

LIBERTY UTILITIES - KEENE DIVISION  
 CONVERSION OF GAS COSTS - GALLONS TO THERMS  
 SUMMER PERIOD 2019

	(1)	(2)	(3)      (4)		(5)	(6)
			<u>VOLUMES</u>		<u>UNIT COST</u>	
	<u>UNIT</u>	<u>CONVERSION FACTOR</u>	<u>GALLONS</u>	<u>THERMS</u>	<u>PER GALLON</u>	<u>PER THERM</u>
PROPANE FROM INVENTORY	GALLONS	0.91502	398,866	364,970	\$1.1080	\$1.2109

## LIBERTY UTILITIES - KEENE DIVISION

CALCULATION OF COST OF GAS RATE  
SUPPLY / DEMAND BALANCE  
SUMMER PERIOD 2019

	PRIOR	MAY-19	JUN-19	JUL-19	AUG-19	SEP-19	OCT-19	TOTAL
<u>SENDOUT (THERMS)</u>								
1 FIRM SENDOUT *		66,980	45,181	41,518	46,640	52,408	98,084	350,811
2 COMPANY USE		2,356	2,202	2,044	1,933	2,259	3,365	14,159
3 TOTAL SENDOUT		69,336	47,383	43,562	48,573	54,667	101,449	364,970
4 * UNACCTED FOR VOLS INCLUDED		2,152	1,452	1,334	1,499	1,684	3,152	11,273
<u>COSTS</u>								
5 PROPANE SENDOUT FROM ABOVE		69,336	47,383	43,562	48,573	54,667	101,449	364,970
6 COST/THERM FROM SCHEDULE D		\$1.1942	\$1.1548	\$1.1397	\$1.1060	\$1.0960	\$1.0915	\$1.1276
7 PRODUCTION COSTS [1]		\$5,068	\$5,068	\$5,068	\$5,068	\$5,068	\$5,068	\$30,405
8 TOTAL PROPANE COSTS		\$87,869	\$59,784	\$54,717	\$58,792	\$64,983	\$115,799	\$441,941
<u>REVENUES</u>								
9 FIRM SALES (THERMS)		103,271	64,474	39,325	38,527	55,316	49,594	350,507
10 RATE/THERM PER TARIFF		\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886
11 TOTAL REVENUES		\$102,094	\$63,739	\$38,877	\$38,088	\$54,685	\$49,029	\$346,512
12 (OVER)/UNDER COLLECTION		(\$14,226)	(\$3,956)	\$15,840	\$20,704	\$10,298	\$66,770	\$95,429
13 INTEREST FROM SCHEDULE F		(\$459)	(\$503)	(\$478)	(\$397)	(\$327)	(\$152)	(\$2,316)
14 FINAL (OVER)/UNDER COLLECTION		(\$93,115)	(\$14,685)	(\$4,459)	\$15,362	\$20,307	\$66,618	(\$2)

[1] Production cost estimates are the audit staff recommended production costs allowed in the 2018 Keene Summer COG audit

LIBERTY UTILITIES - KEENE DIVISION

PROPANE SPOT MARKET PURCHASE COST ANALYSIS  
SUMMER PERIOD 2019

	(1) <u>Mt. Belvieu</u>	(2) <u>Broker Fee</u>	(3) <u>Pipeline Rate</u>	(4) <u>PERC Fee</u>	(5) <u>Supplier Charge</u>	(6) <u>Cost @ Se kirk</u>	(7) <u>Trucking to Keene</u>	(8) <u>\$ per Gal.</u>	(9) <u>\$ per Therm</u>
1 MAY	[REDACTED]								
2 JUN	[REDACTED]								
3 JUL	[REDACTED]								
4 AUG	[REDACTED]								
5 SEP	[REDACTED]								
6 OCT	[REDACTED]								

NOTE: Summer spot purchases are based on market quotes from local suppliers. The above schedule provides a breakdown of the quote taken at the time (Feb 28th)

1. Propane futures market quotations (cmegroup.com) on 03/11/19 close. See Appendix 1.
2. A generally accepted standard broker fee
3. Summer prices are quoted on a delivered basis with pipeline charges embedded in delivered price
4. Propane Education Research Council (propanecouncil.org)
5. Supplier charge
6. Selkirk Cost - all fees plus propane cost
7. Northern Gas Transport trucking rate including diesel fuel surcharge. See Appendix 3A & 3B.
8. Delivered Price per Gallon
9. Delivered Price per therm as converted using per gallon price / .91502

## LIBERTY UTILITIES - KEENE DIVISION

PROPANE INVENTORY & WEIGHTED AVERAGE COST OF GAS CALCULATION  
SUMMER PERIOD 2019

LINE NO.

		<u>Therms</u>	<u>Cost</u>	<u>Rate</u>				
				<u>Therm</u>	<u>Gal.</u>			
1	May 2019 (Forecasted)							
2	Beginning Balance	59,650	\$83,576	\$1.4011	\$1.2820			
3	Purchases Received	70,000	\$71,252	\$1.0179	\$0.9314			
4	Total Available	129,650	\$154,828	\$1.1942	\$1.0927			
5	Less Sendout	69,336	\$82,801	\$1.1942	\$1.0927	69,336	\$82,801	
6	Ending Balance	60,314	\$72,027	\$1.1942	\$1.0927			
7	June 2019 (Forecasted)							
8	Beginning Balance	60,314	\$72,027	\$1.1942	\$1.0927			
9	Purchases Received	50,000	\$55,359	\$1.1072	\$1.0131			
10	Total Available	110,314	\$127,386	\$1.1548	\$1.0566			
11	Less Sendout	47,383	\$54,716	\$1.1548	\$1.0566	47,383	\$54,716	
12	Ending Balance	62,931	\$72,670	\$1.1548	\$1.0566			
13	July 2019 (Forecasted)							
14	Beginning Balance	62,931	\$72,670	\$1.1548	\$1.0566			
15	Purchases Received	40,000	\$44,643	\$1.1161	\$1.0212			
16	Total Available	102,931	\$117,313	\$1.1397	\$1.0429			
17	Less Sendout	43,562	\$49,649	\$1.1397	\$1.0429	43,562	\$49,649	
18	Ending Balance	59,369	\$67,664	\$1.1397	\$1.0429			
19	August 2019 (Forecasted)							
20	Beginning Balance	59,369	\$67,664	\$1.1397	\$1.0429			
21	Purchases Received	45,000	\$47,773	\$1.0616	\$0.9714			
22	Total Available	104,369	\$115,437	\$1.1061	\$1.0121			
23	Less Sendout	48,573	\$53,724	\$1.1060	\$1.0121	48,573	\$53,724	
24	Ending Balance	55,796	\$61,713	\$1.1061	\$1.0121			
25	September 2019 (Forecasted)							
26	Beginning Balance	55,796	\$61,713	\$1.1061	\$1.0121			
27	Purchases Received	55,000	\$59,719	\$1.0858	\$0.9935			
28	Total Available	110,796	\$121,432	\$1.0960	\$1.0029			
29	Less Sendout	54,667	\$59,915	\$1.0960	\$1.0029	54,667	\$59,915	
30	Ending Balance	56,129	\$61,517	\$1.0960	\$1.0029			
31	October 2019 (Forecasted)							
32	Beginning Balance	56,129	\$61,517	\$1.0960	\$1.0029			
33	Purchases Received	105,000	\$114,354	\$1.0891	\$0.9965			
34	Total Available	161,129	\$175,871	\$1.0915	\$0.9987			
35	Less Sendout	101,449	\$110,731	\$1.0915	\$0.9987	101,449	\$110,731	
36	Ending Balance	59,680	\$65,140	\$1.0915	\$0.9987			
37			AVERAGE SUMMER RATE - SENDOUT			\$1.1276	364,970	\$411,536

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PRIOR PERIOD (OVER)/UNDER COLLECTION  
SUMMER PERIOD 2018

	<u>PRIOR</u>	<u>May-18</u>	<u>Jun-18</u>	<u>Jul-18</u>	<u>Aug-18</u>	<u>Sep-18</u>	<u>Oct-18</u>	<u>TOTAL</u>
<u>COSTS</u>								
1 FIRM SENDOUT (therms)		54,606	43,521	40,184	41,458	47,691	100,163	327,623
2 COMPANY USE (therms)		2,356	2,202	2,044	1,933	2,259	3,365	14,159
3 TOTAL SENDOUT (therms)		56,962	45,723	42,228	43,391	49,950	103,528	341,782
4 COST PER THERM		\$1.2055	\$1.2025	\$1.2142	\$1.0817	\$1.1455	\$1.1903	\$1.1781
5 DIRECT PROPANE PURCHASED COSTS		\$68,665	\$55,180	\$51,369	\$47,003	\$57,218	\$123,234	\$402,669
6 PROPANE COST ADJUSTMENTS		(\$155,515)	\$0	\$0	\$145,836	\$32,481	\$38,782	\$61,584
7 CNG DEMAND CHARGES		\$10,417	(\$2,083)	\$4,167	\$4,167	\$4,167	\$4,167	\$25,000
8 UNAPPROVED CNG CHARGES		(\$10,417)	\$2,083	(\$4,167)	(\$4,167)	(\$4,167)	(\$4,167)	(\$25,000)
9 TOTAL PROPANE COSTS		(\$86,850)	\$55,180	\$51,369	\$192,839	\$89,699	\$162,016	\$464,252
<u>REVENUES</u>								
10 FIRM SALES (therms)		111,579	53,960	39,256	37,988	46,254	47,591	336,628
11 AVERAGE RATE PER THERM		\$1.4130	\$1.0173	\$1.0356	\$1.0020	\$0.6015	\$0.6322	\$1.0163
12 TOTAL BILLED REVENUES		\$157,664	\$54,894	\$40,652	\$36,093	\$34,834	\$40,793	\$364,930
13 UNBILLED REVENUES		\$65,772	(\$27,864)	(\$2,433)	(\$9,099)	\$5,339	\$75,198	\$106,913
14 TOTAL REVENUES		\$223,436	\$27,030	\$38,219	\$26,994	\$40,173	\$115,991	\$471,843
15 (OVER)/UNDER COLLECTION		(\$310,286)	\$28,150	\$13,149	\$165,845	\$49,526	\$46,025	(\$7,592)
16 INTEREST AMOUNT		(\$204)	(\$733)	(\$336)	\$18	\$158	\$404	(\$691)
17 TOTAL (OVER)/UNDER COLLECTION - FINAL	\$99,350	(\$310,490)	\$27,416	\$12,814	\$165,863	\$49,684	\$46,429	\$91,066

LIBERTY UTILITIES - KEENE DIVISION

INTEREST CALCULATION  
SUMMER PERIOD 2019

LINE NO.	MONTH	(1) BEG. OF MONTH BALANCE	(2) (OVER) UNDER COLLECT	(3) REFUNDS	(4) END OF MONTH BALANCE (COL.1+2+3)	(5) AVERAGE BALANCE COL. (COL. [1+4]/2)	(6) ANNUAL INTEREST RATE	(7) INTEREST AMOUNT	(8) MONTH END BAL. WITH INTEREST (COL. 4+7)
1	NOV 2018	\$91,066	\$0	\$0	\$91,066	\$91,066	5.25%	\$398	\$91,464
2	DEC	91,464	0	0	91,464	91,464	5.50%	419	91,883
3	JAN 2019	91,883	0	0	91,883	91,883	5.50%	421	92,304
4	FEB	92,304	0	0	92,304	92,304	5.50%	423	92,727
5	MAR	92,727	0	0	92,727	92,727	5.50%	425	93,152
6	APR	93,152	0	0	93,152	93,152	5.50%	427	(93,115)
7	MAY	(93,115)	(14,226)	0	(107,340)	(100,227)	5.50%	(459)	(107,799)
8	JUN	(107,799)	(3,956)	0	(111,755)	(109,777)	5.50%	(503)	(112,258)
9	JUL	(112,258)	15,840	0	(96,418)	(104,338)	5.50%	(478)	(96,896)
10	AUG	(96,896)	20,704	0	(76,193)	(86,544)	5.50%	(397)	(76,590)
11	SEP	(76,590)	10,298	0	(66,292)	(71,441)	5.50%	(327)	(66,619)
12	OCT	(66,619)	66,770	0	150	(33,234)	5.50%	(152)	(2)
13									
14								<u>\$197</u>	

15 = COL. 1, LINE 1 + COL. 7, LINES 1 TO 6

16 = 91,066 + 2,513 = 93,579 @ MAY 1, 2019  
(TRANSFER TO SCHEDULE B, LINE 13)  
(UNLESS ADJUSTMENTS UNDER COLUMN 2 LINES 1-6)

[1] PUC audit staff's recommended adjustments to the summer 2018 Cog reconciliation are included in column 8 line 6

LIBERTY UTILITIES - KEENE DIVISION Weather Normalization - Firm Sendout													
Period	Actual Firm Sendout	Base Use	Heat Use	Actual Calendar Month Degree Days	Normal Calendar Month Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therm/DD	Weather Adjustment	Normal Heat Load	Normalized Firm Sendout	Actual Company Use	Unaccounted For 3.32%	Total Firm Sendout
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
			(1) - (2)			(4) - (5)	(3) / (4)	(6) X (7)	(3) + (8)	(1) - (3) + (9)		(10 - 11) * 3.32%	(10) - (11) +(12)
May-18	56,962	42,810	14,153	162	279	(117)	87.36	10,221	24,374	67,183	2,356	2,152	66,980
Jun-18	45,723	42,810	2,914	70	75	(5)	41.62	208	3,122	45,931	2,202	1,452	45,181
Jul-18	42,228	42,810	0	1	12	(11)	0.00	0	0	42,228	2,044	1,334	41,518
Aug-18	43,391	42,810	582	3	22	(19)	193.83	3,683	4,264	47,074	1,933	1,499	46,640
Sep-18	49,950	42,810	7,141	113	161	(48)	63.19	3,033	10,174	52,983	2,259	1,684	52,408
Oct-18	103,528	42,810	60,719	534	488	46	113.71	(5,230)	55,488	98,298	3,365	3,152	98,084
Total	341,782	256,857	85,507	883	1,037	(154)		11,915	97,421	353,697	14,159	11,273	350,811

SCHEDULE H

LIBERTY UTILITIES - KEENE DIVISION											
Revised Weather Normalization - Sales Rate Residential											
Period	Billing Cycle Customers	Billing Cycle Sales	Base Load	Heating Load	Billing Cycle Monthly Actual Degree Days	Billing Cycle Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therm/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				(1) - (2)			(4) - (5)	(3) / (4)	(6) X (7)	(3) + (8)	(1) - (3) + (9)
May-18	792	20,176	6,971	13,206	602	539	63	21.94	(1,382)	11,824	18,794
Jun-18	893	10,835	6,971	3,865	148	248	(100)	26.11	2,611	6,476	13,446
Jul-18	892	7,650	6,971	680	59	65	(6)	11.52	69	749	7,719
Aug-18	880	6,291	6,971	0	1	14	(13)	0.00	0	0	6,291
Sep-18	885	8,028	6,971	1,058	23	47	(24)	45.98	1,103	2,161	9,131
Oct-18	864	8,533	6,971	1,563	177	211	(34)	8.83	300	1,863	8,833
Total		61,513	41,823	20,370	1,010	1,124	(114)	23.70	2,702	23,071	64,214

LIBERTY UTILITIES - KEENE DIVISION											
Revised Weather Normalization - Sales Rate Commercial											
Period	Billing Cycle Customers	Billing Cycle Sales	Base Load	Heating Load	Billing Cycle Monthly Actual Degree Days	Billing Cycle Monthly Normal Degree Days	Colder (Warmer) Than Normal	Actual Unit Heat Load Therm/DD	Weather Adjustment	Normal Heat Load	Normal Firm Billing Cycle Therms
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
				(1) - (2)			(4) - (5)	(3) / (4)	(6) X (7)	(3) + (8)	(1) - (3) + (9)
May-18	457	91,438	31,651	59,787	627	554	73	95.35	(6,961)	52,826	84,477
Jun-18	466	43,125	31,651	11,474	151	255	(104)	75.99	7,903	19,377	51,028
Jul-18	331	31,606	31,651	0	62	68	(6)	0.00	0	0	31,606
Aug-18	324	31,696	31,651	45	1	13	(12)	45.00	540	585	32,236
Sep-18	315	38,226	31,651	6,575	19	42	(23)	346.05	7,959	14,534	46,185
Oct-18	313	39,059	31,651	7,408	161	198	(37)	46.01	1,702	9,110	40,761
Total		275,150	189,906	85,289	1,021	1,130	(109)	102.23	11,143	96,432	286,293

Summary - Total Summer Season Billed Sales

	<u>Actual 2018</u>	<u>Normalized</u>
May	111,614	103,271
June	53,960	64,474
July	39,256	39,325
August	37,987	38,527
September	46,254	55,316
October	47,592	49,594
Total	336,663	350,507



**LIBERTY UTILITIES - KEENE DIVISION**  
**Typical Residential Heating Bill - Fixed Price Option Program**  
**Forecasted 2019 Summer Period vs. Actual 2018 Summer Period**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Winter Nov-Apr	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Summer May-Oct	Total Nov-Oct
<b>12 MONTHS ENDED 10/2018</b>															
Typical Usage - therms (1)	64	120	158	251	245	132	970	91	28	14	10	9	20	172	1,142
<b>Residential Heating</b>															
Customer Charge	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$54.00	\$14.88	\$14.88	\$14.88	\$14.88	\$14.88	\$14.88	\$89.28	\$143.28
Delivery Charge:															
Winter															
Summer															
First 80 therms @ \$1.1522	\$73.74	\$92.18	\$92.18	\$92.18	\$92.18	\$92.18	\$534.64	\$44.64	\$15.62	\$7.81	\$5.58	\$5.02	\$11.16	\$89.83	\$624.47
Next 120 therms @ \$0.9442	\$0.00	\$37.77	\$73.65	\$113.30	\$113.30	\$49.10	\$387.12	\$6.14	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.14	\$393.26
Over 200 therms @ \$0.7946	\$0.00	\$0.00	\$0.00	\$40.52	\$35.76	\$0.00	\$76.28	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$76.28
<b>Base Delivery Revenue Total</b>	<b>\$82.74</b>	<b>\$138.95</b>	<b>\$174.83</b>	<b>\$255.00</b>	<b>\$250.24</b>	<b>\$150.28</b>	<b>\$1,052.04</b>	<b>\$65.66</b>	<b>\$30.50</b>	<b>\$22.69</b>	<b>\$20.46</b>	<b>\$19.90</b>	<b>\$26.04</b>	<b>\$185.25</b>	<b>\$1,237.29</b>
Deferred Revenue Surcharge Rate	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		
<b>Deferred Revenue Surcharge Total</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
COG Rates	\$1.2408	\$1.2408	\$1.2408	\$1.2408	\$1.2408	\$1.2408	\$1.2408	\$0.9995	\$1.0765	\$0.9752	\$0.7462	\$0.7800	\$1.2494	\$1.0128	\$1.2065
<b>Cost of Gas Total</b>	<b>\$79.41</b>	<b>\$148.90</b>	<b>\$196.05</b>	<b>\$311.44</b>	<b>\$304.00</b>	<b>\$163.79</b>	<b>\$1,203.59</b>	<b>\$90.95</b>	<b>\$30.14</b>	<b>\$13.65</b>	<b>\$7.46</b>	<b>\$7.02</b>	<b>\$24.99</b>	<b>\$174.21</b>	<b>\$1,377.80</b>
LDAC Rate	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		\$0.0945	\$0.0945	\$0.0945	\$0.0945	\$0.0945	\$0.0945		
<b>LDAC Total</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$8.60</b>	<b>\$2.65</b>	<b>\$1.32</b>	<b>\$0.95</b>	<b>\$0.85</b>	<b>\$1.89</b>	<b>\$16.25</b>	<b>\$16.25</b>
<b>Total Bill</b>	<b>\$162</b>	<b>\$288</b>	<b>\$371</b>	<b>\$566</b>	<b>\$554</b>	<b>\$314</b>	<b>\$2,256</b>	<b>\$165</b>	<b>\$63</b>	<b>\$38</b>	<b>\$29</b>	<b>\$28</b>	<b>\$53</b>	<b>\$376</b>	<b>\$2,631</b>
<b>12 MONTHS ENDED 10/2019</b>															
Typical Usage - therms (1)	64	120	158	251	245	132	970	91	28	14	10	9	20	172	1,142
<b>Residential Heating</b>															
Customer Charge	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$90.12	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$90.12	\$180.24
Delivery Charge:															
Winter															
Summer															
First 80 therms @ \$0.5502	\$35.21	\$44.02	\$44.02	\$44.02	\$44.02	\$44.02	\$255.31	\$44.02	\$15.41	\$7.70	\$5.50	\$4.95	\$11.00	\$88.58	\$343.89
Next 120 therms @ \$0.5502	\$0.00	\$22.01	\$42.92	\$66.02	\$66.02	\$28.61	\$225.58	\$6.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.05	\$231.63
Over 200 therms @ \$0.5502	\$0.00	\$0.00	\$0.00	\$28.06	\$24.76	\$0.00	\$52.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$52.82
<b>Base Delivery Revenue Total</b>	<b>\$50.23</b>	<b>\$81.05</b>	<b>\$101.96</b>	<b>\$153.12</b>	<b>\$149.82</b>	<b>\$87.65</b>	<b>\$623.83</b>	<b>\$65.09</b>	<b>\$30.43</b>	<b>\$22.72</b>	<b>\$20.52</b>	<b>\$19.97</b>	<b>\$26.02</b>	<b>\$184.75</b>	<b>\$808.58</b>
Seasonal Base Delivery Difference from previous year							-\$428.21							-\$0.50	-\$428.71
Seasonal Percent Change from previous year							-40.7%							-0.3%	-34.6%
Deferred Revenue Surcharge Rate	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		
<b>Deferred Revenue Surcharge Total</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
COG Rates	\$1.3743	\$1.3743	\$1.3743	\$1.3743	\$1.3743	\$1.3743	\$1.3743	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$1.3162
<b>Cost of Gas Total</b>	<b>\$87.96</b>	<b>\$164.92</b>	<b>\$217.14</b>	<b>\$344.95</b>	<b>\$336.70</b>	<b>\$181.41</b>	<b>\$1,333.08</b>	<b>\$89.96</b>	<b>\$27.68</b>	<b>\$13.84</b>	<b>\$9.89</b>	<b>\$8.90</b>	<b>\$19.77</b>	<b>\$170.04</b>	<b>\$1,503.12</b>
LDAC Rate	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.3960	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660		
<b>LDAC Total</b>	<b>\$4.22</b>	<b>\$7.92</b>	<b>\$10.43</b>	<b>\$16.57</b>	<b>\$16.17</b>	<b>\$8.71</b>	<b>\$64.02</b>	<b>\$6.01</b>	<b>\$1.85</b>	<b>\$0.92</b>	<b>\$0.66</b>	<b>\$0.59</b>	<b>\$1.32</b>	<b>\$11.35</b>	<b>\$75.37</b>
Seasonal COG Difference from previous year							\$129.49							-\$4.17	\$125.32
Seasonal Percent Change from previous year							10.8%							-2.4%	9.1%
<b>Total Bill</b>	<b>\$142</b>	<b>\$254</b>	<b>\$330</b>	<b>\$515</b>	<b>\$503</b>	<b>\$278</b>	<b>\$2,021</b>	<b>\$161</b>	<b>\$60</b>	<b>\$37</b>	<b>\$31</b>	<b>\$29</b>	<b>\$47</b>	<b>\$366</b>	<b>\$2,387</b>
Seasonal Total Bill Difference from previous year							-\$234.70							-\$9.57	-\$244.27
Seasonal Percent Change from previous year							-10.4%							-2.5%	-9.3%
Seasonal Percent Change resulting from Base Rates (incl. Def. Revenue Surch.)							-19.0%							-4.5%	-16.9%
Seasonal Percent Change resulting from COG							5.7%							-1.1%	4.8%
Seasonal Percent Change resulting from LDAC							2.8%							-1.3%	2.2%

(1) Residential Heating Typical Usage: Single family detached home using gas for heat, hot water and cooking.

(2) LDAC was included in Keene distribution rates beginning on 05/01/18, as authorized by NHPUC Order No. 26,122 dated April 27, 2018, in Docket No. DG 17-048

**LIBERTY UTILITIES - KEENE DIVISION**  
**Typical Residential Heating Bill - Non-Fixed Price Option Program**  
**Forecasted 2019 Summer Period vs. Actual 2018 Summer Period**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
<b>12 MONTHS ENDED 10/2018</b>	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Winter Nov-Apr	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Summer May-Oct	Total Nov-Oct
Typical Usage - therms (1)	64	120	158	251	245	132	970	91	28	14	10	9	20	172	1,142
<b>Residential Heating</b>															
Customer Charge	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$54.00	\$14.88	\$14.88	\$14.88	\$14.88	\$14.88	\$14.88	\$89.28	\$143.28
Delivery Charge:															
Winter															
Summer															
First 80 therms @ \$1.1522	\$73.74	\$92.18	\$92.18	\$92.18	\$92.18	\$92.18	\$534.64	\$44.64	\$15.62	\$7.81	\$5.58	\$5.02	\$11.16	\$89.83	\$624.47
Next 120 therms @ \$0.9442	\$0.00	\$37.77	\$73.65	\$113.30	\$113.30	\$49.10	\$387.12	\$6.14	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.14	\$393.26
Over 200 therms @ \$0.7946	\$0.00	\$0.00	\$0.00	\$40.52	\$35.76	\$0.00	\$76.28	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$76.28
<b>Base Delivery Revenue Total</b>	<b>\$82.74</b>	<b>\$138.95</b>	<b>\$174.83</b>	<b>\$255.00</b>	<b>\$250.24</b>	<b>\$150.28</b>	<b>\$1,052.04</b>	<b>\$65.66</b>	<b>\$30.50</b>	<b>\$22.69</b>	<b>\$20.46</b>	<b>\$19.90</b>	<b>\$26.04</b>	<b>\$185.25</b>	<b>\$1,237.29</b>
Deferred Revenue Surcharge Rate	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		
<b>Deferred Revenue Surcharge Total</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.00</b>	<b>\$0.00</b>
COG Rates	\$1.2533	\$1.2533	\$1.3008	\$1.5666	\$1.5666	\$1.5221	\$1.4578	\$0.9995	\$1.0765	\$0.9752	\$0.7462	\$0.7800	\$1.2494	\$1.0128	\$1.3908
<b>Cost of Gas Total</b>	<b>\$80.21</b>	<b>\$150.40</b>	<b>\$205.53</b>	<b>\$393.22</b>	<b>\$383.82</b>	<b>\$200.92</b>	<b>\$1,414.10</b>	<b>\$90.95</b>	<b>\$30.14</b>	<b>\$13.65</b>	<b>\$7.46</b>	<b>\$7.02</b>	<b>\$24.99</b>	<b>\$174.21</b>	<b>\$1,588.31</b>
LDAC Rate	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		\$0.0945	\$0.0945	\$0.0945	\$0.0945	\$0.0945	\$0.0945		
<b>LDAC Total</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$0.0000</b>	<b>\$8.60</b>	<b>\$2.6460</b>	<b>\$1.3230</b>	<b>\$0.9450</b>	<b>\$0.8505</b>	<b>\$1.8900</b>	<b>\$16.25</b>	<b>\$16.25</b>
<b>Total Bill</b>	<b>\$163</b>	<b>\$289</b>	<b>\$380</b>	<b>\$648</b>	<b>\$634</b>	<b>\$351</b>	<b>\$2,466</b>	<b>\$165</b>	<b>\$63</b>	<b>\$38</b>	<b>\$29</b>	<b>\$28</b>	<b>\$53</b>	<b>\$376</b>	<b>\$2,842</b>
<b>12 MONTHS ENDED 10/2019</b>	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Winter Nov-Apr	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Summer May-Oct	Total Nov-Oct
Typical Usage - therms (1)	64	120	158	251	245	132	970	91	28	14	10	9	20	172	1,142
<b>Residential Heating</b>															
Customer Charge	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$90.12	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$15.02	\$90.12	\$180.24
Delivery Charge:															
Winter															
Summer															
First 80 therms @ \$0.5502	\$35.21	\$44.02	\$44.02	\$44.02	\$44.02	\$44.02	\$255.31	\$44.02	\$15.41	\$7.70	\$5.50	\$4.95	\$11.00	\$88.58	\$343.89
Next 120 therms @ \$0.5502	\$0.00	\$22.01	\$42.92	\$66.02	\$66.02	\$28.61	\$225.58	\$6.05	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.05	\$231.63
Over 200 therms @ \$0.5502	\$0.00	\$0.00	\$0.00	\$28.06	\$24.76	\$0.00	\$52.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$52.82
<b>Base Delivery Revenue Total</b>	<b>\$50.23</b>	<b>\$81.05</b>	<b>\$101.96</b>	<b>\$153.12</b>	<b>\$149.82</b>	<b>\$87.65</b>	<b>\$623.83</b>	<b>\$65.09</b>	<b>\$30.43</b>	<b>\$22.72</b>	<b>\$20.52</b>	<b>\$19.97</b>	<b>\$26.02</b>	<b>\$184.75</b>	<b>\$808.58</b>
Seasonal Base Delivery Difference from previous year															
Seasonal Percent Change from previous year															
Deferred Revenue Surcharge Rate	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000		
<b>Deferred Revenue Surcharge Total</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
COG Rates	\$1.3802	\$1.4734	\$1.5311	\$1.5011	\$1.3135	\$1.2651	\$1.4151	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$0.9886	\$1.3508
<b>Cost of Gas Total</b>	<b>\$88.33</b>	<b>\$176.81</b>	<b>\$241.91</b>	<b>\$376.78</b>	<b>\$321.81</b>	<b>\$166.99</b>	<b>\$1,372.63</b>	<b>\$89.96</b>	<b>\$27.68</b>	<b>\$13.84</b>	<b>\$9.89</b>	<b>\$8.90</b>	<b>\$19.77</b>	<b>\$170.04</b>	<b>\$1,542.67</b>
LDAC Rate	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660		\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660	\$0.0660		
<b>LDAC Total</b>	<b>\$4.22</b>	<b>\$7.92</b>	<b>\$10.43</b>	<b>\$16.57</b>	<b>\$16.17</b>	<b>\$8.71</b>	<b>\$64.02</b>	<b>\$6.01</b>	<b>\$1.85</b>	<b>\$0.92</b>	<b>\$0.66</b>	<b>\$0.59</b>	<b>\$1.32</b>	<b>\$11.35</b>	<b>\$75.37</b>
Seasonal COG Difference from previous year															
Seasonal Percent Change from previous year															
<b>Total Bill</b>	<b>\$143</b>	<b>\$266</b>	<b>\$354</b>	<b>\$546</b>	<b>\$488</b>	<b>\$263</b>	<b>\$2,060</b>	<b>\$161</b>	<b>\$60</b>	<b>\$37</b>	<b>\$31</b>	<b>\$29</b>	<b>\$47</b>	<b>\$366</b>	<b>\$2,427</b>
Seasonal Total Bill Difference from previous year															
Seasonal Percent Change from previous year															
Seasonal Percent Change resulting from Base Rates (incl. Def. Revenue Surch.)															
Seasonal Percent Change resulting from COG															
Seasonal Percent Change resulting from LDAC															

(1) Residential Heating Typical Usage: Single family detached home using gas for heat, hot water and cooking.  
(2) LDAC was included in Keene distribution rates beginning on 05/01/18, as authorized by NHPUC Order No. 26,122 dated April 27, 2018, in Docket No. DG 17-048

LIBERTY UT LIT ES - KEENE DIVISION

B D PREMIUM FOR PRE-PURCHASED GALLONS - PRIOR YEAR

	Mt. Belvieu Price		Pipeline Rate		Broker + Supplier Fee		PERC		Trucking		Keene Div. Price	Contract Volumes	Keene Div. Cost	Fixed Basis Bid	Plan Price	Contract Volumes	Plan Cost	Cost Premium	Per Gallon Premium	
Apr-18	\$0.7538	+	\$0.2265	+	\$0.1000	+	\$0.0045	+	\$0.0862	=	\$1.1710	115,000	\$134,667			115,000				-\$0.1022
May-18	\$0.8473	+	\$0.2265	+	\$0.1000	+	\$0.0045	+	\$0.0862	=	\$1.2645	86,250	\$109,063			86,250				-\$0.1022
Jun-18	\$0.8790	+	\$0.2265	+	\$0.1000	+	\$0.0045	+	\$0.0862	=	\$1.2962	86,250	\$111,795			86,250				-\$0.1022
Jul-18	\$0.8823	+	\$0.2265	+	\$0.1000	+	\$0.0045	+	\$0.0862	=	\$1.2995	115,000	\$149,448			115,000				-\$0.1022
Aug-18	\$0.9181	+	\$0.2265	+	\$0.1000	+	\$0.0045	+	\$0.0862	=	\$1.3353	86,250	\$115,165			86,250				-\$0.1022
Sep-18	\$1.0136	+	\$0.2265	+	\$0.1000	+	\$0.0045	+	\$0.0862	=	\$1.4308	86,250	\$123,404			86,250				-\$0.1022
Total												575,000	\$743,542			575,000	\$684,777	(\$58,765)		-\$0.1022

## LIBERTY UTILITIES - KEENE DIVISION

COMPARISON OF CONTRACT COST TO HYPOTHETICAL SPOT COST  
WINTER SEASON 2018-2019 TO DATE

Delivery Month	Contract Price (1)	Contract Volumes (2)	Contract Cost (3)	Average Spot Price (4)	Contract Volumes (5)	Hypothetical Spot Cost (6)	Incremental Cost / (Savings) of Plan (7)
			(1) x (2)			(4) x (5)	(3) - (6)
Nov-18	\$1.2208	75,346	\$91,979	\$1.0501	75,346	\$79,118	\$12,861
Dec-18	\$1.2212	115,000	\$140,437	\$1.0090	115,000	\$116,035	\$24,402
Jan-19	\$1.2169	134,828	\$164,069	\$1.0352	134,828	\$139,574	\$24,495
Feb-19	\$1.1979	111,034	\$133,012	\$1.0402	111,034	\$115,498	\$17,514
Total			\$529,496			\$450,224	\$79,272

17.6%

LIBERTY UTILITIES - KEENE DIVISION  
 PROPANE PURCHASING STABILIZATION PLAN  
 PRE-PURCHASES AND DELIVERY SCHEDULE

Delivery Month	Pre-Purchases (Gallons)						
	Apr-18	May-18	Jun-18	Jul-18	Aug-18	Sep-18	Total
Nov-18	15,069	11,302	11,302	15,069	11,302	11,302	75,346
Dec-18	23,000	17,250	17,250	23,000	17,250	17,250	115,000
Jan-19	26,966	20,224	20,224	26,966	20,224	20,224	134,828
Feb-19	22,207	16,655	16,655	22,207	16,655	16,655	111,034
Mar-19	17,448	13,086	13,086	17,448	13,086	13,086	87,240
Apr-19	10,310	7,733	7,733	10,310	7,733	7,733	51,552
Total	115,000	86,250	86,250	115,000	86,250	86,250	575,000
Monthly %	20.0%	15.0%	15.0%	20.0%	15.0%	15.0%	

The monthly allocation percentage for the pre-purchases is unchanged.

LIBERTY UTILITIES - KEENE DIVISION  
CALCULATION OF PURCHASED GAS COSTS  
SUMMER PERIOD 2019

LINE NO.	19% MAY-19	13% JUN-19	12% JUL-19	13% AUG-19	15% SEP-19	28% OCT-19	TOTAL
1	75,775	51,784	47,608	53,084	59,744	110,871	398,866
2	-	-	-	-	-	-	-
3	75,775	51,784	47,608	53,084	59,744	110,871	398,866
4	<b>PROPANE PURCHASE STABILIZATION PLAN DELIVERIES</b>						
5	-	-	-	-	-	-	-
6	<b>RATES - from Schedule D</b>						
7	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
8	incl.	incl.	incl.	incl.	incl.	incl.	
9	incl.	incl.	incl.	incl.	incl.	incl.	
10	incl.	incl.	incl.	incl.	incl.	incl.	
11	incl.	incl.	incl.	incl.	incl.	incl.	
12	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
13	\$0	\$0	\$0	\$0	\$0	\$0	\$0
14	<b>AMHERST STORAGE PROPANE DELIVERIES</b>						
15	-	-	-	-	-	-	-
16	<b>RATES - from Schedule F</b>						
17	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
18	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
19	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	
20	\$0	\$0	\$0	\$0	\$0	\$0	\$0
21	<b>CNG DELIVERIES</b>						
22	25,804	7,466	6,883	16,580	11,652	9,913	78,298
23							
24							
25							
26							
27							
28							
29							
30	<b>SPOT PURCHASES</b>						
31	49,971	44,318	40,725	36,504	48,092	100,958	320,568
32	<b>RATES - from Schedule E</b>						
33							
34							
35							
36							
37							
38							
39							
40							
41	<b>OTHER ITEMS</b>						
42	\$0	\$0	\$0	\$0	\$0	\$0	\$0
43	\$0	\$0	\$0	\$0	\$0	\$0	\$0
44	\$0	\$0	\$0	\$0	\$0	\$0	\$0
45	<b>TOTAL</b>						
46	75,775	51,784	47,608	53,084	59,744	110,871	398,866
47	69,336	47,383	43,562	48,573	54,667	101,449	364,970
48	\$70,576	\$52,462	\$48,618	\$51,567	\$59,357	\$110,487	\$393,067
49	\$0.9314	\$1.0131	\$1.0212	\$0.9714	\$0.9935	\$0.9965	\$0.9855
50	\$1.0179	\$1.1072	\$1.1161	\$1.0616	\$1.0858	\$1.0891	\$1.0770