

August 23, 2017

Debra Howland Executive Director and Secretary New Hampshire Public Utilities Commission 21 S. Fruit St., Suite 10 Concord, NH 03301-2429

Re: <u>Northern Utilities, Inc., New Hampshire Division - Docket DG 16-819</u>

August 2017 Monthly Cost of Gas Report

Dear Director Howland:

Pursuant to the Commission's Order No. 25,959 in Docket DG 16-819, enclosed is Northern Utilities - New Hampshire Division's ("Northern" or the "Company") current calculation of its projected over or under collection of gas costs for the 2016 / 2017 summer season as well as for the 2016 /2017 annual period. The Company is also providing a summary of its hedging transactions and monthly inventory interest calculation, both updated through July 2017.

Northern's current calculation of costs has been updated to reflect the actual May 1, 2017 balance, actual costs and revenues for May through July 2017, and NYMEX futures prices as of August 18, 2017. The updated calculations indicate that a rate change is not required at this time. Support for this decision is provided in the attached summary and tables.

If you have any questions regarding this filing, please do not hesitate to contact me or Chris Kahl at (603)773-6425.

Very truly yours

George H. Simmons Jr.

**Enclosures** 

cc: Alex Speidel, Staff Counsel
D Maurice Kreis, Consumer Advocate

George H. Simmons Manager Regulatory Services

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# New Hampshire Monthly Cost of Gas Report

# August 2017 Summary

The objective of the Summer Period Monthly Cost of Gas ("COG") analysis is to determine if COG rates need to be adjusted in order to minimize the October 31, 2017 end of year balance. This is done by determining the October 31, 2017 Summer Season balance and comparing it to the corresponding end of year balance.

As shown on Table 1, Line 27, the projected Summer Season end of period balance is an under-collection of \$975,319. When combined with the Winter Season's projected end of period over-collection, Line 29, of \$(1,551,257), the projected end of year balance, Line 31, is an over-collection of \$(575,938). Although the projected summer season under-collection is greater the 4% of the total projected gas costs, any adjustment / increase in rates will increase the end of year balance. Therefore, no rate change is proposed at this time.

An increase in COG rates will only occur when the projected under-collection exceeds the 4% threshold and offsets the Winter Season over-collection balance. This amount, \$1,776,052, is shown on Line 36 of Table 1.

# NORTHERN UTILITIES, INC. **NEW HAMPSHIRE DIVISION** Calculation of the Projected Over or Under Collection of the Summer 2017 Period Cost of Gas DG 16-819 **August 2017 Estimated**

1 Under/(Over) collection as of 05/01/17 [1]		\$	(2,086,122)	Table 2, PG 3, APRIL, LN 114
2			TA C BROWLESS	the warm to the contract and contract and
3 Forecasted firm therm sales 08/01/2017 - 10/31/2017 (Summer) 4 Residential Heat & Non Heat	1,842,100		D'Summer	Table 2, PG. 2 Line 2
5 HLF Classes	1,150,676		X - 1	Table 2, PG. 2 Line 3
6ILLF Classes	1,310,727			Table 2, PG. 2 Line 4
7	1,510,727		5	14510 2, 1 0. 2 2110 1
8 Current recovery rate per therm			anne bin a	As shown go lighted, Line 27, th
9 Residential heat & non heat	\$0.4055		AND RESPONS	Table 2, PG. 1 Line 7
10 HLF classes	\$0.3589			Table 2, PG. 1 Line 8
11 LLF classes	\$0.4465		HO OF YV BE	Table 2, PG. 1 Line 9
12				
13 Total \$	(1,745,189)		and stores and	(Ln4*Ln 9) + (Ln5*Ln10) +(LN6*Ln 11)
14 15 Forecasted recovered costs at current rates 08/01/2017 - 10/31/2017		\$	(1,745,189)	LN 13
16 Actual recovered costs		9	(813,244)	cinamina la buzocoto zi esmano
17 Estimated total recovered costs 05/01/2017 - 10/31/2017		<u>Φ</u>	(2,558,433)	Ln 15 + Ln 16
18		Ψ	(2,000,400)	EI 10 1 EI 10
19 Revised projected direct gas costs 05/01/17 - 10/31/17 [2] (Summer)		S	5,434,626	Table 2, PG 4, LN 71
20 Revised projected indirect gas costs 05/01/17 - 10/31/17 [3] (Summer)		\$	185,247	Table 2, PG 4, LN 104
21			,	
22 Total Projected Summer Gas Costs		\$	5,619,874	LN 19 + LN 20
23 26				
27 Projected Summer Season under/(over) collection as of 10/31/17		\$	975,319	LN 1 + LN 17+LN 22
28				
29 Winter Season Variance (Over-collection)		\$	(1,551,257)	Table 2, PG 3, APRIL, LN 110 - LN 114
30				
31 Projected October 31, 2017 End of Year Balance (over-collection)		\$	(575,938)	LN 27 + LN 29
32			204 705	
34 Summer Season Under-collection Threshold (4% of Projected Summe	r Cost)	\$	224,795	LN 22 * 4%
35			4 770 050	(I N 00* 4) . I N 04
36 Total Under-Collection Threshold		\$	1,776,052	(LN 29*-1)+LN 34
37		•	(224 705)	LN 22 * 4% *-1
38 Over-collection Threshold (4% of Projected Summer Cost)		\$	(224,795)	LN 22 470 -1
39		\$	975,319	Ln 27
40 Projected Summer Period Variance		Ψ	370,013	W11 & 7
41 A2 Type of Veriance		Unc	ler-collection	
42 Type of Variance		Onc	ici-collection	
			No	If Ln 40 < Ln 36, No, else Yes
44 Rate Adjustment Required			INU	11 11 40 1 11 00, 140, 6136 163

## NOTES

[1] Target balance used for determining Summer Period COG rates [2] Reflects futures prices as of August 18, 2017

[3] Includes: Working Capital Allowance, Bad Debt Allowance, Production and Storage Capacity, Miscellaneous Overhead, Refunds and Interest

Northern Utilities NEW HAMPSHIRE (Over) / Undercollection Analysis, Balances and Interest Calculation

				Win	idi					Sumr		(Coronal)	/F
Sales Revenues				1	5.1.43	14 47	447	14-11-47	bus 47	64.47	(Forecast)	(Forecast)	(Foreca
/olumes	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-1
Residential Heat & Non Heat											431,131	476,265	934
Sales HLF Classes											269,308	297,501	583
Sales LLF Classes											306,767	338,881	66
otal											1,007,206	1,112,647	2,183
tates									100				
Residential Heat & Non Heat CGA											\$0.4055	\$0.4055	
Sales HLF Classes CGA									1 1		\$0.3589	\$0.3589	
Sales LLF Classes CGA											\$0.4465	\$0.4465	\$1
Revenues													
Residential Heat & Non Heat												\$ (193,125)	
Sales HLF Classes											\$ (96,655)		
Sales LLF Classes											\$ (136,971)	\$ (151,310)	\$ (29
otal Sales		\$ (2,703,468)	(4,232,010)	\$ (5.049.884)	\$ (4,110,321) \$	(4,109,899) \$	(3,327,640)	\$ (160,478)	\$ (395,071)	\$ (257,695)	\$ (408,450)	\$ (451,209)	\$ (88
ordi Galoo		1 4 (=1:1:1)	(,,===,=,=,										
				Win	ter					Sumr			
as Costs and Credits											(Forecast)	(Forecast)	(Forec
	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-
et Demand Costs (Net of Injection Fees & Cap. Assign.	.)												
Pipeline												\$ 274,823	\$ 27
Storage												\$ 554,066	
Peaking											\$ 22,055	\$ 22,055	\$
otal Demand Costs											\$ 850,944	\$ 850,944	\$ 8
			THE RESERVE TO SERVE THE PARTY OF THE PARTY										
set Management and Capacity Release													
NUI AMA Revenue											\$ (830,623)	\$ (830,623)	\$ (8
NUI Capacity Release												\$ (5,393)	
JI AMA Rev & Cap. Release Subtotal											\$ (836,016)		
NH AMA Revenue											\$ (303,728)		
												\$ (2,343)	
NH Capacity Release H Total Asset Management and Capacity Release											\$ (306,071)	\$ (306,071)	\$ (3
H Total Asset Management and Capacity Release		+									(000,011)	1000,011)	10.
PNGTS Refund											\$ (16,566.71)	\$ (16,566,71)	\$ (16,5
et Demand Costs		\$ 1,105,488	835,704	\$ 1,012,794	\$ 993,820 \$	997,079 \$	275,747	\$ 587,761	\$ 595,692	\$ 576,198	\$ 528,306	\$ 528,306	\$ 5
											1		
IUI Commodity Costs													
NUI Total Pipeline Volumes									4.5		285,644	313,975	6:
Pipeline Costs Modeled in Sendout™					1	- 1					\$ 678,497	\$ 720,034	\$ 1,6
NYMEX Price Used for Forecast								1				\$ 3,0280	
NYMEX Price Used for Update		70-2111	CUTTING									\$ 2,8930	
Increase/(Decrease) NYMEX Price		100000	100 110									\$ (0.1350)	
Increase/(Decrease) in Pipeline Costs												\$ (42,387)	
												\$ 677,647	
pdated Pipeline Costs						1 1 2					037,074	011,041	
Interruptible Volumes - NH											\$ 2.30	\$ 2.16	e
Average Supply Cost (\$/MMBtu)			1						-		2.30	2.10	
Interruptible Cost - NH			TOTAL BAIL								\$ 657,074	\$ 677,647	\$ 1,6
otal Updated Pipeline Costs											1 00.,0		\$ 1,0
New Hampshire Allocated Percentage											35.42%	35.63%	\$ 5
H Updated Pipeline Costs											\$ 232,712	\$ 241,421	3 :
edging (Gain)/Loss Estimate													
NYMEX Options Contracts													
Hedging Expenses													
NYMEX Option Strike Price													
NYMEX Price Used for Forecast													
Strike Price Hit									5 3				
Option Hedging Gain (Credit)			7 84 6-1										-
Tota Northern Hedginf Net Cost		THE PARTY OF THE P	4-147						111-111			- 5	
New Hampshire Allocated Percentage		1 110 119	1 00000										
NH Futures Hedging Net Cost								s -		s -	\$ -	\$ -	\$
H Commodity Costs													
Pipeline Excl Hedging									,	\$ -	\$ 232,712	\$ 241,421	\$ 5
										\$ -	\$ -	\$ -	s
Hedging (Gain)/Loss Estimate										\$ -	\$ -	\$ .	\$
Storage										•	\$ 5,005	\$ 4,859	
Peaking													

	Allalysis, Bal		est Calculation
Sales Revenues			
	Winter	Summer	Total
Volumes Residential Heat & Non Heat	AAllifel	1,842,100	1,842,100
Sales HLF Classes		1,150,676	1,150,676
Sales LLF Classes		1,310,727	1,310,727
Total		4,303,503	4,303,503
Rates		4,000,000	- 1,000,000
Residential Heat & Non Heat CGA Sales HLF Classes CGA Sales LLF Classes CGA			
Revenues			
Residential Heat & Non Heat		(746,972)	(746,972 (412,978
Sales HLF Classes		(412,978) (585,239)	(585,239
Sales LLF Classes	(23,533,223)	(2,558,433)	(26,091,656
Total Sales	(23,533,223)	(2,000,400)	(20,051,000
Gas Costs and Credits			
The state of the s	Winter	Summer	Total
Net Demand Costs (Net of Injection Fees & Cap. As:			
Pipeline	-	824,470	824,470
Storage		1,662,198	1,662,198
Peaking		66,164	66,164
Total Demand Costs		2,552,831	2,552,83
Asset Management and Capacity Release			
NUI AMA Revenue	-	(2,491,869)	\$ (2,491,869
NUI Capacity Release		(16,180)	\$ (16,18)
NUI AMA Rev & Cap. Release Subtotal		(2,508,049)	\$ (2,508,049
NH AMA Revenue		(911,184)	\$ (911,184
NH Capacity Release	-	(7,030)	\$ (7,030
NH Total Asset Management and Capacity Release	\$ -	\$ (918,214)	\$ (918,21
PNGTS Refund	\$ (1,990,806)	\$ (99,400)	\$ (49,70)
Net Demand Costs	\$ (1,990,806)	\$ 1,535,217	\$ 1,584,91
NUI Commodity Costs			- 1
NUI Total Pipeline Volumes			1,223,51
Pipeline Costs Modeled in Sendout™			\$ 3,078,10
NYMEX Price Used for Forecast			
NYMEX Price Used for Update			
Increase/(Decrease) NYMEX Price			
Increase/(Decrease) in Pipeline Costs	TO BE S		1000
Updated Pipeline Costs			
Interruptible Volumes - NH			
Average Supply Cost (\$/MMBtu)	And the Manager		
Interruptible Cost - NH		TO THE R	DEFECT OF HE
Total Updated Pipeline Costs			
New Hampshire Allocated Percentage		-	\$ 1,048,99
NH Updated Pipeline Costs Hedging (Gain)/Loss Estimate	-		1,540,55
NYMEX Options Contracts			
Hedging Expenses			
NYMEX Option Strike Price			
NYMEX Option Strike Frice			
Strike Price Hit		1. 15. 25.1	
Option Hedging Gain (Credit)			
Tota Northern Hedginf Net Cost			\$
New Hampshire Allocated Percentage		1 1 1	
NH Futures Hedging Net Cost	s -	s -	\$
	1. 00 .	100000	are not
			\$ 1,048,99
NH Commodity Costs	\$ -	\$ 1,048,999	9 1,040,00
NH Commodity Costs Pipeline Excl Hedging	s -		\$
NH Commodity Costs Pipeline Excl Hedging Hedging (Gain)/Loss Estimate		\$ :	
NH Commodity Costs Pipeline Excl Hedging	\$ -	\$ -	\$

Northern Utilities NEW HAMPSHIRE (Over) / Undercollection Analysis, Balances and Interest Calculation

otal Anticipated Direct Cost of Gas			\$	2,397,354	\$	3,579,916	\$	3,889,473	3,429,081	\$ 2,96	69,782	\$ 1,405,270	\$ 1,047,168	\$ 901,211	\$	837,500	\$ 766,022	\$ 774,586	\$	1,108.
								Winte	r							Sumn	ner			
	_	THE STATE OF													T		(Forecast)	(Forecast)	T	(Foreca
	-	Oct-16		Nov-16	{	Dec-16		Jan-17	Feb-17	Mar-	17	Apr-17	May-17	Jun-17	-	Jul-17	Aug-17	Sep-17	+	Oct-1
Vorking Capital Total Anticipated Direct Cost of Gas			s	2.535,615	2	3.718.177	2	4.027.734	3.567.342	. 24	08,043	\$ 1,543,531	\$ 1,064,461	\$ 918,505	s	854,794	\$ 766,022	\$ 774,586	s	1,10
Working Capital Percentage				0.0887%	•	0.0887%	3	0.0887%	0.0887%		0887%	0.0950%	0.0950%			0,1014%	0.1014%	0,10149		0.1
Vorking Capital Allowance			s	2,249	s		S	3,573	3,164		2.757					867	\$ 777			
Beginning Period Working Capital Balance			s	1.083	2		Š	6,651			13,447					19.827		\$ 21,608		
End of Period Working Capital Allowance			5		\$	6,637		10,224			16,204					20,694		\$ 22,394		2
Interest	-		\$	6	\$	15		25 \$			43				\$		\$ 70		\$	
and of period with Interest	s	1.083	s	3,339		6.651		10.249	13.447	\$	16.247	\$ 17,767	\$ 18,835	\$ 19.827	2	20.761	\$ 21,608	\$ 22.467		2
ad Debt	1	1,000	-	3,333 1	•	0,031	*	10,245	13,447	•	10,247	9 17,707	9 10,033	3 13,027	-	20,761	\$ 21,000	3 22,407	+*	
Projected Bad Debt	s		\$	(147)	\$	(52)	\$	5,903 \$	4,964	\$	4.869	\$ 18,007	\$ 31,930	\$ 24,074	s	(1,010)	\$ 25,000	\$ 25,000	s	
Beginning Period Bad Debt Balance			\$	135,847	\$	136,096		136,441 \$	142,750		48,137		\$ 171,960	\$ 204,478		229,228	\$ 228,980	\$ 254,785		28
End of Period Bad Debt Balance			\$	135,700	5	136,044	\$	142,344 \$	147,714	\$ 15	53,007	\$ 171,453	\$ 203,890	\$ 228,551	\$			\$ 279,785		28
Interest			\$		\$	397	\$	407 \$		\$	439		\$ 587	\$ 677		762	\$ 805	\$ 891		
nd of Period Bad Debt Balance with Interest	\$	135,847	\$	136,096	\$		\$	142,750 \$	148,137	\$ 15	53,446	\$ 171,960	\$ 204,478	\$ 229,228	\$	228,980	\$ 254,785	\$ 280,676	\$	28
ocal Production and Storage Capacity			\$	70,110	\$	70,110		70,110 \$	70,110	\$ 7	70,110	\$ 70,110	\$ -	\$ -	\$		\$ -	\$ -	\$	
IH PUC Consulting Costs	1				\$		\$	-		1		\$ -	\$ -	100						
liscellaneous Overhead ias Cost Other than Bad Debt and Working Capit.	10	lada Oalladia	\$	68,151	\$	68,151	\$	68,151 \$	68,151	\$ 6	58,151	\$ 68,151	\$ 17,293	\$ 17,293	\$	17,293	\$ 17,293	\$ 17,293	\$	1
Beginning Balance Over/Under Collection	ai Over/	Under Collectio	n I e	1.215.774		1,051,223		539,706 \$	(482,360)		27,539)	\$ (2,033,853)	6 (2.007.400)	6 (0.000.070)		(0.440.507)				(1,12
Net Costs - Revenues			Š	(167,853)	•	(513,833)		(1.022.150)			01.856)			\$ (2,933,670) \$ 523,433			\$ 374.865	\$ 340.670		
Ending Balance before Interest			S	1,047,922	Š		Š	(482,444) \$			29,395)			\$ (2,410,237)						(88)
Average Balance			S	1.131.848	s	794,306		28,631 \$			28,467)			\$ (2,671,953)						
Interest Rate				3,50%		3,50%	*	3.50%	3,50%		3,50%	3,75%	3.75%	3.75%		4.00%	4.00%	4.009		(.,
iterest Expense			\$	3,301	\$	2,317	\$	84 \$	(2,199)		(4,458)	\$ (9,143)	\$ (10,547)	\$ (8,350)	\$	(7,067)	\$ (5,470)	\$ (4,296		
nding Balance Incl Interest Expense	\$	1,215,774		1,051,223	\$	539,706		(482,360) \$			33,853)	\$ (3,827,106)		\$ (2,418,587)			\$ (1,459,159)			(88)
otal Over/Under Collection Ending Balance	\$	1,352,705	\$	1,190,658	\$	682,798	\$	(329,362) \$	(865,954)	\$ (1,86	64,160)	\$ (3,637,379)	\$ (2,710,357)	\$ (2,169,532)	\$	(1,578,813)	\$ (1,182,766)	\$ (819,642	) \$	(57
otal Indirect Cost of Gas	\$	1,352,705	\$	144,067	\$	144,235	\$	148,251 \$	144,648	\$ 14	1,911	\$ 149,152	\$ 40,332	\$ 34,686	\$	10,913	\$ 38,475	\$ 39,747	\$	- 2
otal Cost of Gas	\$	1,352,705	\$	2,541,421	\$	3,724,151	\$	4,037,724 \$	3,573,729	\$ 3,11	11,694	\$ 1,554,422	\$ 1,087,500	\$ 935,897	\$	848,413	\$ 804,497	\$ 814,333	\$	1,12
otal Interest	\$	-	\$	3,704	\$	2,728	\$	515 \$	(1,741)	\$	(3,976)	\$ (8,583)	\$ (9,903)	\$ (7,613)	\$	(6,237)	\$ (4,595)	\$ (3,332	) \$	
		5310.53						End	of Period Balan	ce, All Ac	counts	\$ (3,637,379)								
									inter Period arget ending Bal	lance*		\$ (2,086,122)								

<sup>\*</sup> See Annual COG filing, Schedule 3, Page 3 of 4, APR-17, LN 109

#### Northern Utilities

NEW HAMPSHIRE (Over) / UndercollectionAnalysis, Balances & Interest Calculation

69	Inventory Finance Charge	\$ -	\$ -	\$ •
70				
71	Total Anticipated Direct Cost of Gas	\$ 17,670,876	\$ 5,434,626	\$ 23,105,502
70		 		

/1 [	otal Anticipated Direct Cost of Gas	9	11,010,010		3,434,020	-	20,100,002
72				_			
73							
74		_	Winter	<u> </u>	Summer		Total
	Working Capital						23,986,948
76	Total Anticipated Direct Cost of Gas					\$	23,986,948
77	Working Capital Percentage					s	22,002
	Working Capital Allowance					9	22,002
79	Beginning Period Working Capital Balance						
80	End of Period Working Capital Allowance					2	582
81	Interest					3	302
82	End of period with Interest						
83	Bad Debt						
84	Projected Bad Debt	\$	33,544	\$	109,993	\$	143,537
85	Beginning Period Bad Debt Balance						
86	End of Period Bad Debt Balance						
87	Interest					\$	7,236
88	End of Period Bad Debt Balance with Interest	_		_			
89	Local Production and Storage Capacity	\$	420,658	\$		\$	420,658
90	NH PUC Consulting Costs	\$		\$	-	\$	
	Miscellaneous Overhead	\$	408,908	\$	103,760	\$	512,668
	Gas Cost Other than Bad Debt and Working Capital	1					
95	Beginning Balance Over/Under Collection					\$	(14,326,909)
96	Net Costs - Revenues					\$	(2,052,828)
97	Ending Balance before interest					\$	(16,379,737)
98	Average Balance					\$	(15,353,323)
99	Interest Rate						(40.470)
	Interest Expense	-		$\vdash$		\$	(49,172)
	Ending Balance Incl Interest Expense	-		-			
102	Total Over/Under Collection Ending Balance					200	
	Total Indirect Cost of Gas	\$	2,224,969	\$	185,247	\$	2,410,216
105		I e	40 540 440		5,619,874		25,515,718
106	Total Cost of Gas	\$	18,543,140	1.9	5,019,874	9	20,515,716

106  Total Cost of Gas	-   \$	18,543,140   \$	5,619,874	2	25,515,718
107					
108 Total Interest	\$	(7,352) \$	(34,002)	\$	(41,354)
109					
110					

Northern Utilities, Inc. Price Risk Management Profit and Loss Statement July 2017

# Account # 53325

Current

ACB (\$24,708.38) TE \$92,079.00 LV \$67,370.62

**ACTIVITY - Purchase Cost and Profit and Loss** Profit and Loss Expense Option Strike Option Date Description State Contracts Premuim Price **Purchase Cost** Net P&L \$0.00 TRANSACTION COSTS Subtotal Total Transaction Cost-Enter Options 0 \$7.36 \$0.00 **Both** Transaction Cost-Exit Options 0 \$0.00 \$0.00 **Total New Transaction Costs OPEN CALL OPTION POSITIONS-Expense and Open Trade Equity** Total Total Actual Option Purchase Option Strike 07/31/17 Current Open Trade Equity Futures Price State QTY Cost Price Premium 05/02/16 Nov17 Options Both 12 \$27,600.00 0.2300 \$3,500 \$2,920 \$0.00 05/26/16 Dec17 Options 0.2370 Both 20 \$47,400.00 \$4.000 \$3.079 \$0.00 06/28/16 Jan18 Options 0.2475 \$71,775.00 Both 29 \$4.300 \$3.173 \$0.00 07/27/16 Feb18 Options 30 0.2470 \$4.500 \$0.00 Both \$74,100.00 \$3.164 08/29/16 Mar18 Options Both 25 0.2400 \$60,000.00 \$4.650 \$0.00 \$3.119 Total Expense, Open Trade Equity \$280,875.00 \$0.00 **OPEN CALL OPTION POSITIONS- Long Option Value** Total Current Current Option Option Strike State QTY Premium Value Price 05/02/16 Nov17 Options Both 12 0.0299 \$3,588.00 \$3.500 05/26/16 Dec17 Options Both 20 0.0324 \$6,480.00 \$4.000 06/28/16 Jan18 Options Both 29 0.0704 \$20,416.00 \$4.300 07/27/16 Feb18 Options Both 30 0.1034 \$31,020.00 \$4.500 08/29/16 Mar18 Options Both 25 0.1223 \$30,575.00 \$4.650 07/31/17 **Total Long Option Value** \$92,079.00 MARGIN CASH BALANCE Subtotal Total 07/01/17 Beginning Balance-carried forward from last month (\$64,708.38) \$0.00 Interest Credit Net Deposit to Margin Account \$40,000.00 Option Premiums of new activity \$0.00 Monthly Transaction Costs \$0.00 Total Monthly Cash Adjustment \$40,000.00 07/31/17 Ending Balance (ACB) (\$24,708.38)

# NORTHERN UTILITIES, INC.

# DETERMINATION OF INVENTORY FINANCING FROM MONEY POOL

July 2017

Total Inventory	Average bal beg + end / 2	Internally Financed	Interest Rate	Interest to Defer	NH	ME
\$8,349,188.69	\$9,797,354.69	\$9,797,354.69	1.70%	\$13,879.59	\$5,887.72	\$7,991.87
\$6,881,382.39	\$7,615,285.54	\$7,615,285.54	1.71%	\$10,851.78	\$4,603.33	\$6,248.46
\$6,466,038.05	\$6,673,710.22	\$6,673,710.22	1.71%	\$9,510.04	\$4,034.16	\$5,475.88
\$6,932,113.54	\$6,699,075.80	\$6,699,075.80	1.71%	\$9,546.18	\$4,049.49	\$5,496.69
\$7,347,477.88	\$7,139,795.71	\$7,139,795.71	1.72%	\$10,233.71	\$4,341.14	\$5,892.57
\$7,775,720.99	\$7,561,599.44	\$7,561,599.44	1.73%	\$10,901.31	\$4,624.33	\$6,276.97
\$8,390,100.35	\$8,082,910.67	\$8,082,910.67	1.76%	\$11,852.12	\$5,027.67	\$6,824.45
\$9,003,112.57	\$8,696,606.46	\$8,696,606.46	1.79%	\$12,953.71	\$5,494.96	\$7,458.74
\$9,643,843.60	\$9,323,478.09	\$9,323,478.09	1.81%	\$14,040.27	\$5,955.88	\$8,084.39
\$10,336,838.18	\$9,990,340.89	\$9,990,340.89	1.81%	\$15,044.50	\$6,381.88	\$8,662.62
\$10,177,266.05	\$10,257,052.11	\$10,257,052.11	1.84%	\$15,692.96	\$6,656.95	\$9,036.01
\$8,176,192.96	\$9,176,729.50	\$9,176,729.50	1.98%	\$15,151.98	\$6,427.47	\$8,724.51
\$7,018,391.76	\$7,597,292.36	\$7,597,292.36	2.05%	\$12,972.11	\$5,502.77	\$7,469.34
\$3,991,804.55	\$5,505,098.15	\$5,505,098.15	2.05%	\$9,399.77	\$3,987.38	\$5,412.38
\$1,988,672.70	\$2,990,238.62	\$2,990,238.62	2.19%	\$5,445.13	\$2,309.82	\$3,135.31
\$3,252,033.76	\$2,620,353.23	\$2,620,353.23	2.27%	\$4,956.51	\$2,102.55	\$2,853.96
\$4,492,308.93	\$3,872,171.35	\$3,872,171.35	2.29%	\$7,389.39	\$3,134.58	\$4,254.81
\$5,803,856.23	\$5,148,082.58	\$5,148,082.58	2.44%	\$10,467.77	\$4,440.43	\$6,027.34
\$7,018,391.76	\$6,411,123.99	\$6,411,123.99	2.51%	\$13,409.93	\$5,688.49	\$7,721.44
		MMBTU	AMOUNT			
NATURAL GAS	urai Gas	9,370	\$61,601.37			
Natural Gas Underground Natural Gas Underground	- SSNE	120,433 2,219,388	\$275,513.87 \$6,681,276.52			
	\$6,881,382.39 \$6,466,038.05 \$6,932,113.54 \$7,347,477.88 \$7,775,720.99 \$8,390,100.35 \$9,003,112.57 \$9,643,843.60 \$10,336,838.18 \$10,177,266.05 \$8,176,192.96 \$7,018,391.76 \$3,991,804.55 \$1,988,672.70 \$3,252,033.76 \$4,492,308.93 \$5,803,856.23 \$7,018,391.76	\$6,881,382.39 \$7,615,285.54 \$6,466,038.05 \$6,673,710.22 \$6,932,113.54 \$6,699,075.80 \$7,347,477.88 \$7,139,795.71 \$7,775,720.99 \$7,561,599.44 \$8,390,100.35 \$8,082,910.67 \$9,003,112.57 \$8,696,606.46 \$9,643,843.60 \$9,323,478.09 \$10,336,838.18 \$9,990,340.89 \$10,177,266.05 \$10,257,052.11 \$8,176,192.96 \$9,176,729.50 \$7,018,391.76 \$7,597,292.36 \$3,991,804.55 \$5,505,098.15 \$1,988,672.70 \$2,990,238.62 \$3,252,033.76 \$2,620,353.23 \$4,492,308.93 \$3,872,171.35 \$5,803,856.23 \$5,148,082.58 \$7,018,391.76 \$6,411,123.99  LNG Inventory - Liquified Natural Gas NATURAL GAS  Natural Gas Underground - SS-1 and FSS-1 Natural Gas Underground - SSNE Natural Gas Underground - MCN Washington 10 prepaid	\$6,881,382.39 \$7,615,285.54 \$7,615,285.54 \$6,466,038.05 \$6,673,710.22 \$6,673,710.22 \$6,932,113.54 \$6,6699,075.80 \$6,6699,075.80 \$7,347,477.88 \$7,139,795.71 \$7,139,795.71 \$7,775,720.99 \$7,561,599.44 \$7,561,599.44 \$8,390,100.35 \$8,082,910.67 \$8,082,910.67 \$9,003,112.57 \$8,696,606.46 \$8,696,606.46 \$9,643,843.60 \$9,323,478.09 \$9,323,478.09 \$10,336,838.18 \$9,990,340.89 \$9,990,340.89 \$10,177,266.05 \$10,257,052.11 \$10,257,052.11 \$8,176,192.96 \$9,176,729.50 \$9,176,729.50 \$7,018,391.76 \$7,597,292.36 \$7,597,292.36 \$3,991,804.55 \$5,505,098.15 \$5,505,098.15 \$1,988,672.70 \$2,990,238.62 \$2,990,238.62 \$3,252,033.76 \$2,620,353.23 \$2,620,353.23 \$4,492,308.93 \$3,872,171.35 \$5,803,856.23 \$5,148,082.58 \$5,148,082.58 \$7,018,391.76 \$6,411,123.99 \$6,411,123.99 \$\$MMBTU LNG Inventory - Liquified Natural Gas NATURAL GAS \$9,370 \$\$Matural Gas Underground - SSNE \$120,433 \$2,219,388 \$\$Natural Gas Underground - MCN \$2,219,388 \$\$3,870,170,190,100,100,100,100,100,100,100,100,10	\$6,881,382.39 \$7,615,285.54 \$7,615,285.54 1.71% \$6,466,038.05 \$6,673,710.22 \$6,673,710.22 1.71% \$6,932,113.54 \$6,699,075.80 \$6,699,075.80 1.71% \$7,347,477.88 \$7,139,795.71 \$7,139,795.71 1.72% \$7,775,720.99 \$7,561,599.44 \$7,561,599.44 1.73% \$8,390,100.35 \$8,082,910.67 \$8,082,910.67 1.76% \$9,003,112.57 \$8,696,606.46 \$8,696,606.46 1.79% \$9,643,843.60 \$9,323,478.09 \$9,323,478.09 1.81% \$10,336,838.18 \$9,990,340.89 \$9,990,340.89 1.81% \$10,177,266.05 \$10,257,052.11 \$10,257,052.11 1.84% \$8,176,192.96 \$9,176,729.50 \$9,176,729.50 1.98% \$7,018,391.76 \$7,597,292.36 \$7,597,292.36 2.05% \$3,991,804.55 \$5,505,098.15 \$5,505,098.15 2.05% \$3,991,804.55 \$5,505,098.15 \$2,05% \$3,252,033.76 \$2,620,353.23 \$2,620,353.23 2.27% \$4,492,308.93 \$3,872,171.35 \$3,872,171.35 2.29% \$5,803,856.23 \$5,148,082.58 \$5,148,082.58 2.44% \$7,018,391.76 \$6,411,123.99 \$6,411,123.99 2.51% \$\$MMBTU AMOUNT LNG Inventory - Liquified Natural Gas Natural Gas Underground - SSNE 120,433 \$275,513.87 \$8,143,082.58 2.44% \$7,018,391.76 \$6,411,123.99 \$6,411,123.99 2.51%	\$6,881,382.39 \$7,615,285.54 \$7,615,285.54 1.71% \$10,851.78 \$6,466,038.05 \$6,673,710.22 \$6,673,710.22 1.71% \$9,510.04 \$6,6932,113.54 \$6,699,075.80 \$6,699,075.80 1.71% \$9,546.18 \$7,347,477.88 \$7,139,795.71 \$7,139,795.71 1.72% \$10,233.71 \$7,775,720.99 \$7,561,599.44 \$7,561,599.44 1.73% \$10,901.31 \$8,390,100.35 \$8,082,910.67 \$8,082,910.67 1.76% \$111,852.12 \$9,003,112.57 \$8,696,606.46 \$8,696,606.46 1.79% \$12,953.71 \$9,643,843.60 \$9,323,478.09 \$9,323,478.09 1.81% \$14,040.27 \$10,336,838.18 \$9,990,340.89 \$9,990,340.89 1.81% \$15,044.50 \$10,177,266.05 \$10,257,052.11 \$10,257,052.11 1.84% \$15,692.96 \$8,176,129.96 \$9,176,729.50 \$9,176,729.50 1.98% \$15,151.98 \$7,018,391.76 \$7,597,292.36 \$7,597,292.36 2.05% \$12,972.11 \$3,991,804.55 \$5,505,098.15 \$5,505,098.15 2.05% \$9,399.77 \$1,988,672.70 \$2,990,238.62 \$2,990,238.62 2.19% \$5,445.13 \$3,252,033.76 \$2,620,353.23 \$2,620,353.23 2.27% \$4,956.51 \$4,492,308.93 \$3,872,171.35 \$3,872,171.35 2.29% \$7,389.39 \$5,803,856.23 \$5,148,082.58 \$5,148,082.58 \$2,44% \$10,467.77 \$7,018,391.76 \$6,411,123.99 \$6,411,123.99 \$2,51% \$13,409.93	\$6,881,382.39 \$7,615,285.54 \$7,615,285.54 \$1.71% \$10,851.78 \$4,603.33 \$6,466,038.05 \$6,673,710.22 \$6,673,710.22 \$1.71% \$9,510.04 \$4,034.16 \$6,932,113.54 \$6,699,075.80 \$6,699,075.80 \$1.71% \$9,546.18 \$4,049.49 \$7,347,477.88 \$7,139,795.71 \$7,139,795.71 \$1.72% \$10,233.71 \$4,341.14 \$7,775,720.99 \$7,561,599.44 \$7,561,599.44 \$1,73% \$10,901.31 \$4,624.33 \$8,390,100.35 \$8,082,910.67 \$8,082,910.67 \$1.76% \$11,852.12 \$5,027.67 \$9,003,112.57 \$8,696,606.46 \$8,696,606.46 \$1.79% \$12,953.71 \$5,494.96 \$9,643,843.60 \$9,323,478.09 \$9,323,478.09 \$18.1% \$14,040.27 \$5,955.88 \$10,336,838.18 \$9,990,340.89 \$9,990,340.89 \$1.81% \$15,044.50 \$6,381.88 \$10,177,266.05 \$10,257,052.11 \$10,257,052.11 \$1,84% \$15,692.96 \$6,656.95 \$8,176,192.96 \$9,176,729.50 \$9,176,729.50 \$1.98% \$15,151.98 \$6,427.47 \$7,018,391.76 \$7,597,292.36 \$7,597,292.36 \$2.05% \$12,972.11 \$5,502.77 \$3,991,804.55 \$5,505,098.15 \$5,505,098.15 \$2.05% \$9,399.77 \$3,987.38 \$1,988,672.70 \$2,990,238.62 \$2,990,238.62 \$2.19% \$5,445.13 \$2,309.82 \$3,252,033.76 \$2,620,353.23 \$2,620,353.23 \$2,27% \$4,956.51 \$2,102.55 \$4,492,308.93 \$3,872,171.35 \$3,872,171.35 \$2.29% \$7,389.39 \$3,134.58 \$5,803,856.23 \$5,148,082.58 \$5,148,082.58 \$2,44% \$10,467.77 \$4,440.43 \$7,018,391.76 \$6,411,123.99 \$6,411,123.99 \$2.51% \$13,409.93 \$5,688.49 \$\$\$  MMBTU AMOUNT  LNG  Inventory - Liquified Natural Gas  NATURAL GAS  NAtural Gas Underground - SSNE \$12,0433 \$275,513.87 \$13,409.93 \$5,688.49 \$\$\$\$  Natural Gas Underground - SNE \$12,0433 \$275,513.87 \$13,409.93 \$5,688.49 \$