00%	(0.00)
50	(0.00)	(0.00)	0.00	(0.00)	0.00	0.00	0.00	(0.00)	(0.00)	0.00	0.00	0.00	(0.00)	0.00%	(0.00)

TOTAL		\$157.25	\$0.00	\$392.25	\$1,750.00	\$1,750.00	(\$0.00)	\$647.40	\$255.15	\$0.00	\$231.81	\$0.00	\$2,786.47		1.430
PRESENT WORTH		\$145.41	\$0.00	\$362.71	\$599.05	\$554.72	\$17.47	\$554.31	\$218.47	\$0.00	\$131.49	\$0.00	\$1,430.27	143.03%	
LEVELIZED PAYMENT		\$10.19	\$0.00	\$25.43	\$42.00	\$38.89	\$1.22	\$38.86	\$15.32	\$0.00	\$9.22	\$0.00	\$100.27	10.03%	

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Metering Equipment

Year No.	Rate Base	Interest On Debt	Return On Preferred	Return On Common	Tax Deprec'N	Book Deprec'N	Deferred Tax	Taxable Income	Inc Tax Payable	Revenue Tax	Property Tax	Property Insurance	ANNUAL	% of	Present	
													Reveue Req'n'Ts	Original Investm'T	Worth Of Rev Req'Mt	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	
		1,000.00														
1		982.66	20.98	0.00	52.33	37.50	32.84	1.84	81.70	32.20	0.00	14.50	0.00	154.68	15.47%	145.07
2		941.15	20.09	0.00	50.12	72.19	32.84	15.51	43.37	17.09	0.00	14.31	0.00	149.96	15.00%	131.92
3		893.87	19.08	0.00	47.60	66.77	32.84	13.38	44.63	17.59	0.00	14.61	0.00	145.10	14.51%	119.72
4		848.65	18.12	0.00	45.19	61.77	32.84	11.40	45.66	18.00	0.00	14.92	0.00	140.46	14.05%	108.70
5		805.33	17.19	0.00	42.88	57.13	32.84	9.58	46.48	18.32	0.00	15.23	0.00	136.04	13.60%	98.74
6		763.76	16.31	0.00	40.67	52.85	32.84	7.89	47.11	18.57	0.00	15.55	0.00	131.82	13.18%	89.74
7		723.82	15.45	0.00	38.54	48.88	32.84	6.32	47.57	18.75	0.00	15.88	0.00	127.79	12.78%	81.59
8		685.38	14.63	0.00	36.50	45.22	32.84	4.88	47.86	18.86	0.00	16.21	0.00	123.92	12.39%	74.21
9		647.78	13.83	0.00	34.49	44.62	32.84	4.64	45.15	17.80	0.00	16.56	0.00	120.15	12.02%	67.49
10		610.30	13.03	0.00	32.50	44.62	32.84	4.64	41.86	16.50	0.00	16.90	0.00	116.41	11.64%	61.33
11		572.82	12.23	0.00	30.50	44.62	32.84	4.64	38.57	15.20	0.00	17.26	0.00	112.67	11.27%	55.67
12		535.34	11.43	0.00	28.51	44.62	32.84	4.64	35.27	13.90	0.00	17.62	0.00	108.94	10.89%	50.49
13		497.87	10.63	0.00	26.51	44.62	32.84	4.64	31.98	12.60	0.00	17.99	0.00	105.21	10.52%	45.73
14		460.39	9.83	0.00	24.52	44.62	32.84	4.64	28.68	11.31	0.00	18.37	0.00	101.50	10.15%	41.38
15		422.91	9.03	0.00	22.52	44.62	32.84	4.64	25.39	10.01	0.00	18.75	0.00	97.79	9.78%	37.39
16		385.43	8.23	0.00	20.52	44.62	32.84	4.64	22.10	8.71	0.00	19.15	0.00	94.09	9.41%	33.74
17		347.95	7.43	0.00	18.53	44.62	32.84	4.64	18.80	7.41	0.00	19.55	0.00	90.40	9.04%	30.41
18		310.47	6.63	0.00	16.53	44.62	32.84	4.64	15.51	6.11	0.00	19.96	0.00	86.71	8.67%	27.36
19		272.99	5.83	0.00	14.54	44.62	32.84	4.64	12.21	4.81	0.00	20.38	0.00	83.04	8.30%	24.57
20		235.52	5.03	0.00	12.54	44.62	32.84	4.64	8.92	3.52	0.00	20.81	0.00	79.37	7.94%	22.03
21		202.43	4.32	0.00	10.78	22.31	32.84	(4.15)	28.32	11.16	0.00	21.24	0.00	76.19	7.62%	19.83
22		178.14	3.80	0.00	9.49	0.00	32.84	(12.94)	48.49	19.11	0.00	21.69	0.00	73.99	7.40%	18.06
23		158.25	3.38	0.00	8.43	0.00	32.84	(12.94)	46.74	18.42	0.00	22.15	0.00	72.27	7.23%	16.55
24		138.35	2.95	0.00	7.37	0.00	32.84	(12.94)	45.00	17.73	0.00	22.61	0.00	70.56	7.06%	15.16
25		118.46	2.53	0.00	6.31	0.00	32.84	(12.94)	43.25	17.04	0.00	23.09	0.00	68.86	6.89%	13.87
26		98.56	2.10	0.00	5.25	0.00	32.84	(12.94)	41.50	16.36	0.00	23.57	0.00	67.17	6.72%	12.69
27		78.67	1.68	0.00	4.19	0.00	32.84	(12.94)	39.75	15.67	0.00	24.07	0.00	65.50	6.55%	11.61
28		58.77	1.25	0.00	3.13	0.00	32.84	(12.94)	38.00	14.98	0.00	24.57	0.00	63.83	6.38%	10.61
29		38.88	0.83	0.00	2.07	0.00	32.84	(12.94)	36.25	14.29	0.00	25.09	0.00	62.17	6.22%	9.69
30		18.98	0.41	0.00	1.01	0.00	32.84	(12.94)	34.50	13.60	0.00	25.61	0.00	60.52	6.05%	8.85
31	(0.91)	(0.02)	0.00	(0.05)	0.00	32.84	(12.94)	32.76	12.91	0.00	26.15	0.00	58.89	5.89%	8.08	
32	(20.80)	(0.44)	0.00	(1.11)	0.00	32.84	(12.94)	31.01	12.22	0.00	26.70	0.00	57.26	5.73%	7.37	
33	(40.70)	(0.87)	0.00	(2.17)	0.00	32.84	(12.94)	29.26	11.53	0.00	27.26	0.00	55.65	5.57%	6.71	
34	16.47	0.35	0.00	0.88	83.59	0.00	32.95	(82.14)	(32.37)	0.00	0.00	0.00	1.80	0.18%	0.20	
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%	0.00	

TOTAL		\$277.27	\$0.00	\$691.62	\$1,083.59	\$1,083.59	(\$0.00)	\$1,141.52	\$449.89	\$0.00	\$658.32	\$0.00	\$3,160.71		1.507
PRESENT WORTH		\$162.98	\$0.00	\$406.52	\$569.18	\$436.27	\$52.38	\$538.05	\$212.06	\$0.00	\$236.39	\$0.00	\$1,506.59	150.66%	
LEVELIZED PAYMENT		\$12.27	\$0.00	\$30.60	\$42.84	\$32.84	\$3.94	\$40.50	\$15.96	\$0.00	\$17.79	\$0.00	\$113.40	11.34%	

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Table - 8
Northern Utilities- New Hampshire
Marginal Cost Study

Development of Weighted Plant Book Lives and Salvage

Line No.	Description	2012 Plant Balance	Average Service Life	Net Salvage Value
	(1)	(2)	(3) {1}	(4) {1}
1	DISTRIBUTION INVESTMENT (excluding Customer Equip)			
2				
3				
4	375-Distribution Structures	2,910,195	60.0	0%
5	376-Mains	106,079,433	46.8	-35%
6	378-Distribution M&R Station Equip.	3,445,431	30.0	-5%
7	379-Distribution M&R Take Station Equip.	39,266	30.0	-5%
8	383-Dist. House Regulators	537,766	30.0	0%
9	386-Dist Water Htrs & Conv. Burners			
10				
11	Total Distribution Capacity-Related	\$113,012,091	46.5	-33%
12				
13				
14				
15				
16				
17	380-Services	60,250,315	45.0	-75%
18				
19	381-Meters	3,913,705	30.0	0
20	382-Meter Installations	19,938,729	33.0	-10%
21	Total Meters	23,852,434	32.5	-8%
22				

NOTES:

- 1 Service lives and salvage values based on updated filed Depreciation Study Schedule A (Docket DG 17-070)

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Table - 9
Northern Utilities- New Hampshire
Marginal Cost Study

Summary of Marginal Capacity Costs

Line No.	Description	-----TRANS & DIST-----		
		Mains Reinforce	Mains Extension	Total Dist
		(3)	(4)	(5)
	PLANT INVESTMENT			
1	Long-Run Unit Costs - \$/Design Day Therms {1}	\$85.77	\$132.63	\$218.40
2	General Plant Loading Factor	4.44%	4.44%	
3	Unit Costs + Loading Factor (1)+(1)*(2)	89.57	138.52	\$228.09
4				
5	Fixed Charge Rate	8.05%	8.05%	
6	A & G Exp Plant-Related Loading Factor	0.28%	0.28%	
7	Total Rate (5)+(6)	8.33%	8.33%	
8				
9	Annualized Cost (3)*(7)	\$7.46	\$11.54	\$19.00
10				
11	OPERATING EXPENSES			
12				
13	Distribution capacity costs {2}	\$0.00	\$2.50	\$2.50
14	A&G Exp Non-Plant Loading Factor	64.36%	64.36%	
15	Total O&M Expense [(12)+(13)]*[1+(14)]	\$0.00	\$4.10	\$4.10
16				
17	WORKING CAPITAL			
18	Materials & Supplies + Prepayments Rate {3}	1.38%	1.38%	
19	M&S Cost (3)*(18)	1.23	1.91	\$3.14
20	Working Cash O&M Allowance {4} [(9)+(15)]*6.55%	0.49	1.02	\$1.51
21	Total Working Capital (19)+(20)	\$1.72	\$2.93	\$4.65
22				
23	Working Capital Rev. Req'd {5} (21)*10.92%	\$0.19	\$0.32	\$0.51
24				
25	System Seasonal Capacity Related Cost			
26	\$/Design Day Therms (9)+(15)+(23)	\$7.65	\$15.96	\$23.61
27				
28	Loss Factor {6}	0.006	0.006	0.006
29	Inflation Adjustment {7}	2.95%	2.95%	2.95%
30				
31	Seasonal Capacity Cost (26)/[1-(28)]* [1+(29)]	<u>\$7.92</u>	<u>\$16.54</u>	<u>\$24.46</u>

NOTES:

- Source: Table - 2, page 2.
- Source: Table - 5, page 1.
- Source: Table - 7, page 2.
- Working cash computed on the basis of 23.97 days.
- Revenue requirement for working cash computed as the after tax cost of capital, i.e. debt costs plus equity costs increased by taxes equals 10.92%.
- Provided by NU Losses Analysis.
- Inflation adjustment to restate marginal costs to rate year dollars.
 $(1+0.0137)^{((10/31/2014-12/31/2012)/365)}-1$

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Table - 10
Northern Utilities- New Hampshire
Marginal Cost Study

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Summary of Marginal Commodity Costs

Line No.	Description	----- Residential -----		----- Small C&I -----		----- Medium C&I -----		----- Large C&I -----	
		ResNonHt&LI	ResHt&LI	SmHiW	SmLoW	MdHiW	MdLoW	LgHiW	LgLoW
		R-6&R-11	R-5&R-10	G-40	G-50	G-41	G-51	G-42	G-52
1	PLANT INVESTMENT								
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									

MARGINAL COMMODITY COSTS NOT COMPUTED FOR DISTRIBUTION MARGINAL COST STUDY

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Table - 11
Northern Utilities- New Hampshire
Marginal Cost Study

Summary of Marginal Customer Costs

Line No.	Description	----- Residential -----		----- Small C&I -----		----- Medium C&I -----		----- Large C&I -----	
		ResNonHt&LI R-6&R-11	ResHt&LI R-5&R-10	SmHiW G-40	SmLoW G-50	MdHiW G-41	MdLoW G-51	LgHiW G-42	LgLoW G-52
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
PLANT INVESTMENT									
1	Meters and Regulators {1}	\$463.90	\$463.90	\$616.35	\$616.35	\$2,983.09	\$2,983.09	\$9,984.14	\$9,984.14
2	General Plant Loading Factor {2}	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%
3	Unit Costs + Loading Factor (1)+(2)*(1)	484.48	484.48	643.70	643.70	3,115.41	3,115.41	10,427.02	10,427.02
4	Fixed Charge Rate {3}	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%	9.50%
5	Meters Carrying Costs (3)*(4)	46.00	46.00	61.12	61.12	295.81	295.81	990.07	990.07
6	Services {1}	3,651.24	3,651.24	4,385.53	4,385.53	7,930.10	7,930.10	12,394.87	12,394.87
7	General Plant Loading Factor {2}	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%	4.44%
8	Unit Costs + Loading Factor (6)+(6)*(7)	3,813.20	3,813.20	4,580.06	4,580.06	8,281.87	8,281.87	12,944.69	12,944.69
9	Fixed Charge Rate {3}	8.10%	8.10%	8.10%	8.10%	8.10%	8.10%	8.10%	8.10%
10	Services Carrying Costs (8)*(9)	309.00	309.00	371.14	371.14	671.12	671.12	1,048.97	1,048.97
11									
12	Total Plant Carrying Costs (5)+(10)	\$355.00	\$355.00	\$432.26	\$432.26	\$966.93	\$966.93	\$2,039.04	\$2,039.04
13									
14	A & G Exp Plant-Related Loading Factor {4}	0.28%	0.28%	0.28%	0.28%	0.28%	0.28%	0.28%	0.28%
15									
16	Annualized Cost (100%+(14))*(12)	\$356.00	\$356.00	\$433.47	\$433.47	\$969.64	\$969.64	\$2,044.73	\$2,044.73
17									
18									
19	OPERATING EXPENSES								
20	Plant Related O&M \$/Customer {5}	\$55.66	\$55.66	\$67.66	\$67.66	\$147.61	\$147.61	\$302.70	\$302.70
21	Customer Acctg & Mktg Expenses {6}	\$27.09	\$39.96	\$40.80	\$34.89	\$144.47	\$82.35	\$534.80	\$171.43
22	A&G Exp Non-Plant Loading Factor {4}	64.36%	64.36%	64.36%	64.36%	64.36%	64.36%	64.36%	64.36%
23	Total O&M Expense (20+21+[20+21]*22)	\$136.02	\$157.18	\$178.27	\$168.54	\$480.07	\$377.98	\$1,376.55	\$779.30
24									
25	WORKING CAPITAL - \$/Customer								
26	Materials & Supplies + Prepayments Rate {3}	1.38%	1.38%	1.38%	1.38%	1.38%	1.38%	1.38%	1.38%
27	M&S Cost [(3)+(8)]*(26)	59.14	59.14	71.89	71.89	156.85	156.85	321.64	321.64
28	Working Cash O&M Allowance {7} [(16)+(23)]*6.55%	32.23	33.61	40.07	39.43	94.96	88.27	224.09	184.97
29	Total Working Capital (27)+(28)	\$91.37	\$92.76	\$111.96	\$111.32	\$251.80	\$245.12	\$545.73	\$506.61
30	{8}								
31	Working Capital Rev. Requirement (29)* 10.92%	\$9.98	\$10.13	\$12.23	\$12.16	\$27.51	\$26.78	\$59.61	\$55.34
32									
33	Annual Customer Related Cost	\$502.00	\$523.31	\$623.97	\$614.18	\$1,477.22	\$1,374.39	\$3,480.90	\$2,879.38
34	\$/Customer (16)+(23)+(31)								
35	Inflation Adjustment {9}	2.95%	2.95%	2.95%	2.95%	2.95%	2.95%	2.95%	2.95%
36									
37	Annual Customer Related Cost (33)*[1+(35)]	\$516.82	\$538.75	\$642.39	\$632.31	\$1,520.83	\$1,414.96	\$3,583.66	\$2,964.38

NOTES:

- 1 Meter investment from Table - 3, Page 1.
- 2 Source: Table - 7, page 2.
- 3 Source: Table - 8, page 1.
- 4 Source: Table - 7, page 1.
- 5 Source: Table - 6, page 2.
- 6 Source: Table - 6, page 4.
- 7 Working cash computed on the basis of 23.97 days net lag.
- 8 Revenue requirement for working cash computed as tax rate divided by 1 minus tax rate multiplied by the cost of equity all added to the cost of capital.
- 9 Source: Price escalation to mid-point of rate year.

Northern Utilities New Hampshire Division
Docket No. DG 17-070
Gas Cost of Service Workpapers
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Table - 12
Northern Utilities- New Hampshire
Marginal Cost Study
Summary of Marginal Cost Estimates

Line No.	Description	ResNonHt&LI R-6&R-11	ResHt&LI R-5&R-10	Small C&I SmHiW G-40	Small C&I SmLoW G-50	Medium C&I MdHiW G-41	Medium C&I MdLoW G-51	Large C&I LgHiW G-42	Large C&I LgLoW G-52	Total Company
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	UNCOLLECTIBLE FACTOR	0.04%	0.19%	0.29%	0.25%	0.30%	0.25%	0.21%	0.02%	
2										
3	CUSTOMER CHARGE \$'s per month									
4	Customer Charge w/o Uncollectibles (1)	\$43.07	\$44.90	\$53.53	\$52.69	\$126.74	\$117.91	\$298.64	\$247.03	
5	Adjustment for Uncollectibles (1)*(4)	0.02	0.08	0.16	0.13	0.38	0.30	0.64	0.06	
6	Customer Charge Incl. Uncollectibles (4)+(5)	\$43.09	\$44.98	\$53.69	\$52.82	\$127.12	\$118.21	\$299.28	\$247.09	
7										
8	WINTER CHARGES									
9	Gas Supply Demand Charge, Design Day (3)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
10	Delivery Demand Charge - Pressure Support (2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	Delivery Demand Charge - Reinforcements (2)	7.92	7.92	7.92	7.92	7.92	7.92	7.92	7.92	
12	Delivery Demand Charge - Main Extensions (2)	16.54	16.54	16.54	16.54	16.54	16.54	16.54	16.54	
13	Adjustment for Uncollectibles [(9)+(10)+(11)+(12)]*(1)	\$0.01	\$0.05	\$0.07	\$0.06	\$0.07	\$0.06	\$0.05	\$0.01	
14	Winter Charges Incl. Uncollectibles[(9)+(10)+(11)+(12)]*(1)+(1)	\$24.47	\$24.51	\$24.53	\$24.52	\$24.53	\$24.52	\$24.51	\$24.47	
15										
16	Supply Commodity Charge \$'s per Therms (3)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
17	Adjustment for Uncollectibles (1)*(16)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18	Supply Commodity Charge Incl. Uncollectibles (17)+(18)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
19										
20	SUMMER CHARGES									
21	Demand Charge \$'s per Design Day Therm (2)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
22	Delivery Demand Charge (2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
23	Adjustment for Uncollectibles [(21)+(22)]*(1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24	Summer Charges Incl. Uncollectibles	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
25										
26	Commodity Charge \$'s per Therms (3)	\$0.00	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	
27	Adjustment for Uncollectibles (1)*(26)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
28	Commodity Charge Incl. Uncollectibles (26)+(27)	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
29										
30	CALENDAR MONTH BILLING DETERMINANTS (2012)									
31	Customers	1,213	21,461	4,085	739	652	253	37	32	28,471
32	Design Day Therms -Sales & Transp	1,494	173,443	104,259	7,596	139,306	23,601	60,220	73,620	583,539
33	Winter Therms -Sales & Transp	150,684	13,651,745	8,038,875	925,666	10,660,929	2,606,989	5,050,888	9,248,878	50,334,653
34	Summer Therms -Sales & Transp	87,748	3,002,000	1,299,937	755,139	2,488,583	1,875,259	1,707,197	7,689,885	18,905,748
35										
36	REVENUES RESULTING FROM FULL MARGINAL COST PRICING									
37	Total Customer Related (6)*(31)*12 Mos.	\$627,049	\$11,583,662	\$2,631,820	\$468,119	\$995,063	\$359,354	\$134,078	\$93,401	16,892,545
38										
39	Winter									
40	Winter Supply Capacity Cost (1+(1))*(9)*(32)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
41	Winter Delivery Pressure Support (1+(1))*(10)*(32)	0	0	0	0	0	0	0	0	0
42	Winter Delivery Reinforcements (1+(1))*(11)*(32)	11,841	1,376,930	828,570	60,344	1,107,165	187,478	478,206	583,506	4,634,040
43	Winter Delivery Main Ext. (1+(1))*(12)*(32)	24,711	2,873,550	1,729,164	125,933	2,310,572	391,254	997,981	1,217,733	9,670,898
44	Winter Supply Commodity (1+(1))*(16)*(33)	0	0	0	0	0	0	0	0	0
45	Total Winter (40)+(41)+(42)+(43)+(44)	\$36,553	\$4,250,480	\$2,557,734	\$186,276	\$3,417,737	\$578,732	\$1,476,188	\$1,801,239	\$14,304,939
46										
47	Summer									
48	Summer Supply Demand (1+(1))*(21)*(32)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
49	Delivery Demand Charge (1+(1))*(22)*(34)	0	0	0	0	0	0	0	0	0
50	Summer Supply Commodity (1+(1))*(26)*(34)	0	0	0	0	0	0	0	0	0
51	Total Summer	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
52										
53	Customer Subtotal (37)	627,049	11,583,662	2,631,820	468,119	995,063	359,354	134,078	93,401	\$16,892,545
54	Supply Subtotal (40)+(44)+(48)+(50)	0	0	0	0	0	0	0	0	0
55	Delivery Subtotal (41)+(42)+(43)+(49)	36,553	4,250,480	2,557,734	186,276	3,417,737	578,732	1,476,188	1,801,239	14,304,939
56	Total Marginal Annual Cost	\$663,601	\$15,834,141	\$5,189,554	\$654,395	\$4,412,800	\$938,087	\$1,610,266	\$1,894,640	\$31,197,484

NOTES:

- Source: Table 11, page 1, line (37)/12
- Source: Table - 9, page 1.
- Source: Table - 10, page 1. "These values are zeroed out sc production capacity costs that are recovered through the Cost of Gas Factor are excluded from delivery marginal costs.

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Table-13
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Table - 13
Northern Utilities- New Hampshire
Marginal Cost Study

Marginal Unit Costs per Therms

Line No.	Description	----- Residential -----		----- Small C&I -----		----- Medium C&I -----		----- Large C&I -----	
		ResNonHt&Ll R-6&R-11	ResHt&Ll R-5&R-10	SmHiW G-40	SmLoW G-50	MdHiW G-41	MdLoW G-51	LgHiW G-42	LgLoW G-52
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	CUSTOMER CHARGE								
2	Customer Charge (w/ Uncoll) \$'s per Month	\$43.087	\$44.980	\$53.690	\$52.823	\$127.116	\$118.209	\$299.281	\$247.093
3									
4									
5	WINTER CHARGES {1}								
6	Winter Supply Capacity Cost	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
7	Winter Delivery Pressure Support	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
8	Winter Delivery Reinforcements	\$0.0786	\$0.1009	\$0.1031	\$0.0652	\$0.1039	\$0.0719	\$0.0947	\$0.0631
9	Winter Delivery Main Ext.	\$0.1640	\$0.2105	\$0.2151	\$0.1360	\$0.2167	\$0.1501	\$0.1976	\$0.1317
10	Winter Supply Commodity	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
11									
12									
13	SUMMER CHARGES {1}								
14	Supply Demand Charge	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
15	Delivery Demand Charge	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
16	Commodity Charge \$'s per Therms	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
17									
18	TOTAL CHARGES								
19	<u>Supply Costs</u>								
20	Customer	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
21	Winter, \$/Therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
22	Summer, \$/Therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
23	Annual Avg, \$/Therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
24									
25	<u>Delivery</u>								
26	Customer (2)	\$43.09	\$44.98	\$53.69	\$52.82	\$127.12	\$118.21	\$299.28	\$247.09
27	Winter, \$/Therm (7)+(8)+(9)	\$0.2426	\$0.3114	\$0.3182	\$0.2012	\$0.3206	\$0.2220	\$0.2923	\$0.1948
28	Summer, \$/Therm (15)	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000
29	Annual Avg, \$/Therm	\$0.1533	\$0.2552	\$0.2739	\$0.1108	\$0.2599	\$0.1291	\$0.2184	\$0.1063
30									
31	TEST YEAR CALENDAR MONTH BILLING DETERMINANTS - SALES and TRANSPORTATION LOADS (All Firm Loads)								
32	Customers	1,213	21,461	4,085	739	652	253	37	32
33	Design Day Therms	1,494	173,443	104,259	7,596	139,306	23,601	60,220	73,620
34	Winter Therms	150,684	13,651,745	8,038,875	925,666	10,660,929	2,606,989	5,050,888	9,248,878
35	Summer Therms	87,748	3,002,000	1,299,937	755,139	2,488,583	1,875,259	1,707,197	7,689,885
36	Total Annual Therms	238,432	16,653,745	9,338,812	1,680,805	13,149,512	4,482,248	6,758,085	16,938,763

NOTES:

- Source: Table - 12 revenues divided by billing month normalized determinants.

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Table-14
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Table - 14
Northern Utilities- New Hampshire
Marginal Cost Study

Derivation of Marginal Prices Equi-Portionately Constrained by Embedded Costs

Line No.	Description	----- Residential -----		----- Small C&I -----		----- Medium C&I -----		----- Large C&I -----		Total Company
		ResNonHt&LI R-6&R-11	ResHt&LI R-5&R-10	SmHiW G-40	SmLoW G-50	MdHiW G-41	MdLoW G-51	LgHiW G-42	LgLoW G-52	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	Estimated Delivery Revenue Req'm'ts {1}									\$36,378,086
2	Total Marginal Annual Revenue Requirements {2}	663,601	15,834,141	5,189,554	654,395	4,412,800	938,087	1,610,266	1,894,640	31,197,484
3	Difference (1) - (2)									5,180,602
4	% Difference (3)/(2)									16.61%
5	Equi-proportional Adjustment (2) x (4)	110,197	2,629,391	861,769	108,668	732,782	155,777	267,398	314,621	5,180,602
6	Marginal Cost Constrained to Allowed Revenues (2) + (5)	773,798	18,463,533	6,051,323	763,063	5,145,582	1,093,864	1,877,664	2,209,261	36,378,086
7										
8	Marginal Unit Prices	Unit Costs from								
9	Customer	Table 13 x								
10		[1+ (4)]								
11	WINTER CHARGES									
12	Winter Supply Capacity Cost	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
13	Winter Delivery Pressure Support	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
14	Winter Delivery Reinforcements	\$0.0916	\$0.1176	\$0.1202	\$0.0760	\$0.1211	\$0.0839	\$0.1104	\$0.0736	
15	Winter Delivery Main Ext.	\$0.1912	\$0.2454	\$0.2508	\$0.1586	\$0.2527	\$0.1750	\$0.2304	\$0.1535	
16	Winter Supply Commodity	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
17		\$0.2829	\$0.3631	\$0.3710	\$0.2347	\$0.3738	\$0.2589	\$0.3408	\$0.2271	
18										
19	SUMMER CHARGES									
20	Supply Demand Charge	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
21	Delivery Demand Charge	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
22	Commodity Charge \$'s per Therms	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
23		\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
24	TOTAL CHARGES									
25	<u>Supply Costs</u>									
26	Customer	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
27	Winter, \$/Therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
28	Summer, \$/Therm	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
29	Annual Avg, \$/Therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
30										
31										
32	<u>Delivery</u>									
33	Customer Charges	\$50.24	\$52.45	\$62.61	\$61.59	\$148.22	\$137.84	\$348.98	\$288.12	
34	Winter, \$/Therm	\$0.2829	\$0.3631	\$0.3710	\$0.2347	\$0.3738	\$0.2589	\$0.3408	\$0.2271	
35	Summer, \$/Therm	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	<u>\$0.0000</u>	
36	Annual Avg, \$/Therm	\$0.1788	\$0.2976	\$0.3194	\$0.1292	\$0.3031	\$0.1506	\$0.2547	\$0.1240	
37	or									
38	Facilities Charge, \$/Month (6) / Annual bills \$	53.17	71.70	123.45	86.11	657.33	359.82	4,191.21	5,844.61	

Notes

- Source: DLG/PMN-1G-2, page 5 of 8, line 12
- Source: Table 12, line 56