

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.
2 d/b/a Liberty Utilities
3 Peak 2019 - 2020 Winter Cost of Gas Filing
4 Summary of Supply and Demand Forecast

Schedule 1
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7 For Month of:	(a)	(b)	Peak Costs May 19 - Oct 19 (c)	Nov-19 (d)	Dec-19 (e)	Jan-20 (f)	Feb-20 (g)	Mar-20 (h)	Apr-20 (i)	May-20 (j)	Peak Period Nov - Apr (k)
9 I. Gas Volumes (Therms)										1,748,886	1.9%
11 A. Firm Demand Volumes											
12 Firm Gas Sales		Sch. 10B, In 23	-	1,706,497	13,193,992	18,669,469	20,004,731	17,038,873	11,854,190	5,320,757	87,788,508
13 Lost Gas (Unaccounted for)			-	172,269	301,508	370,682	344,555	281,254	158,740		1,629,007
14 Company Use			-	12,677	22,188	27,279	25,356	20,697	11,682		119,879
15 Unbilled Therms			-	7,894,948	3,610,637	1,990,600	(800,872)	(1,363,134)	(3,006,773)	(5,320,757)	3,004,649
17 Total Firm Volumes		Sch. 6, In 94	-	9,786,390	17,128,325	21,058,029	19,573,770	15,977,690	9,017,839		92,542,043
18 B. Supply Volumes (Therms)											
20 Pipeline Gas:											
21 Dawn Supply		Sch. 6, In 64	-	748,197	851,872	896,211	832,325	899,574	826,763		5,054,942
22 Niagara Supply		Sch. 6, In 65	-	590,118	671,509	706,459	655,574	709,110	652,085		3,984,855
23 TGP Supply (Direct)		Sch. 6, In 66	-	3,965,821	2,862,930	2,936,768	2,807,740	3,035,695	540,736		16,149,690
24 Dracut Supply 1 - Baseload		Sch. 6, In 67	-	-	2,575,041	4,515,354	3,144,581	-	-		10,234,977
25 Dracut Supply 2 - Swing		Sch. 6, In 68	-	2,418,414	1,456,785	480,947	1,928,329	4,436,334	1,851,169		12,571,979
26 Constellation COMBO		Sch. 6, In 69	-	-	1,380,477	1,136,319	1,379,241	243,207	-		4,139,244
27 LNG Truck		Sch. 6, In 70	-	17,634	20,118	1,072,096	676,581	394,845	-		2,181,274
28 Propane Truck		Sch. 6, In 71	-	-	-	669,239	-	-	-		669,239
29 PNGTS		Sch. 6, In 72	-	187,049	212,968	224,053	207,900	224,893	206,691		1,263,554
30 Portland Natural Gas		Sch. 6, In 73	-	809,917	892,107	907,888	900,418	965,503	627,727		5,103,561
31 TGP Supply (Z4)		Sch. 6, In 74	-	1,549,926	1,769,647	1,861,753	1,729,121	1,868,740	4,242,379		13,021,567
32 Subtotal Pipeline Volumes			-	10,287,078	12,693,454	15,407,086	14,261,810	12,777,903	8,947,550		74,374,882
34 Storage Gas:											
35 TGP Storage		Sch. 6, In 79	-	1,013,341	4,434,870	5,057,605	5,372,808	3,218,101	50,803		19,147,528
37 Produced Gas:											
38 LNG Vapor		Sch. 6, In 82	-	17,634	20,118	1,164,052	615,732	373,601	19,486		2,210,624
39 Propane		Sch. 6, In 83	-	-	-	1,170,620	-	2,930	-		1,173,551
40 Subtotal Produced Gas			-	17,634	20,118	2,334,672	615,732	376,532	19,486		3,384,174
42 Less - Gas Refill:											
43 LNG Truck		Sch. 6, In 88	-	(17,634)	(20,118)	(1,072,096)	(676,581)	(394,845)	-		(2,181,274)
44 Propane		Sch. 6, In 89	-	-	-	(669,239)	-	-	-		(669,239)
45 TGP Storage Refill		Sch. 6, In 90	-	(1,514,028)	-	-	-	-	-		(1,514,028)
46 Subtotal Refills			-	(1,531,662)	(20,118)	(1,741,334)	(676,581)	(394,845)	-		(4,364,541)
48 Total Firm Sendout Volumes		Ins 32 + 35 + 40 + 46	-	9,786,390	17,128,325	21,058,029	19,573,770	15,977,690	9,017,839		92,542,043

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3 Peak 2019 - 2020 Winter Cost of Gas Filing

4 Summary of Supply and Demand Forecast

162 D. Supply and Demand Costs by Source

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			Peak Costs								Peak Period
	(a)	(b)	(c)	Nov-19 (d)	Dec-19 (e)	Jan-20 (f)	Feb-20 (g)	Mar-20 (h)	Apr-20 (i)	May-20 (j)	Nov - Apr (k)
169	<u>Purchased Gas Demand Costs</u>										
170	Pipeline Gas Demand Costs	Ins 59 + 80	\$ 1,286,027	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476		\$ 10,072,882
171	Peaking Gas Demand Costs	In 88	-	891,966	891,966	891,966	891,966	891,966			4,459,829
172	Subtotal Purchased Gas Demand Costs		\$ 1,286,027	\$ 2,356,442	\$ 2,356,442	\$ 2,356,442	\$ 2,356,442	\$ 2,356,442	\$ 1,464,476		\$ 14,532,711
173	Less Capacity Credit	Ins 60 + 81 + 89	(524,442)	(685,018)	(685,018)	(685,018)	(685,018)	(685,018)	(425,723)		(4,375,253)
174	Net Purchased Gas Demand Costs		\$ 761,585	\$ 1,671,424	\$ 1,671,424	\$ 1,671,424	\$ 1,671,424	\$ 1,671,424	\$ 1,038,753		\$ 10,157,458
175											
176	<u>Storage Gas Demand Costs</u>										
177	Storage Demand	In 100	\$ 693,617	\$ 115,603	\$ 115,603	\$ 115,603	\$ 115,603	\$ 115,603	\$ 115,603		\$ 1,387,233
178	Less Capacity Credit	In 101	(282,857)	(33,606)	(33,606)	(33,606)	(33,606)	(33,606)	(33,606)		(484,491)
179	Net Storage Demand Costs		\$ 410,760	\$ 81,997	\$ 81,997	\$ 81,997	\$ 81,997	\$ 81,997	\$ 81,997		\$ 902,742
180											
181	Total Demand Costs	Ins 174 + 179	\$ 1,172,345	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,120,750		\$ 11,060,200
182											
183	<u>Purchased Gas Supply</u>										
184	Commodity Costs	In 128	\$ -	\$ 2,495,083	\$ 6,291,574	\$ 9,000,958	\$ 9,613,141	\$ 5,727,685	\$ 2,099,996		\$ 35,228,436
185	Less Storage Inj.(TGP Storage)	In 141									
186	Less Storage Transportation	In 142									
187	Less LNG Truck	In 139									
188	Less Propane Truck	In 140									
189	Plus Transportation Costs	In 153									
190	Subtotal Purchased Gas Supply		\$ -	\$ 2,263,468	\$ 6,427,300	\$ 7,929,384	\$ 9,496,308	\$ 5,729,165	\$ 2,141,584		\$ 33,987,209
191											
192	<u>Storage Commodity Costs</u>										
193	Commodity Costs	In 131	\$ -	\$ 226,582	\$ 991,634	\$ 1,130,877	\$ 1,201,356	\$ 719,565	\$ 11,359		\$ 4,281,375
194	Transportation Costs	In 155	-	14,459	63,279	72,165	76,662	45,918	725		273,208
195	Subtotal Storage Commodity Costs		\$ -	\$ 241,041	\$ 1,054,913	\$ 1,203,042	\$ 1,278,019	\$ 765,483	\$ 12,084		\$ 4,554,583
196											
197	<u>Produced Gas Commodity Costs</u>	In 136	\$ -	\$ 14,012	\$ 14,874	\$ 1,908,377	\$ 241,856	\$ 147,074	\$ 7,487		\$ 2,333,680
198											
199	Subtotal Commodity Costs	Ins 190 + 195 + 197	\$ -	\$ 2,518,522	\$ 7,497,087	\$ 11,040,803	\$ 11,016,182	\$ 6,641,722	\$ 2,161,156		\$ 40,875,472
200											
201	Hedge Contract (Savings)/Loss		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
202											
203	Total Commodity Costs	Ins 199 + 201	\$ -	\$ 2,518,522	\$ 7,497,087	\$ 11,040,803	\$ 11,016,182	\$ 6,641,722	\$ 2,161,156		\$ 40,875,472
204											
205	Total Demand Costs	In 106	\$ 1,172,345	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,120,750		\$ 11,060,200
206	Total Supply Costs	In 203	-	2,518,522	7,497,087	11,040,803	11,016,182	6,641,722	2,161,156		40,875,472
207											
208	Total Direct Gas Costs	Ins 205 + 206	\$ 1,172,345	\$ 4,271,943	\$ 9,250,508	\$ 12,794,224	\$ 12,769,604	\$ 8,395,143	\$ 3,281,906		\$ 51,935,672

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4 Peak 2019 - 2020 Winter Cost of Gas Filing

5 Contracts Ranked on a per Unit Cost Basis

6

7	Supplier	Contract	Contract Type	Contract	Unit Dth	Peak Period
8	(a)	(b)	(c)	Unit	(MDQ/ACQ)	Cost per
9				(d)	(e)	Unit Dth
10						(f)

10 Demand Costs

11

12	Dominion - Capacity Reservation	GSS 300076	Storage	ACQ	102,700	
13	Tenn Gas Pipeline - Cap. Reservations	FS-MA 523	Storage	ACQ	1,560,391	
14	National Fuel - Capacity Reservation	FSS-O02357	Storage	ACQ	670,800	
15	Tenn Gas Pipeline - Demand	FS-MA 523	Storage	MDQ	21,844	
16	Dominion - Demand	GSS 300076	Storage	MDQ	934	
17	National Fuel - Demand	FSS-O02357	Storage	MDQ	6,098	
18	National Fuel	FST N02358	Transportation	MDQ	6,098	
19	Tenn Gas Pipeline	42076 FTA Z6-Z6	Transportation	MDQ	20,000	
20	Iroquois Gas Trans Service	RTS 470-01	Transportation	MDQ	4,047	
21	Honeoye - Demand	SS-NY	Storage	MDQ	1,362	
22	Tenn Gas Pipeline	2302 Z5-Z6	Transportation	MDQ	3,122	
23	Tenn Gas Pipeline	95346 Z5-Z6	Transportation	MDQ	4,000	
24	Tenn Gas Pipeline (short haul)	11234 Z5-Z6(stg)	Transportation	MDQ	1,957	
25	Tenn Gas Pipeline (short haul)	11234 Z4-Z6(stg)	Transportation	MDQ	7,082	
26	Tenn Gas Pipeline (short haul)	8587 Z4-Z6	Transportation	MDQ	3,811	
27	Tenn Gas Pipeline (short haul)	632 Z4-Z6 (stg)	Transportation	MDQ	15,265	
28	Tenn Gas Pipeline (Concord Lateral) Z6-Z6	Firm Transportation	Transportation	MDQ	30,000	
29	ANE (TransCanada via Union to Iroquois)	Union Parkway to Iroquois	Transportation	MDQ	4,047	
30	TransCanada via Union to Portland	Union Parkway to Portland	Transportation	MDQ	4,432	
31	Tenn Gas Pipeline (long haul)	8587 Z1-Z6	Transportation	MDQ	14,561	
32	Tenn Gas Pipeline (long haul)	8587 Z0-Z6	Transportation	MDQ	7,035	
33	Portland Natural Gas Trans Service	FT-208544	Transportation	MDQ	1,000	
34	Portland Natural Gas	FT 210347	Transportation	MDQ	4,432	
35	Peaking Demand	NSB041	Peaking	MDQ	10,000	

37 Supply Costs - Commodity

38

38	TGP Supply (Z4)		Pipeline	Dkt	1,302,157	
39	Niagara Supply		Pipeline	Dkt	398,485	
40	Constellation COMBO		Pipeline	Dkt	413,924	
41	TGP Supply (Direct)		Pipeline	Dkt	1,614,969	
42	Dawn Supply		Pipeline	Dkt	505,494	
43	Dracut Supply 1 - Baseload		Pipeline	Dkt	1,023,498	
44	TGP Storage		Storage	Dkt	1,914,753	
45	PNGTS		Pipeline	Dkt	126,355	
46	Propane Truck		Pipeline	Dkt	66,924	
47	LNG Truck		Pipeline	Dkt	218,127	
48	Dracut Supply 2 - Swing		Pipeline	Dkt	1,257,198	
49	Propane		Produced	Dkt	117,355	
50	LNG Vapor (Storage)		Produced	Dkt	221,062	

52 Supply Costs - Volumetric Transportation

53

53	Dracut Supply 1 - Baseload		Pipeline	Dkt	1,023,498	
54	Dracut Supply 2 - Swing		Pipeline	Dkt	1,257,198	
55	Niagara Supply		Pipeline	Dkt	398,485	
56	Dawn Supply		Pipeline	Dkt	505,494	
57	TGP Storage - Withdrawals		Pipeline	Dkt	1,914,753	
58	TGP Supply (Direct)		Pipeline	Dkt	1,614,969	

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		Prior Period Bal															Peak Period
		Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Total	
		Ending Bal	31	30	31	31	30	31	30	31	31	29	31	30	31	Period	
		Plus May Billings	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	
		(c)															
10 Account 1920-1740 COG (Over)/Under Balance - Interest Calculation																	
12	Beginning Balance	Account 1920-1740 1/	\$ 1,912,210	\$ 1,912,210	\$ 2,116,990	\$ 1,519,220	\$ 1,721,820	\$ 1,925,324	\$ 2,129,445	\$ 2,334,766	\$ 127,571	\$ (2,063,086)	\$ (3,239,439)	\$ (3,834,232)	\$ (6,302,319)	\$ (9,182,642)	\$ 1,912,210
13	Fcst Direct Gas Costs(Inc U/G Hedges)	Schedule 5A		195,391	195,391	195,391	195,391	195,391	195,391	4,271,943	9,250,508	12,794,224	12,769,604	8,395,143	3,281,906	-	51,935,672
14	Production & Storage & Misc Overhead			-	-	-	-	-	-	331,846	331,846	331,846	331,846	331,846	331,846	-	1,991,077
15	Projected Revenues w/o Int.	In 52 * 59		-	-	-	-	-	-	(1,170,657)	(9,051,078)	(12,807,256)	(13,723,245)	(11,688,667)	(8,131,975)	(3,650,039)	(60,222,917)
16	Projected Unbilled Revenue									(5,415,934)	(7,892,831)	(9,258,382)	(8,708,985)	(7,773,875)	(5,711,229)		(44,761,236)
17	Reverse Prior Month Unbilled									5,415,934	7,892,831	9,258,382	8,708,985	7,773,875	5,711,229		44,761,236
18	Adjustment				(801,361)					-	-	-	-	-	-	-	(801,361)
19	Add Net Adjustments	Schedule 4		-	-	-	-	-	-	(229,694)	(240,731)	(117,820)	(507,673)	(418,971)	(391,409)	-	(1,906,298)
20	Gas Cost Billed	Account 1920-1740 2/		-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	Monthly (Over)/Under Recovery		\$ 1,912,210	\$ 2,107,601	\$ 1,511,020	\$ 1,714,611	\$ 1,917,211	\$ 2,120,715	\$ 2,324,836	\$ 122,270	\$ (2,058,780)	\$ (3,227,644)	\$ (3,819,509)	\$ (6,279,770)	\$ (9,149,304)	\$ (7,121,452)	\$ (7,091,616)
22	Average Monthly Balance	(In 12 + 21)/2		\$ 2,009,906	\$ 1,814,005	\$ 1,616,915	\$ 1,819,516	\$ 2,023,020	\$ 2,227,140	\$ 1,228,518	\$ (965,605)	\$ (2,645,365)	\$ (3,529,474)	\$ (5,057,001)	\$ (7,725,811)	\$ (8,152,047)	
24	Interest Rate	Prime Rate		5.50%	5.50%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	
26	Interest Applied	In 22 * In 24 / 365 * Days of Month		\$ 9,389	\$ 8,200	\$ 7,210	\$ 8,113	\$ 8,729	\$ 9,931	\$ 5,301	\$ (4,306)	\$ (11,795)	\$ (14,722)	\$ (22,549)	\$ (33,337)	\$ -	\$ (29,836)
28	(Over)/Under Balance	In 21 + In 26	\$ 1,912,210	\$ 2,116,990	\$ 1,519,220	\$ 1,721,820	\$ 1,925,324	\$ 2,129,445	\$ 2,334,766	\$ 127,571	\$ (2,063,086)	\$ (3,239,439)	\$ (3,834,232)	\$ (6,302,319)	\$ (9,182,642)	\$ (7,121,452)	(7,121,452)
31 Calculation of COG with Interest																	
33	Beginning Balance	In 12	\$ 1,912,210	\$ 1,912,210	\$ 2,116,990	\$ 1,519,220	\$ 1,721,820	\$ 1,925,324	\$ 2,129,445	\$ 2,334,766	\$ 125,658	\$ (2,068,385)	\$ (3,248,930)	\$ (3,847,641)	\$ (6,318,981)	\$ (9,201,221)	\$ 1,912,210
34	Fcst Direct Gas Costs(Inc U/G Hedges)	In 13		195,391	195,391	195,391	195,391	195,391	195,391	4,271,943	9,250,508	12,794,224	12,769,604	8,395,143	3,281,906	-	51,935,672
35	Prod Storage & Misc Overhead	In 14		-	-	-	-	-	-	331,846	331,846	331,846	331,846	331,846	331,846	-	1,991,077
36	Projected Revenues with int.	In 52 * In 61		-	-	-	-	-	-	(1,170,998)	(9,053,717)	(12,810,990)	(13,727,246)	(11,692,075)	(8,134,345)	(3,651,104)	(60,240,474)
37	Projected Unbilled Revenue									(5,417,513)	(7,895,132)	(9,261,082)	(8,711,524)	(7,776,141)	(5,712,894)		(44,774,286)
38	Reverse Prior Month Unbilled									5,417,513	7,895,132	9,261,082	8,711,524	7,776,141	5,712,894		44,774,286
39	Add Net Adjustments	In 19		-	(801,361)	-	-	-	-	(229,694)	(240,731)	(117,820)	(507,673)	(418,971)	(391,409)	-	(2,707,659)
40	Gas Cost Billed	In 20		-	-	-	-	-	-	-	-	-	-	-	-	-	-
41	Add Interest	In 26		-	-	-	-	-	-	5,301	(4,306)	(11,795)	(14,722)	(22,549)	(33,337)	-	(81,408)
42	(Over)/Under Balance		\$ 1,912,210	\$ 2,107,601	\$ 1,511,020	\$ 1,714,611	\$ 1,917,211	\$ 2,120,715	\$ 2,324,836	\$ 125,651	\$ (2,068,360)	\$ (3,248,871)	\$ (3,847,563)	\$ (6,318,864)	\$ (9,201,073)	\$ (7,139,431)	\$ (7,190,582)
44	Average Monthly Balance			\$ 2,009,906	\$ 1,814,005	\$ 1,616,915	\$ 1,819,516	\$ 2,023,020	\$ 2,227,140	\$ 1,230,209	\$ (971,351)	\$ (2,658,628)	\$ (3,548,246)	\$ (5,083,253)	\$ (7,760,027)	\$ (8,170,326)	
46	Interest Applied	In 24 * In 44 / 365 * Days of Month		9,389	8,200	7,210	8,113	8,729	9,931	5,308	(4,331)	(11,855)	(14,801)	(22,666)	(33,485)	-	(30,257)
48	(Over)/Under Balance	-In 41 +In 42 + In 46	\$ 1,912,210	\$ 2,116,990	\$ 1,519,220	\$ 1,721,820	\$ 1,925,324	\$ 2,129,445	\$ 2,334,766	\$ 125,658	\$ (2,068,385)	\$ (3,248,930)	\$ (3,847,641)	\$ (6,318,981)	\$ (9,201,221)	\$ (7,139,431)	(7,139,431)
50																	
51	Forecast Sendout Therms	Sch 1								9,786,390	17,128,325	21,058,029	19,573,770	15,977,690	9,017,839		92,542,043
52	Less Forecast Billing Therm Sales	Sch. 10B, In 23 Nov - May								1,706,497	13,193,992	18,869,469	20,004,731	17,038,873	11,854,190	5,320,757	87,788,508
53	Less Forecast Unaccounted For	Sch 1								172,269	301,508	370,682	344,555	281,254	158,740		1,629,007
54	Less Forecast Company Use	Sch 1								12,677	22,188	27,279	25,356	20,697	11,682		119,879
55	Unbilled Volumes									7,894,948	3,610,637	1,990,600	-800,872	-1,363,134	-3,006,773	-5,320,757	3,004,649
56	Gross Unbilled									7,894,948	11,505,585	13,496,184	12,695,313	11,332,179	8,325,406		
57																	
58																	
59	COB w/o Interest	Sch. 3, pg. 4, In 207 col. (c)								\$0.6860	\$0.6860	\$0.6860	\$0.6860	\$0.6860	\$0.6860	\$0.6860	
60																	
61	COG With Interest	Sch. 3, pg. 4, In 207 col. (d)								\$0.6862	\$0.6862	\$0.6862	\$0.6862	\$0.6862	\$0.6862	\$0.6862	

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			Prior Period Bal Apr-19 Ending Bal	May-19 31	Jun-19 30	Jul-19 31	Aug-19 31	Sep-19 30	Oct-19 31	Nov-19 30	Dec-19 31	Jan-20 31	Feb-20 29	Mar-20 31	Apr-20 30	May-20 31	Peak Period Total
	(a)	Days in Month (b)	+ May Collections (c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	
70	Account 1163-1422 Working Capital (Over)/Under Balance - Interest Calculation																
72	Beginning Balance	Account 1163-1422 1/	\$ (42,277)	\$ (42,277)	\$ (42,053)	\$ (41,822)	\$ (49,266)	\$ (49,084)	\$ (48,893)	\$ (48,709)	\$ (45,904)	\$ (37,180)	\$ (23,445)	\$ (8,819)	\$ (1,011)	\$ 416	\$ (42,277)
74	Days Lag			0.0391	0.0391	0.0391	0.0391	0.0391	0.0391	0.0391	0.0391	0.0391	0.0391	0.0391	0.0391		
75	Prime Rate			5.50%	5.50%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%		
76	Forecast Working Capital	In 34 * 0.091%		420	420	401	401	401	401	8,770	18,991	26,266	26,216	17,235	6,738	-	106,660
78	Projected Revenues w/o Int.	In 116 * In 120		-	-	-	-	-	-	(1,024)	(7,916)	(11,202)	(12,003)	(10,223)	(7,113)	(3,192)	(52,673)
79	Projected Unbilled Revenue									(4,737)	(6,903)	(8,098)	(7,617)	(6,799)	(4,995)		(39,150)
80	Reverse Prior Month Unbilled										4,737	6,903	8,098	7,617	6,799	4,995	39,150
82	Add Net Adjustments			-	-	(7,642)	-	-	-	-	-	-	-	-	-	-	(7,642)
84	Working Capital Billed	Account 1163-1422 2/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
86	Monthly (Over)/Under Recovery		\$ (42,277)	\$ (41,857)	\$ (41,633)	\$ (49,063)	\$ (48,865)	\$ (48,682)	\$ (48,492)	\$ (45,700)	\$ (36,996)	\$ (23,310)	\$ (8,752)	\$ (990)	\$ 418	\$ 2,219	\$ 4,068
88	Average Monthly Balance	(In 72 + In 86)/2	\$	(42,067)	\$ (41,843)	\$ (45,443)	\$ (49,065)	\$ (48,883)	\$ (48,693)	\$ (47,205)	\$ (41,450)	\$ (30,245)	\$ (16,099)	\$ (4,904)	\$ (297)	\$ 1,318	
90	Interest Rate	Prime Rate		5.50%	5.50%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%		
92	Interest Applied	In 88 * In 90 / 365 * Days of Month	\$	(197)	(189)	(203)	(219)	(211)	(217)	(204)	(185)	(135)	(67)	(22)	(1)	\$ -	\$ (1,849)
94	(Over)/Under Balance	In 86 + In 92	\$	(42,277)	\$ (42,053)	\$ (41,822)	\$ (49,266)	\$ (49,084)	\$ (48,893)	\$ (48,709)	\$ (45,904)	\$ (37,180)	\$ (23,445)	\$ (8,819)	\$ (1,011)	\$ 416	\$ 2,219
97	Calculation of Working Capital with Interest																
100	Beginning Balance	In 72	\$ (42,277)	\$ (42,277)	\$ (42,053)	\$ (41,822)	\$ (49,266)	\$ (49,084)	\$ (48,893)	\$ (48,709)	\$ (45,904)	\$ (37,181)	\$ (23,446)	\$ (8,820)	\$ (1,013)	\$ 415	\$ (42,277)
101	Forecast Working Capital	In 76		420	420	401	401	401	401	8,770	18,991	26,266	26,216	17,235	6,738	-	106,660
102	Projected Rev. with Interest	In 116 * In 122		-	-	-	-	-	-	(1,024)	(7,916)	(11,202)	(12,003)	(10,223)	(7,113)	(3,192)	(52,673)
103	Projected Unbilled Revenue									(4,737)	(6,903)	(8,098)	(7,617)	(6,799)	(4,995)		(39,150)
104	Reverse Prior Month Unbilled										4,737	6,903	8,098	7,617	6,799	4,995	39,150
105	Add Net Adjustments	In 82	-	-	-	(7,642)	-	-	-	-	-	-	-	-	-	-	(7,642)
106	Working Capital Billed	In 84	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
107	Add Interest	In 92								(204)	(185)	(135)	(67)	(22)	(1)	-	(614)
108	Monthly (Over)/Under Recovery		\$ (42,277)	\$ (41,857)	\$ (41,633)	\$ (49,063)	\$ (48,865)	\$ (48,682)	\$ (48,492)	\$ (45,904)	\$ (37,181)	\$ (23,446)	\$ (8,820)	\$ (1,013)	\$ 415	\$ 2,218	\$ 3,454
110	Average Monthly Balance		\$	(42,067)	\$ (41,843)	\$ (45,443)	\$ (49,065)	\$ (48,883)	\$ (48,693)	\$ (47,307)	\$ (41,543)	\$ (30,314)	\$ (16,133)	\$ (4,917)	\$ (299)	\$ 1,316	
112	Interest Applied	In 90 * In 110 / 365 * Days of Month		(197)	(189)	(203)	(219)	(211)	(217)	(204)	(185)	(135)	(67)	(22)	(1)	\$ -	\$ (1,850)
114	(Over)/Under Balance	-In 107 +In 108 + In 112	\$	(42,277)	\$ (42,053)	\$ (41,822)	\$ (49,266)	\$ (49,084)	\$ (48,893)	\$ (48,709)	\$ (45,904)	\$ (37,181)	\$ (23,446)	\$ (8,820)	\$ (1,013)	\$ 415	\$ 2,218
116	Forecast Therm Sales	In 52								1,706,497	13,193,992	18,669,469	20,004,731	17,038,873	11,854,190	5,320,757	87,788,508
117	Unbilled Therm	In 55								7,894,948	3,610,637	1,990,600	(800,872)	(1,363,134)	(3,006,773)		
118	Gross Unbilled									7,894,948	11,505,585	13,495,184	12,695,313	11,332,179	8,325,406		
120	Working Cap. Rate w/out Int.	Sch. 3, pg. 4, In 224 col. (c)								\$0.0006	\$0.0006	\$0.0006	\$0.0006	\$0.0006	\$0.0006	\$0.0006	
122	Working Capital Rate w/ Int.	Sch. 3, pg. 4, In 224 col. (d)								\$0.0006	\$0.0006	\$0.0006	\$0.0006	\$0.0006	\$0.0006	\$0.0006	

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.
2 d/b/a Liberty Utilities
3 Peak 2019 - 2020 Winter Cost of Gas Filing
4 COG (Over)/Under Cumulative Recovery Balances and Interest Calculation

Schedule 3
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		Prior Period Bal	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Demand
	Days in Month	Apr-19	31	30	31	31	30	31	30	31	31	29	31	30	31	Total
(a)	(b)	Ending Bal + May Collections	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)
Account 1920-1743 Bad Debt (Over)/Under Balance - Interest Calculation																
Forecast Direct Gas Costs	In 34	\$ 195,391	\$ 195,391	\$ 195,391	\$ 195,391	\$ 195,391	\$ 195,391	\$ 195,391	\$ 4,271,943	\$ 9,250,508	\$12,794,224	\$12,769,604	\$ 8,395,143	\$ 3,281,906	\$ -	51,935,672
Forecast Working Capital	In 101	420	420	401	401	401	401	401	(33,507)	18,991	26,266	26,216	17,235	6,738		64,383
Prior Period Balance	In 42								318,702	318,702	318,702	318,702	318,702	318,702		1,912,210
Total Forecast Direct Gas Costs & Working Capital		195,811	195,811	195,792	195,792	195,792	195,792	195,792	4,557,137	9,588,201	13,139,191	13,114,521	8,731,080	3,607,345	-	52,000,056
Beginning Balance	Account 1920-1743 1/	\$ (402,518)	\$ (402,518)	\$ (402,220)	\$ (401,859)	\$ (434,370)	\$ (434,129)	\$ (433,824)	\$ (433,580)	\$ (668,612)	\$ (1,061,768)	\$ (1,531,163)	\$ (1,959,371)	\$ (2,334,442)	\$ (2,565,949)	\$ (402,518)
Forecast Bad Debt	In 135 * 0.0111	2,174	2,174	2,173	2,173	2,173	2,173	2,173	50,584	106,429	145,845	145,571	96,915	40,042		598,426
Projected Revenues w/o int	In 178 * In 182	-	-	-	-	-	-	-	(50,342)	(389,223)	(550,749)	(590,140)	(502,647)	(349,699)	(156,962)	(2,589,761)
Projected Unbilled Revenue									(232,901)	(339,415)	(398,137)	(374,512)	(334,299)	(245,599)		(1,924,864)
Reverse Prior Month Unbilled										232,901	339,415	398,137	374,512	334,299	245,599	1,924,864
Bad Debt Billed	Account 1920-1743 2/	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Add Net Adjustments		-	-	(32,824)	-	-	-	-	-	-	-	-	-	-	-	(32,824)
Monthly (Over)/Under Recovery		\$ (402,518)	\$ (400,344)	\$ (400,046)	\$ (432,510)	\$ (432,197)	\$ (431,956)	\$ (431,651)	\$ (666,239)	\$ (1,057,919)	\$ (1,525,395)	\$ (1,952,106)	\$ (2,324,890)	\$ (2,555,399)	\$ (2,477,312)	\$ (2,426,677)
Average Monthly Balance	(In 137 + In 149)/2	\$ (401,431)	\$ (401,133)	\$ (417,185)	\$ (433,284)	\$ (433,042)	\$ (432,738)	\$ (432,738)	\$ (549,910)	\$ (863,265)	\$ (1,293,582)	\$ (1,741,635)	\$ (2,142,130)	\$ (2,444,920)	\$ (2,521,630)	
Interest Rate	Prime Rate	5.50%	5.50%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	
Interest Applied	In 151 * In 153 / 365 * Days of Month	\$ (1,875)	\$ (1,813)	\$ (1,860)	\$ (1,932)	\$ (1,869)	\$ (1,930)	\$ (1,930)	\$ (2,373)	\$ (3,849)	\$ (5,768)	\$ (7,265)	\$ (9,552)	\$ (10,550)		\$ (50,635)
(Over)/Under Balance	In 149 + In 155	\$ (402,518)	\$ (402,220)	\$ (401,859)	\$ (434,370)	\$ (434,129)	\$ (433,824)	\$ (433,580)	\$ (668,612)	\$ (1,061,768)	\$ (1,531,163)	\$ (1,959,371)	\$ (2,334,442)	\$ (2,565,949)	\$ (2,477,312)	\$ (2,477,312)
Calculation of Bad Debt with Interest																
Beginning Balance	In 137	\$ (402,518)	\$ (402,518)	\$ (402,220)	\$ (401,859)	\$ (401,473)	\$ (401,085)	\$ (400,638)	\$ (400,246)	\$ (635,139)	\$ (1,028,155)	\$ (1,497,550)	\$ (1,925,757)	\$ (2,300,828)	\$ (2,532,335)	\$ (402,518)
Forecast Bad Debt	In 139	2,174	2,174	2,173	2,173	2,173	2,173	2,173	50,584	106,429	145,845	145,571	96,915	40,042	-	598,426
Projected Revenues with int.	In 178 * In 184	-	-	-	-	-	-	-	(50,342)	(389,223)	(550,749)	(590,140)	(502,647)	(349,699)	(156,962)	(2,589,761)
Projected Unbilled Revenue									(232,901)	(339,415)	(398,137)	(374,512)	(334,299)	(245,599)		(1,924,864)
Reverse Prior Month Unbilled										232,901	339,415	398,137	374,512	334,299	245,599	1,924,864
Bad Debt Billed	In 145	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Add Interest	In 155	-	-	-	-	-	-	-	(2,373)	(3,849)	(5,768)	(7,265)	(9,552)	(10,550)	-	(39,356)
Add Net Adjustments	In 147	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
Monthly (Over)/Under Recovery		\$ (402,518)	\$ (400,344)	\$ (400,046)	\$ (399,686)	\$ (399,300)	\$ (398,912)	\$ (398,464)	\$ (635,277)	\$ (1,028,295)	\$ (1,497,550)	\$ (1,925,757)	\$ (2,300,828)	\$ (2,532,335)	\$ (2,443,698)	\$ (2,433,209)
Average Monthly Balance		\$ (401,431)	\$ (401,133)	\$ (400,773)	\$ (400,386)	\$ (399,998)	\$ (399,551)	\$ (399,551)	\$ (517,762)	\$ (831,717)	\$ (1,262,852)	\$ (1,711,653)	\$ (2,113,292)	\$ (2,416,582)	\$ (2,488,017)	
Interest Applied	In 153 * In 172 / 365 * Days of Month	(1,875)	(1,813)	(1,787)	(1,785)	(1,726)	(1,782)	(1,782)	(2,234)	(3,709)	(5,768)	(7,265)	(9,552)	(10,550)	-	\$ (49,845)
(Over)/Under Balance	-In 168 + In 170 + In 174	\$ (402,518)	\$ (402,220)	\$ (401,859)	\$ (401,473)	\$ (401,085)	\$ (400,638)	\$ (400,246)	\$ (635,139)	\$ (1,028,155)	\$ (1,497,550)	\$ (1,925,757)	\$ (2,300,828)	\$ (2,532,335)	\$ (2,443,698)	\$ (2,443,698)
Forecast Term Sales	In 52								1,706,497	13,193,992	18,669,469	20,004,731	17,038,873	11,854,190	5,320,757	87,788,508
Unbilled Term	In 55								7,894,948	3,610,637	1,990,600	(800,872)	(1,363,134)	(3,006,773)		
Gross Unbilled									7,894,948	11,505,585	13,496,184	12,695,313	11,332,179	8,325,406		
COG Rate Without Interest	Sch. 3, pg. 4, In 241 col. (c)								\$0.0295	\$0.0295	\$0.0295	\$0.0295	\$0.0295	\$0.0295	\$0.0295	
COG With Interest	Sch. 3, pg. 4, In 241 col. (d)								\$0.0295	\$0.0295	\$0.0295	\$0.0295	\$0.0295	\$0.0295	\$0.0295	
Total Interest	Ins 46 + 112 + 174	\$ -	\$ 7,317	\$ 6,198	\$ 5,220	\$ 6,109	\$ 6,793	\$ 7,932	\$ 2,870	\$ (8,225)	\$ (17,758)	\$ (22,133)	\$ (32,239)	\$ (44,036)	\$ -	\$ (81,952)

Liberty Utilities (EnergyNorth Natural Gas) Corp.
d/b/a Liberty Utilities
Peak 2019 - 2020 Winter Cost of Gas Filing
Adjustments to Gas Costs

REDACTED
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Adjustments (a)	Prior Period Adjustments (b)	Refunds from Suppliers (c)	Broker Revenue (d)	Inventory Finance Charges (e)	Transportation CGA Revenues (Schedule 17) (f)	Interruptible Sales Margin (g)	Off System Sales Margin (h)	Capacity Release (i)	Net Option Premiums (j)	Fixed Price Option Administrative Costs (k)	Total Adjustments (m)
May-19	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -
Jun-19	-	-	-	-	-	-	-		-	-	-
Jul-19 1/	-	-	-	-	-	-	-		-	-	-
Aug-19 1/	-	-	-	-	-	-	-		-	-	-
Sep-19 1/	-	-	-	-	-	-	-		-	-	-
Oct-19 1/	-	-	-	-	-	-	-		-	-	-
Nov-19 1/	-	-	45,338	-	(5,457)	-	-		-	45,000	(229,694)
Dec-19 1/	-	-	93,826	-	(6,909)	-	-		-	-	(240,731)
Jan-20 1/	-	-	200,797	-	(8,641)	-	-		-	-	(117,820)
Feb-20 1/	-	-	(188,088)	-	(9,026)	-	-		-	-	(507,673)
Mar-20 1/	-	-	(97,784)	-	(8,058)	-	-		-	-	(418,971)
Apr-20 1/	-	-	(85,012)	-	(6,799)	-	-		-	-	(391,409)
Subtotal May 19 - Oct 19	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Nov 19 - Apr 20	\$ -	\$ -	\$ (30,924)	\$ -	\$ (44,891)	\$ -	\$ -	\$ (1,875,483)	\$ -	\$ 45,000	\$ (1,906,298)
Total Peak Period	\$ -	\$ -	\$ (30,924)	\$ -	\$ (44,891)	\$ -	\$ -	\$ (1,875,483)	\$ -	\$ 45,000	\$ (1,906,298)

1/ Estimates are based on prior years actual, except transportation revenue is calculated on Schedule 17. and Inventory Finance Charges for Nov 12 - Apr 13 calculated on Schedule 16

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.
2 d/b/a Liberty Utilities
3 Peak 2019 - 2020 Winter Cost of Gas Filing
4 Demand Costs

REDACTED
Schedule 5A
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			Deferred to Peak May 19-Oct 19 (d)	Nov-19 (e)	Dec-19 (f)	Jan-20 (g)	Feb-20 (h)	Mar-20 (i)	Apr-20 (j)	Peak Nov-Apr Total (k)
(a)	(b)	(c)								
11 Supply										
12 Niagara Supply		Sch 5B, In 9 * Sch 5C In 9 x days								
13 Subtotal Supply Demand & Reservation Charges										
14										
15 Pipeline										
16 Iroquois Gas Trans Service RTS 470-0		Sch 5B, In 12 * Sch 5C In 12 x days								
17 Tenn Gas Pipeline 95346 Z5-Z6		Sch 5B, In 13 * Sch 5C In 14 x days								
18 Tenn Gas Pipeline 2302 Z5-Z6		Sch 5B, In 14 * Sch 5C In 16 x days								
19 Tenn Gas Pipeline 8587 Z0-Z6		Sch 5B, In 15 * Sch 5C In 18 x days								
20 Tenn Gas Pipeline 8587 Z1-Z6		Sch 5B, In 16 * Sch 5C In 20 x days								
21 Tenn Gas Pipeline 8587 Z4-Z6		Sch 5B, In 17 * Sch 5C In 22 x days								
22 Tenn Gas Pipeline (Dracut) 42076 Z6-Z6		Sch 5B, In 18 * Sch 5C In 24 x days								
23 Tenn Gas Pipeline (Concord Lateral) Z6-Z6		Sch 5B, In 19 * Sch 5C In 26 x days								
24 Portland Natural Gas Trans Service		Sch 5B, In 20 * Sch 5C In 28 x days								
25 Portland Natural Gas		Sch 5B, In 21 * Sch 5C In 29 x days								
26 ANE (TransCanada via Union to Iroquois)		Sch 5B, In 22 * Sch 5C In 30 x days								
27 TransCanada via Union to Portland		Sch 5B, In 23 * Sch 5C In 31 x days								
28 Tenn Gas Pipeline Z4-Z6 stg 632	peak	Sch 5B, In 24 * Sch 5C In 32 x days								
29 Tenn Gas Pipeline Z4-Z6 stg 11234	peak	Sch 5B, In 25 * Sch 5C In 34 x days								
30 Tenn Gas Pipeline Z5-Z6 stg 11234	peak	Sch 5B, In 26 * Sch 5C In 36 x days								
31 National Fuel FST 2358	peak	Sch 5B, In 27 * Sch 5C In 38 x days								
32										
33 Subtotal Pipeline Demand Charges			\$ 1,286,027	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476	\$ 1,464,476	\$ 10,072,882
34										
35 Peaking Supply										
36 Tenn Gas Pipeline (Concord Lateral) Z6-Z6	peak	Sch 5B, In 30 * Sch 5C In 26 x days								
37 Demand FLS	peak	Per Contract								
38 Constellation Demand	peak	Per Contract								
39 Subtotal Peaking Demand Charges			\$ -	\$ 891,966	\$ 891,966	\$ 891,966	\$ 891,966	\$ 891,966	\$ -	\$ 4,459,829
40										
41 Subtotal Supply, Pipeline & Peaking		In 13 + In 33 + In 39	\$ 1,286,027	\$ 2,356,442	\$ 2,356,442	\$ 2,356,442	\$ 2,356,442	\$ 2,356,442	\$ 1,464,476	\$ 14,532,711
42										
43 Less Transportation Capacity Credit			\$ (524,442)	\$ (685,018)	\$ (685,018)	\$ (685,018)	\$ (685,018)	\$ (685,018)	\$ (425,723)	\$ (4,375,253)
44										
45 Total Supply, Pipeline & Peaking Demand			\$ 761,585	\$ 1,671,424	\$ 1,671,424	\$ 1,671,424	\$ 1,671,424	\$ 1,671,424	\$ 1,038,753	\$ 10,157,458
46										
47										
48 Dominion - Demand	peak	Sch 5B, In 35 * Sch 5C In 62 x days	\$ 10,464	\$ 1,744	\$ 1,744	\$ 1,744	\$ 1,744	\$ 1,744	\$ 1,744	\$ 20,929
49 Dominion - Storage	peak	Sch 5B, In 36 * Sch 5C In 63 x days	8,935	1,489	1,489	1,489	1,489	1,489	1,489	17,870
50 Honeoye - Demand	peak	Sch 5B, In 37 * Sch 5C In 66 x days	50,105	8,351	8,351	8,351	8,351	8,351	8,351	100,211
51 National Fuel - Demand	peak	Sch 5B, In 39 * Sch 5C In 68 x days	91,371	15,229	15,229	15,229	15,229	15,229	15,229	182,742
52 National Fuel - Capacity	peak	Sch 5B, In 40 * Sch 5C In 69 x days	153,747	25,625	25,625	25,625	25,625	25,625	25,625	307,495
53 Tenn Gas Pipeline - Demand	peak	Sch 5B, In 41 * Sch 5C In 72 x days	191,747	31,958	31,958	31,958	31,958	31,958	31,958	383,493
54 Tenn Gas Pipeline - Capacity	peak	Sch 5B, In 42 * Sch 5C In 73 x days	187,247	31,208	31,208	31,208	31,208	31,208	31,208	374,494
55										
56 Subtotal Storage Demand Costs			\$ 693,617	\$ 115,603	\$ 115,603	\$ 115,603	\$ 115,603	\$ 115,603	\$ 115,603	\$ 1,387,233
57										
58 Less Transportation Capacity Credit			\$ (282,857)	\$ (33,606)	\$ (33,606)	\$ (33,606)	\$ (33,606)	\$ (33,606)	\$ (33,606)	\$ (484,491)
59										
60 Total Storage Demand Costs		In 56 + In 58	\$ 410,760	\$ 81,997	\$ 81,997	\$ 81,997	\$ 81,997	\$ 81,997	\$ 81,997	\$ 902,742
61										
62 Total Demand Charges		In 41 + In 56	\$ 1,979,644	\$ 2,472,044	\$ 2,472,044	\$ 2,472,044	\$ 2,472,044	\$ 2,472,044	\$ 1,580,079	\$ 15,919,945
63										
64 Total Transportation Capacity Credit		In 43 + In 58	\$ (807,299)	\$ (718,623)	\$ (718,623)	\$ (718,623)	\$ (718,623)	\$ (718,623)	\$ (459,329)	\$ (4,859,744)
65										
66 Total Demand Charges less Cap. Cr.		In 62 + In 64	\$ 1,172,345	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,753,421	\$ 1,120,750	\$ 11,060,200
67										
68										

REDACTED

Liberty Utilities (EnergyNorth Natural Gas) Corp.
d/b/a Liberty Utilities
Peak 2019 - 2020 Winter Cost of Gas Filing
Demand Volumes

Schedule 5B
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	(a)	Peak (b)	Reference (c)	Nov-19 (d)	Dec-19 (e)	Jan-20 (f)	Feb-20 (g)	Mar-20 (h)	Apr-20 (i)
Supply									
	Niagara Supply			-	-	-	-	-	-
Pipeline									
	Iroquois Gas Trans Service		RTS 470-01	4,047	4,047	4,047	4,047	4,047	4,047
	Tenn Gas Pipeline		95346 Z5-Z6	4,000	4,000	4,000	4,000	4,000	4,000
	Tenn Gas Pipeline		2302 Z5-Z6	3,122	3,122	3,122	3,122	3,122	3,122
	Tenn Gas Pipeline (long haul)		8587 Z0-Z6	7,035	7,035	7,035	7,035	7,035	7,035
	Tenn Gas Pipeline (long haul)		8587 Z1-Z6	14,561	14,561	14,561	14,561	14,561	14,561
	Tenn Gas Pipeline (short haul)		8587 Z4-Z6	3,811	3,811	3,811	3,811	3,811	3,811
	Tenn Gas Pipeline		42076 FTA Z6-Z6	20,000	20,000	20,000	20,000	20,000	20,000
	Tenn Gas Pipeline (Concord Lateral)		Firm Transportation	30,000	30,000	30,000	30,000	30,000	30,000
	Portland Natural Gas Trans Service		FT-208544	1,000	1,000	1,000	1,000	1,000	1,000
	Portland Natural Gas		FT 210347	4,432	4,432	4,432	4,432	4,432	4,432
	ANE (TransCanada via Union to Iroquois)		Union Parkway to Iroquois	4,047	4,047	4,047	4,047	4,047	4,047
	TransCanada via Union to Portland		Union Parkway to Portland	4,432	4,432	4,432	4,432	4,432	4,432
	Tenn Gas Pipeline (short haul)	peak	632 Z4-Z6 (stg)	15,265	15,265	15,265	15,265	15,265	15,265
	Tenn Gas Pipeline (short haul)	peak	11234 Z4-Z6(stg)	7,082	7,082	7,082	7,082	7,082	7,082
	Tenn Gas Pipeline (short haul)	peak	11234 Z5-Z6(stg)	1,957	1,957	1,957	1,957	1,957	1,957
	National Fuel	peak	FST N02358	6,098	6,098	6,098	6,098	6,098	6,098
Peaking									
	Tenn Gas Pipeline (Concord Lateral)	peak		-	-	-	-	-	-
	Demand FLS	peak		3,000	3,000	3,000	3,000	3,000	-
	Peaking Demand	peak	NSB041	7,000	7,000	7,000	7,000	7,000	-
Storage									
	Dominion - Demand	peak	GSS 300076	934	934	934	934	934	934
	Dominion - Capacity Reservation	peak	GSS 300076	102,700	102,700	102,700	102,700	102,700	102,700
	Honeoye - Demand	peak	SS-NY	1,362	1,362	1,362	1,362	1,362	1,362
	Honeoye - Capacity	peak	SS-NY	245,380	245,380	245,380	245,380	245,380	245,380
	National Fuel - Demand	peak	FSS-O02357	6,098	6,098	6,098	6,098	6,098	6,098
	National Fuel - Capacity Reservation	peak	FSS-O02357	670,800	670,800	670,800	670,800	670,800	670,800
	Tenn Gas Pipeline - Demand	peak	FS-MA 523	21,844	21,844	21,844	21,844	21,844	21,844
	Tenn Gas Pipeline - Cap. Reservations	peak	FS-MA 523	1,560,391	1,560,391	1,560,391	1,560,391	1,560,391	1,560,391

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 d/b/a Liberty Utilities

3 Peak 2019 - 2020 Winter Cost of Gas Filing

4 Demand Rates

5

6 Tariff Rates

7

8 Supply

9 Niagara Supply

10

11 Pipeline

					Nov-19 30 Unit Rate	Dec-19 31 Unit Rate	Jan-20 31 Unit Rate	Feb-20 29 Unit Rate	Mar-20 31 Unit Rate	Apr-20 30 Unit Rate	Nov - Apr 182 Avg Rate
12	Iroquois Gas Trans Service	RTS 470-01	\$ 5.4177	Forth Revised Sheet No. 4	\$ 0.1806	\$ 0.1748	\$ 0.1748	\$ 0.1868	\$ 0.1748	\$ 0.1806	\$ 0.1787
13											
14	Tenn Gas Pipeline	95346 Z5-Z6	\$ 7.0050	13th Rev Sheet No. 14	\$ 0.2335	\$ 0.2260	\$ 0.2260	\$ 0.2416	\$ 0.2260	\$ 0.2335	\$ 0.2311
15											
16	Tenn Gas Pipeline	2302 Z5-Z6	\$ 7.0050	13th Rev Sheet No. 14	\$ 0.2335	\$ 0.2260	\$ 0.2260	\$ 0.2416	\$ 0.2260	\$ 0.2335	\$ 0.2311
17											
18	Tenn Gas Pipeline	8587 Z0-Z6	\$ 22.7344	FT-A (Z0 - Z6)	\$ 0.7578	\$ 0.7334	\$ 0.7334	\$ 0.7839	\$ 0.7334	\$ 0.7578	\$ 0.7499
19											
20	Tenn Gas Pipeline	8587 Z1-Z6	\$ 20.1801	FT-A (Z1 - Z6)	\$ 0.6727	\$ 0.6510	\$ 0.6510	\$ 0.6959	\$ 0.6510	\$ 0.6727	\$ 0.6657
21											
22	Tenn Gas Pipeline	8587 Z4-Z6	\$ 7.9757	FT-A (Z4 - Z6)	\$ 0.2659	\$ 0.2573	\$ 0.2573	\$ 0.2750	\$ 0.2573	\$ 0.2659	\$ 0.2631
23											
24	TGP Dracut	42076 FTA Z6-Z6	\$ 4.6431	13th Rev Sheet No. 14	\$ 0.1548	\$ 0.1498	\$ 0.1498	\$ 0.1601	\$ 0.1498	\$ 0.1548	\$ 0.1532
25											
26	TGP Concord Lateral	Firm Transportatio	\$ 12.1868	Per contract	\$ 0.4062	\$ 0.3931	\$ 0.3931	\$ 0.4202	\$ 0.3931	\$ 0.4062	\$ 0.4020
27											
28	Portland Natural Gas	FT-208544	\$ 18.2633	Dmd is Negot/CMDY=Part 4.1 \	\$ 0.6088	\$ 0.5891	\$ 0.5891	\$ 0.6298	\$ 0.5891	\$ 0.6088	\$ 0.6025
29											
30	Portland Natural Gas	FT 210347	\$ 22.8125	Dmd is Negot/CMDY=Part 4.1 \	\$ 0.7604	\$ 0.7359	\$ 0.7359	\$ 0.7866	\$ 0.7359	\$ 0.7604	\$ 0.7525
31											
32	Tenn Gas Pipeline	632 Z4-Z6 (stg)	\$ 7.9757	13th Rev Sheet No. 14	\$ 0.2659	\$ 0.2573	\$ 0.2573	\$ 0.2750	\$ 0.2573	\$ 0.2659	\$ 0.2631
33											
34	Tenn Gas Pipeline	11234 Z4-Z6(stg)	\$ 7.9757	13th Rev Sheet No. 14	\$ 0.2659	\$ 0.2573	\$ 0.2573	\$ 0.2750	\$ 0.2573	\$ 0.2659	\$ 0.2631
35											
36	Tenn Gas Pipeline	11234 Z5-Z6(stg)	\$ 7.0050	13th Rev Sheet No. 14	\$ 0.2335	\$ 0.2260	\$ 0.2260	\$ 0.2416	\$ 0.2260	\$ 0.2335	\$ 0.2311
37											
38	National Fuel	FST N02358	\$ 3.6727	4.010 Version 24.0.1 Pg 1	\$ 0.1224	\$ 0.1185	\$ 0.1185	\$ 0.1266	\$ 0.1185	\$ 0.1224	\$ 0.1212
39											
40											

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Schedule 5C

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Schedule 5C

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3 Peak 2019 - 2020 Winter Cost of Gas Filing

41	ANE	Union Gas		\$	3.7160																
42		TransCanada Pipelines Limited		\$	9.5229	Union Parkway to Iroquois															
43		Delivery Pressure Demand Charge		\$	0.6704	Union Parkway to Iroquois															
44		Sub Total Demand Charges		\$	13.9092																
45		Conversion rate GJ to MMBTU		\$	1.0551																
46		Conversion rate to US\$		\$	1.3329	updated 7/10/19															
47		Demand Rate/US\$		\$	11.0099			\$	0.3670	\$	0.3552	\$	0.3552	\$	0.3797	\$	0.3552	\$	0.3670	\$	0.3632
48																					
49		Union Gas		\$	3.7160																
50		TransCanada Pipelines Limited		\$	16.0673	Union Parkway to Portland															
51		Delivery Pressure Demand Charge		\$	0.6704	Union Parkway to Portland															
52		Sub Total Demand Charges		\$	20.4537																
53		Conversion rate GJ to MMBTU		\$	1.0551																
54		Conversion rate to US\$		\$	1.3329	updated 7/10/19															
55		Demand Rate/US\$		\$	16.1902			\$	0.5397	\$	0.5223	\$	0.5223	\$	0.5583	\$	0.5223	\$	0.5397	\$	0.5341
56																					
57	Peaking																				
58		Demand FLS																			
59		Subtotal Peaking Demand Charges																			
60																					
61	Storage																				
62		Dominion - Demand	GSS 300076	\$	1.8673	GSS Settled,Tariff Rec #10.30 \	\$	0.0622	\$	0.0602	\$	0.0602	\$	0.0644	\$	0.0602	\$	0.0622	\$	0.0615	
63		Dominion - Capacity	GSS 300076	\$	0.0145	GSS Settled,Tariff Rec #10.30 \	\$	0.0005	\$	0.0005	\$	0.0005	\$	0.0005	\$	0.0005	\$	0.0005	\$	0.0005	
64				\$	1.8818		\$	0.0627	\$	0.0607	\$	0.0607	\$	0.0649	\$	0.0607	\$	0.0627	\$	0.0619	
65																					
66		Honeoye - Demand	SS-NY	\$	6.1299	Sub 1st Rev Sheet No. 5	\$	0.2043	\$	0.1977	\$	0.1977	\$	0.2114	\$	0.1977	\$	0.2043	\$	0.2018	
67																					
68		National Fuel - Demand	FSS-O02357	\$	2.4973	4.020 Version 19.0.0 Pg 1	\$	0.0832	\$	0.0806	\$	0.0806	\$	0.0861	\$	0.0806	\$	0.0832	\$	0.0822	
69		National Fuel - Capacity	FSS-O02357	\$	0.0382	4.020 Version 19.0.0 Pg 1	\$	0.0013	\$	0.0012	\$	0.0012	\$	0.0013	\$	0.0012	\$	0.0013	\$	0.0013	
70				\$	2.5355		\$	0.0845	\$	0.0818	\$	0.0818	\$	0.0874	\$	0.0818	\$	0.0845	\$	0.0835	
71																					
72		Tenn Gas Pipeline	FS-MA 523	\$	1.4630	16th Rev Sheet No.61	\$	0.0488	\$	0.0472	\$	0.0472	\$	0.0504	\$	0.0472	\$	0.0488	\$	0.0482	
73		Tenn Gas Pipeline - Space	FS-MA 523	\$	0.0200	16th Rev Sheet No.61	\$	0.0007	\$	0.0006	\$	0.0006	\$	0.0007	\$	0.0006	\$	0.0007	\$	0.0007	
74					1.4830		\$	0.0494	\$	0.0478	\$	0.0478	\$	0.0511	\$	0.0478	\$	0.0494	\$	0.0488	

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FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426

FY 2019 GAS ANNUAL CHARGES
CORRECTION FOR ANNUAL CHARGES UNIT CHARGE
June 18, 2019

The annual charges unit charge (ACA) to be applied to in fiscal year 2020 for recovery of FY 2019 Current year and 2018 True-Up is **\$0.0013** per Dekatherm (Dth). The new ACA surcharge will become effective October 1, 2019.

The following calculations were used to determine the FY 2019 unit charge:

2019 CURRENT:

Estimated Program Cost \$72,947,000 divided by 56,271,363,511 Dth = 0.0012963432

2018 TRUE-UP:

Debit/Credit Cost (\$1,595,692) divided by 49,876,999,197 Dth = (0.0000319925)

TOTAL UNIT CHARGE = 0.0012643507

If you have any questions, please contact Raven A. Rodriguez at (202)502-6276 or e-mail at Raven.Rodriguez@ferc.gov.

PUBLIC

Dominion Energy Transmission, Inc.
FERC Gas Tariff
Fifth Revised Volume No. 1

GSS, GSS-E & ISS Rates - Settled Parties
Tariff Record No. 10.30.
Version 4.0.0
Superseding Version 3.0.0

APPLICABLE TO SETTLING PARTIES PURSUANT TO THE DECEMBER 6, 2013 STIPULATION
IN DOCKET NO. RP14-262

(FOR RATES APPLICABLE TO SEVERED PARTIES IN THE ABOVE REFERENCED DOCKETS SEE TARIFF RECORD 10.31)

RATES APPLICABLE TO RATE SCHEDULES IN
FERC GAS TARIFF, VOLUME NO. 1
(\$ per DT)

Rate Schedule	Rate Component	Base Tariff Rate [1]	Current Acct 858 Base	Current EPCA Base	TCRA [5] Surcharge	EPCA [6] Surcharge	Current Rate [7]	FERC ACA
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GSS [2], [4]								
	Storage Demand	\$1.7984	\$0.0668	\$0.0050	(\$0.0032)	\$0.0003	\$1.8673	-
	Storage Capacity	\$0.0145	-	-	-	-	\$0.0145	-
	Injection Charge	\$0.0154	-	\$0.0136	\$0.0000	(\$0.0003)	\$0.0287	-
	Withdrawal Charge	\$0.0154	-	-	\$0.0000	(\$0.0003)	\$0.0151	[8]
	GSS-TE Surcharge [3]	-	\$0.0046	-	(\$0.0002)	-	\$0.0044	-
	From Customers Balance	\$0.6163	\$0.0144	\$0.0011	(\$0.0007)	(\$0.0002)	\$0.6309	[8]
GSS-E [2], [4]								
	Storage Demand	\$2.2113	\$0.0668	\$0.0050	(\$0.0032)	\$0.0003	\$2.2802	-
	Storage Capacity	\$0.0369	-	-	-	-	\$0.0369	-
	Injection Charge	\$0.0154	-	\$0.0136	\$0.0000	(\$0.0003)	\$0.0287	-
	Withdrawal Charge	\$0.0154	-	-	\$0.0000	(\$0.0003)	\$0.0151	[8]
	Authorized Overruns	\$1.0657	\$0.0144	\$0.0011	(\$0.0007)	(\$0.0002)	\$1.0803	[8]
ISS [2]								
	ISS Capacity	\$0.0736	\$0.0022	\$0.0002	(\$0.0001)	\$0.0000	\$0.0759	-
	Injection Charge	\$0.0154	-	\$0.0136	\$0.0000	(\$0.0003)	\$0.0287	-
	Withdrawal Charge	\$0.0154	-	-	\$0.0000	(\$0.0003)	\$0.0151	[8]
	Authorized Overrun/from Cust. Bal	\$0.6163	\$0.0144	\$0.0011	(\$0.0007)	(\$0.0002)	\$0.6309	[8]
	Excess Injection Charge	\$0.2245	-	\$0.0136	\$0.0000	(\$0.0003)	\$0.2378	-

[1] The base tariff rate is the effective rate on file with the FERC, excluding adjustments approved by the Commission.

[2] Storage Service Fuel Retention Percentage is 1.67% plus Adders of 0.28% (RP00-632 S&A approved 9/13/01) totaling 1.95%.

[3] Applies to withdrawals made under Rate Schedule GSS, Section 5.1.G.

[4] Daily Capacity Release Rate for GSS per Dt is \$0.6158. Daily Capacity Release Rate for GSS-E per Dt is \$1.0652.

[5] 858 over/under from previous TCRA period.

[6] Electric over/under from previous EPCA period.

[7] The Current Rate shall be increased for the Annual Charge Adjustment (ACA) as applicable.

[8] The applicable ACA rate is set forth on the FERC website (<http://www.ferc.gov/industries/gas/annual-charges.asp>).

View Contract

Schedule 5D
Page 3 of 15

General Information

Customer Energy North Natural Gas Inc.	Contract Category Storage	Contract Number EN-11234	Service Type FT	Status Active	Currency USD
Deal Maker Richard Norman	Deal Date 01/17/1998	Deal Time (hh:mm) 08:00	Master Agreement - None -		Units Dth
Contact Name Sarah Finegan	Contact Number 1 603-2163569	Contact Number 2	Contact Email sarah.finegan@libertyutilities.com		

Contract Dates

Effective Date (First Gas Day)
05/01/2010

Termination Date (Last Gas Day)
01/01/2050

Nomination Deadlines

Day Before Flow Deadline
(hh:mm 24-hr CCT)

Day of Flow Deadline
(hh:mm 24-hr CCT)

Transaction Types and Rates

Transaction Type	Allow Transaction		Use Hourly Profiles	Volumetric Charge (\$/Dth)	Other Rate (\$/Dth)	Fuel Percentage	Invoice Qty Type
	Yes	No					
Storage Injection	*			0	0	0	Sch Qty
Storage Withdrawal	*			0	0	0	Sch Qty
Authorized Injection Overrun	*			0	0	0	Sch Qty
Authorized Withdrawal Overrun	*			0	0	0	Sch Qty

Storage and Other Rates

☒ **Use Monthly Flat Storage Fee**
(\$/Month)

Monthly Flat Storage Fee Table

From	To	Rate
05/01/10	01/01/50	\$,350.89000

FERC Information

Capacity Release Contract: Yes * No
Shipper Affiliation: NONE
Maximum Tariff Rate: 0 OR Market Based Rates

Award:
Negotiated Rate Indicator: * Yes ☐ No ☐
Rate Schedule: 157

Contract Quantity Limits

Monthly MSQ Table

From	To	Max Qty	Min Qty
05/01/10	01/01/50	245,280	0

----- NON-EASTCHESTER RATES (All in \$ Per Dth) 1/ -----

	Minimum	RP16-301 Rates 2/ Maximum			RP19-445 Rates Maximum	
		Effective 9/1/2016	Effective 9/1/2017	Effective 9/1/2018	Effective 3/1/2019	Effective 4/1/2020
RTS DEMAND (Monthly):						
Zone 1	\$0.0000	\$ 6.1928	\$ 5.9982	\$ 5.5997	\$5.4177	\$5.2357
Zone 2	\$0.0000	\$ 5.3381	\$ 5.1678	\$ 4.7998	\$4.6438	\$4.4878
Inter-Zone	\$0.0000	\$10.4755	\$ 9.8672	\$ 8.8026	\$8.5165	\$8.2304
RTS COMMODITY (Daily):						
Zone 1	\$0.0034	\$ 0.0034	\$ 0.0034	\$ 0.0034	\$0.0034	\$0.0034
Zone 2	\$0.0022	\$ 0.0022	\$ 0.0022	\$ 0.0022	\$0.0022	\$0.0022
Inter-Zone	\$0.0056	\$ 0.0056	\$ 0.0056	\$ 0.0056	\$0.0056	\$0.0056
ITS COMMODITY (Daily):						
Zone 1	\$0.0034	\$ 0.2070	\$ 0.2006	\$ 0.1875	\$0.1815	\$0.1755
Zone 2	\$0.0022	\$ 0.1777	\$ 0.1721	\$ 0.1600	\$0.1549	\$0.1497
Inter-Zone	\$0.0056	\$ 0.3500	\$ 0.3300	\$ 0.2950	\$0.2856	\$0.2762
VOLUMETRIC CAPACITY RELEASE (Daily) 3/:						
Zone 1	\$0.0000	\$ 0.2036	\$ 0.1972	\$ 0.1841	\$0.1781	\$0.1721
Zone 2	\$0.0000	\$ 0.1755	\$ 0.1699	\$ 0.1578	\$0.1527	\$0.1475
Inter-Zone	\$0.0000	\$ 0.3444	\$ 0.3244	\$ 0.2894	\$0.2800	\$0.2706

**SEE SHEET NOS. 4A, 4B, AND 4C FOR ADJUSTMENTS TO RATES WHICH MAY BE APPLICABLE

(Footnotes continued on Sheet 4.01)

RATES FOR PART 284 STORAGE SERVICES

Rate Sch. (1)	Rate Component ^{1/} (2)	Rate ^{2/} (3)
ESS	Demand	(Max) \$2.4921 ^{5/}
		(Min) \$0.0000
	Capacity	(Max) \$0.0388 ^{6/}
		(Min) \$0.0000
	Injection/ Withdrawal	(Max) \$0.0411 plus ACA ^{3/}
		(Min) \$0.0000
	Storage Balance Transfer	(Max) ^{6/} \$3.8600
		(Min) ^{6/} \$0.0000
ISS	Injection	(Max) \$0.9923 plus ACA ^{3/}
		(Min) \$0.0000
	Storage Balance Transfer	(Max) ^{4/} \$3.8600
		(Min) ^{4/} \$0.0000
FSS	Demand	(Max) \$2.3833 ^{5/}
		(Min) \$0.0000
	Capacity	(Max) \$0.0366 ^{6/}
		(Min) \$0.0000
	Injection/ Withdrawal	(Max) \$0.0391 plus ACA ^{3/}
		(Min) \$0.0000
	Storage Balance Transfer	(Max) ^{4/} \$3.8600
		(Min) ^{4/} \$0.0000

1/ The unit of measure for each rate component is Dth unless otherwise indicated.

2/ All rates exclusive of Storage Operating and LAUF Retention, where applicable. The Storage Operating and LAUF Retention for all applicable rate schedules is 0.61%.

3/ Pursuant to Section 19 of the General Terms and Conditions, the ACA unit charge, as revised annually and posted on the Commission's website, will be charged in addition to the specified rate.

4/ Rate per nomination.

5/ Pursuant to Section 42 of the General Terms and Conditions, per Dth charge of \$0.1140 shall be added as a Storage PS/GHG Demand/Deliverability Surcharge, in addition to the specified rate.

6/ Pursuant to Section 42 of the General Terms and Conditions, per Dth charge of \$0.0016 shall be added as a Storage PS/GHG Capacity Surcharge, in addition to the specified rate.

RATES FOR TRANSPORTATION SERVICES

Rate Sch. (1)	Rate Component ^{1/} (2)		Base Rate (3)	TSCA (4)	TSCA Surch. (5)	Current Rate ^{2/} (6)
FT/FT-S						
	Reservation	(Max)	\$3.6293	-	-	\$3.6293 ^{4/}
		(Min)	0.0000	-	-	\$0.0000
	Commodity	(Max)	0.0135	-	-	\$0.0135 plus ACA ^{3/}
		(Min)	0.0135	-	-	\$0.0135 plus ACA ^{3/}
	Overrun	(Max)	0.1378	-	-	\$0.1378 plus ACA ^{3/}
		(Min)	0.0135	-	-	\$0.0135 plus ACA ^{3/}
EFT						
	Reservation	(Max)	3.8067	0.0000	0.0000	\$3.8067 ^{4/}
		(Min)	0.0000	0.0000	0.0000	\$0.0000
	Commodity	(Max)	0.0148	0.0000	0.0000	\$0.0148 plus ACA ^{3/}
		(Min)	0.0148	0.0000	0.0000	\$0.0148 plus ACA ^{3/}
	Overrun	(Max)	0.1452	-	-	\$0.1452 plus ACA ^{3/}
		(Min)	0.0148	-	-	\$0.0148 plus ACA ^{3/}
FST						
	Reservation	(Max)	3.6293	-	-	\$3.6293 ^{4/}
		(Min)	0.0000	-	-	\$0.0000
	Commodity	(Max)	0.0135	-	-	\$0.0135 plus ACA ^{3/}
		(Min)	0.0135	-	-	\$0.0135 plus ACA ^{3/}
	Overrun	(Max)	0.1378	-	-	\$0.1378 plus ACA ^{3/}
		(Min)	0.0135	-	-	\$0.0135 plus ACA ^{3/}
IT						
	Commodity	(Max)	\$0.1378	-	-	\$0.1378 plus ACA ^{3/}
		(Min)	0.0000	-	-	\$0.0000 plus ACA ^{3/}
	Overrun	(Max)	0.1378	-	-	\$0.1378 plus ACA ^{3/}
		(Min)	0.0000	-	-	\$0.0000 plus ACA ^{3/}

The NA15 Retention is 1.15% applicable to use of the Northern Access 2015 Lease. ^{2/ 3/}

^{1/} The unit of measure for each rate component is Dth unless otherwise indicated.

^{2/} All rates exclusive of Transportation Fuel and Company Use Retention and Transportation LAUF Retention. The Transportation Fuel and Company Use Retention for all applicable rate schedules is 0.99% and the Transportation LAUF Retention for all applicable rate schedules is 0.43%. Transporter may from time to time identify point pair transactions where the Transportation Fuel and Company Use Retention shall be zero ("Zero Fuel Point Pair Transactions"). Zero Fuel Point Pair Transactions will be assessed the applicable Transportation LAUF Retention.

^{3/} Pursuant to Section 19 of the General Terms and Conditions, the ACA unit charge, as revised annually and posted on the Commission's website, will be charged in addition to the specified rate.

^{4/} Pursuant to Section 42 of the General Terms and Conditions, per Dth charge of \$0.0434 shall be added as a Transmission PS/GIIG Surcharge, in addition to the specified rate.

Portland Natural Gas Transmission System
FERC Gas Tariff
Third Revised Volume No. 1.

PART 4.1
Part 4.1- Stmt of Rates
Recourse Reservation and Usage Rates
v.5.0.0 Superseding v.4.0.0

Statement of Transportation Rates
(Rates per DTH)

Rate Schedule	Rate Component	Base Rate	ACA Unit Charge 1/
FT	Recourse Reservation Rate		
	-- Maximum	\$25.9843	-----
	-- Minimum	\$00.0000	-----
	Seasonal Recourse Reservation Rate		
	-- Maximum	\$49.3701	-----
	-- Minimum	\$00.0000	-----
FT-FLEX	Recourse Usage Rate		
	-- Maximum	\$00.0000	2/
	-- Minimum	\$00.0000	2/
	Recourse Reservation Rate		
	--Maximum	\$17.4406	-----
	--Minimum	\$00.0000	-----
	Recourse Usage Rate		
	--Maximum	\$00.2809	2/
	--Minimum	\$00.0000	2/

The following adjustment applies to all Rate Schedules above:

MEASUREMENT VARIANCE:

Minimum down to -1.00%
Maximum up to +1.00%

- 1/ ACA assessed where applicable under Section 154.402 of the Commission's regulations and will be charged pursuant to Section 6.18 of the General Terms and Conditions at such time that initial and successive ACA assessments are made.
- 2/ The currently effective ACA unit charge as published on the Commission's website (www.ferc.gov) is incorporated herein by reference.

Issued: March 6, 2015
Effective: October 1, 2013

Docket No. RP11-1541-003
Accepted: March 31, 2015

Tennessee Gas Pipeline Company, L.L.C.
FERC NGA Gas Tariff
Sixth Revised Volume No. 1

Thirteenth Revised Sheet No. 14
Superseding
Twelfth Revised Sheet No. 14

RATES PER DEKATHERM

FIRM TRANSPORTATION RATES
RATE SCHEDULE FOR FT-A

Base Reservation Rates	RECEIPT ZONE	DELIVERY ZONE							
		0	L	1	2	3	4	5	6
	0	\$5.4269		\$11.3406	\$15.2546	\$15.5246	\$17.0584	\$18.1067	\$22.7176
	L		\$4.8178						
	1	\$8.1697		\$7.8313	\$10.4219	\$14.7637	\$14.5399	\$16.3977	\$20.1633
	2	\$15.2547		\$10.3593	\$5.3879	\$5.0367	\$6.4446	\$8.8638	\$11.4421
	3	\$15.5246		\$8.2056	\$5.4314	\$3.9184	\$6.0190	\$10.8858	\$12.5789
	4	\$19.7110		\$18.1718	\$6.9250	\$10.5240	\$5.1514	\$5.5711	\$7.9589
	5	\$23.5025		\$16.5148	\$7.2643	\$8.7898	\$5.7227	\$5.3680	\$6.9882
	6	\$27.1880		\$18.9685	\$13.0548	\$14.3818	\$10.1587	\$5.3443	\$4.6263

Daily Base Reservation Rate 1/	RECEIPT ZONE	DELIVERY ZONE							
		0	L	1	2	3	4	5	6
	0	\$0.1784		\$0.3728	\$0.5015	\$0.5104	\$0.5608	\$0.5953	\$0.7469
	L		\$0.1584						
	1	\$0.2686		\$0.2575	\$0.3426	\$0.4854	\$0.4780	\$0.5391	\$0.6629
	2	\$0.5015		\$0.3406	\$0.1771	\$0.1656	\$0.2119	\$0.2914	\$0.3762
	3	\$0.5104		\$0.2698	\$0.1786	\$0.1288	\$0.1979	\$0.3579	\$0.4136
	4	\$0.6480		\$0.5974	\$0.2277	\$0.3460	\$0.1694	\$0.1832	\$0.2617
	5	\$0.7727		\$0.5430	\$0.2388	\$0.2890	\$0.1881	\$0.1765	\$0.2297
	6	\$0.8939		\$0.6236	\$0.4292	\$0.4728	\$0.3340	\$0.1757	\$0.1521

Maximum Reservation Rates 2/, 3/	RECEIPT ZONE	DELIVERY ZONE							
		0	L	1	2	3	4	5	6
	0	\$5.4437		\$11.3574	\$15.2714	\$15.5414	\$17.0752	\$18.1235	\$22.7344
	L		\$4.8346						
	1	\$8.1865		\$7.8481	\$10.4387	\$14.7805	\$14.5567	\$16.4145	\$20.1801
	2	\$15.2715		\$10.3761	\$5.4047	\$5.0535	\$6.4614	\$8.8806	\$11.4589
	3	\$15.5414		\$8.2224	\$5.4482	\$3.9352	\$6.0358	\$10.9026	\$12.5957
	4	\$19.7278		\$18.1886	\$6.9418	\$10.5408	\$5.1682	\$5.5879	\$7.9757
	5	\$23.5193		\$16.5316	\$7.2811	\$8.8066	\$5.7395	\$5.3848	\$7.0050
	6	\$27.2048		\$18.9853	\$13.0716	\$14.3986	\$10.1755	\$5.3611	\$4.6431

Notes:

- 1/ Applicable to demand charge credits and secondary points under discounted rate agreements.
- 2/ Includes a per Dth charge for the PCB Surcharge Adjustment per Article XXXII of the General Terms and Conditions of \$0.0000.
- 3/ Includes a per Dth charge for the PS/GHG Surcharge Adjustment per Article XXXVIII of the General Terms and Conditions of \$0.0168.

Tennessee Gas Pipeline Company, L.L.C.,
FERC NGA Gas Tariff
Sixth Revised Volume No. 1

Fifteenth Revised Sheet No. 15
Superseding
Fourteenth Revised Sheet No. 15

RATES PER DEKATHERM

COMMODITY RATES
RATE SCHEDULE FOR FT-A

Base
Commodity Rates

RECEIPT ZONE	DELIVERY ZONE							
	0	L	1	2	3	4	5	6
0	\$0.0032		\$0.0115	\$0.0177	\$0.0219	\$0.2613	\$0.2494	\$0.2968
L		\$0.0012						
1	\$0.0042		\$0.0081	\$0.0147	\$0.0179	\$0.2222	\$0.2266	\$0.2587
2	\$0.0167		\$0.0087	\$0.0012	\$0.0719	\$0.0028	\$0.1153	\$0.1278
3	\$0.0207		\$0.0169	\$0.0026	\$0.0002	\$0.0961	\$0.1330	\$0.1452
4	\$0.0250		\$0.0205	\$0.0087	\$0.0105	\$0.0445	\$0.0629	\$0.1019
5	\$0.0284		\$0.0256	\$0.0100	\$0.0118	\$0.0626	\$0.0620	\$0.0770
6	\$0.0346		\$0.0300	\$0.0143	\$0.0163	\$0.0963	\$0.0522	\$0.0317

Minimum
Commodity Rates 1/, 2/, 3/

RECEIPT ZONE	DELIVERY ZONE							
	0	L	1	2	3	4	5	6
0	\$0.0032		\$0.0115	\$0.0177	\$0.0219	\$0.0250	\$0.0284	\$0.0346
L		\$0.0012						
1	\$0.0042		\$0.0081	\$0.0147	\$0.0179	\$0.0210	\$0.0256	\$0.0300
2	\$0.0167		\$0.0087	\$0.0012	\$0.0028	\$0.0056	\$0.0100	\$0.0143
3	\$0.0207		\$0.0169	\$0.0026	\$0.0002	\$0.0081	\$0.0118	\$0.0163
4	\$0.0250		\$0.0205	\$0.0087	\$0.0105	\$0.0028	\$0.0046	\$0.0092
5	\$0.0284		\$0.0256	\$0.0100	\$0.0118	\$0.0046	\$0.0046	\$0.0066
6	\$0.0346		\$0.0300	\$0.0143	\$0.0163	\$0.0086	\$0.0041	\$0.0020

Maximum
Commodity Rates 1/, 2/, 3/

RECEIPT ZONE	DELIVERY ZONE							
	0	L	1	2	3	4	5	6
0	\$0.0038		\$0.0121	\$0.0183	\$0.0225	\$0.2619	\$0.2500	\$0.2974
L		\$0.0018						
1	\$0.0048		\$0.0087	\$0.0153	\$0.0185	\$0.2228	\$0.2272	\$0.2593
2	\$0.0173		\$0.0093	\$0.0018	\$0.0034	\$0.0725	\$0.1159	\$0.1284
3	\$0.0213		\$0.0175	\$0.0032	\$0.0008	\$0.0967	\$0.1336	\$0.1458
4	\$0.0256		\$0.0211	\$0.0093	\$0.0111	\$0.0451	\$0.0635	\$0.1025
5	\$0.0290		\$0.0252	\$0.0106	\$0.0124	\$0.0532	\$0.0626	\$0.0776
6	\$0.0352		\$0.0306	\$0.0149	\$0.0169	\$0.0969	\$0.0528	\$0.0323

Notes:

- 1/ Rates stated above exclude the ACA Surcharge as revised annually and posted on the FERC website at <http://www.ferc.gov> on the Annual Charges page of the Natural Gas section. The ACA Surcharge is incorporated by reference into Transporter's Tariff and shall apply to all transportation under this Rate Schedule as provided in Article XXIV of the General Terms and Conditions.
- 2/ The applicable F&LR's and EPCR's, determined pursuant to Article XXXVII of the General Terms and Conditions, are listed on Sheet No. 32.
- 3/ Includes a per Dth charge for the PS/GHG Surcharge Adjustment per Article XXXVIII of the General Terms and Conditions of \$0.0006.

Tennessee Gas Pipeline Company, L.L.C.
FERC NGA Gas Tariff
Sixth Revised Volume No. 1

Twenty Second Revised Sheet No. 19
Superseding
Twenty First Revised Sheet No. 19

FIRM TRANSPORTATION RATES
RATE SCHEDULE FT-A

Recourse Rates Applicable to Shippers Utilizing Capacity
Pursuant to Incremental Capacity Expansions

	Base Tariff Rate	Total Rate
CP00-65 300 Line Expansion		
Reservation Charge:		
Maximum	\$3.6526	\$3.6694 1/, 4/
Minimum	\$0.0000	\$0.0000
Commodity Charge:		
Maximum	\$0.0000	\$0.0006 2/, 3/, 4/
Minimum	\$0.0000	\$0.0000 2/, 3/
CP05-355 Northeast Connection - New York/New Jersey Expansion		
Reservation Charge:		
Maximum	\$10.2655	\$10.2823 1/, 4/
Minimum	\$0.0000	\$0.0000
Commodity Charge:		
Maximum	\$0.0000	\$0.0006 2/, 3/, 4/
Minimum	\$0.0000	\$0.0000 2/, 3/
CP08-65 Concord Expansion		
Reservation Charge:		
Maximum	\$12.1064	\$12.1232 1/, 4/
Minimum	\$0.0000	\$0.0000
Commodity Charge:		
Maximum	\$0.0000	\$0.0006 2/, 3/, 4/
Minimum	\$0.0000	\$0.0000 2/, 3/
CP09-444 300 Line Project - Market Component		
Reservation Charge:		
Maximum	\$25.5930	\$25.6098 1/, 4/
Minimum	\$0.0000	\$0.0000
Commodity Charge:		
Maximum	\$0.0000	\$0.0006 2/, 3/, 4/
Minimum	\$0.0000	\$0.0000 2/, 3/
CP11-30-000 Northeast Supply Diversification Project		
Reservation Charge:		
Maximum	\$6.1959	\$6.2127 1/, 4/
Minimum	\$0.0000	\$0.0000
Commodity Charge:		
Maximum	\$0.0000	\$0.0006 2/, 3/, 4/, 5/
Minimum	\$0.0000	\$0.0000 2/, 3/, 5/
CP11-36-000 Northampton Expansion Project		
Reservation Charge:		
Maximum	\$27.6099	\$27.6267 1/, 4/
Minimum	\$0.0000	\$0.0000
Commodity Charge:		
Maximum	\$0.0000	\$0.0006 2/, 3/, 4/
Minimum	\$0.0000	\$0.0000 2/, 3/

Notes:

- 1/ Includes a per Dth charge for the PCB Surcharge Adjustment per Article XXXII of the General Terms and Conditions of \$0.0000.
- 2/ Rates stated above exclude the ACA Surcharge as revised annually and posted on the FERC website at <http://www.ferc.gov> on the Annual Charges page of the Natural Gas section. The ACA Surcharge is incorporated by reference into Transporter's Tariff and shall apply to all transportation under this Rate Schedule as provided in Article XXIV of the General Terms and Conditions.
- 3/ The applicable F&LR's and EPCR's, determined pursuant to Article XXXVII of the General Terms and Conditions, are listed on Sheet No. 32.
- 4/ Includes a per Dth charge for the PS/GHG Surcharge Adjustment per Article XXXVIII of the General Terms and Conditions of \$0.0168 Reservation, \$0.0006 Commodity.
- 5/ Applicable fuel and lost and unaccounted for charges pursuant to the Dominion Lease.

Issued: September 27, 2018
Effective: November 1, 2018

Docket No: RP15-990-002
Accepted: November 1, 2018

Tennessee Gas Pipeline Company, L.L.C.
FERC NGA Gas Tariff
Sixth Revised Volume No. 1.

Substitute Fifteenth Revised Sheet No. 32
Superseding
Fourteenth Revised Sheet No. 32

FUEL AND EPCR

F&LR 1/, 2/, 3/, 4/

RECEIPT ZONE	DELIVERY ZONE							
	0	L	1	2	3	4	5	6
0	0.46%		1.71%	2.68%	3.32%	3.86%	4.36%	5.18%
L		0.17%						
1	0.62%		1.21%	2.17%	2.71%	3.25%	3.95%	4.51%
2	2.61%		1.30%	0.16%	0.41%	0.88%	1.57%	2.18%
3	3.32%		2.64%	0.41%	0.02%	1.27%	1.89%	2.52%
4	3.86%		3.01%	1.29%	1.56%	0.43%	0.73%	1.35%
5	4.56%		3.95%	1.57%	1.89%	0.72%	0.72%	0.95%
6	5.46%		4.72%	2.18%	2.52%	1.26%	0.55%	0.21%

Broad Run Expansion Project – Market Component (Z3-Z1): 5/ 4.62%

EPCR 3/, 4/

RECEIPT ZONE	DELIVERY ZONE							
	0	L	1	2	3	4	5	6
0	\$0.0033		\$0.0129	\$0.0199	\$0.0248	\$0.0299	\$0.0340	\$0.0408
L		\$0.0011						
1	\$0.0045		\$0.0090	\$0.0165	\$0.0202	\$0.0251	\$0.0307	\$0.0353
2	\$0.0199		\$0.0097	\$0.0010	\$0.0029	\$0.0065	\$0.0118	\$0.0162
3	\$0.0248		\$0.0202	\$0.0029	\$0.0000	\$0.0095	\$0.0140	\$0.0187
4	\$0.0299		\$0.0231	\$0.0096	\$0.0117	\$0.0031	\$0.0054	\$0.0101
5	\$0.0340		\$0.0307	\$0.0118	\$0.0140	\$0.0053	\$0.0052	\$0.0070
6	\$0.0408		\$0.0353	\$0.0162	\$0.0187	\$0.0094	\$0.0040	\$0.0014

Broad Run Expansion Project – Market Component (Z3-Z1): 5/ \$0.0308

- 1/ Included in the above F&LR is the Losses component of the F&LR equal to -0.04%.
- 2/ For service, that is rendered entirely by displacement and for gas scheduled and allocated for receipt at the Dracut, Massachusetts receipt point, Shipper shall render only the quantity of gas associated with Losses of 0.00%.
- 3/ The F&LR's and EPCR's listed above are applicable to FT-A, FT-BH, FT-G, FT-GS, and IT.
- 4/ The F&LR's and EPCR's determined pursuant to Article XXXVII of the General Terms and Conditions.
- 5/ The incremental F&LR and EPCR set forth above are applicable to a Shipper(s) utilizing capacity on the Broad Run Expansion Project – Market Component facilities, from any receipt point(s) to any delivery point(s) located on the project's transportation path. Any service provided to a Shipper(s) outside the project's transportation path shall be subject to the greater of the incremental F&LR and EPCR for the project or the applicable F&LR and EPCR for the applicable receipt(s) and delivery point(s) as shown in the rate matrices above. Included in the above F&LR is the Losses component of the F&LR equal to -0.04%.

Mainline Tolls - effective February 1, 2019 to December 31, 2020 (NEB Order TG-001-2019)
Abandonment Surcharges - effective July 1, 2019 (NEB Order TG-005-2019)

Storage Transportation Service

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)	Abandonment Surcharge (\$/GJ/Month)	Daily Equivalent Abandonment Surcharge (\$/GJ)
	(a)	(b)	(c)	(d)	(e)
1	Centram MDA	4.19355	0.1379	0.26165	0.0083
2	Union WDA	24.40938	0.8025	2.33174	0.0767
3	Union NDA	10.40311	0.3420	0.86049	0.0283
4	Union EDA	7.27780	0.2393	0.53199	0.0175
5	KPUC EDA	7.00009	0.2301	0.50279	0.0165
6	Energir EDA	11.96865	0.3935	1.02474	0.0337
7	Enbridge CDA	3.72330	0.1224	0.15876	0.0052
8	Enbridge EDA	9.31997	0.3064	0.74673	0.0246
9	Comwall	9.45715	0.3109	0.76103	0.0250

Firm Transportation - Short Notice

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)	Abandonment Surcharge (\$/GJ/Month)	Daily Equivalent Abandonment Surcharge (\$/GJ)
	(a)	(b)	(c)	(d)	(e)
10	Kirkwall to Thorold CDA	4.29027	0.1411	0.17733	0.0058
11	Union Parkway Belt to Goreway CDA	3.19436	0.1050	0.07270	0.0024
12	Union Parkway Belt to Victoria Square #2 CDA	3.77228	0.1240	0.12775	0.0042
13	Union Parkway Belt to Schomberg #2 CDA	3.73456	0.1228	0.12410	0.0041
14	Union Parkway Belt to Napanee #2 EDA	7.20206	0.2368	0.45534	0.0150

Dawn Long Term Fixed Price

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)
	(a)	(b)	(c)
15	For All Dawn LTFP Contract Demand except any portion subject to a reduced term for the final 24 months of such reduced term	23.42083	0.7700
16	Any portion of Contract Demand reduced in term by 12 months for months 85 through 108	26.46250	0.8700
17	Any portion of Contract Demand reduced in term by 24 months for months 73 through 96	28.89583	0.9500
18	Any portion of Contract Demand reduced in term by 36 months for months 61 through 84	30.41667	1.0000
19	Any portion of Contract Demand reduced in term by 48 months for months 49 through 72	31.63333	1.0400
20	Any portion of Contract Demand reduced in term by 60 months for months 37 through 60	31.93750	1.0500

Notes: The tolls are inclusive of Delivery Pressure Toll and Abandonment Surcharge.
The Abandonment Surcharges are the same as the Empress to Emerson 2 Abandonment Surcharges for FT service.

Herbert Long Term Fixed Price

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)	Abandonment Surcharge (\$/GJ/Month)	Daily Equivalent Abandonment Surcharge (\$/GJ)
	(a)	(b)	(c)	(d)	(e)
21	Empress to Herbert	3.65000	0.1200	0.32941	0.0108

Note: Approved pursuant to NEB Letter Decision (RH-002-2017)

Enhanced Market Balancing Service

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)	Abandonment Surcharge (\$/GJ/Month)	Daily Equivalent Abandonment Surcharge (\$/GJ)
	(a)	(b)	(c)	(d)	(e)
1	Union Parkway Belt to Union EDA	8.00558	0.2632	0.53199	0.0175

Delivery Pressure

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)
	(a)	(b)	(c)
2	Average Delivery Pressure Toll	0.67038	0.0220

Note: Delivery Pressure toll applies to the following locations: Emerson 1, Emerson 2, Union SWDA, Enbridge SWDA, Dawn Export, Niagara Falls, Iroquois, Chippawa and East Herford. The Daily Equivalent Toll is only applicable to STS Injections, IT, Diversions, STFT and SSS.

Union Dawn Receipt Point Surcharge

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)
	(a)	(b)	(c)
3	Union Dawn Receipt Point Surcharge	0.14587	0.0048

Short Notice Balancing (SNB) Service

Line No.	Particulars	Monthly Toll (\$/GJ/Month)	Daily Equivalent (\$/GJ)
	(a)	(b)	(c)
4	SNB Toll	3.43648	0.1130

Note: This SNB Toll is a representative toll for the Eastern Region.

Energy Deficient Gas Allowance (EDGA) Service

Line No.	Particulars	Capacity Charge (\$/GJ/D)
	(a)	(b)
5	Western Section	1.2222
6	Eastern Section	0.2573

Note: The EDGA Service capacity charge for the Western Section is the effective Empress to North Bay Junction FT Toll and the capacity charge for the Eastern Section is the effective Parkway to North Bay Junction FT Toll. The EDGA Service fuel charge for the Western Section includes the effective Empress to North Bay Junction monthly fuel ratio and the fuel charge for the Eastern Section includes the effective Parkway to North Bay Junction monthly fuel ratio.

Line No.	Receipt Point	Delivery Point	FT Toll (\$/GJ/Month)	Daily Equivalent FT for IT / STFT (\$/GJ)	Abandonment Surcharge (\$/GJ/Month)	Daily Equivalent Abandonment Surcharge (\$/GJ)
1	Union NDA	Enbridge CDA	-	0.3108	-	0.0278
2	Union NDA	Enbridge Parkway CDA	-	0.3140	-	0.0283
3	Union NDA	Enbridge EDA	-	0.3374	-	0.0310
4	Union NDA	KPUC EDA	-	0.3974	-	0.0378
5	Union NDA	Enbridge EDA	-	0.4369	-	0.0423
6	Union NDA	Enbridge SWDA	-	0.4158	-	0.0399
7	Union NDA	Union SWDA	-	0.4174	-	0.0401
8	Union NDA	Chippawa	-	0.3748	-	0.0352
9	Union NDA	Comwell	-	0.3613	-	0.0337
10	Union NDA	Ernst Harford	-	0.5211	-	0.0520
11	Union NDA	Emerson 1	-	0.7626	-	0.0804
12	Union NDA	Emerson 2	-	0.7626	-	0.0804
13	Union NDA	Iniquis	-	0.3464	-	0.0320
14	Union NDA	Kirkwall	-	0.3312	-	0.0303
15	Union NDA	Napierville	-	0.4302	-	0.0416
16	Union NDA	Niagara Falls	-	0.3739	-	0.0351
17	Union NDA	North Bay Junction	-	0.1518	-	0.0098
18	Union NDA	Philipsburg	-	0.4380	-	0.0425
19	Union NDA	Spruce	-	0.6995	-	0.0731
20	Union NDA	St. Clair	-	0.4228	-	0.0412
21	Union NDA	Wabryn	-	0.8732	-	0.0931
22	Union NDA	Dawn Export	-	0.4158	-	0.0399
23	Union Parkway Belt	Empress	44.68817	1.4092	4.46213	0.1467
24	Union Parkway Belt	TransGas SSDA	38.24169	1.2573	3.78505	0.1244
25	Union Parkway Belt	Centram SSDA	35.60058	1.1704	3.50735	0.1183
26	Union Parkway Belt	Centram MDA	31.60535	1.0391	3.08790	0.1015
27	Union Parkway Belt	Centrat MDA	31.29480	1.0280	3.05505	0.1004
28	Union Parkway Belt	Union WDA	24.40938	0.8025	2.33174	0.0787
29	Union Parkway Belt	Nipigon WDA	21.58275	0.7088	2.03488	0.0689
30	Union Parkway Belt	Union NDA	10.40311	0.3420	0.86049	0.0283
31	Union Parkway Belt	Calstock NDA	16.66773	0.5480	1.51840	0.0499
32	Union Parkway Belt	Tunis NDA	12.79873	0.4208	1.11203	0.0368
33	Union Parkway Belt	Enbridge NDA	9.92283	0.3282	0.81000	0.0265
34	Union Parkway Belt	Union SSMDA	14.89778	0.4898	1.33255	0.0438
35	Union Parkway Belt	Union NCDA	5.21920	0.1716	0.31673	0.0104
36	Union Parkway Belt	Union CDA	3.39085	0.1115	0.12380	0.0041
37	Union Parkway Belt	Union ECDA	2.65538	0.0873	0.04654	0.0015
38	Union Parkway Belt	Union EDA	7.27780	0.2393	0.53199	0.0175
39	Union Parkway Belt	Union Parkway Belt	2.48413	0.0817	0.02859	0.0009
40	Union Parkway Belt	Enbridge CDA	3.72330	0.1224	0.15878	0.0052
41	Union Parkway Belt	Enbridge Parkway CDA	2.48413	0.0817	0.02859	0.0009
42	Union Parkway Belt	Enbridge EDA	9.31997	0.3084	0.74673	0.0246
43	Union Parkway Belt	KPUC EDA	7.00009	0.2301	0.50270	0.0165
44	Union Parkway Belt	Enbridge EDA	11.98865	0.3935	1.02474	0.0337
45	Union Parkway Belt	Enbridge SWDA	5.85551	0.1925	0.58264	0.0128
46	Union Parkway Belt	Union SWDA	5.90905	0.1943	0.58842	0.0128
47	Union Parkway Belt	Chippawa	4.49183	0.1477	0.23938	0.0079
48	Union Parkway Belt	Comwell	9.45715	0.3109	0.76103	0.0250
49	Union Parkway Belt	East Harford	14.75028	0.4849	1.31704	0.0433
50	Union Parkway Belt	Emerson 1	29.48227	0.9693	2.86484	0.0942
51	Union Parkway Belt	Emerson 2	29.48227	0.9693	2.86484	0.0942
52	Union Parkway Belt	Iniquis	8.82783	0.2902	0.89562	0.0229
53	Union Parkway Belt	Kirkwall	3.05201	0.1003	0.08621	0.0020
54	Union Parkway Belt	Napierville	11.74023	0.3860	1.00101	0.0329
55	Union Parkway Belt	Niagara Falls	4.45604	0.1465	0.23573	0.0078
56	Union Parkway Belt	North Bay Junction	7.82590	0.2573	0.58978	0.0194
57	Union Parkway Belt	Philipsburg	11.98968	0.3945	1.02808	0.0338
58	Union Parkway Belt	Spruce	31.29480	1.0289	3.05505	0.1004
59	Union Parkway Belt	St. Clair	6.20956	0.2042	0.41975	0.0138
60	Union Parkway Belt	Wabryn	35.60058	1.1704	3.50735	0.1183
61	Union Parkway Belt	Dawn Export	5.85551	0.1925	0.58264	0.0128
62	Union SSMDA	Empress	-	1.0386	-	0.1122
63	Union SSMDA	TransGas SSDA	-	0.8457	-	0.0900
64	Union SSMDA	Centram SSDA	-	0.7657	-	0.0809
65	Union SSMDA	Centram MDA	-	0.8471	-	0.0871
66	Union SSMDA	Centrat MDA	-	0.8467	-	0.0870
67	Union SSMDA	Union WDA	-	0.8702	-	0.0928
68	Union SSMDA	Nipigon WDA	-	0.9373	-	0.1006
69	Union SSMDA	Union NDA	-	0.6827	-	0.0712
70	Union SSMDA	Calstock NDA	-	0.8702	-	0.0928
71	Union SSMDA	Tunis NDA	-	0.7544	-	0.0784
72	Union SSMDA	Enbridge NDA	-	0.6884	-	0.0685
73	Union SSMDA	Union SSMDA	-	0.0743	-	0.0009
74	Union SSMDA	Union NCDA	-	0.5323	-	0.0533
75	Union SSMDA	Union CDA	-	0.4473	-	0.0435
76	Union SSMDA	Union ECDA	-	0.4549	-	0.0444
77	Union SSMDA	Union EDA	-	0.5944	-	0.0604
78	Union SSMDA	Union Parkway Belt	-	0.4497	-	0.0438
79	Union SSMDA	Enbridge CDA	-	0.4823	-	0.0475
80	Union SSMDA	Enbridge Parkway CDA	-	0.4497	-	0.0438
81	Union SSMDA	Enbridge EDA	-	0.5581	-	0.0574

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**ENBRIDGE GAS INC.
UNION SOUTH
TRANSPORTATION RATES**

(A) Applicability

The charges under this schedule shall be applicable to a Shipper who enters into a Transportation Service Contract with Union.

Applicable Points

Dawn as a receipt point: Dawn (TCPL), Dawn (Facilities), Dawn (Tecumseh), Dawn (Vector) and Dawn (TSLE).
Dawn as a delivery point: Dawn (Facilities).

(B) Services

Transportation Service under this rate schedule shall be for transportation on Union's Dawn - Parkway facilities.

(C) Rates

The identified rates represent maximum prices for service. These rates may change periodically.
Multi-year prices may also be negotiated, which may be higher than the identified rates.

	Monthly Demand Charges (applied to daily contract demand) <u>Rate/GJ</u>	<u>Fuel and Commodity Charges</u>	
		<u>Union Supplied Fuel</u>	<u>Shipper Supplied Fuel</u>
		<u>Fuel and Commodity Charge Rate/GJ</u>	<u>Fuel Ratio %</u> <u>AND</u> <u>Commodity Charge Rate/GJ</u>
<u>Firm Transportation (1), (5)</u>			
Dawn to Parkway	\$3.716	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".
Dawn to Kirkwall	\$3.154		
Kirkwall to Parkway	\$0.561		
<u>M12-X Firm Transportation</u>			
Between Dawn, Kirkwall and Parkway	\$4.590	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".
<u>Limited Firm/Interruptible Transportation (1)</u>			
Dawn to Parkway – Maximum	\$8.918	Monthly fuel and commodity rates shall be in accordance with schedule "C".	Monthly fuel ratios shall be in accordance with schedule "C".
Dawn to Kirkwall – Maximum	\$8.918		
Parkway (TCPL / EGT) to Parkway (Cons) / Lisgar (2)	n/a	n/a	0.158%

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6	For Month of:	Reference	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Peak
7	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	Nov- Apr
8									(i)
9	<u>Supply and Commodity Costs</u>								
10									
11	<u>Pipeline Gas:</u>								
12	Dawn Supply	In 64 * In 104							
13	Niagara Supply	In 65 * In 109							
14	TGP Supply (Direct)	In 66 * In 125							
15	Dracut Supply 1 - Baseload	In 67 * In 114							
16	Dracut Supply 2 - Swing	In 68 * In 119							
17	Constellation COMBO	In 69 * In 131							
18	LNG Truck	In 70 * In 133							
19	Propane Truck	In 71 * In 135							
20	PNGTS	In 72 * In 140							
21	Portland Natural Gas	In 73 * In 145							
22	TGP Supply (Z4)	In 74 * In 150							
23									
24	Subtotal Pipeline Gas Costs		\$ 2,495,083	\$ 6,291,574	\$ 9,000,958	\$ 9,613,141	\$ 5,727,685	\$ 2,099,996	\$ 35,228,436
25									
26	<u>Volumetric Transportation Costs</u>								
27	Dawn Supply	In 64 * In 197							
28	Niagara Supply	In 65 * In 208							
29	TGP Supply (Direct)	In 66 * In 235							
30	Dracut Supply 1 - Baseload	In 67 * In 256							
31	Dracut Supply 2 - Swing	In 68 * In 256							
32	Constellation COMBO	In 69 * In 256							
33	TGP Storage - Withdrawals	In 79 * In 172							
34									
35	Total Volumetric Transportation Costs		\$ 185,624	\$ 206,678	\$ 226,019	\$ 224,105	\$ 198,266	\$ 42,313	\$ 1,083,006
36									
37	<u>Less - Gas Refill:</u>								
38	LNG Truck	In 88 * In 157							
39	Propane	In 89 * In 158							
40	TGP Storage Refill	In 90 * In 123							
41	Storage Refill (Trans.)	In 90 * In 235							
42									
43	Subtotal Refills		\$ (402,780)	\$ (7,673)	\$ (1,225,428)	\$ (264,276)	\$ (150,868)	\$ -	\$ (2,051,025)
44									
45	Total Supply & Pipeline Commodity Costs	In 24 + In 35 + In 43	\$ 2,277,927	\$ 6,490,579	\$ 8,001,549	\$ 9,572,970	\$ 5,775,083	\$ 2,142,309	\$ 34,260,417
46									
47	<u>Storage Gas:</u>								
48	TGP Storage - Withdrawals	In 79 * In 164	\$ 226,582	\$ 991,634	\$ 1,130,877	\$ 1,201,356	\$ 719,565	\$ 11,359	\$ 4,281,375
49									
50	<u>Produced Gas:</u>								
51	LNG Vapor	In 82 * In 152							
52	Propane	In 83 * In 154							
53									
54	Total Produced Gas	In 51 + In 52	\$ 14,012	\$ 14,874	\$ 1,908,377	\$ 241,856	\$ 147,074	\$ 7,487	\$ 2,333,680
55									
56									
57	Total Commodity Gas & Trans. Costs	In 45 + In 48 + In 54	\$ 2,518,522	\$ 7,497,087	\$ 11,040,803	\$ 11,016,182	\$ 6,641,722	\$ 2,161,156	\$ 40,875,472
58									
59									
									\$ 92,542,043
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5									Peak
6	For Month of:	Reference	Jan-00	Jan-00	Jan-00	Off-Peak	updated 8/13/19	Jan-00	Nov- Apr
7	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
60									
61	Volumes (Therms)								
62									
63	Pipeline Gas:	See Schedule 11A							
64	Dawn Supply		748,197	851,872	896,211	832,325	899,574	826,763	5,054,942
65	Niagara Supply		590,118	671,509	706,459	655,574	709,110	652,085	3,984,855
66	TGP Supply (Direct)		3,965,821	2,862,930	2,936,768	2,807,740	3,035,695	540,736	16,149,690
67	Dracut Supply 1 - Baseload		-	2,575,041	4,515,354	3,144,581	-	-	10,234,977
68	Dracut Supply 2 - Swing		2,418,414	1,456,785	480,947	1,928,329	4,436,334	1,851,169	12,571,979
69	Constellation COMBO		-	1,380,477	1,136,319	1,379,241	243,207	-	4,139,244
70	LNG Truck		17,634	20,118	1,072,096	676,581	394,845	-	2,181,274
71	Propane Truck		-	-	669,239	-	-	-	669,239
72	PNGTS		187,049	212,968	224,053	207,900	224,893	206,891	1,263,554
73	Portland Natural Gas		809,917	892,107	907,888	900,418	965,503	627,727	5,103,561
74	TGP Supply (Z4)		1,549,926	1,769,647	1,861,753	1,729,121	1,868,740	4,242,379	13,021,567
75									
76	Subtotal Pipeline Volumes		10,287,078	12,693,454	15,407,086	14,261,810	12,777,903	8,947,550	74,374,882
77									
78	Storage Gas:								
79	TGP Storage		1,013,341	4,434,870	5,057,605	5,372,808	3,218,101	50,803	19,147,528
80									
81	Produced Gas:								
82	LNG Vapor		17,634	20,118	1,164,052	615,732	373,601	19,486	2,210,624
83	Propane		-	-	1,170,620	-	2,930	-	1,173,551
84									
85	Subtotal Produced Gas		17,634	20,118	2,334,672	615,732	376,532	19,486	3,384,174
86									
87	Less - Gas Refill:								
88	LNG Truck		(17,634)	(20,118)	(1,072,096)	(676,581)	(394,845)	-	(2,181,274)
89	Propane		-	-	(669,239)	-	-	-	(669,239)
90	TGP Storage Refill		(1,514,028)	-	-	-	-	-	(1,514,028)
91									
92	Subtotal Refills		(1,531,662)	(20,118)	(1,741,334)	(676,581)	(394,845)	-	(4,364,541)
93									
94	Total Sendout Volumes		9,786,390	17,128,325	21,058,029	19,573,770	15,977,690	9,017,839	92,542,043
95									
96									
97									

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5										Peak
6	For Month of:	Reference	Nov-15	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Nov- Apr
7	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)
98	Gas Costs and Volumetric Transportation Rates									
99										
100	Pipeline Gas:									Average Rate
101	Dawn Supply									
102	NYMEX Price	Sch 7, In 10/10								
103	Basis Differential									
104	Net Commodity Costs									
105										
106	Niagara Supply									
107	NYMEX Price	Sch 7, In 10/10								
108	Basis Differential									
109	Net Commodity Costs									
110										
111	Dracut Supply 1 - Baseload									
112	Commodity Costs - NYMEX Price	Sch 7, In 10 / 10								
113	Basis Differential									
114	Net Commodity Costs									
115										
116	Dracut Supply 2 - Swing									
117	Commodity Costs - NYMEX Price	Sch 7, In 10 / 10								
118	Basis Differential									
119	Net Commodity Costs									
120										
121										
122	TGP Supply (Direct)									
123	NYMEX Price	Sch 7, In 10/10								
124	Basis Differential									
125	Net Commodity Costs									
126										
127										
128	Constellation COMBO									
129	NYMEX Price	Sch 7, In 10/10								
130	Basis Differential									
131	Net Commodity Costs									
132										
133	LNG Truck	Sch 7, In 10/10								
134										
135	Propane Truck	Propane WACOG								
136										
137	PNGTS									
138	NYMEX Price	Sch 7, In 10/10								
139	Basis Differential									
140	Net Commodity Cost									
141										
142	PNGTS EXP									
143	NYMEX Price	Sch 7, In 10/10								
144	Basis Differential									
145	Net Commodity Cost									
146										
147	TGP Supply (Z4)									
148	NYMEX Price	Sch 7, In 10/10								
149	Basis Differential									
150	Net Commodity Cost									
151										
152	LNG Vapor (Storage)	Sch 16, In 95 /10								
153										
154	Propane	Sch 16, In 66 /10								
155										
156	Storage Refill:									
157	LNG Truck	In 133								
158	Propane	In 135								
159										
160										

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6 For Month of:	Reference	Sep-28	Jan-00	Jan-00	Jan-00	Jan-00	Jan-00	Peak
7 (a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	Nov- Apr
								(i)
161								
162								
163 TGP Storage								
164 Commodity Costs - Storage withdrawal	Sch 16, ln 34 /10	\$0.2236	\$0.2236	\$0.2236	\$0.2236	\$0.2236	\$0.2236	\$0.2236
165								
166 TGP - Max Commodity - Z 4-6	15th Rev Sheet No. 15	\$0.01025	\$0.01025	\$0.01025	\$0.01025	\$0.01025	\$0.01025	\$0.01025
167 TGP - Max Comm. ACA Rate - Z 4-6	15th Rev Sheet No. 15	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013
168 Subtotal TGP - Trans Charge - Max Commodity Rate - Z 4-6		\$0.01038	\$0.01038	\$0.01038	\$0.01038	\$0.01038	\$0.01038	\$0.01038
169 TGP - Fuel Charge % - Z 4-6	Sub 15th Rev Sheet No. 32	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%	1.35%
170 TGP - Fuel Charge % - Z 4-6 - (NYMEX * Percentage)		\$0.00302	\$0.00302	\$0.00302	\$0.00302	\$0.00302	\$0.00302	\$0.00302
171 TGP - Withdrawal Charge	16th Rev Sheet No.61	\$0.00087	\$0.00087	\$0.00087	\$0.00087	\$0.00087	\$0.00087	\$0.00087
172 Total Volumetric Transportation Rate - TGP (Storage)		\$0.01427	\$0.01427	\$0.01427	\$0.01427	\$0.01427	\$0.01427	\$0.01427
173								
174 Total TGP - Comm. & Vol. Trans. Rate	ln 164 + ln 172	\$0.23787	\$0.23787	\$0.23787	\$0.23787	\$0.23787	\$0.23787	\$0.23787
175								
176								
177 Per Unit Volumetric Transportation Rates								
178 Dawn Supply Volumetric Transportation Charge								
179 Commodity Costs	ln 104	\$0.2239	\$0.2599	\$0.2711	\$0.2714	\$0.2684	\$0.2286	\$0.2539
180								
181 TransCanada - Commodity Rate/GJ	Union Parkway to Iroquois	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000
182 Conversion Rate GL to MMBTU		1.0551	1.0551	1.0551	1.0551	1.0551	1.0551	1.0551
183 Conversion Rate to US\$	updated 7/10/19	1.3329	1.3329	1.3329	1.3329	1.3329	1.3329	1.3329
184 Commodity Rate/US\$	ln 181 x ln 182 x ln 183	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000
185 TransCanada Fuel %	Union Parkway to Iroquois	1.65%	2.10%	1.99%	1.96%	2.38%	1.94%	2.00%
186 TransCanada Fuel * Percentage	ln 179 x ln 185	\$0.00370	\$0.00546	\$0.00538	\$0.00531	\$0.00640	\$0.00443	\$0.00512
187 Subtotal TransCanada		\$0.00370	\$0.00546	\$0.00538	\$0.00531	\$0.00640	\$0.00443	\$0.00512
188 IGTS - Z1 RTS Commodity	Forth Revised Sheet No. 4	\$0.00034	\$0.00034	\$0.00034	\$0.00034	\$0.00034	\$0.00034	\$0.00034
189 IGTS - Z1 RTS ACA Rate Commodity	Forth Revised Sheet No. 4	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013
190 IGTS - Z1 RTS Deferred Asset Surcharge	Forth Revised Sheet No. 4	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000	\$0.00000
191 Subtotal IGTS - Trans Charge - Z1 RTS Commodity		\$0.00047	\$0.00047	\$0.00047	\$0.00047	\$0.00047	\$0.00047	\$0.00047
192 TGP NET-NE - Comm. Segments 3 & 4	15th Rev Sheet No. 15	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013
193 IGTS -Fuel Use Factor - Percentage	Forth Revised Sheet No. 4	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
194 IGTS -Fuel Use Factor - Fuel * Percentage	ln 179 x ln 193	\$0.00224	\$0.00260	\$0.00271	\$0.00271	\$0.00268	\$0.00229	\$0.00254
195 TGP FTA Fuel Charge % Z 5-6	Sub 15th Rev Sheet No. 32	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%
196 TGP FTA Fuel * Percentage	ln 179 x ln 195	\$0.00213	\$0.00247	\$0.00258	\$0.00258	\$0.00255	\$0.00217	\$0.00241
197 Total Volumetric Transportation Charge - Dawn Supply		\$0.00867	\$0.01113	\$0.01127	\$0.01120	\$0.01223	\$0.00949	\$0.01067
198								
199								
200 Niagara Supply Volumetric Transportation Charge								
201 Commodity Costs	Ln 109							
202								
203 TGP FTA - FTA Z 5-6 Comm. Rate	15th Rev Sheet No. 15	\$0.00776	\$0.00776	\$0.00776	\$0.00776	\$0.00776	\$0.00776	\$0.00776
204 TGP FTA - FTA Z 5-6 - ACA Rate	15th Rev Sheet No. 15	\$0.00013	\$0.0001	\$0.0001	\$0.0001	\$0.0001	\$0.0001	\$0.0001
205 Subtotal TGP FTA - FTA Z 5-6 Commodity Rate		\$0.00789	\$0.0079	\$0.0079	\$0.0079	\$0.0079	\$0.0079	\$0.0079
206 TGP FTA Fuel Charge % Z 5-6	Sub 15th Rev Sheet No. 32	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%	0.95%
207 TGP FTA Fuel * Percentage	ln 201 x ln 206							
208 Total Volumetric Transportation Rate - Niagara Supply								
209								
210								

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6 For Month of:	Reference	Jan-00	Jan-00	Jan-00	7/10/2019	Jan-00	Jan-00	Peak
7 (a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	Nov- Apr
								(i)
211								
212								
213								
214 TGP Direct Volumetric Transportation Charge								Average Rate
215 Commodity Costs	Ln 123							
216								
217 TGP - Max Comm. Base Rate - Z 0-6	15th Rev Sheet No. 15	\$0.02974	\$0.02974	\$0.02974	\$0.02974	\$0.02974	\$0.02974	\$0.02974
218 TGP - Max Commodity ACA Rate - Z 0-6	15th Rev Sheet No. 15	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013
219 Subtotal TGP - Max Comm. Rate Z 0-6		\$0.02987	\$0.02987	\$0.02987	\$0.02987	\$0.02987	\$0.02987	\$0.02987
220 Prorated Percentage		32.60%	32.60%	32.60%	32.60%	32.60%	32.60%	32.60%
221 Prorated TGP - Max Commodity Rate - Z 0-6		\$0.00974	\$0.00974	\$0.00974	\$0.00974	\$0.00974	\$0.00974	\$0.00974
222 TGP - Max Comm. Base Rate - Z 1-6	15th Rev Sheet No. 15	\$0.02593	\$0.02593	\$0.02593	\$0.02593	\$0.02593	\$0.02593	\$0.02593
223 TGP - Max Commodity ACA Rate - Z 1-6	15th Rev Sheet No. 15	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013
224 Subtotal TGP - Max Commodity Rate - Z 1-6		\$0.02606	\$0.02606	\$0.02606	\$0.02606	\$0.02606	\$0.02606	\$0.02606
225 Prorated Percentage		67.40%	67.40%	67.40%	67.40%	67.40%	67.40%	67.40%
226 Prorated TGP - Trans Charge - Max Commodity Rate - Z 1-6		\$0.01756	\$0.01756	\$0.01756	\$0.01756	\$0.01756	\$0.01756	\$0.01756
227 TGP - Fuel Charge % - Z 0-6	Sub 15th Rev Sheet No. 32	5.18%	5.18%	5.18%	5.18%	5.18%	5.18%	5.18%
228 Prorated Percentage		32.6%	32.6%	32.6%	32.6%	32.6%	32.6%	32.6%
229 Prorated TGP Fuel Charge % - Z 0-6		1.69%	1.69%	1.69%	1.69%	1.69%	1.69%	1.69%
230 TGP - Fuel Charge % - Z 1-6	Sub 15th Rev Sheet No. 32	4.51%	4.51%	4.51%	4.51%	4.51%	4.51%	4.51%
231 Prorated Percentage		67.40%	67.40%	67.40%	67.40%	67.40%	67.40%	67.40%
232 Prorated TGP Fuel Charge - Fuel Charge % - Z 1-6		3.04%	3.04%	3.04%	3.04%	3.04%	3.04%	3.04%
233 TGP - Fuel Charge % - Z 0-6	In 215 x In 229	\$0.00378	\$0.00410	\$0.00431	\$0.00426	\$0.00415	\$0.00386	\$0.00408
234 TGP - Fuel Charge % - Z 1-6	In 215 x In 232	\$0.00681	\$0.00738	\$0.00775	\$0.00767	\$0.00747	\$0.00694	\$0.00734
235 Total Volumetric Transportation Rate - TGP (Direct)		\$0.03789	\$0.03879	\$0.03936	\$0.03924	\$0.03892	\$0.03810	\$0.03872
236								
237 TGP (Zone 6 Purchase) Volumetric Transportation Charge								
238 Commodity Costs	Ln 123							
239								
240 TGP - Max Comm. Base Rate - Z 6-6	15th Rev Sheet No. 15	\$0.00323	\$0.00323	\$0.00323	\$0.00323	\$0.00323	\$0.00323	\$0.00323
241 TGP - Max Commodity ACA Rate - Z 6-6	15th Rev Sheet No. 15	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013
242 Subtotal TGP - Max Commodity Rate - Z 6-6		\$0.00336	\$0.00336	\$0.00336	\$0.00336	\$0.00336	\$0.00336	\$0.00336
243 TGP - Fuel Charge % - Z 6-6	Sub 15th Rev Sheet No. 32	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
244 TGP - Fuel Charge	In 238 x In 243	\$0.00022	\$0.00024	\$0.00026	\$0.00025	\$0.00025	\$0.00023	\$0.00024
245 Total Vol. Trans. Rate - TGP (Zone 6)		\$0.00358	\$0.00360	\$0.00362	\$0.00361	\$0.00361	\$0.00359	\$0.00360
246								
247								
248 TGP Dracut								
249 Commodity Costs - NYMEX Price	Ln 114							
250								
251 TGP - Trans Charge - Comm. - Z 6-6	15th Rev Sheet No. 15	\$0.00323	\$0.00323	\$0.00323	\$0.00323	\$0.00323	\$0.00323	\$0.00323
252 TGP - Trans Charge - ACA Rate - Z6-6	15th Rev Sheet No. 15	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013	\$0.00013
253 Subtotal TGP - Trans Charge - Max Commodity Rate - Z 6-6		\$0.00336	\$0.00336	\$0.00336	\$0.00336	\$0.00336	\$0.00336	\$0.00336
254 TGP - Fuel Charge % - Z 6-6	Sub 15th Rev Sheet No. 32	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%	0.10%
255 TGP - Fuel Charge	In 249 x In 254							
256 Total Volumetric Transportation Rate - TGP Dracut								
257								
258								

REDACTED

Storage Gas:

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 d/b/a Liberty Utilities

3 Peak 2019 - 2020 Winter Cost of Gas Filing

4 NYMEX Futures @ Henry Hub

5

Schedule 7
Page 1 of 1

Peak

6 For Month of:

Reference

Nov-19

Dec-19

Jan-20

Feb-20

Mar-20

Apr-20

Strip Average

7 (a)

(b)

(c)

(d)

(e)

(f)

(g)

(h)

(i)

8 I. NYMEX Opening Prices as of:

9 Opening Prices (15 day average)

10 NYMEX

Filed COG

\$ 2.2393

\$ 2.4295

\$ 2.5509

\$ 2.5245

\$ 2.4569

\$ 2.2840

\$ 2.4142

14 NYMEX Settlement - 15 Day Average

Days

Date

1

19-Aug

\$2.2720

\$2.4470

\$2.5560

\$2.5270

\$2.4530

\$2.2670

2

16-Aug

\$2.2730

\$2.4510

\$2.5580

\$2.5290

\$2.4530

\$2.2570

3

15-Aug

\$2.3040

\$2.4830

\$2.5880

\$2.5550

\$2.4810

\$2.2900

4

14-Aug

\$2.2280

\$2.4160

\$2.5290

\$2.5030

\$2.4380

\$2.2620

5

13-Aug

\$2.2320

\$2.4170

\$2.5300

\$2.5030

\$2.4380

\$2.2640

6

12-Aug

\$2.1940

\$2.3830

\$2.5040

\$2.4780

\$2.4160

\$2.2480

7

9-Aug

\$2.2140

\$2.4060

\$2.5300

\$2.5060

\$2.4450

\$2.2770

8

8-Aug

\$2.2280

\$2.4180

\$2.5400

\$2.5160

\$2.4540

\$2.2780

9

7-Aug

\$2.1840

\$2.3780

\$2.5080

\$2.4860

\$2.4250

\$2.2560

10

6-Aug

\$2.2040

\$2.4030

\$2.5360

\$2.5100

\$2.4450

\$2.2730

11

5-Aug

\$2.1690

\$2.3720

\$2.5060

\$2.4810

\$2.4200

\$2.2630

12

2-Aug

\$2.2130

\$2.4130

\$2.5460

\$2.5250

\$2.4600

\$2.2980

13

1-Aug

\$2.2930

\$2.4880

\$2.6170

\$2.5890

\$2.5140

\$2.3490

14

31-Jul

\$2.3300

\$2.5200

\$2.6410

\$2.6110

\$2.5340

\$2.3600

15

30-Jul

\$2.2520

\$2.4470

\$2.5740

\$2.5490

\$2.4780

\$2.3180

15 Day Average

2.2393

2.4295

2.5509

2.5245

2.4569

2.2840

Liberty Utilities (EnergyNorth Natural Gas) Corp.

1 d/b/a Liberty Utilities

2 Peak 2019 - 2020 Winter Cost of Gas Filing

3 Annual Bill Comparisons, Nov 18 - Apr 19 vs Nov 19 - Apr 20 - Residential Heating Rate R-3

4

5

6 November 1, 2019 - April 30, 2020

7 Residential Heating (R3)

8 PROPOSED

			Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Winter Nov-Apr
9	average Usage (Therms)		62	110	123	148	132	92	666
10		5/1/2019 11/1/2019							
11	Winter:								
12	Cust. Chg	\$ 15.02 \$ 15.20	\$ 15.20	\$ 15.20	\$ 15.20	\$ 15.20	\$ 15.20	\$ 15.20	\$ 91.20
13	Headblock	\$ 0.5502 \$ 0.5569	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
14	Tailblock	\$ 0.5502 \$ 0.5569	\$ 34.35	\$ 61.12	\$ 68.38	\$ 82.21	\$ 73.78	\$ 51.15	\$ 370.99
15	HB Threshold	-	-	-	-	-	-	-	-
16	Summer:								
17	Cust. Chg	\$ 15.02 \$ 15.20							
18	Headblock	\$ 0.5502 \$ 0.5569							
19	Tailblock	\$ 0.5502 \$ 0.5569							
20	HB Threshold	-	-	-	-	-	-	-	-
21	Total Base Rate Amount		\$ 49.55	\$ 76.32	\$ 83.58	\$ 97.41	\$ 88.98	\$ 66.35	\$ 462.19
22	COG Rate - (Seasonal)		\$ 0.6203	\$ 0.6203	\$ 0.6203	\$ 0.6203	\$ 0.6203	\$ 0.6203	\$ 0.6203
23	COG amount		\$ 38.26	\$ 68.07	\$ 76.17	\$ 91.57	\$ 82.17	\$ 56.98	\$ 413.23
24	LDAC		\$ 0.0635	\$ 0.0635	\$ 0.0635	\$ 0.0635	\$ 0.0635	\$ 0.0635	\$ 0.0635
25	LDAC amount		\$ 3.92	\$ 6.97	\$ 7.80	\$ 9.38	\$ 8.42	\$ 5.84	\$ 42.33
26	Total Bill		\$ 91.74	\$ 151.36	\$ 167.55	\$ 198.36	\$ 179.57	\$ 129.17	\$ 917.74

34 November 1, 2018 - April 30, 2019

35 Residential Heating (R3)

36 CURRENT

			Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Winter Nov-Apr
37	average Usage (Therms)		62	110	123	148	132	92	666
38		5/1/2018 11/1/2018							
39	Winter:								
40	Cust. Chg	\$ 24.43 \$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 90.12
41	Headblock	\$ 0.3863 \$ 0.5502	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
42	Tailblock	\$ 0.3197 \$ 0.5502	\$ 33.94	\$ 60.38	\$ 67.56	\$ 81.22	\$ 72.89	\$ 50.54	\$ 366.53
43	HB Threshold	100	-	-	-	-	-	-	-
44	Summer:								
45	Cust. Chg	\$ 14.88 \$ 15.02							
46	Headblock	\$ 0.5580 \$ 0.5631							
47	Tailblock	\$ 0.5580 \$ 0.5631							
48	HB Threshold	-	-	-	-	-	-	-	-
49	Total Base Rate Amount		\$ 48.96	\$ 75.40	\$ 82.58	\$ 96.24	\$ 87.91	\$ 65.56	\$ 456.65
50	COG Rate - (Seasonal)		\$ 0.7411	\$ 0.7504	\$ 0.7504	\$ 0.6715	\$ 0.5212	\$ 0.5825	\$ 0.6633
51	COG amount		\$ 45.72	\$ 82.35	\$ 92.14	\$ 99.13	\$ 69.05	\$ 53.51	\$ 441.89
52	LDAC		\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660
53	LDAC amount		\$ 4.07	\$ 7.24	\$ 8.10	\$ 9.74	\$ 8.74	\$ 6.06	\$ 43.97
54	Total Bill		\$ 98.75	\$ 165.00	\$ 182.82	\$ 205.11	\$ 165.70	\$ 125.13	\$ 942.50

62 DIFFERENCE:

63	Total Bill		(\$7.01)	(\$13.63)	(\$15.27)	(\$6.75)	\$13.87	\$4.04	(\$24.76)
64	% Change		-7.10%	-8.26%	-8.35%	-3.29%	8.37%	3.23%	-2.63%
65	Base Rate		\$ 0.59	\$ 0.92	\$ 1.00	\$ 1.17	\$ 1.07	\$ 0.80	\$ 5.54
66	% Change		1.21%	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%
67	COG & LDAC		\$ (7.60)	\$ (14.55)	\$ (16.28)	\$ (7.92)	\$ 12.80	\$ 3.25	\$ (30.30)
68	% Change		-16.63%	-17.67%	-17.67%	-7.99%	18.54%	6.07%	-6.86%

May 1, 2019 - October 31, 2019

May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Summer May-Oct	Total Nov-Oct
51	28	16	14	14	21	142	809
\$ 15.02	\$ 15.02	\$ 15.20	\$ 15.20	\$ 15.20	\$ 15.20	\$ 90.84	\$ 182.04
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 27.97	\$ 15.32	\$ 8.85	\$ 7.56	\$ 7.65	\$ 11.47	\$ 78.83	\$ 449.82
\$ 42.99	\$ 30.34	\$ 24.05	\$ 22.76	\$ 22.85	\$ 26.67	\$ 169.67	\$ 631.86
\$ 0.4445	\$ 0.4445	\$ 0.5556	\$ 0.5556	\$ 0.5556	\$ 0.5556	\$ 0.4943	\$ 0.5981
\$ 22.59	\$ 12.38	\$ 8.83	\$ 7.54	\$ 7.64	\$ 11.45	\$ 70.43	\$ 483.65
\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0660	\$ 0.0640
\$ 3.35	\$ 1.84	\$ 1.05	\$ 0.90	\$ 0.91	\$ 1.36	\$ 9.40	\$ 51.73
\$ 68.93	\$ 44.55	\$ 33.93	\$ 31.20	\$ 31.40	\$ 39.48	\$ 249.50	\$ 1,167.24

May 1, 2018 - October 31, 2018

May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Summer May-Oct	Total Nov-Oct
51	28	16	14	14	21	142	809
\$ 14.88	\$ 14.88	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 89.84	\$ 179.96
\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$ 28.36	\$ 15.54	\$ 8.95	\$ 7.65	\$ 7.74	\$ 11.60	\$ 79.84	\$ 446.36
\$ 43.24	\$ 30.42	\$ 23.97	\$ 22.67	\$ 22.76	\$ 26.62	\$ 169.68	\$ 626.32
\$ 0.3133	\$ 0.3916	\$ 0.3127	\$ 0.3665	\$ 0.3916	\$ 0.3916	\$ 0.3525	\$ 0.6086
\$ 15.92	\$ 10.90	\$ 4.97	\$ 4.98	\$ 5.38	\$ 8.07	\$ 50.23	\$ 492.11
\$ 0.0945	\$ 0.0945	\$ 0.0945	\$ 0.0945	\$ 0.0945	\$ 0.0945	\$ 0.0945	\$ 0.0710
\$ 4.80	\$ 2.63	\$ 1.50	\$ 1.28	\$ 1.30	\$ 1.95	\$ 13.47	\$ 57.43
\$ 63.97	\$ 43.95	\$ 30.44	\$ 28.93	\$ 29.44	\$ 36.63	\$ 233.37	\$ 1,175.87

\$4.96	\$0.60	\$3.49	\$2.28	\$1.96	\$2.84	\$16.13	(\$8.63)
7.76%	1.37%	11.46%	7.87%	6.65%	7.76%	6.91%	-0.73%
\$ (0.26)	\$ (0.08)	\$ 0.08	\$ 0.10	\$ 0.09	\$ 0.05	\$ (0.01)	\$ 5.53
-0.59%	-0.25%	0.34%	0.42%	0.42%	0.20%	-0.01%	0.88%
\$ 5.22	\$ 0.68	\$ 3.41	\$ 2.18	\$ 1.86	\$ 2.79	\$ 16.14	\$ (14.16)
32.78%	6.23%	68.56%	43.82%	34.60%	34.60%	32.14%	-2.88%

Liberty Utilities (EnergyNorth Natural Gas) Corp.

d/b/a Liberty Utilities

Peak 2019 - 2020 Winter Cost of Gas Filing

Annual Bill Comparisons, Nov 18 - Apr 19 vs Nov 19 - Apr 20 - Commercial Rate G-41

4

5

6 November 1, 2019 - April 30, 2020

7 Commercial Rate (G-41)

8 PROPOSED

		Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Winter Nov-Apr
10 average Usage (Therms)		89	277	504	457	331	297	1,954
12 Winter:	7/1/2019 5/1/2019							
13 Cust. Chg	\$ 56.36 \$ 55.68	\$ 56.36	\$ 56.36	\$ 56.36	\$ 56.36	\$ 56.36	\$ 56.36	\$ 338.16
14 Headblock	\$ 0.4621 \$ 0.4566	\$ 40.99	\$ 46.21	\$ 46.21	\$ 46.21	\$ 46.21	\$ 46.21	\$ 272.04
15 Tailblock	\$ 0.3104 \$ 0.3067	\$ -	\$ 54.98	\$ 125.36	\$ 110.70	\$ 71.65	\$ 61.09	\$ 423.78
16 HB Threshold	100 100							
17								
18 Summer:								
19 Cust. Chg	\$ 56.36 \$ 55.68							
20 Headblock	\$ 0.4621 \$ 0.4566							
21 Tailblock	\$ 0.3104 \$ 0.3067							
22 HB Threshold	20 20							
23								
24 Total Base Rate Amount		\$ 97.35	\$ 157.55	\$ 227.93	\$ 213.27	\$ 174.22	\$ 163.66	\$ 1,033.97
25								
26 COG Rate - (Seasonal)		\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190
27 COG amount		\$ 54.91	\$ 171.54	\$ 311.89	\$ 282.65	\$ 204.78	\$ 183.73	\$ 1,209.50
28								
29 LDAC		\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494
30 LDAC amount		\$ 4.38	\$ 13.69	\$ 24.89	\$ 22.56	\$ 16.34	\$ 14.66	\$ 96.52
31								
32 Total Bill		\$156.64	\$342.78	\$564.70	\$518.47	\$395.34	\$362.06	\$2,340.00

34 November 1, 2018 - April 30, 2019

35 Commercial Rate (G-41)

36 CURRENT

		Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Winter Nov-Apr
37 average Usage (Therms)		89	277	504	457	331	297	1,954
38								
39								
40 Winter:	7/1/2018 11/1/2018							
41 Cust. Chg	\$ 53.45 \$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 334.08
42 Headblock	\$ 0.4383 \$ 0.4566	\$ 40.50	\$ 45.66	\$ 45.66	\$ 45.66	\$ 45.66	\$ 45.66	\$ 268.80
43 Tailblock	\$ 0.2944 \$ 0.3067	\$ -	\$ 54.33	\$ 123.86	\$ 109.38	\$ 70.80	\$ 60.37	\$ 418.72
44 HB Threshold	100 100							
45								
46 Summer:								
47 Cust. Chg	\$ 56.58 \$ 56.07							
48 Headblock	\$ 0.4639 \$ 0.4597							
49 Tailblock	\$ 0.3116 \$ 0.3088							
50 HB Threshold	20 20							
51								
52 Total Base Rate Amount		\$ 96.18	\$ 155.67	\$ 225.20	\$ 210.72	\$ 172.14	\$ 161.71	\$ 1,021.60
53								
54 COG Rate - (Seasonal)		\$ 0.7403	\$ 0.7403	\$ 0.7496	\$ 0.6707	\$ 0.5204	\$ 0.5817	\$ 0.6651
55 COG amount		\$ 65.67	\$ 205.16	\$ 377.69	\$ 306.26	\$ 172.16	\$ 172.66	\$ 1,299.59
56								
57 LDAC		\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757
58 LDAC amount		\$ 6.71	\$ 20.98	\$ 38.14	\$ 34.57	\$ 25.04	\$ 22.47	\$ 147.91
59								
60 Total Bill		\$168.56	\$381.80	\$641.04	\$551.54	\$369.34	\$356.84	\$2,469.11

62 DIFFERENCE:

63 Total Bill	\$ (11.92)	\$ (39.02)	\$ (76.33)	\$ (33.07)	\$ 26.00	\$ 5.22	\$ (129.12)
64 % Change	-7.07%	-10.22%	-11.91%	-6.00%	7.04%	1.46%	-5.23%
65							
66 Base Rate	\$ 1.17	\$ 1.89	\$ 2.72	\$ 2.55	\$ 2.08	\$ 1.96	\$ 12.37
67 % Change	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%
68							
69 COG & LDAC	\$ (13.09)	\$ (40.90)	\$ (79.06)	\$ (35.62)	\$ 23.92	\$ 3.26	\$ (141.49)
70 % Change	-19.94%	-19.94%	-20.93%	-11.63%	13.89%	1.89%	-10.89%

Schedule 8

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May 1, 2019 - October 31, 2019

May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Summer May-Oct	Total Nov-Oct
153	39	26	34	25	29	306	2,260
\$ 55.68	\$ 55.68	\$ 56.36	\$ 56.36	\$ 56.36	\$ 56.36	\$ 336.80	\$ 674.96
\$ 9.13	\$ 9.13	\$ 9.24	\$ 9.24	\$ 9.24	\$ 9.24	\$ 55.23	\$ 327.27
\$ 40.71	\$ 5.74	\$ 1.95	\$ 4.21	\$ 1.57	\$ 2.86	\$ 57.05	\$ 480.62
\$ 105.52	\$ 70.56	\$ 67.55	\$ 69.81	\$ 67.17	\$ 68.46	\$ 449.08	\$ 1,483.05
\$ 0.4417	\$ 0.4417	\$ 0.5517	\$ 0.5517	\$ 0.5517	\$ 0.5517	\$ 0.4828	\$ 0.6006
\$ 67.47	\$ 17.11	\$ 14.50	\$ 18.52	\$ 13.83	\$ 16.12	\$ 147.53	\$ 1,357.03
\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0530
\$ 11.56	\$ 2.93	\$ 1.99	\$ 2.54	\$ 1.90	\$ 2.21	\$ 23.13	\$ 119.66
\$184.55	\$90.59	\$84.03	\$90.87	\$82.90	\$86.79	\$619.74	\$2,959.74

May 1, 2018 - October 31, 2018

May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Summer May-Oct	Total Nov-Oct
153	39	26	34	25	29	306	2,260
\$ 56.07	\$ 56.07	\$ 56.58	\$ 56.58	\$ 56.58	\$ 56.58	\$ 338.46	\$ 672.54
\$ 9.19	\$ 9.19	\$ 9.28	\$ 9.28	\$ 9.28	\$ 9.28	\$ 55.50	\$ 324.30
\$ 40.99	\$ 5.78	\$ 1.96	\$ 4.23	\$ 1.58	\$ 2.87	\$ 57.41	\$ 476.13
\$ 106.25	\$ 71.05	\$ 67.81	\$ 70.08	\$ 67.44	\$ 68.73	\$ 451.37	\$ 1,472.97
\$ 0.3084	\$ 0.3855	\$ 0.3066	\$ 0.3604	\$ 0.3855	\$ 0.3855	\$ 0.3374	\$ 0.6208
\$ 47.11	\$ 14.93	\$ 8.06	\$ 12.10	\$ 9.66	\$ 11.26	\$ 103.11	\$ 1,402.71
\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0758
\$ 11.65	\$ 2.95	\$ 2.00	\$ 2.56	\$ 1.91	\$ 2.23	\$ 23.32	\$ 171.23
\$165.01	\$88.93	\$77.87	\$84.74	\$79.01	\$82.22	\$577.80	\$3,046.91

\$ 19.54	\$ 1.66	\$ 6.16	\$ 6.13	\$ 3.89	\$ 4.57	\$ 41.95	\$ (87.17)
11.84%	1.87%	7.91%	7.23%	4.92%	5.56%	7.26%	-2.86%
\$ (0.73)	\$ (0.49)	\$ (0.26)	\$ (0.27)	\$ (0.26)	\$ (0.27)	\$ (2.29)	\$ 10.08
-0.69%	-0.69%	-0.39%	-0.39%	-0.39%	-0.39%	-0.51%	0.68%
\$ 20.27	\$ 2.15	\$ 6.42	\$ 6.40	\$ 4.15	\$ 4.84	\$ 44.24	\$ (97.25)
43.03%	14.42%	79.75%	52.91%	42.96%	42.96%	42.90%	-6.93%

Liberty Utilities (EnergyNorth Natural Gas) Corp.

1 d/b/a Liberty Utilities

2 Peak 2019 - 2020 Winter Cost of Gas Filing

71 Annual Bill Comparisons, Nov 18 - Apr 19 vs Nov 19 - Apr 20 - Commercial Rate G-42

72

73

74 November 1, 2019 - April 30, 2020

75 C&I High Winter Use Medium G-42

76 PROPOSED

			Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Winter Nov-Apr
77			830	2,189	3,708	3,406	2,603	2,395	15,130
78	average Usage (Therms)								
79		7/1/2019 5/1/2019							
80	Winter:								
81	Cust. Chg	\$ 169.09 \$ 167.06	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 1,014.54
82	Headblock	\$ 0.4202 \$ 0.4152	\$ 348.79	\$ 420.20	\$ 420.20	\$ 420.20	\$ 420.20	\$ 420.20	\$ 2,449.79
83	Tailblock	\$ 0.2800 \$ 0.2766	\$ -	\$ 332.82	\$ 758.10	\$ 673.62	\$ 448.79	\$ 390.57	\$ 2,603.90
84	HB Threshold	1,000 1,000							
85									
86	Summer:								
87	Cust. Chg	\$169.09 \$167.06							
88	Headblock	\$ 0.4202 \$ 0.4152							
89	Tailblock	\$ 0.2800 \$ 0.2766							
90	HB Threshold	400 400							
91									
92	Total Base Rate Amount		\$ 517.88	\$ 922.11	\$ 1,347.39	\$ 1,262.91	\$ 1,038.08	\$ 979.86	\$ 6,068.23
93									
94	COG Rate - (Seasonal)		\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190	\$ 0.6190
95	COG amount		\$ 513.81	\$ 1,354.77	\$ 2,294.95	\$ 2,108.18	\$ 1,611.14	\$ 1,482.44	\$ 9,365.28
96									
97	LDAC		\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494	\$ 0.0494
98	LDAC amount		\$ 41.00	\$ 108.12	\$ 183.15	\$ 168.24	\$ 128.58	\$ 118.30	\$ 747.39
99									
100	Total Bill		\$ 1,072.69	\$ 2,384.99	\$ 3,825.49	\$ 3,539.33	\$ 2,777.79	\$ 2,580.61	\$ 16,180.90

102 November 1, 2018 - April 30, 2019

103 C&I High Winter Use Medium G-42

104 CURRENT

			Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Winter Nov-Apr
105			830	2,189	3,708	3,406	2,603	2,395	15,130
106	average Usage (Therms)								
107		5/1/2018 7/1/2018							
108	Winter:								
109	Cust. Chg	\$ 160.36 \$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 1,002.36
110	Headblock	\$ 0.3986 \$ 0.4152	\$ 344.64	\$ 415.20	\$ 415.20	\$ 415.20	\$ 415.20	\$ 415.20	\$ 2,420.64
111	Tailblock	\$ 0.2655 \$ 0.2766	\$ -	\$ 328.78	\$ 748.90	\$ 665.44	\$ 443.34	\$ 385.83	\$ 2,572.28
112	HB Threshold	1,000 1,000							
113									
114	Summer:								
115	Cust. Chg	\$ 168.21 \$ 169.75							
116	Headblock	\$ 0.4181 \$ 0.4219							
117	Tailblock	\$ 0.2785 \$ 0.2811							
118	HB Threshold	400 400							
119									
120	Total Base Rate Amount		\$ 511.70	\$ 911.04	\$ 1,331.16	\$ 1,247.70	\$ 1,025.60	\$ 968.09	\$ 5,995.28
121									
122	COG Rate - (Seasonal)		\$ 0.7403	\$ 0.7403	\$ 0.7496	\$ 0.6707	\$ 0.5204	\$ 0.5817	\$0.6640
123	COG amount		\$ 614.49	\$ 1,620.25	\$ 2,779.15	\$ 2,284.26	\$ 1,354.50	\$ 1,393.11	\$ 10,045.76
124									
125	LDAC		\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757
126	LDAC amount		\$ 62.84	\$ 165.68	\$ 280.66	\$ 257.82	\$ 197.03	\$ 181.29	\$ 1,145.32
127									
128	Total Bill		\$ 1,189.03	\$ 2,696.97	\$ 4,390.97	\$ 3,789.78	\$ 2,577.13	\$ 2,542.49	\$ 17,186.36
129									
130	DIFFERENCE:								
131	Total Bill		\$ (116.34)	\$ (311.97)	\$ (565.48)	\$ (250.45)	\$ 200.66	\$ 38.11	\$ (1,005.46)
132	% Change		-9.78%	-11.57%	-12.88%	-6.61%	7.79%	1.50%	-5.85%
133									
134	Base Rate		\$ 6.18	\$ 11.07	\$ 16.24	\$ 15.21	\$ 12.48	\$ 11.77	\$ 72.95
135	% Change		1.21%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
136									
137	COG & LDAC		\$ (122.52)	\$ (323.05)	\$ (581.71)	\$ (265.66)	\$ 188.18	\$ 26.34	\$ (1,078.41)
138	% Change		-19.94%	-19.94%	-20.93%	-11.63%	13.89%	1.89%	-10.73%

Schedule 8

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May 1, 2019 - October 31, 2019

May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Summer May-Oct	Total Nov-Oct
1,319	484	285	247	269	340	2,943	18,073
\$ 167.06	\$ 167.06	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 1,010.48	\$ 2,025.02
\$ 166.08	\$ 166.08	\$ 119.59	\$ 103.61	\$ 112.86	\$ 143.03	\$ 811.24	\$ 3,261.04
\$ 254.20	\$ 23.26	\$ -	\$ -	\$ -	\$ -	\$ 277.46	\$ 2,881.36
\$ 587.34	\$ 356.40	\$ 288.68	\$ 272.70	\$ 281.95	\$ 312.12	\$ 2,099.18	\$ 8,167.41
\$ 0.4417	\$ 0.4417	\$ 0.5521	\$ 0.5521	\$ 0.5521	\$ 0.5521	\$ 0.4845	\$ 0.5971
\$ 582.61	\$ 213.82	\$ 157.12	\$ 136.14	\$ 148.28	\$ 187.93	\$ 1,425.90	\$ 10,791.18
\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0537
\$ 99.85	\$ 36.65	\$ 21.54	\$ 18.67	\$ 20.33	\$ 25.77	\$ 222.80	\$ 970.19
\$ 1,269.79	\$ 606.87	\$ 467.34	\$ 427.50	\$ 450.56	\$ 525.81	\$ 3,747.88	\$ 19,928.78

May 1, 2018 - October 31, 2018

May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Summer May-Oct	Total Nov-Oct
1,319	484	285	247	269	340	2,943	18,073
\$ 168.21	\$ 168.21	\$ 169.75	\$ 169.75	\$ 169.75	\$ 169.75	\$ 1,015.42	\$ 2,017.78
\$ 167.24	\$ 167.24	\$ 120.07	\$ 104.03	\$ 113.31	\$ 143.61	\$ 815.50	\$ 3,236.14
\$ 255.94	\$ 28.09	\$ -	\$ -	\$ -	\$ -	\$ 284.03	\$ 2,856.31
\$ 591.39	\$ 363.54	\$ 289.82	\$ 273.78	\$ 283.06	\$ 313.36	\$ 2,114.96	\$ 8,110.24
\$ 0.3084	\$ 0.3855	\$ 0.3066	\$ 0.3604	\$ 0.3855	\$ 0.3855	\$0.3412	\$0.6114
\$ 406.78	\$ 186.62	\$ 87.26	\$ 88.87	\$ 103.54	\$ 131.22	\$ 1,004.28	\$ 11,050.04
\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$0.0763	\$0.0758
\$ 100.64	\$ 36.94	\$ 21.71	\$ 18.81	\$ 20.49	\$ 25.97	\$ 224.57	\$ 1,369.89
\$ 1,098.82	\$ 587.09	\$ 398.79	\$ 381.46	\$ 407.09	\$ 470.55	\$ 3,343.80	\$ 20,530.17

\$ 170.98	\$ 19.78	\$ 68.55	\$ 46.04	\$ 43.47	\$ 55.27	\$ 404.08	\$ (601.38)
15.96%	3.37%	17.19%	12.07%	10.68%	11.74%	12.98%	-2.93%
\$ (4.06)	\$ (7.14)	\$ (1.14)	\$ (1.08)	\$ (1.12)	\$ (1.24)	\$ (15.77)	\$ 57.17
-0.69%	-1.96%	-0.39%	-0.39%	-0.39%	-0.40%	-0.75%	0.70%
\$ 175.03	\$ 26.92	\$ 69.70	\$ 47.12	\$ 44.58	\$ 56.50	\$ 419.85	\$ (658.56)
43.03%	14.42%	79.88%	53.02%	43.06%	43.06%	41.81%	-5.96%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
 d/b/a Liberty Utilities
 2 Peak 2019 - 2020 Winter Cost of Gas Filing
 139 Annual Bill Comparisons, Nov 18 - Apr 19 vs Nov 19 - Apr 20 - Commercial Rate G-52

140
 141
 142 November 1, 2019 - April 30, 2020
 143 Commercial Rate (G-52)

144 PROPOSED		Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Winter Nov-Apr
146 average Usage (Therms)		1,352	1,866	2,284	2,160	1,886	1,760	11,306
147								
148 Winter:	7/1/2019 5/1/2019							
149 Cust. Chg	\$ 169.09 \$ 167.06	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 1,014.54
150 Headblock	\$ 0.2392 \$ 0.2363	\$ 239.20	\$ 239.20	\$ 239.20	\$ 239.20	\$ 239.20	\$ 239.20	\$ 1,435.20
151 Tailblock	\$ 0.1593 \$ 0.1574	\$ 56.03	\$ 137.94	\$ 204.48	\$ 184.73	\$ 141.07	\$ 121.08	\$ 845.32
152 HB Threshold	1,000 1,000							
153								
154 Summer:								
155 Cust. Chg	\$ 169.09 \$ 167.06							
156 Headblock	\$ 0.1733 \$ 0.1712							
157 Tailblock	\$0.0985 \$0.0973							
158 HB Threshold	1,000 1,000							
159								
160 Total Base Rate Amount		\$ 464.32	\$ 546.23	\$ 612.77	\$ 593.02	\$ 549.36	\$ 529.37	\$ 3,295.06
161								
162 COG Rate - (Seasonal)		\$0.6258	\$0.6258	\$0.6258	\$0.6258	\$0.6258	\$0.6258	\$0.6258
163 COG amount		\$ 845.92	\$ 1,167.69	\$ 1,429.07	\$ 1,351.49	\$ 1,179.97	\$ 1,101.44	\$ 7,075.59
164								
165 LDAC		\$0.0494	\$0.0494	\$0.0494	\$0.0494	\$0.0494	\$0.0494	0.0494
166 LDAC amount		\$ 66.77	\$ 92.17	\$ 112.81	\$ 106.68	\$ 93.14	\$ 86.94	\$ 558.53
167								
168 Total Bill		\$1,377.02	\$1,806.09	\$2,154.65	\$2,051.19	\$1,822.47	\$1,717.76	\$10,929.18

169
 170 November 1, 2018 - April 30, 2019
 171 Commercial Rate (G-52)

172 CURRENT		Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	Winter Nov-Apr
174 average Usage (Therms)		1,352	1,866	2,284	2,160	1,886	1,760	11,306
175								
176 Winter:	5/1/2018 7/1/2018							
177 Cust. Chg	\$ 160.36 \$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 1,002.36
178 Headblock	\$ 0.2268 \$ 0.2363	\$ 236.30	\$ 236.30	\$ 236.30	\$ 236.30	\$ 236.30	\$ 236.30	\$ 1,417.80
179 Tailblock	\$ 0.1511 \$ 0.1574	\$ 55.36	\$ 136.29	\$ 202.04	\$ 182.52	\$ 139.38	\$ 119.63	\$ 835.24
180 HB Threshold	1,000 1,000							
181								
182 Summer:								
183 Cust. Chg	\$ 168.21 \$ 169.75							
184 Headblock	\$ 0.1724 \$ 0.1740							
185 Tailblock	\$ 0.0980 \$ 0.0989							
186 HB Threshold	1,000 1,000							
187								
188 Total Base Rate Amount		\$ 458.72	\$ 539.65	\$ 605.40	\$ 585.88	\$ 542.74	\$ 522.99	\$ 3,255.40
189								
190 COG Rate - (Seasonal)		\$ 0.7456	\$ 0.7456	\$ 0.7549	\$ 0.6760	\$ 0.5257	\$ 0.5870	\$ 0.6728
191 COG amount		\$ 1,007.86	\$ 1,391.23	\$ 1,723.88	\$ 1,459.91	\$ 991.23	\$ 1,033.15	\$ 7,607.26
192								
193 LDAC		\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757	\$ 0.0757
194 LDAC amount		\$ 102.33	\$ 141.25	\$ 172.87	\$ 163.48	\$ 142.74	\$ 133.24	\$ 855.90
195								
196 Total Bill		\$1,568.91	\$2,072.13	\$2,502.15	\$2,209.27	\$1,676.71	\$1,689.38	\$11,718.56

197								
198 DIFFERENCE:								
199 Total Bill		\$ (191.89)	\$ (266.04)	\$ (347.50)	\$ (158.08)	\$ 145.76	\$ 28.37	\$ (789.38)
200 % Change		-12.23%	-12.84%	-13.89%	-7.16%	8.69%	1.68%	-6.74%
201								
202 Base Rate		\$ 5.60	\$ 6.58	\$ 7.37	\$ 7.13	\$ 6.61	\$ 6.37	\$ 39.66
203 % Change		1.22%	1.22%	1.22%	1.22%	1.22%	1.22%	1.22%
204								
205 COG & LDAC		\$ (197.49)	\$ (272.61)	\$ (354.87)	\$ (165.21)	\$ 139.15	\$ 22.00	\$ (829.04)
206 % Change		-19.60%	-19.60%	-20.59%	-11.32%	14.04%	2.13%	-10.90%

Schedule 8
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May 1, 2019 - October 31, 2019

May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Summer May-Oct	Total Nov-Oct
1,497	1,128	1,032	1,025	1,050	897	6,628	17,935
\$ 167.06	\$ 167.06	\$ 169.09	\$ 169.09	\$ 169.09	\$ 169.09	\$ 1,010.48	\$ 2,025.02
\$ 171.20	\$ 171.20	\$ 173.30	\$ 173.30	\$ 173.30	\$ 155.41	\$ 1,017.71	\$ 2,452.91
\$ 48.96	\$ 12.58	\$ 3.15	\$ 2.47	\$ 4.90	\$ -	\$ 72.06	\$ 917.38
\$ 387.22	\$ 350.84	\$ 345.54	\$ 344.86	\$ 347.29	\$ 324.50	\$ 2,100.25	\$ 5,395.31
\$0.4506	\$0.4506	\$0.5633	\$0.5633	\$0.5633	\$0.5633	\$0.5187	\$0.5862
\$ 674.55	\$ 508.16	\$ 581.30	\$ 577.41	\$ 591.35	\$ 505.16	\$ 3,437.93	\$ 10,513.52
\$0.0757	\$0.0757	\$0.0757	\$0.0757	\$0.0757	\$0.0757	\$0.0757	\$0.0591
\$ 113.32	\$ 85.37	\$ 78.12	\$ 77.60	\$ 79.47	\$ 67.89	\$ 501.76	\$ 1,060.29
\$1,175.09	\$944.37	\$1,004.95	\$999.86	\$1,018.11	\$897.55	\$6,039.94	\$16,969.12

May 1, 2018 - October 31, 2018

May-18	Jun-18	Jul-18	Aug-18	Sep-18	Oct-18	Summer May-Oct	Total Nov-Oct
1,497	1,128	1,032	1,025	1,050	897	6,628	17,935
\$ 168.21	\$ 168.21	\$ 169.75	\$ 169.75	\$ 169.75	\$ 169.75	\$ 1,015.42	\$ 2,017.78
\$ 172.40	\$ 172.40	\$ 174.00	\$ 174.00	\$ 174.00	\$ 156.04	\$ 1,022.84	\$ 2,440.64
\$ 48.71	\$ 12.52	\$ 3.16	\$ 2.48	\$ 4.92	\$ -	\$ 71.79	\$ 907.03
\$ 389.32	\$ 353.13	\$ 346.91	\$ 346.23	\$ 348.67	\$ 325.79	\$ 2,110.05	\$ 5,365.45
\$ 0.3299	\$ 0.4124	\$ 0.3335	\$ 0.3873	\$ 0.4124	\$ 0.4124	\$ 0.3776	\$ 0.5637
\$ 493.86	\$ 465.08	\$ 344.16	\$ 397.00	\$ 432.94	\$ 369.83	\$ 2,502.87	\$ 10,110.13
\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0763	\$ 0.0759
\$ 114.22	\$ 86.05	\$ 78.74	\$ 78.21	\$ 80.10	\$ 68.42	\$ 505.74	\$ 1,361.64
\$997.40	\$904.25	\$769.80	\$821.44	\$861.71	\$764.05	\$5,118.66	\$16,837.22

\$ 177.69	\$ 40.12	\$ 235.15	\$ 178.42	\$ 156.40	\$ 133.50	\$ 921.28	\$ 131.90
17.82%	4.44%	30.55%	21.72%	18.15%	17.47%	18.00%	0.78%
\$ (2.10)	\$ (2.29)	\$ (1.37)	\$ (1.37)	\$ (1.38)	\$ (1.29)	\$ (9.80)	\$ 29.86
-0.54%	-0.65%	-0.40%	-0.40%	-0.40%	-0.40%	-0.46%	0.56%
\$ 179.79	\$ 42.40	\$ 236.52	\$ 179.79	\$ 157.78	\$ 134.79	\$ 931.08	\$ 102.04
36.40%	9.12%	68.73%	45.29%	36.45%	36.45%	37.20%	1.01%

Liberty Utilities (EnergyNorth Natural Gas) Corp.

1 d/b/a Liberty Utilities

2 Peak 2019 - 2020 Winter Cost of Gas Filing

207 Residential Heating

	Winter 2018-19	Winter 2019-20
208		
209 Customer Charge	\$ 15.02	\$ 15.20
210 First 100 Therms	\$ 0.5502	\$ 0.5569
211 Excess 100 Therms	\$ 0.5502	\$ 0.5569
212 LDAC	\$ 0.0660	\$ 0.0635
213 COG	\$ 0.6633	\$ 0.6203
214 Total Adjust	\$ 0.7293	\$ 0.6838

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Winter 2017-18 COG @	Winter 2018-19 COG @
\$0.7293	\$0.6838

Total		Base Rate		COG		LDAC	
\$ Impact	% Impact	\$ Impact	% Impact	\$ Impact	% Impact	\$ Impact	% Impact
(\$0.05)	-6%						
(\$0.23)	-1%	\$0.00	0%	-\$0.22	-1%	-\$0.01	0%
(\$0.45)	-2%	\$0.00	0%	-\$0.43	-2%	-\$0.02	0%
(\$0.91)	-2%	\$0.00	0%	-\$0.86	-2%	-\$0.05	0%
(\$1.36)	-3%	\$0.00	0%	-\$1.29	-2%	-\$0.07	0%
(\$2.05)	-3%	\$0.00	0%	-\$1.94	-3%	-\$0.11	0%
(\$2.27)	-3%	\$0.00	0%	-\$2.15	-3%	-\$0.12	0%
(\$3.41)	-3%	\$0.00	0%	-\$3.23	-3%	-\$0.18	0%
(\$6.05)	-3%	\$0.00	0%	-\$5.72	-3%	-\$0.33	0%
(\$6.82)	-3%	\$0.00	0%	-\$6.45	-3%	-\$0.37	0%
(\$9.10)	-3%	\$0.00	0%	-\$8.61	-3%	-\$0.49	0%

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 d/b/a Liberty Utilities

3 Peak 2019 - 2020 Winter Cost of Gas Filing

4 Variance Analysis of the Components of the Winter 2018-19 Actual Results vs Proposed Winter 2019-20 Cost of Gas Rate

Schedule 9

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11 Therm Sales (COG)

12

13

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15

16 Demand Charges

17

18 Purchased Gas

19

20 Storage/Produced Gas

21

22 Hedging (Gain)/Loss

23

24

25 Total Volumes and Cost

26

27 Direct Costs

28 Prior Period Balance

29 Interest

30 Prior Period Adjustment

31 Broker Revenues

32 Refunds from Suppliers

33 Fuel Financing

34 Transportation CGA Revenues

35 280 Day Margin

36 Interruptible Sales Margin

37 Capacity Release and Off System Sales Margins

38 Hedging Costs

39 FPO Admin Costs

40 Indirect Costs

41 Misc Overhead

42 Occupant Disallowance/Credits

43 Production & Storage

44 Bad Debt Adjustment %

45 Cashout, Broker penalty, Canadian Managed,...

46 Total Adjusted Cost

WINTER 2018-19 ACTUAL RESULTS
(6 months actual)

WINTER 2019-20
(6 months Proposed)

134,700,275			87,788,508		
THERM SENDOUT	COSTS	EFFECT ON COST OF GAS	THERM SENDOUT	COSTS	EFFECT ON COST OF GAS
	\$ 11,092,134	\$ 0.0823		\$ 11,060,200	\$ 0.1260
	44,595,679	0.3311	70,010,341	34,260,417	0.3903
	-	-	22,531,702	6,615,055	0.0754
	-	-	-	-	-
91,441,600	\$ 55,687,813	\$ 0.4134	92,542,043	\$ 51,935,672	\$ 0.5916
	\$ 1,648,096	\$ 0.0122	\$ 1,912,210	\$ 0.0218	
	(33,686)	(0.0003)	(81,952)	(0.0009)	
	-	-	351,641	0.0040	
	(30,924)	(0.0002)	(30,924)	(0.0004)	
	-	-	-	-	
	-	-	-	-	
	(29,161)	(0.0002)	(44,891)	(0.0005)	
	-	-	-	-	
	-	-	-	-	
	(1,875,483)	(0.0139)	(1,875,483)	(0.0214)	
	-	-	-	-	
	-	-	45,000	0.0005	
	-	-	-	-	
	10,681	0.0001	10,649	0.0001	
	-	-	-	-	
	1,980,428	0.0147	1,980,428	0.0226	
	-	-	260,253	0.0030	
	-	-	-	-	
\$ 57,357,763	\$ 0.4258		\$ 54,462,603	\$ 0.6204	

Liberty Utilities (EnergyNorth Natural Gas) Corp.

d/b/a Liberty Utilities

Peak 2019 - 2020 Winter Cost of Gas Filing

Capacity Assignment Calculations 2019-2020

Derivation of Class Assignments and Weightings

Schedule 10A

Page 1 of 3

Basic assumptions:

- 1 Residential class pays average seasonal gas cost rate (using MBA method to allocate costs to seasons)
- 2 Residual gas costs are allocated to C&I HLF and LLF classes based on MBA method
- 3 The MBA method allocates capacity costs based on design day demands in two pieces:
 - a The base use portion of the class design day demand based on base use
 - b The remaining portion of design day demand based on remaining design day demand
- 4 Base demand is composed solely of pipeline supplies
- 5 Remaining demand consists of a portion of pipeline and all storage and peaking supplies

		Column A	Column B	Column C	Column D	Column E	Column F
		Design Day Demand, Dktherm	Adjusted Design Day Demand, Dt	Percent of Total		Avg Daily Base Use Load, Dt	Remaining Design Day Demand
1	RATE R-1-Resi Non-Htg	476	479	0.3%		100	379
2	RATE R-3-Resi Htg	71,532	72,164	43.2%		3,607	68,557
3	RATE G-41 (T)	31,571	31,857	19.1%		815	31,042
4	RATE G-51 (S)	2,494	2,511	1.5%		690	1,821
5	RATE G-42 (V)	38,675	39,020	23.4%		1,584	37,436
6	RATE G-52	5,492	5,527	3.3%		1,751	3,776
7	RATE G-43	8,862	8,940	5.4%		500	8,440
8	RATE G-53	3,481	3,498	2.1%		1,616	1,882
9	RATE G-54	3,060	3,086	1.8%		225	2,862
10							
11	Total	165,643	167,083	100.0%		10,890	156,193
12							
13	Residential Total	72,008	72,643	43.477%		3,707	68,935
14	LLF Total	79,109	79,818	47.771%		2,900	76,918
15	HLF Total	14,527	14,622	8.762%		4,282	10,340
16	Total	165,643	167,083	100.0%		10,890	156,193
17							
18	C&I Breakdown						
19	LLF Total					2,900	76,918
20	HLF Total					4,282	10,340
21	Total					7,182	87,258
22							
23	C&I Breakdown Percentage						
24	LLF Total					40.377%	88.150%
25	HLF Total					59.623%	11.850%
26	Total					100.0%	100.0%
27							
28		Capacity Cost	MDQ, Dt	\$/Dt-Mo.			
29	Pipeline	\$12,337,197	79,718	\$12.8967			
30	Storage	\$4,336,601	28,115	\$12.8538			
31							
32	Peaking	\$4,459,829					
33	Peaking Additional Costs		59,250	\$6.2726			
34	Subtotal Peaking Costs	\$4,459,829					
35	Total	\$21,133,627	167,083	\$10.5405			
36							
37		Capacity Cost	MDQ, Dt	\$/Dt-Mo.			
38	Pipeline - Baseload	1,685,265	10,890	\$12.8967			
39	Pipeline - Remaining	10,651,932	68,828	\$12.8967			
40	Storage	4,336,601	28,115	\$12.8538			
41	Peaking	4,459,829	59,250	\$6.2726			
42	Total	21,133,627	167,083	\$10.5405			
43							
44							
45	Residential Allocation	Capacity Cost	MDQ, Dt	\$/Dt-Mo.			
46	Pipeline - Base	Line 38 * Line 13 Col C	732,702	4,734	\$12.8967		
47	Pipeline - Remaining	Line 39 * Line 13 Col C	4,631,137	29,925	\$12.8967		
48	Storage	Line 40 * Line 13 Col C	1,885,430	12,224	\$12.8538		
49	Peaking	Line 41 * Line 13 Col C	1,938,986	25,760	\$6.2726		
50	Total	43.477%	9,188,266	72,643	\$10.5405		

Liberty Utilities (EnergyNorth Natural Gas) Corp.

d/b/a Liberty Utilities

Peak 2019 - 2020 Winter Cost of Gas Filing

Capacity Assignment Calculations 2019-2020

Derivation of Class Assignments and Weightings

Schedule 10A
Page 2 of 3

51									
52									
53	C&I Allocation		Capacity Cost	MDQ, Dt	\$/Dt-Mo.	Ratios for COG			
54	Pipeline - Base	Line 38 - Line 46	952,562	6,155	\$12.8967	1.0000			
55	Pipeline - Remaining	Line 39 - Line 47	6,020,796	38,904	\$12.8967				
56	Storage	Line 40 - Line 48	2,451,171	15,891	\$12.8537				
57	Peaking	Line 41 - Line 49	2,520,843	33,490	\$6.2726				
58	Total		56.523%	11,945,371	94,440	\$10.5405			
59									
60									
61	LLF - C&I Allocation		Capacity Cost	MDQ, Dt	\$/Dt-Mo.	0.9918	(Line 66 / Line 58)		
62	Pipeline - Base	Line 54 * Line 24 Col E	384,620	2,485	\$12.8981				
63	Pipeline - Remaining	Line 55 * Line 24 Col F	5,307,319	34,294	\$12.8966				
64	Storage	Line 56 * Line 24 Col F	2,160,702	14,008	\$12.8540				
65	Peaking	Line 57 * Line 24 Col F	2,222,118	29,521	\$6.2727				
66	Total		47.6717%	10,074,759	80,308	\$10.4543			
67			40.377%	84%					
68									
69	HLF - C&I Allocation		Capacity Cost	MDQ, Dt	\$/Dt-Mo.	1.0465	(Line 74 / Line 58)		
70	Pipeline - Base	Line 54 - Line 62	567,942	3,670	\$12.8960				
71	Pipeline - Remaining	Line 55 - Line 63	713,477	4,610	\$12.8973				
72	Storage	Line 56 - Line 64	290,469	1,883	\$12.8549				
73	Peaking	Line 57 - Line 65	298,725	3,969	\$6.2720				
74	Total		8.8514%	1,870,613	14,132	\$11.0306			
75									
76									
77	Unit Cost		Residential	LLF C&I	HLF C&I				
78									
79	Pipeline		\$ 12.8967	\$ 12.8967	\$ 12.8967				
80	Storage		\$ 12.8538	\$ 12.8538	\$ 12.8538				
81	Peaking		\$ -	\$ -	\$ -				
82	Total		\$ 10.5405	\$ 10.4543	\$ 11.0306				
83									
84									
85	Load Makeup		Residential	LLF C&I	HLF C&I				
86									
87	Pipeline		47.71%	45.80%	58.59%				
88	Storage		16.83%	17.44%	13.32%				
89	Peaking		35.46%	36.76%	28.09%				
90	Total		100.00%	100.00%	100.00%				
91									
92									
93	Supply Makeup		Residential	LLF C&I	HLF C&I	Total			
94									
95	Pipeline		43.48%	46.14%	10.39%	100.00%			
96	Storage		43.48%	49.82%	6.70%	100.00%			
97	Peaking		43.48%	49.82%	6.70%	100.00%			

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 d/b/a Liberty Utilities

3 2019-2020 Winter Calculation

4 Correction Factor Calculation

5

6

7

8 Data Source: Schedule 10B

9

10

11 G-41

12 G-42

13 G-43

14 High Winter Use

15

16 G-51

17 G-52

18 G-53

19 G-54

21 Low Winter Use

22

23 Gross Total

24

25

26 Total Sales

27 Low Winter Use

28 Winter Ratio for Low Winter Use

29 High Winter Use

30 Winter Ratio for High Winter Use

31

32 Correction Factor =

33 Correction Factor =

34

35

36 Allocation Calculation for Miscellaneous Overhead

37

38 Projected Winter Sales Volume

39 Projected Annual Sales Volume

40 Percentage of Winter Sales to Annual Sales

	d	e	f	g	h	i	Total Sales
	Nov	Dec	Jan	Feb	Mar	Apr	
G-41	1,362,747	2,392,390	3,265,083	3,609,169	3,018,720	1,978,893	15,627,001
G-42	993,611	1,721,619	2,311,289	2,414,040	2,010,439	1,425,998	10,876,995
G-43	224,486	313,974	456,238	520,420	455,122	372,393	2,342,633
High Winter Use	2,580,845	4,427,982	6,032,609	6,543,629	5,484,281	3,777,283	28,846,629
G-51	242,511	317,486	388,757	406,064	374,579	290,084	2,019,481
G-52	246,942	308,934	379,059	402,212	378,945	301,429	2,017,521
G-53	173,425	275,747	681,477	562,748	510,559	457,116	2,661,072
G-54	38,526	40,125	42,439	44,776	45,279	41,551	252,696
Low Winter Use	701,404	942,292	1,491,731	1,415,801	1,309,362	1,090,181	6,950,770
Gross Total	3,282,249	5,370,274	7,524,341	7,959,429	6,793,642	4,867,464	35,797,399

35,797,399

6,950,770

1.0465 Schedule 10A p 2, ln 74

28,846,629

0.9918 Schedule 10A p 2, ln 66

Total Sales/((Low Winter Use x Winter Ratio for Low Winter Use)+(High Winter Use x Winter Ratio for High Winter Use))

99.7585%

11/1/19 - 4/30/20

11/1/19 - 10/31/20

88,325,512 Sch.10B, ln 23

109,235,165 Sch.10B, ln 23

80.86%

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 d/b/a Liberty Utilities

3 Peak 2019 - 2020 Winter Cost of Gas Filing

4 2019 - 2020 Winter Cost of Gas Filing

5

6

7 Firm Sales

8

9 R-1

10 R-3

11 R-4

12 Total Residential.

13

14 G-41

15 G-42

16 G-43

17 G-51

18 G-52

19 G-53

20 G-54

21 Total C/I

22

23 Sales Volume

24

25 Transportation Sales

26

27 G-41

28 G-42

29 G-43

30 G-51

31 G-52

32 G-53

33 G-54

34

35 Total Trans. Sales

36

37 Total All Sales

Schedule 10 B

Page 1 of 1

Dry Therms

	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Subtotal PK 19-20	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Subtotal OP 20	Total
9 R-1	64,441	81,258	94,340	96,957	88,775	67,522	493,293	48,853	33,289	25,753	27,155	35,378	47,895	218,322	711,615
10 R-3	3,976,866	7,288,275	10,335,588	11,068,345	9,377,386	6,305,835	48,352,296	3,631,507	1,745,119	990,322	965,942	1,458,088	2,616,925	11,407,904	59,760,200
11 R-4	240,702	454,184	715,200	879,999	779,069	613,370	3,682,524	386,095	190,722	96,795	84,852	104,149	160,520	1,023,133	4,705,657
12 Total Residential.	4,282,009	7,823,717	11,145,128	12,045,301	10,245,231	6,986,726	52,528,113	4,066,455	1,969,131	1,112,870	1,077,949	1,597,614	2,825,340	12,649,359	65,177,472
14 G-41	1,362,747	2,392,390	3,265,083	3,609,169	3,018,720	1,978,893	15,627,001	825,988	374,233	227,968	173,804	187,407	474,514	2,263,916	17,890,916
15 G-42	993,611	1,721,619	2,311,289	2,414,040	2,010,439	1,425,998	10,876,995	830,511	510,566	256,263	128,806	83,159	252,829	2,062,134	12,939,129
16 G-43	224,486	313,974	456,238	520,420	455,122	372,393	2,342,633	189,272	123,198	83,814	65,939	75,550	119,551	657,325	2,999,958
17 G-51	242,511	317,486	388,757	406,064	374,579	290,084	2,019,481	205,405	132,424	100,060	100,572	126,916	169,428	834,804	2,854,285
18 G-52	246,942	308,934	379,059	402,212	378,945	301,429	2,017,521	221,428	149,131	116,062	116,101	142,266	181,913	926,900	2,944,421
19 G-53	173,425	275,747	681,477	562,748	510,559	457,116	2,661,072	322,179	227,722	182,794	173,508	190,531	223,488	1,320,222	3,981,294
20 G-54	38,526	40,125	42,439	44,776	45,279	41,551	252,696	38,279	31,307	27,452	28,722	33,712	35,520	194,992	447,688
21 Total C/I	3,282,249	5,370,274	7,524,341	7,959,429	6,793,642	4,867,464	35,797,399	2,633,063	1,548,582	994,413	787,452	839,540	1,457,243	8,260,293	44,057,693
23 Sales Volume	7,564,258	13,193,992	18,669,469	20,004,731	17,038,873	11,854,190	88,325,512	6,699,518	3,517,713	2,107,283	1,865,401	2,437,154	4,282,582	20,909,652	109,235,165
25 Transportation Sales															
27 G-41	555,619	790,553	1,071,220	1,155,934	959,109	752,710	5,285,146	404,406	216,089	122,280	125,438	170,851	296,475	1,335,538	6,620,684
28 G-42	1,913,476	2,771,360	3,801,397	4,119,616	3,415,094	2,676,976	18,697,919	1,430,035	731,604	370,607	344,836	474,677	928,578	4,280,338	22,978,257
29 G-43	644,512	946,093	1,216,856	1,344,314	1,241,733	983,928	6,377,436	820,255	505,388	334,036	286,714	325,900	492,397	2,764,690	9,142,126
30 G-51	60,487	66,804	78,538	91,139	86,757	83,475	467,200	111,038	95,930	91,646	109,919	126,508	114,619	649,661	1,116,861
31 G-52	447,663	473,008	519,762	559,195	542,424	501,133	3,043,185	571,984	525,066	533,825	652,940	768,136	719,601	3,771,552	6,814,737
32 G-53	665,616	871,883	1,124,142	1,267,722	1,261,236	1,154,978	6,345,577	1,058,787	757,840	520,024	425,038	404,383	502,917	3,668,989	10,014,566
33 G-54	1,876,671	1,885,410	1,949,916	1,658,420	1,596,606	1,527,872	10,494,895	1,414,172	1,435,517	1,419,611	1,552,030	1,636,150	1,761,239	9,218,719	19,713,614
35 Total Trans. Sales	6,164,045	7,805,111	9,761,832	10,196,340	9,102,958	7,681,073	50,711,358	5,810,677	4,267,434	3,392,030	3,496,914	3,906,604	4,815,826	25,689,486	76,400,844
37 Total All Sales	13,728,303	20,999,102	28,431,301	30,201,070	26,141,831	19,535,263	139,036,871	12,510,195	7,785,147	5,499,313	5,362,316	6,343,759	9,098,408	46,599,138	185,636,009

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 d/b/a Liberty Utilities

3 Peak 2019 - 2020 Winter Cost of Gas Filing

5

Schedule 11A

6

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7 Volumes (Therms)

Normal Year

8

9 For the Months of May 20 - October 20

10

11

12

13 Pipeline Gas:

14 Dawn Supply

15 Niagara Supply

16 TGP Supply (Gulf)

17 Dracut Supply 1 - Baseload

18 Dracut Supply 2 - Swing

19 Constellation Combo

20 LNG Truck

21 Propane Truck

22 PNGTS

23 Portland Natural Gas

24 TGP Supply (Z4)

25 Subtotal Pipeline Volumes

26

27 Storage Gas:

28 TGP Storage

29

30 Produced Gas:

31 LNG Vapor

32 Propane

33 Subtotal Produced Gas

34

35 Less - Gas Refills:

36 LNG Truck

37 Propane

38 TGP Storage Refill

39 Subtotal Refills

40

41 Total Sendout Volumes

42

	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Peak Nov - Apr
Pipeline Gas:							
Dawn Supply	748,197	851,872	896,211	832,325	899,574	826,763	5,054,942
Niagara Supply	590,118	671,509	706,459	655,574	709,110	652,085	3,984,855
TGP Supply (Gulf)	3,965,821	2,862,930	2,936,768	2,807,740	3,035,695	540,736	16,149,690
Dracut Supply 1 - Baseload	-	2,575,041	4,515,354	3,144,581	-	-	10,234,977
Dracut Supply 2 - Swing	2,418,414	1,456,785	480,947	1,928,329	4,436,334	1,851,169	12,571,979
Constellation Combo	-	1,380,477	1,136,319	1,379,241	243,207	-	4,139,244
LNG Truck	17,634	20,118	1,072,096	676,581	394,845	-	2,181,274
Propane Truck	-	-	669,239	-	-	-	669,239
PNGTS	187,049	212,968	224,053	207,900	224,893	206,691	1,263,554
Portland Natural Gas	809,917	892,107	907,888	900,418	965,503	627,727	5,103,561
TGP Supply (Z4)	1,549,926	1,769,647	1,861,753	1,729,121	1,868,740	4,242,379	13,021,567
Subtotal Pipeline Volumes	10,287,078	12,693,454	15,407,086	14,261,810	12,777,903	8,947,550	74,374,882
Storage Gas:							
TGP Storage	1,013,341	4,434,870	5,057,605	5,372,808	3,218,101	50,803	19,147,528
Produced Gas:							
LNG Vapor	17,634	20,118	1,164,052	615,732	373,601	19,486	2,210,624
Propane	-	-	1,170,620	-	2,930	-	1,173,551
Subtotal Produced Gas	17,634	20,118	2,334,672	615,732	376,532	19,486	3,384,174
Less - Gas Refills:							
LNG Truck	(17,634)	(20,118)	(1,072,096)	(676,581)	(394,845)	-	(2,181,274)
Propane	-	-	(669,239)	-	-	-	(669,239)
TGP Storage Refill	(1,514,028)	-	-	-	-	-	(1,514,028)
Subtotal Refills	(1,531,662)	(20,118)	(1,741,334)	(676,581)	(394,845)	-	(4,364,541)
Total Sendout Volumes	9,786,390	17,128,325	21,058,029	19,573,770	15,977,690	9,017,839	92,542,043

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 d/b/a Liberty Utilities

3 Peak 2019 - 2020 Winter Cost of Gas Filing

43 Normal and Design Year Volumes

Schedule 11B

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44

45

46 Volumes (Therms)

Design Year

47

48 For the Months of May 20 - October 20

49

50

51

Nov-19

Dec-19

Jan-20

Feb-20

Mar-20

Apr-20

Peak
Nov - Apr

52 Pipeline Gas:

53 Dawn Supply

748,197

851,872

896,211

832,325

899,574

826,763

5,054,942

54 Niagara Supply

590,118

671,509

706,459

655,574

709,110

652,085

3,984,855

55 TGP Supply (Gulf)

3,921,736

2,874,723

3,024,346

2,807,740

3,035,695

746,731

16,410,970

56 Dracut Supply 1 - Baseload

-

2,575,041

4,515,354

3,144,581

-

-

10,234,977

57 Dracut Supply 2 - Swing

3,113,708

4,920,465

1,703,384

3,300,325

5,841,369

2,323,705

21,202,957

58 Constellation Combo

-

1,205,663

1,111,505

1,364,753

467,368

-

4,149,289

59 LNG Truck

17,634

26,361

1,173,540

423,769

542,821

-

2,184,124

60 Propane Truck

-

-

656,832

-

12,453

-

669,285

61 PNGTS

187,049

212,968

224,053

207,900

224,893

206,691

1,263,554

62 Portland Natural Gas

809,917

921,937

969,922

900,418

973,562

785,007

5,360,762

63 TGP Supply (Z4)

1,549,926

1,769,647

1,861,753

1,729,121

1,868,740

4,312,668

13,091,856

64 Subtotal Pipeline Volumes

10,938,286

16,030,186

16,843,358

15,366,507

14,575,586

9,853,649

83,607,572

65

66 Storage Gas:

67 TGP Storage

1,039,162

3,257,649

6,013,661

5,625,621

3,138,985

147,537

19,222,614

68

69 Produced Gas:

70 LNG Vapor

17,634

26,361

1,266,226

423,769

459,310

19,486

2,212,786

71 Propane

-

-

1,073,555

12,315

88,639

-

1,174,509

72 Subtotal Produced Gas

17,634

26,361

2,339,781

436,083

547,949

19,486

3,387,294

73

74 Less - Gas Refills:

75 LNG Truck

(17,634)

(26,361)

(1,173,540)

(423,769)

(542,821)

-

-2,184,124

76 Propane

-

-

(656,832)

-

(12,453)

-

-669,285

77 TGP Storage Refill

(1,493,875)

-

-

-

-

-

-1,493,875

78 Subtotal Refills

(1,511,509)

(26,361)

(1,830,371)

(423,769)

(555,274)

-

(4,347,284)

79

80 Total Sendout Volumes

10,483,574

19,287,835

23,366,429

21,004,442

17,707,245

10,020,672

101,870,197

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

Schedule 11C

2 d/b/a Liberty Utilities

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3 Peak 2019 - 2020 Winter Cost of Gas Filing

4 Capacity Utilization

5 Volumes (Therms)

	Peak Period Normal Year Use (Therms)	MDQ (MMBtu/day)	Seasonal Quantity (Therms)	Utilization Rate	Peak Period Design Year Use (Therms)	MDQ (MMBtu/day)	Seasonal Quantity (Therms)	Utilization Rate
11 Pipeline Gas:								
12 Dawn Supply	5,054,942	4,000	7,240,000	70%	5,054,942	4,000	7,240,000	70%
13 Niagara Supply	3,984,855	3,122	5,650,820	71%	3,984,855	3,122	5,650,820	71%
14 TGP Supply (Gulf + Z4)	29,171,258	21,596	39,088,760	75%	29,502,826	21,596	39,088,760	75%
15 Dracut Supply 1 & 2	22,806,956	50,000	90,500,000	25%	31,437,933	50,000	90,500,000	35%
16 LNG Truck	2,181,274	-	-	-	2,184,124	-	-	-
17 Propane Truck	669,239	-	-	-	669,285	-	-	-
18 PNGTS	1,263,554	1,000	1,810,000	70%	1,263,554	1,000	1,810,000	70%
19 Portland Natural Gas	5,103,561	4,432	8,021,920	64%	5,360,762	4,432	8,021,920	67%
20 Constellation Vapor	4,139,244	7,000	6,300,000	66%	4,149,289	7,000	6,300,000	66%
23 Subtotal Pipeline Volumes	74,374,882				83,607,572			
25 Storage Gas:								
26 TGP Storage	19,147,528		25,791,710	74%	19,222,614		25,791,710	75%
28 Produced Gas:								
29 LNG Vapor	2,210,624				2,212,786			
30 Propane	1,173,550.5				1,174,509			
32 Subtotal Produced Gas	3,384,174				3,387,294			
34 Less - Gas Refills:								
35 LNG Truck	(2,181,274)				(2,184,124)			
36 Propane	(669,239)				(669,285)			
37 TGP Storage Refill	(1,514,028)				(1,493,875)			
39 Subtotal Refills	(4,364,541)				(4,347,284)			
41 Total Sendout Volumes	92,542,043				101,870,197			

1 **Liberty Utilities (EnergyNorth Natural Gas) Corp.**
2 **d/b/a Liberty Utilities**
3 **Peak 2019 - 2020 Winter Cost of Gas Filing**

Schedule 11D
Page 1 of 1

Forecast of Upcoming Winter Period
Design Day Report
2019 / 20 Heating Season
(Therms)

Liberty Utilities (EnergyNorth Natural Gas) Corp.
d/b/a Liberty Utilities

Requirements

Firm Sales	1,209,082
Interruptible Sales	0
Firm Transportation	461,747
Interruptible Transportation	0
Total Requirements	1,670,829

Resources

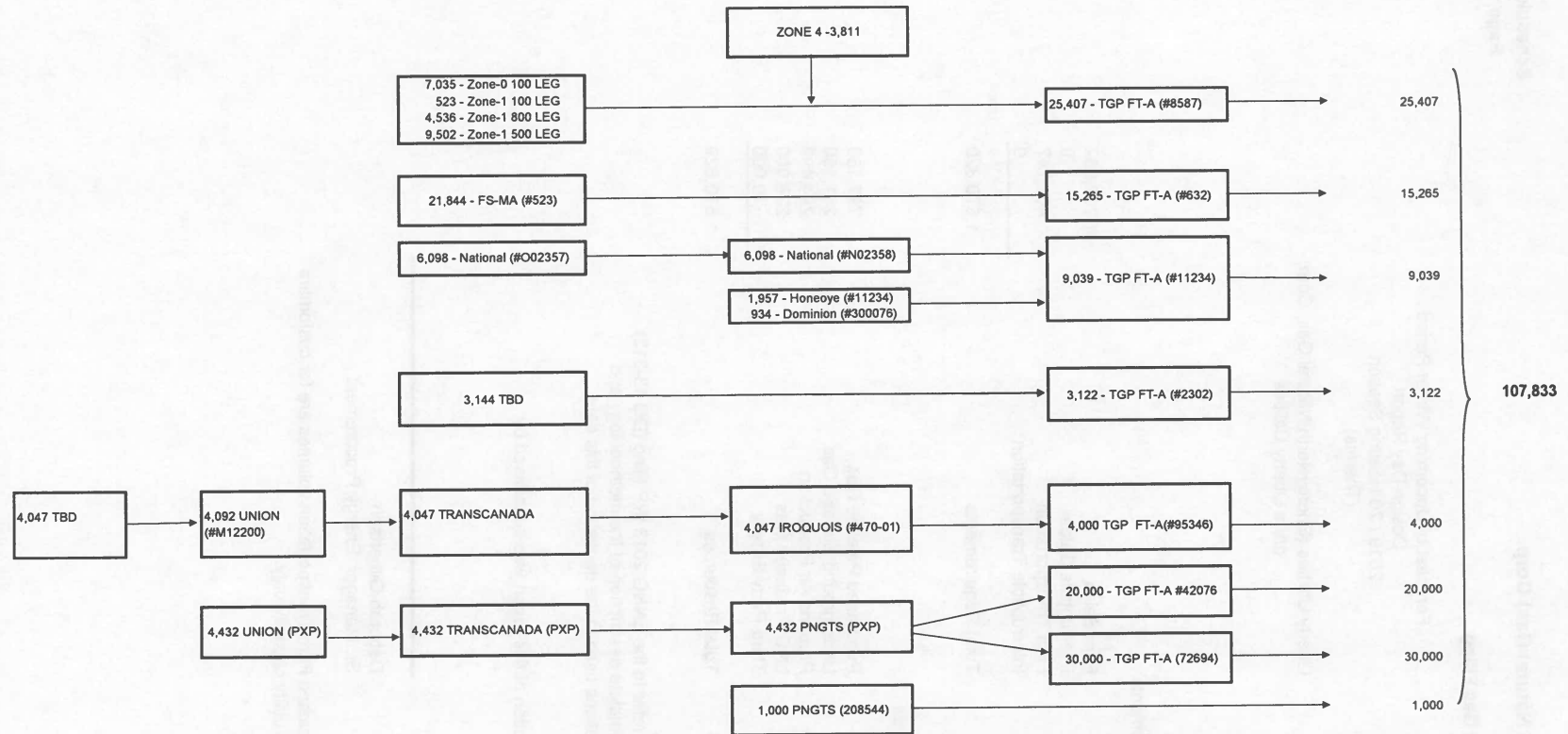
Purchased Pipeline Gas	797,180
Underground Storage Gas	281,150
Propane Air Production	294,499
LNG Produced Gas	228,000
Third-Party Supply	70,000
Total Resources	1,670,829

Please refer to the ENNG 2013 IRP filing (DG 13-313)
for a complete description of the methodology and
assumptions used in the derivation of this data.

Preparation of this report was supervised by:

Deborah Gilbertson
Sr. Manager, Energy Procurement

Note: Forecasted Firm Transportation volumes are for customers
using utility capacity only.



LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.

Peak 2019 - 2020 Winter Cost of Gas Filing
 Transportation Available for Pipeline Supply and Storage
 Agreements for Gas Supply and Transportation

Schedule 12
 Page 2 of 2

SOURCE	RATE SCHEDULE	CONTRACT NUMBER	TYPE	MDQ MMBTU	MAQ * MMBTU	EXPIRATION DATE	NOTIFICATION DATE	RENEWAL OPTIONS
Niagara	NA	NA	Supply	3,147	1,148,655	3/31/2020	N/A	Terminates
ANE	NA	NA	Supply	4,047	611,097	Peak Only	N/A	Terminates
Constellation	FCS		Firm Combination Liquid and Vapor Svc	Up to 10 trucks	730,000	3/31/2020 Peak Only	N/A	Terminates
Dracut or Z6	NA	NA	Supply	Up to 20,000 / day	1,412,000	2/28/2020	N/A	Terminates
TGP Long-Haul	NA	NA	Supply	21,596	3,908,876	4/30/2020	N/A	Terminates
Northern Transport	NA	NA	Trucking	28,500 Gallons	900,000 Gallons		N/A	
Dominion Transmission Incorporated	GSS	300076	Storage	934	102,700	3/31/2021	3/31/2019	Mutually agreed upon
Honeoye Storage Corporation	SS-NY	11234	Storage	1,957	245,380	3/31/2020	12 months notice	Evergreen Provision
National Fuel Gas Supply Corporation	FSS	O02358	Storage	6,098	670,800	3/31/2020	3/31/2019	Evergreen Provision
National Fuel Gas Supply Corporation	FSST	N02358	Transportation	6,098	670,800	3/31/2020	3/31/2019	Evergreen Provision
Iroquois Gas Transmission System	RTS	47001	Transportation	4,047	1,477,155	11/1/2022	11/1/2021	Evergreen Provision
Portland Natural Gas Transmission System	FT	208544	Transportation	1,000	365,000	11/30/2032	11/31/2031	Evergreen Provision
Portland Natural Gas Transmission System	FT	PXP	Transportation	4,432	1,617,680	10/31/2020	10/31/2019	Precedent Agreement
Tennessee Gas Pipeline Company	FS-MA	523	Storage	21,844	1,560,391	10/31/2020	10/31/2019	Evergreen Provision
Tennessee Gas Pipeline Company	FTA	8587	Transportation	25,407	9,273,555	10/31/2020	10/31/2019	Evergreen Provision
Tennessee Gas Pipeline Company	FTA	2302	Transportation	3,122	1,139,530	10/31/2020	10/31/2019	Evergreen Provision
Tennessee Gas Pipeline Company	FTA	632	Transportation	15,265	5,571,725	10/31/2020	10/31/2019	Evergreen Provision
Tennessee Gas Pipeline Company	FTA	11234	Transportation	9,039	3,299,235	10/31/2020	10/31/2019	Evergreen Provision
Tennessee Gas Pipeline Company	FTA	72694	Transportation	30,000	10,950,000	10/31/2029	10/31/2029	Evergreen Provision
Tennessee Gas Pipeline Company	FTA	95346	Transportation	4,000	1,460,000	11/30/2021	11/30/2020	Evergreen Provision
Tennessee Gas Pipeline Company	FTA	42076	Transportation	20,000	7,300,000	10/31/2020	10/31/2019	Evergreen Provision
TransCanada Pipeline	FT	41232	Transportation	4,047	1,477,155	10/31/2026	10/31/2024	Evergreen Provision
TransCanada Pipeline	FT	PXP	Transportation	4,432	1,617,680	10/31/2040		Precedent Agreement
Union Gas Limited	M12	M12200	Transportation	4,092	1,493,580	10/31/2022	10/31/2020	Evergreen Provision
Union Gas Limited	M12	PXP	Transportation	4,432	1,617,680	10/31/2040		Precedent Agreement

* MAQ is calculated on a 365 day calendar year.

1 **Liberty Utilities (EnergyNorth Natural Gas) Corp.**
2 **Peak 2019 - 2020 Winter Cost of Gas Filing**

Schedule 13
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3
4 **Load Migration From Sales to Transportation in the C&I High and Low Winter Use Classes**

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6 **July 2018 - June 2019 Normalized Sales and Transportation Volumes (Therms)**

C&I Rate Classes	Annual	% of Total	% of Sales
	Sales	by Class	to Total Volume
			by Class
G-41	18,535,670	43.20%	75.82%
G-42	13,760,306	32.07%	40.18%
G-43	3,146,756	7.33%	28.28%
G-51	2,797,138	6.52%	71.52%
G-52	2,946,706	6.87%	31.43%
G-53	1,082,832	2.52%	10.06%
G-54	638,444	1.49%	3.42%
Total C/I	42,907,852	100.00%	
	Annual	% of Total	% of Transportation
	Transportation	by Class	to Total Volume
			by Class
G-41	5,910,584	8.49%	24.18%
G-42	20,489,052	29.42%	59.82%
G-43	7,979,974	11.46%	71.72%
G-51	1,113,732	1.60%	28.48%
G-52	6,428,367	9.23%	68.57%
G-53	9,679,533	13.90%	89.94%
G-54	18,046,181	25.91%	96.58%
Total C/I	69,647,422	100.00%	
Sales & Transportation	Total	% of Total	
		by Class	
G-41	24,446,255	21.72%	100.00%
G-42	34,249,357	30.43%	100.00%
G-43	11,126,729	9.89%	100.00%
G-51	3,910,869	3.47%	100.00%
G-52	9,375,073	8.33%	100.00%
G-53	10,762,365	9.56%	100.00%
G-54	18,684,624	16.60%	100.00%
Total C/I	112,555,273	100.00%	

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 Peak 2019 - 2020 Winter Cost of Gas Filing

Schedule 14

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4 Delivered Costs of Winter Supplies to Pipeline Delivered Supplies from the Prior Year

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	Off-Peak May 18 - Oct 18 (Therms)	Peak Nov 18-Apr 19 (Therms)	Total May 18 - Apr 19 (Therms)	
Pipeline Deliveries	17,770,350	88,824,120	106,594,470	
All Others	113,430	2,617,480	2,730,910	
	17,883,780	91,441,600	109,325,380	
Total Winter Supplies				Ratio 91,441,600
Total Pipeline Deliveries				106,594,470
Ratio Winter Supplies to Pipeline Supplies				0.858

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

Schedule 15

2 Peak 2019 - 2020 Winter Cost of Gas Filing

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4 July and August Consumption of C&I High and Low Winter Classes as a Percentage of Their Annual Consumption

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C&I Sales	Jul-18	Aug-18	Jul - Aug Total	Total Annual	% of Jul-Aug to Total
Normalized (Therms)					
(a)	(b)	(c)	(e)=(c)+(d)	(f)	(g)=(e)/(f)
G-41	182,956	129,702	312,658	18,535,670	1.69%
G-42	217,411	153,288	370,698	13,760,306	2.69%
G-43	58,800	41,261	100,061	3,146,756	3.18%
G-51	161,853	141,554	303,407	2,797,138	10.85%
G-52	168,181	149,358	317,539	2,946,706	10.78%
G-53	96,221	62,139	158,360	1,082,832	14.62%
G-54	17,391	1,816	19,207	638,444	3.01%
Total C/I	902,813	679,118	1,581,931	42,907,852	3.69%

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4 Storage Inventory, Underground, LPG and LNG including Calculation of Money Pool Interest Costs Associated with Natural Gas

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6 Underground Storage Gas

		May-19 (Actual)	Jun-19 (Actual)	Jul-19 (Actual)	Aug-19 (Estimate)	Sep-19 (Estimate)	Oct-19 (Estimate)	Nov-19 (Estimate)	Dec-19 (Estimate)	Jan-20 (Estimate)	Feb-20 (Estimate)	Mar-20 (Estimate)	Apr-20 (Estimate)	Total
Beginning Balance (MMBtu)		441,693	711,021	972,901	1,267,196	1,542,196	1,817,196	2,092,196	2,142,265	1,698,778	1,193,017	655,736	333,926	441,693
Injections (MMBtu)	Sch 11A In 38 /10	273,237	255,014	288,230	275,000	275,000	275,000	151,403	-	-	-	-	-	1,792,884
Subtotal		714,930	966,035	1,261,131	1,542,196	1,817,196	2,092,196	2,243,599	2,142,265	1,698,778	1,193,017	655,736	333,926	
Storage Sale/Adjustments		(3,909)	6,866	6,065			-							
Withdrawals (MMBtu)	Sch 11A In 28 /10	-	-	-	-	-	-	(101,334)	(443,487)	(505,761)	(537,281)	(321,810)	(5,080)	(1,914,753)
Ending Balance (MMBtu)		711,021	972,901	1,267,196	1,542,196	1,817,196	2,092,196	2,142,265	1,698,778	1,193,017	655,736	333,926	328,846	319,824
Beginning Balance		\$ 1,149,298	\$ 1,782,364	\$ 2,390,098	\$ 2,988,918	\$ 3,559,631	\$ 4,130,345	\$ 4,701,058	\$ 4,790,090	\$ 3,798,456	\$ 2,667,579	\$ 1,466,222	\$ 746,657	\$ 1,149,298
Injections	In 11 * In 36	\$ 631,492	\$ 600,963	\$ 595,495	\$ 570,713	\$ 570,713	\$ 570,713	\$ 315,614	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,855,704
Subtotal		\$ 1,780,790	\$ 2,383,327	\$ 2,985,593	\$ 3,559,631	\$ 4,130,345	\$ 4,701,058	\$ 5,016,672	\$ 4,790,090	\$ 3,798,456	\$ 2,667,579	\$ 1,466,222	\$ 746,657	
Storage Sale/Adjustments		\$ 1,574	\$ 6,771	\$ 3,325			\$ -							
Withdrawals	In 17 * In 34	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ (226,582)	\$ (991,634)	\$ (1,130,877)	\$ (1,201,356)	\$ (719,565)	\$ (11,359)	\$ (4,281,375)
Ending Balance		\$ 1,782,364	\$ 2,390,098	\$ 2,988,918	\$ 3,559,631	\$ 4,130,345	\$ 4,701,058	\$ 4,790,090	\$ 3,798,456	\$ 2,667,579	\$ 1,466,222	\$ 746,657	\$ 735,298	\$ 723,627
Average Rate For Withdrawals	In 22 /In 9	\$ 2.4909	\$ 2.4671	\$ 2.3674	\$ 2.3082	\$ 2.2729	\$ 2.2469	\$ 2.2360	\$ 2.2360	\$ 2.2360	\$ 2.2360	\$ 2.2360	\$ 2.2360	
TGP Storage Rate for Injections	Actual or NYMEX plus TGP Transportation	\$ 2.3112	\$ 2.3566	\$ 2.0660	\$ 2.0753	\$ 2.0753	\$ 2.0753	\$ 2.0846	\$ 2.3321	\$ 2.4686	\$ 2.4446	\$ 2.3683	\$ 2.1118	
For Informational Purposes								Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	Total
Summer Hedge Contracts - Vols Dth								\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Average Hedge Price								\$ 2.2393	\$ 2.4295	\$ 2.5509	\$ 2.5245	\$ 2.4569	\$ 2.2840	
NYMEX								\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Hedged Volumes at Hedged Price								\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Less Hedged Volumes at NYMEX								\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Hedge (Savings)/Loss								\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Month Dollar Average	In (22 + In 32) /2				\$ 3,274,275	\$ 3,844,988	\$ 4,415,701	\$ 4,745,574	\$ 4,294,273	\$ 3,233,017	\$ 2,066,900	\$ 1,106,440	\$ 740,977	
Money Pool Finance Rate (per Nov 10 - Apr 11 Actuals)					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Inventory Finance Charge	In 47 * In 49	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Financial Expenses		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Inventory Finance Charges		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Liquid Propane Gas (LPG)

		May-19 (Actual)	Jun-19 (Actual)	Jul-19 (Actual)	Aug-19 (Estimate)	Sep-19 (Estimate)	Oct-19 (Estimate)	Nov-19 (Estimate)	Dec-19 (Estimate)	Jan-20 (Estimate)	Feb-20 (Estimate)	Mar-20 (Estimate)	Apr-20 (Estimate)	Total
Beginning Balance		89,925	89,668	89,133	108,164	108,164	108,164	108,164	108,164	108,164	58,026	58,026	57,733	89,925
Injections	Sch 11A In 37 /10	-	-	19,055	-	-	-	-	-	66,924	-	-	-	85,979
Subtotal		89,925	89,668	108,188	108,164	108,164	108,164	108,164	108,164	175,088	58,026	58,026	57,733	
Withdrawals	Sch 11A In 32 /10	(257)	(535)	(24)	-	-	-	-	-	(117,062)	-	(293)	-	(118,171)
Adjustment for change in temperature		-	-	-	-	-	-	-	-	-	-	-	-	-
Adjustment for Transfer		-	-	-	-	-	-	-	-	-	-	-	-	-
Ending Balance		89,668	89,133	108,164	108,164	108,164	108,164	108,164	108,164	58,026	58,026	57,733	57,733	57,733
Beginning Balance		\$ 1,191,539	\$ 1,188,134	\$ 1,181,045	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 697,044	\$ 697,044	\$ 693,524	\$ 1,191,539
Injections	In 46 * In 69	-	-	119,457	-	-	-	-	-	803,086	-	-	-	922,544
Subtotal		\$ 1,191,539	\$ 1,188,134	\$ 1,300,502	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 2,103,270	\$ 697,044	\$ 697,044	\$ 693,524	
Withdrawals	In 52 * In 67	(3,405)	(7,089)	(318)	-	-	-	-	-	(1,406,226)	-	(3,520)	-	(1,420,558)
Ending Balance		\$ 1,188,134	\$ 1,181,045	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 697,044	\$ 697,044	\$ 693,524	\$ 693,524	\$ 693,524
Average Rate For Withdrawals		\$13.2504	\$13.2504	\$12.0208	\$12.0205	\$12.0205	\$12.0205	\$12.0205	\$12.0205	\$12.0127	\$12.0127	\$12.0127	\$12.0127	
Propane Rate for Injections	Actual or Sch. 6, In 158 * 10	\$13.2504	\$13.2504	\$12.0208	\$0.0000	\$0.0000	\$0.0000	\$12.0000	\$12.0000	\$12.0000	\$12.0000	\$12.0000	\$12.0000	
Month Dollar Average	In (57 * In 65) /2				\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 1,300,184	\$ 998,614	\$ 697,044	\$ 695,284	\$ 693,524	
Money Pool Finance Rate (per Nov 10 - Apr 11 Actuals)					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Inventory Finance Charge	In 72 * In 74				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

Liquid Natural Gas (LNG)

		May-19 (Actual)	Jun-19 (Actual)	Jul-19 (Actual)	Aug-19 (Estimate)	Sep-19 (Estimate)	Oct-19 (Estimate)	Nov-19 (Estimate)	Dec-19 (Estimate)	Jan-20 (Estimate)	Feb-20 (Estimate)	Mar-20 (Estimate)	Apr-20 (Estimate)	Total
Beginning Balance		11,923	9,516	10,403	10,373	11,260	12,147	13,034	13,034	13,034	3,838	9,923	12,048	11,923
Injections	Sch 11A In 36 /10	298	2,626	1,806	2,626	2,626	2,626	1,763	2,012	107,210	67,658	39,485	-	230,735
Subtotal		12,221	12,142	12,209	12,999	13,886	14,773	14,797	15,046	120,244	71,496	49,408	12,048	
Withdrawals	Sch 11A In 31 /10	(2,705)	(1,739)	(1,836)	(1,739)	(1,739)	(1,739)	(1,763)	(2,012)	(116,405)	(61,573)	(37,360)	(1,949)	(232,559)
Ending Balance		9,516	10,403	10,373	11,260	12,147	13,034	13,034	13,034	3,838	9,923	12,048	10,099	10,099
Beginning Balance		\$ 64,547	\$ 60,620	\$ 70,471	\$ 71,120	\$ 85,349	\$ 98,637	\$ 111,210	\$ 103,568	\$ 96,367	\$ 16,558	\$ 38,978	\$ 46,292	\$ 64,547
Injections	In 83 * In 104	11,714	21,622	18,851	27,410	27,410	27,410	6,371	7,673	422,341	264,276	150,868	-	985,946
Subtotal		\$ 76,262	\$ 82,241	\$ 89,322	\$ 98,530	\$ 112,759	\$ 126,047	\$ 117,580	\$ 111,241	\$ 518,709	\$ 280,834	\$ 189,846	\$ 46,292	
Withdrawals	In 87 * In 102	(15,842)	(11,770)	(18,201)	(13,181)	(14,121)	(14,838)	(14,012)	(14,874)	(502,151)	(241,856)	(143,554)	(7,487)	(1,011,688)
Ending Balance		\$ 60,620	\$ 70,471	\$ 71,120	\$ 85,349	\$ 98,637	\$ 111,210	\$ 103,568	\$ 96,367	\$ 16,558	\$ 38,978	\$ 46,292	\$ 38,805	\$ 38,805
Average Rate For Withdrawals		\$6.2402	\$6.7733	\$7.3160	\$7.5798	\$8.1203	\$8.5323	\$7.9460	\$7.3935	\$4.3138	\$3.9279	\$3.8424	\$3.8424	
LNG Rate for Injections	Actual or Sch. 6, In 157 * 10	\$39.3096	\$8.2337	\$10.4378	\$10.4378	\$10.4378	\$10.4378	\$3.6128	\$3.8141	\$3.9394	\$3.9061	\$3.8210	\$0.0000	
Month Dollar Average	In (92 * In 100) /2				\$ 78,235	\$ 91,993	\$ 104,923	\$ 107,389	\$ 99,968	\$ 56,463	\$ 27,768	\$ 42,635	\$ 42,549	
Money Pool Finance Rate (per Nov 10 - Apr 11 Actuals)					0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
Inventory Finance Charge	In 107 * In 109				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Total Fuel Financing	In 53 * 76 + 111				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

1 Liberty Utilities (EnergyNorth Natural Gas) Corp.

2 Peak 2019 - 2020 Winter Cost of Gas Filing

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4 Forecast of Firm Transportation Volumes and Cost of Gas Revenues

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Firm Transportation

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	Therms 1/	Cost of Gas Rate 2/	Cost of Gas Revenue
Nov-19	6,164,045	\$ 0.0009	\$ 5,457
Dec-19	7,805,111	0.0009	6,909
Jan-20	9,761,832	0.0009	8,641
Feb-20	10,196,340	0.0009	9,026
Mar-20	9,102,958	0.0009	8,058
Apr-20	<u>7,681,073</u>	0.0009	<u>6,799</u>
Total	<u>50,711,358</u>		<u>\$ 44,891</u>

1/ Per Schedule 10B, line 35. Excludes special contract volumes subject to transportation cost of gas.

2/ Refer to Proposed Third Revised Page 94 for calculation of rate.

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Local Distribution Adjustment Charge (LDAC) increase due to Rate Case Expense and Recoupment
For LDAC effective November 1, 2019 - October 31, 2020

Schedule 19
RCE
Page 1 of 2

1	Rate Case Expense Remaining from Docket No. DG 17-048	\$257,626
2	Recoupment Remaining from Docket No. DG 17-048	<u>\$244,581</u>
3	July 1, 2019 Balance	\$502,207
4	Plus Estimated Interest from July 2019 through October 2019	\$7,671
5	Minus Estimated Recoveries from July 2019 through October 2019	<u>(\$206,666)</u>
6	Total Estimated Remaining Recovery As of November 1, 2019	\$303,212
7	Estimated November 2019 - October 2020 Interest	<u>\$6,013</u>
8	Total Remaining Recovery	\$309,225
9	Estimated November 2019 - October 2020 Sales (therms)	187,178,686
10	RCE & Recoupment rate per therm November 2019 - October 2020	\$0.0017

Liberty Utilities (EnergyNorth Natural Gas) Corp.
NOVEMBER 2019 THROUGH OCTOBER 2020
RATE CASE EXPENSE AND RECOUPMENT PROJECTION

		(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	
1	FOR THE MONTH OF:	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Total
2	DAYS IN MONTH	31	31	30	31	30	31	31	28	30	31	30	31	31	30	31	30	
3	Beginning Balance	\$ 502,207	\$ 461,145	\$ 421,068	\$ 373,261	\$ 302,860	\$ 281,178	\$ 247,283	\$ 200,812	\$ 151,133	\$ 108,073	\$ 75,861	\$ 55,266	\$ 42,489	\$ 33,488	\$ 24,679	\$ 14,189	\$ 1,537,311
4																		
5	Add: Actual Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6																		
7	Less: Collected Revenue	(43,205)	(42,039)	(49,517)	(71,905)	(22,940)	(35,070)	(47,468)	(50,387)	(43,618)	(32,621)	(20,877)	(12,995)	(9,170)	(8,934)	(10,577)	(15,194)	(309,851)
8																		
9	Add: Administrative and Start Up Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10																		
11	Ending Balance Pre-Interest	\$ 459,002	\$ 419,106	\$ 371,551	\$ 301,356	\$ 279,920	\$ 246,108	\$ 199,815	\$ 150,425	\$ 107,515	\$ 75,452	\$ 54,984	\$ 42,271	\$ 33,319	\$ 24,554	\$ 14,102	\$ (1,006)	\$ 1,227,460
12																		
13	Month's Average Balance	\$ 480,604	\$ 440,125	\$ 396,310	\$ 337,309	\$ 291,390	\$ 263,643	\$ 223,549	\$ 175,619	\$ 129,324	\$ 91,762	\$ 65,422	\$ 48,769	\$ 37,904	\$ 29,021	\$ 19,391	\$ 6,592	
14																		
15	Interest Rate	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	
16																		
17	Interest Applied	\$ 2,143	\$ 1,962	\$ 1,710	\$ 1,504	\$ 1,257	\$ 1,176	\$ 997	\$ 707	\$ 558	\$ 409	\$ 282	\$ 217	\$ 169	\$ 125	\$ 86	\$ 28	6,013
18																		
19	Ending Balance	\$ 461,145	\$ 421,068	\$ 373,261	\$ 302,860	\$ 281,178	\$ 247,283	\$ 200,812	\$ 151,133	\$ 108,073	\$ 75,861	\$ 55,266	\$ 42,489	\$ 33,488	\$ 24,679	\$ 14,189	\$ (977)	
		Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Total

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Lost Revenue Adjustment Factor (LRAM)
For LDAC effective November 1, 2019 - October 31, 2020

Schedule 19
LRAM
Page 1 of 2

Residential

1	October 31, 2019 Projected Balance (LRAM true-up)	\$3,971
2	Calculated Lost Distribution Revenue - November 2019 through October 2020	\$0
3	Calculated Interest - November 2019 through October 2020	<u>\$65</u>
4		
5	Total to be recovered	\$4,036
6		
7	Estimated November 2019 - October 2020 Sales (therms)	65,525,887
8		
9	LRAM residential rate per therm November 2019 - October 2020	\$0.0001

Commercial & Industrial

10	October 31, 2019 Projected Balance (LRAM true-up)	\$9,158
11	Calculated Lost Distribution Revenue - November 2019 through October 2020	\$0
12	Calculated Interest - November 2019 through October 2020	<u>\$169</u>
13		
14	Total to be recovered	\$9,327
15		
16	Estimated November 2019 - October 2020 Sales (therms)	121,652,799
17		
18	LRAM C&I rate per therm November 2019 - October 2020	\$0.0001

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Lost Revenue Adjustment Factor (LRAM)
NOVEMBER 2019 THROUGH OCTOBER 2020
Lost Revenue Adjustment Mechanism

	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	Total
1 FOR THE MONTH OF:	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20		
2 DAYS IN MONTH	30	31	31	28	31	30	31	30	31	31	30	31		

RESIDENTIAL

3 Beginning Balance (LRAM true-up)	\$ 3,971	\$ 3,721	\$ 3,250	\$ 2,570	\$ 1,831	\$ 1,201	\$ 771	\$ 521	\$ 400	\$ 332	\$ 266	\$ 168	\$ 19,002
4													
5 Add: Lost Distribution Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-
6													
7 Less: Lost Distribution Revenue Collections	(266)	(485)	(691)	(747)	(635)	(434)	(252)	(123)	(69)	(67)	(99)	(175)	(4,043)
8													
9 Add: Other	-	-	-	-	-	-	-	-	-	-	-	-	-
10													
11 Ending Balance Pre-Interest	\$ 3,705	\$ 3,236	\$ 2,559	\$ 1,824	\$ 1,196	\$ 767	\$ 518	\$ 398	\$ 331	\$ 265	\$ 167	\$ (7)	\$ 14,959
12													
13 Month's Average Balance	\$ 3,838	\$ 3,478	\$ 2,905	\$ 2,197	\$ 1,513	\$ 984	\$ 645	\$ 459	\$ 365	\$ 299	\$ 217	\$ 81	
14													
15 Interest Rate	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	
16													
17 Interest Applied	\$ 16	\$ 14	\$ 11	\$ 7	\$ 5	\$ 3	\$ 2	\$ 2	\$ 1	\$ 1	\$ 1	\$ (0)	65
18													
19 Ending Balance	\$ 3,721	\$ 3,250	\$ 2,570	\$ 1,831	\$ 1,201	\$ 771	\$ 521	\$ 400	\$ 332	\$ 266	\$ 168	\$ (7)	

COMMERCIAL & INDUSTRIAL

3 Beginning Balance	\$ 9,158	\$ 8,461	\$ 7,471	\$ 6,158	\$ 4,769	\$ 3,552	\$ 2,590	\$ 1,945	\$ 1,501	\$ 1,167	\$ 840	\$ 474	\$ 48,086
4													
5 Add: Lost Distribution Revenues	-	-	-	-	-	-	-	-	-	-	-	-	-
6													
7 Less: Lost Distribution Revenue Collections	(733)	(1,023)	(1,341)	(1,408)	(1,233)	(973)	(654)	(450)	(339)	(331)	(367)	(487)	(9,339)
8													
9 Add: Other	-	-	-	-	-	-	-	-	-	-	-	-	-
10													
11 Ending Balance Pre-Interest	\$ 8,425	\$ 7,438	\$ 6,130	\$ 4,750	\$ 3,536	\$ 2,579	\$ 1,936	\$ 1,494	\$ 1,162	\$ 836	\$ 472	\$ (12)	\$ 38,747
12													
13 Month's Average Balance	\$ 8,791	\$ 7,950	\$ 6,801	\$ 5,454	\$ 4,153	\$ 3,066	\$ 2,263	\$ 1,720	\$ 1,331	\$ 1,001	\$ 656	\$ 231	
14													
15 Interest Rate	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	5.25%	
16													
17 Interest Applied	\$ 36	\$ 33	\$ 27	\$ 19	\$ 16	\$ 11	\$ 9	\$ 6	\$ 5	\$ 4	\$ 2	\$ (0)	169
18													
19 Ending Balance	\$ 8,461	\$ 7,471	\$ 6,158	\$ 4,769	\$ 3,552	\$ 2,590	\$ 1,945	\$ 1,501	\$ 1,167	\$ 840	\$ 474	\$ (12)	

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the intent of the RDAF

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(1) (2) (3)

Residential Revenue Decoupling Adjustment Factor

1. Allowed Base Revenue	\$	40,989,509	
2. less: Actual and Estimated Base Revenue		<u>42,940,615</u>	
3. Revenue Deficiency / (Excess)	\$	(1,951,106)	
4. divided by: Forecasted Residential Sales		<u>65,525,887</u>	
5. Residential Revenue Decoupling Adjustment Factor	\$		<u><u>(0.0298)</u></u>

Commercial Revenue Decoupling Adjustment Factor

6. Allowed Base Revenue	\$	31,757,813	
7. less: Actual and Estimated Base Revenue		<u>34,498,640</u>	
8. Revenue Deficiency / (Excess)	\$	(2,740,826)	
9. divided by: Forecasted Commercial Sales		<u>121,652,799</u>	
10. Commercial Revenue Decoupling Adjustment Factor	\$		<u><u>(0.0225)</u></u>

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the Intent of the RDAF

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EnergyNorth Natural Gas Inc

2018-19 Customers (Equivalent Bills)

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
R-1	3,491	3,605	3,608	3,255	3,606	3,486	3,603	3,430	3,574	3,586	35,243
R-3	71,744	74,476	74,664	67,581	74,916	72,404	74,610	70,766	73,357	73,234	727,751
R-4	5,946	6,203	6,207	5,598	6,168	5,874	5,954	5,603	5,777	5,675	59,006
Total Resid.	81,181	84,284	84,479	76,434	84,690	81,764	84,167	79,799	82,708	82,495	822,000
G-41	9,279	9,683	9,716	8,804	9,751	9,385	9,524	8,882	9,125	9,104	93,253
G-42	1,388	1,439	1,441	1,303	1,442	1,386	1,427	1,351	1,452	1,415	14,042
G-43	57	60	60	54	59	56	58	56	55	56	571
G-51	1,292	1,340	1,341	1,210	1,340	1,293	1,329	1,266	1,261	1,298	12,970
G-52	378	391	390	352	392	381	396	378	396	391	3,846
G-53	37	38	37	34	35	34	36	35	38	38	363
G-54	29	30	29	27	30	28	29	28	29	29	288
Total C/I	12,459	12,981	13,014	11,784	13,049	12,564	12,798	11,994	12,357	12,331	125,332
Total All	93,640	97,265	97,493	88,218	97,740	94,328	96,965	91,793	95,065	94,825	947,332

2018-19 Benchmark Base Revenue Per Bill

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19
R-1	\$ 23.630	\$ 25.588	\$ 26.326	\$ 26.064	\$ 24.359	\$ 21.665	\$ 20.932	\$ 19.551	\$ 18.581	\$ 18.520
R-3	\$ 58.483	\$ 78.412	\$ 89.883	\$ 84.877	\$ 72.716	\$ 45.931	\$ 33.622	\$ 25.883	\$ 22.855	\$ 22.974
R-4	\$ 22.321	\$ 29.930	\$ 33.822	\$ 31.446	\$ 28.720	\$ 19.784	\$ 13.134	\$ 10.516	\$ 9.239	\$ 9.352
G-41	\$ 141.061	\$ 187.336	\$ 213.824	\$ 204.320	\$ 174.282	\$ 120.172	\$ 89.749	\$ 73.104	\$ 67.581	\$ 67.203
G-42	\$ 831.437	\$ 1,139.248	\$ 1,275.090	\$ 1,181.586	\$ 995.503	\$ 692.940	\$ 478.158	\$ 353.842	\$ 296.514	\$ 289.956
G-43	\$ 6,630.216	\$ 7,593.280	\$ 8,769.856	\$ 7,718.973	\$ 6,633.048	\$ 4,338.262	\$ 2,120.739	\$ 1,477.930	\$ 1,276.137	\$ 1,310.918
G-51	\$ 117.110	\$ 128.843	\$ 132.447	\$ 127.517	\$ 117.280	\$ 101.009	\$ 95.963	\$ 86.858	\$ 86.305	\$ 87.102
G-52	\$ 635.041	\$ 672.436	\$ 670.683	\$ 657.599	\$ 601.232	\$ 521.003	\$ 376.781	\$ 342.142	\$ 345.377	\$ 356.854
G-53	\$ 5,288.039	\$ 6,482.182	\$ 5,443.345	\$ 5,509.426	\$ 5,382.287	\$ 4,702.462	\$ 2,553.307	\$ 2,163.553	\$ 2,145.270	\$ 2,343.537
G-54	\$ 4,517.444	\$ 5,041.273	\$ 4,376.519	\$ 3,774.254	\$ 2,908.047	\$ 3,287.867	\$ 2,028.236	\$ 2,391.070	\$ 2,360.857	\$ 2,675.881

2018-19 Allowed Base Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 82,502	\$ 92,247	\$ 94,977	\$ 84,845	\$ 87,832	\$ 75,517	\$ 75,412	\$ 67,052	\$ 66,414	\$ 66,407	\$ 793,203
R-3	\$ 4,195,802	\$ 5,839,765	\$ 6,710,987	\$ 5,736,100	\$ 5,447,653	\$ 3,325,556	\$ 2,508,517	\$ 1,831,622	\$ 1,676,542	\$ 1,682,483	\$ 38,955,028
R-4	\$ 132,717	\$ 185,655	\$ 209,952	\$ 177,153	\$ 176,022	\$ 116,217	\$ 78,200	\$ 58,919	\$ 53,370	\$ 53,073	\$ 1,241,278
Total Resid.	\$ 4,411,021	\$ 6,117,667	\$ 7,015,915	\$ 5,996,967	\$ 5,712,638	\$ 3,517,289	\$ 2,662,129	\$ 1,957,593	\$ 1,796,326	\$ 1,801,963	\$ 40,989,509
G-41	\$ 1,308,945	\$ 1,814,017	\$ 2,077,415	\$ 1,798,781	\$ 1,699,390	\$ 1,127,795	\$ 854,774	\$ 649,284	\$ 616,699	\$ 611,821	\$ 12,558,921
G-42	\$ 1,153,793	\$ 1,639,502	\$ 1,837,512	\$ 1,539,599	\$ 1,435,816	\$ 960,108	\$ 682,108	\$ 477,894	\$ 430,461	\$ 410,240	\$ 10,567,033
G-43	\$ 375,050	\$ 458,636	\$ 525,607	\$ 417,853	\$ 392,235	\$ 243,666	\$ 122,720	\$ 82,124	\$ 70,230	\$ 73,193	\$ 2,761,314
G-51	\$ 151,270	\$ 172,662	\$ 177,620	\$ 154,310	\$ 157,132	\$ 130,608	\$ 127,519	\$ 109,924	\$ 108,874	\$ 113,043	\$ 1,402,963
G-52	\$ 239,876	\$ 262,589	\$ 261,676	\$ 231,692	\$ 235,703	\$ 198,747	\$ 149,220	\$ 129,385	\$ 136,923	\$ 139,482	\$ 1,985,293
G-53	\$ 195,657	\$ 243,513	\$ 202,491	\$ 185,116	\$ 190,353	\$ 162,234	\$ 92,004	\$ 75,508	\$ 82,021	\$ 89,601	\$ 1,518,499
G-54	\$ 131,006	\$ 151,069	\$ 128,766	\$ 102,072	\$ 87,144	\$ 92,608	\$ 58,684	\$ 66,711	\$ 68,308	\$ 77,422	\$ 963,790
Total C/I	\$ 3,555,597	\$ 4,741,988	\$ 5,211,088	\$ 4,429,425	\$ 4,197,774	\$ 2,915,765	\$ 2,087,028	\$ 1,590,830	\$ 1,513,516	\$ 1,514,802	\$ 31,757,813
Total All	\$ 7,966,618	\$ 10,859,655	\$ 12,227,003	\$ 10,426,392	\$ 9,910,412	\$ 6,433,055	\$ 4,749,157	\$ 3,548,422	\$ 3,309,842	\$ 3,316,765	\$ 72,747,322

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the intent of the RDAF

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SALES AND TRANSPORT DATA

CUSTOMER COMPONENT

EnergyNorth Natural Gas Inc

2018-19 Customers (Equivalent Bills)

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
R-1	3,491	3,605	3,608	3,255	3,606	3,486	3,603	3,430	3,574	3,586	35,243
R-3	71,744	74,476	74,664	67,581	74,916	72,404	74,610	70,766	73,357	73,234	727,751
R-4	5,946	6,203	6,207	5,598	6,168	5,874	5,954	5,603	5,777	5,675	59,006
Total Resid.	81,181	84,284	84,479	76,434	84,690	81,764	84,167	79,799	82,708	82,495	822,000
G-41	9,279	9,683	9,716	8,804	9,751	9,385	9,524	8,882	9,125	9,104	93,253
G-42	1,388	1,439	1,441	1,303	1,442	1,386	1,427	1,351	1,452	1,415	14,042
G-43	57	60	60	54	59	56	58	56	55	56	571
G-51	1,292	1,340	1,341	1,210	1,340	1,293	1,329	1,266	1,261	1,298	12,970
G-52	378	391	390	352	392	381	396	378	396	391	3,846
G-53	37	38	37	34	35	34	36	35	38	38	363
G-54	29	30	29	27	30	28	29	28	29	29	288
Total C/I	12,459	12,981	13,014	11,784	13,049	12,564	12,798	11,994	12,357	12,331	125,332
Total All	93,640	97,265	97,493	88,218	97,740	94,328	96,965	91,793	95,065	94,825	947,332

2018-19 Customer Charge

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19
R-1	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.20	\$ 15.20
R-3	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.20	\$ 15.20
R-4	\$ 6.01	\$ 6.01	\$ 6.01	\$ 6.01	\$ 6.01	\$ 6.01	\$ 6.01	\$ 6.01	\$ 6.08	\$ 6.08
G-41	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 56.36	\$ 56.36
G-42	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 169.09	\$ 169.09
G-43	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 725.66	\$ 725.66
G-51	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 56.36	\$ 56.36
G-52	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 169.09	\$ 169.09
G-53	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 746.81	\$ 746.81
G-54	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 746.81	\$ 746.81

2018-19 Customer Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 52,445	\$ 54,153	\$ 54,192	\$ 48,898	\$ 54,162	\$ 52,359	\$ 54,118	\$ 51,517	\$ 54,337	\$ 54,511	\$ 530,690
R-3	\$ 1,077,685	\$ 1,118,719	\$ 1,121,542	\$ 1,015,149	\$ 1,125,335	\$ 1,087,594	\$ 1,120,732	\$ 1,062,992	\$ 1,115,212	\$ 1,113,336	\$ 10,958,296
R-4	\$ 35,713	\$ 37,259	\$ 37,285	\$ 33,622	\$ 37,049	\$ 35,284	\$ 35,763	\$ 33,654	\$ 35,140	\$ 34,523	\$ 355,293
Total Resid.	\$ 1,165,843	\$ 1,210,130	\$ 1,213,019	\$ 1,097,668	\$ 1,216,547	\$ 1,175,237	\$ 1,210,612	\$ 1,148,163	\$ 1,204,688	\$ 1,202,370	\$ 11,844,279
G-41	\$ 516,704	\$ 539,197	\$ 540,996	\$ 490,224	\$ 542,960	\$ 522,582	\$ 530,331	\$ 494,562	\$ 514,272	\$ 513,073	\$ 5,204,902
G-42	\$ 231,832	\$ 240,418	\$ 240,749	\$ 217,679	\$ 240,952	\$ 231,472	\$ 238,317	\$ 225,630	\$ 245,475	\$ 239,235	\$ 2,351,759
G-43	\$ 40,556	\$ 43,304	\$ 42,969	\$ 38,811	\$ 42,396	\$ 40,269	\$ 41,488	\$ 39,839	\$ 39,936	\$ 40,516	\$ 410,082
G-51	\$ 71,926	\$ 74,622	\$ 74,675	\$ 67,383	\$ 74,605	\$ 72,001	\$ 73,994	\$ 70,471	\$ 71,094	\$ 73,141	\$ 723,912
G-52	\$ 63,104	\$ 65,238	\$ 65,181	\$ 58,861	\$ 65,493	\$ 63,728	\$ 66,163	\$ 63,176	\$ 67,035	\$ 66,091	\$ 644,070
G-53	\$ 27,300	\$ 27,718	\$ 27,447	\$ 24,791	\$ 26,095	\$ 25,455	\$ 26,587	\$ 25,751	\$ 28,553	\$ 28,553	\$ 268,250
G-54	\$ 21,397	\$ 22,110	\$ 21,709	\$ 19,954	\$ 22,110	\$ 20,782	\$ 21,348	\$ 20,586	\$ 21,608	\$ 21,608	\$ 213,212
Total C/I	\$ 972,819	\$ 1,012,607	\$ 1,013,726	\$ 917,704	\$ 1,014,611	\$ 976,290	\$ 988,228	\$ 940,014	\$ 987,972	\$ 982,217	\$ 9,816,187
Total All	\$ 2,138,662	\$ 2,222,737	\$ 2,226,745	\$ 2,015,372	\$ 2,231,158	\$ 2,151,527	\$ 2,208,840	\$ 2,088,177	\$ 2,192,661	\$ 2,184,587	\$ 21,660,466

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the intent of the RDAF

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ENERGY COMPONENT

HEADBLOCK

2018-19 Decoupling Year Volume Headblock

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
1											
R-1	73,214	85,581	100,416	84,480	82,937	63,662	51,965	39,387	32,303	32,777	646,722
R-3	7,181,583	8,938,769	11,063,248	9,180,015	7,853,803	4,364,796	2,466,296	1,278,121	990,700	989,490	54,306,822
R-4	566,467	708,647	886,285	727,720	628,857	349,111	194,981	104,252	79,984	78,608	4,324,913
Total Resid.	7,821,264	9,732,997	12,049,950	9,992,215	8,565,597	4,777,570	2,713,242	1,421,760	1,102,988	1,100,875	59,278,457
G-41	698,502	844,939	926,433	787,197	813,404	566,171	193,517	73,932	57,112	57,591	5,018,798
G-42	1,241,041	1,392,503	1,480,358	1,260,637	1,375,317	1,112,595	572,599	307,306	259,161	258,161	9,259,678
G-43	1,334,906	1,508,814	1,906,512	1,561,323	1,414,851	895,435	606,273	359,667	250,469	286,024	10,124,273
G-51	89,214	92,375	99,440	84,888	92,376	86,105	84,659	77,880	74,698	80,167	861,803
G-52	367,561	376,192	397,457	337,575	372,348	351,845	342,708	316,265	318,801	332,044	3,512,797
G-53	983,271	1,037,011	1,337,608	1,066,083	1,039,435	827,593	775,816	668,663	645,679	699,789	9,080,950
G-54	1,738,750	1,395,359	1,366,893	1,274,130	1,250,056	1,369,579	1,680,548	1,669,182	1,578,600	1,678,120	15,001,217
Total C/I	6,453,245	6,647,192	7,514,701	6,371,834	6,357,786	5,209,324	4,256,121	3,472,896	3,184,521	3,391,895	52,859,516
Total All	14,274,509	16,380,190	19,564,651	16,364,049	14,923,384	9,986,893	6,969,363	4,894,655	4,287,509	4,492,770	112,137,973

2018-19 Headblock Charge

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	
R-1	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3786	\$ 0.3786	
R-3	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5569	\$ 0.5569	
R-4	\$ 0.2228	\$ 0.2228	\$ 0.2228	\$ 0.2228	\$ 0.2228	\$ 0.2228	\$ 0.2201	\$ 0.2201	\$ 0.2228	\$ 0.2228	
G-41	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4621	\$ 0.4621	
G-42	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4202	\$ 0.4202	
G-43	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.1167	\$ 0.1167	\$ 0.1181	\$ 0.1181	
G-51	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2785	\$ 0.2785	
G-52	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.1712	\$ 0.1712	\$ 0.1733	\$ 0.1733	
G-53	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.0792	\$ 0.0792	\$ 0.0802	\$ 0.0802	
G-54	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0342	\$ 0.0342	\$ 0.0346	\$ 0.0346	

2018-19 Decoupling Year Volume Headblock Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 27,390	\$ 32,017	\$ 37,568	\$ 31,605	\$ 31,028	\$ 23,817	\$ 19,441	\$ 14,735	\$ 12,231	\$ 12,411	\$ 242,245
R-3	\$ 3,951,110	\$ 4,917,866	\$ 6,086,696	\$ 5,050,593	\$ 4,320,947	\$ 2,401,391	\$ 1,356,889	\$ 703,187	\$ 551,707	\$ 551,033	\$ 29,891,420
R-4	\$ 126,195	\$ 157,869	\$ 197,442	\$ 162,118	\$ 140,093	\$ 77,773	\$ 42,909	\$ 22,943	\$ 17,818	\$ 17,512	\$ 962,672
Total Resid.	\$ 4,104,695	\$ 5,107,752	\$ 6,321,705	\$ 5,244,316	\$ 4,492,069	\$ 2,502,982	\$ 1,419,239	\$ 740,865	\$ 581,757	\$ 580,956	\$ 31,096,336
G-41	\$ 318,931	\$ 385,793	\$ 423,003	\$ 359,428	\$ 371,394	\$ 258,510	\$ 88,359	\$ 33,757	\$ 26,394	\$ 26,615	\$ 2,292,184
G-42	\$ 515,285	\$ 578,172	\$ 614,650	\$ 523,421	\$ 571,037	\$ 461,954	\$ 237,745	\$ 127,594	\$ 108,911	\$ 108,491	\$ 3,847,260
G-43	\$ 340,667	\$ 385,048	\$ 486,541	\$ 398,448	\$ 361,069	\$ 228,514	\$ 70,750	\$ 41,972	\$ 29,585	\$ 33,785	\$ 2,376,380
G-51	\$ 24,551	\$ 25,420	\$ 27,365	\$ 23,360	\$ 25,421	\$ 23,695	\$ 23,297	\$ 21,432	\$ 20,807	\$ 22,330	\$ 237,677
G-52	\$ 86,863	\$ 88,902	\$ 93,928	\$ 79,776	\$ 87,994	\$ 83,149	\$ 58,675	\$ 54,148	\$ 55,242	\$ 57,537	\$ 746,213
G-53	\$ 162,390	\$ 171,265	\$ 220,910	\$ 176,067	\$ 171,665	\$ 136,679	\$ 61,480	\$ 52,988	\$ 51,759	\$ 56,097	\$ 1,261,300
G-54	\$ 109,528	\$ 87,897	\$ 86,104	\$ 80,260	\$ 78,744	\$ 86,273	\$ 57,511	\$ 57,122	\$ 54,644	\$ 58,089	\$ 756,172
Total C/I	\$ 1,558,214	\$ 1,722,498	\$ 1,952,499	\$ 1,640,761	\$ 1,667,324	\$ 1,278,773	\$ 597,817	\$ 389,013	\$ 347,342	\$ 362,944	\$ 11,517,187
Total All	\$ 5,662,909	\$ 6,830,250	\$ 8,274,205	\$ 6,885,077	\$ 6,159,393	\$ 3,781,755	\$ 2,017,056	\$ 1,129,879	\$ 929,100	\$ 943,900	\$ 42,613,523

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Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the intent of the RDAF

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TAILBLOCK

2018-19 Decoupling Year Volume Tailblock												
2	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total	
R-1	-	-	-	-	-	-	-	-	-	-	-	-
R-3	-	-	-	-	-	-	-	-	-	-	-	-
R-4	-	-	-	-	-	-	-	-	-	-	-	-
Total Resid.	-	-	-	-	-	-	-	-	-	-	-	-
G-41	2,376,148	3,184,951	4,245,136	3,491,609	2,719,924	1,192,435	669,054	278,366	188,282	175,600	18,521,506	
G-42	3,034,449	3,900,272	5,054,919	4,208,686	3,348,855	1,547,302	906,830	383,451	248,064	272,513	22,905,342	
G-43	-	-	-	-	-	-	-	-	-	-	-	-
G-51	286,385	341,285	414,894	352,778	331,416	246,608	213,478	169,297	144,293	154,725	2,655,158	
G-52	546,653	632,195	770,652	650,633	604,054	421,063	314,475	244,807	222,157	241,924	4,648,613	
G-53	-	-	-	-	-	-	-	-	-	-	-	-
G-54	-	-	-	-	-	-	-	-	-	-	-	-
Total C/I	6,243,635	8,058,704	10,485,601	8,703,706	7,004,248	3,407,408	2,103,836	1,075,921	802,796	844,763	48,730,618	
Total All	6,243,635	8,058,704	10,485,601	8,703,706	7,004,248	3,407,408	2,103,836	1,075,921	802,796	844,763	48,730,618	

2018-19 Tailblock Charge												
	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19		
R-1	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3786	\$ 0.3786		
R-3	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5569	\$ 0.5569		
R-4	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2228	\$ 0.2228		
G-41	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3104	\$ 0.3104		
G-42	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2800	\$ 0.2800		
G-43	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.1167	\$ 0.1167	\$ 0.1181	\$ 0.1181		
G-51	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1811	\$ 0.1811		
G-52	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.0973	\$ 0.0973	\$ 0.0985	\$ 0.0985		
G-53	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.0792	\$ 0.0792	\$ 0.0802	\$ 0.0802		
G-54	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0342	\$ 0.0342	\$ 0.0346	\$ 0.0346		

2018-19 Decoupling Year Volume Tailblock Revenue												
	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total	
R-1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
R-3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
R-4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Resid.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
G-41	\$ 728,725	\$ 976,772	\$ 1,301,913	\$ 1,070,819	\$ 834,156	\$ 365,700	\$ 205,188	\$ 85,370	\$ 58,448	\$ 54,511	\$ 5,681,600	
G-42	\$ 839,330	\$ 1,078,817	\$ 1,398,193	\$ 1,164,125	\$ 926,295	\$ 427,985	\$ 250,830	\$ 106,063	\$ 69,448	\$ 76,293	\$ 6,337,379	
G-43	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
G-51	\$ 51,229	\$ 61,050	\$ 74,217	\$ 63,106	\$ 59,284	\$ 44,114	\$ 38,187	\$ 30,284	\$ 26,128	\$ 28,017	\$ 475,615	
G-52	\$ 86,032	\$ 99,495	\$ 121,285	\$ 102,396	\$ 95,066	\$ 66,267	\$ 30,603	\$ 23,823	\$ 21,879	\$ 23,825	\$ 670,671	
G-53	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
G-54	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total C/I	\$ 1,705,316	\$ 2,216,133	\$ 2,895,608	\$ 2,400,445	\$ 1,914,801	\$ 904,065	\$ 524,808	\$ 245,541	\$ 175,902	\$ 182,646	\$ 13,165,265	
Total All	\$ 1,705,316	\$ 2,216,133	\$ 2,895,608	\$ 2,400,445	\$ 1,914,801	\$ 904,065	\$ 524,808	\$ 245,541	\$ 175,902	\$ 182,646	\$ 13,165,265	

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the intent of the RDAF

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HEADBLOCK + TAILBLOCK

2018-19 Decoupling Year Volume Headblock + Tailblock

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
R-1	73,214	85,581	100,416	84,480	82,937	63,662	51,965	39,387	32,303	32,777	646,722
R-3	7,181,583	8,938,769	11,063,248	9,180,015	7,853,803	4,364,796	2,466,296	1,278,121	990,700	989,490	54,306,822
R-4	566,467	708,647	886,285	727,720	628,857	349,111	194,981	104,252	79,984	78,608	4,324,913
Total Resid.	7,821,264	9,732,997	12,049,950	9,992,215	8,565,597	4,777,570	2,713,242	1,421,760	1,102,988	1,100,875	59,278,457
G-41	3,074,649	4,029,890	5,171,569	4,278,806	3,533,328	1,758,606	862,571	352,299	245,393	233,191	23,540,304
G-42	4,275,490	5,292,775	6,535,278	5,469,323	4,724,171	2,659,897	1,479,429	690,757	507,225	530,674	32,165,020
G-43	1,334,906	1,508,814	1,906,512	1,561,323	1,414,851	895,435	606,273	359,667	250,469	286,024	10,124,273
G-51	375,599	433,660	514,333	437,666	423,792	332,713	298,137	247,177	218,991	234,892	3,516,961
G-52	914,214	1,008,388	1,168,109	988,208	976,402	772,908	657,183	561,072	540,959	573,969	8,161,411
G-53	983,271	1,037,011	1,337,608	1,066,083	1,039,435	827,593	775,816	668,663	645,679	699,789	9,080,950
G-54	1,738,750	1,395,359	1,366,893	1,274,130	1,250,056	1,369,579	1,680,548	1,669,182	1,578,600	1,678,120	15,001,217
Total C/I	12,696,881	14,705,897	18,000,302	15,075,539	13,362,035	8,616,732	6,359,958	4,548,817	3,987,317	4,236,658	101,590,134
Total All	20,518,144	24,438,894	30,050,252	25,067,754	21,927,632	13,394,301	9,073,200	5,970,576	5,090,305	5,337,533	160,868,592

2018-19 Decoupling Year Volume Headblock + Tailblock Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 27,390	\$ 32,017	\$ 37,568	\$ 31,605	\$ 31,028	\$ 23,817	\$ 19,441	\$ 14,735	\$ 12,231	\$ 12,411	\$ 242,245
R-3	\$ 3,951,110	\$ 4,917,866	\$ 6,086,696	\$ 5,050,593	\$ 4,320,947	\$ 2,401,391	\$ 1,356,889	\$ 703,187	\$ 551,707	\$ 551,033	\$ 29,891,420
R-4	\$ 126,195	\$ 157,869	\$ 197,442	\$ 162,118	\$ 140,093	\$ 77,773	\$ 42,909	\$ 22,943	\$ 17,818	\$ 17,512	\$ 962,672
Total Resid.	\$ 4,104,695	\$ 5,107,752	\$ 6,321,705	\$ 5,244,316	\$ 4,492,069	\$ 2,502,982	\$ 1,419,239	\$ 740,865	\$ 581,757	\$ 580,956	\$ 31,096,336
G-41	\$ 1,047,656	\$ 1,362,565	\$ 1,724,915	\$ 1,430,247	\$ 1,205,550	\$ 624,210	\$ 293,546	\$ 119,127	\$ 84,842	\$ 81,126	\$ 7,973,784
G-42	\$ 1,354,615	\$ 1,656,990	\$ 2,012,844	\$ 1,687,546	\$ 1,497,332	\$ 889,938	\$ 488,575	\$ 233,657	\$ 178,360	\$ 184,784	\$ 10,184,640
G-43	\$ 340,667	\$ 385,048	\$ 486,541	\$ 398,448	\$ 361,069	\$ 228,514	\$ 70,750	\$ 41,972	\$ 29,585	\$ 33,785	\$ 2,376,380
G-51	\$ 75,780	\$ 86,470	\$ 101,581	\$ 86,466	\$ 84,705	\$ 67,809	\$ 61,485	\$ 51,716	\$ 46,934	\$ 50,347	\$ 713,292
G-52	\$ 172,895	\$ 188,397	\$ 215,213	\$ 182,173	\$ 183,060	\$ 149,415	\$ 89,278	\$ 77,971	\$ 77,121	\$ 81,362	\$ 1,416,884
G-53	\$ 162,390	\$ 171,265	\$ 220,910	\$ 176,067	\$ 171,665	\$ 136,679	\$ 61,480	\$ 52,988	\$ 51,759	\$ 56,097	\$ 1,261,300
G-54	\$ 109,528	\$ 87,897	\$ 86,104	\$ 80,260	\$ 78,744	\$ 86,273	\$ 57,511	\$ 57,122	\$ 54,644	\$ 58,089	\$ 756,172
Total C/I	\$ 3,263,530	\$ 3,938,632	\$ 4,848,107	\$ 4,041,207	\$ 3,582,125	\$ 2,182,838	\$ 1,122,625	\$ 634,554	\$ 523,245	\$ 545,590	\$ 24,682,452
Total All	\$ 7,368,225	\$ 9,046,384	\$ 11,169,813	\$ 9,285,522	\$ 8,074,193	\$ 4,685,820	\$ 2,541,864	\$ 1,375,419	\$ 1,105,002	\$ 1,126,546	\$ 55,778,788

TOTAL REVENUE

2018-19 Decoupling Year Base Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 79,835	\$ 86,170	\$ 91,759	\$ 80,503	\$ 85,190	\$ 76,176	\$ 73,559	\$ 66,252	\$ 66,568	\$ 66,922	\$ 772,935
R-3	\$ 5,028,795	\$ 6,036,585	\$ 7,208,238	\$ 6,065,742	\$ 5,446,283	\$ 3,488,985	\$ 2,477,620	\$ 1,766,179	\$ 1,666,919	\$ 1,664,369	\$ 40,849,716
R-4	\$ 161,908	\$ 195,127	\$ 234,727	\$ 195,739	\$ 177,143	\$ 113,058	\$ 78,673	\$ 56,596	\$ 52,958	\$ 52,035	\$ 1,317,964
Total Resid.	\$ 5,270,538	\$ 6,317,882	\$ 7,534,725	\$ 6,341,984	\$ 5,708,616	\$ 3,678,219	\$ 2,629,851	\$ 1,889,028	\$ 1,786,446	\$ 1,783,326	\$ 42,940,615
G-41	\$ 1,564,360	\$ 1,901,762	\$ 2,265,911	\$ 1,920,471	\$ 1,748,510	\$ 1,146,792	\$ 823,878	\$ 613,690	\$ 599,114	\$ 594,200	\$ 13,178,686
G-42	\$ 1,586,447	\$ 1,897,408	\$ 2,253,592	\$ 1,905,225	\$ 1,738,283	\$ 1,121,410	\$ 726,892	\$ 459,287	\$ 423,835	\$ 424,019	\$ 12,536,399
G-43	\$ 381,223	\$ 428,352	\$ 529,510	\$ 437,259	\$ 403,465	\$ 268,783	\$ 112,238	\$ 81,811	\$ 69,520	\$ 74,301	\$ 2,786,462
G-51	\$ 147,706	\$ 161,092	\$ 176,257	\$ 153,849	\$ 159,310	\$ 139,809	\$ 135,479	\$ 122,187	\$ 118,028	\$ 123,488	\$ 1,437,204
G-52	\$ 235,999	\$ 253,635	\$ 280,394	\$ 241,033	\$ 248,553	\$ 213,144	\$ 155,441	\$ 141,147	\$ 144,156	\$ 147,453	\$ 2,060,954
G-53	\$ 189,690	\$ 198,983	\$ 248,357	\$ 200,858	\$ 197,760	\$ 162,135	\$ 88,066	\$ 78,739	\$ 80,312	\$ 84,650	\$ 1,529,550
G-54	\$ 130,925	\$ 110,007	\$ 107,812	\$ 100,215	\$ 100,854	\$ 107,055	\$ 78,859	\$ 77,708	\$ 76,252	\$ 79,697	\$ 969,385
Total C/I	\$ 4,236,349	\$ 4,951,239	\$ 5,861,833	\$ 4,958,911	\$ 4,596,736	\$ 3,159,128	\$ 2,120,853	\$ 1,574,568	\$ 1,511,217	\$ 1,527,807	\$ 34,498,640
Total All	\$ 9,506,887	\$ 11,269,121	\$ 13,396,557	\$ 11,300,895	\$ 10,305,351	\$ 6,837,347	\$ 4,750,704	\$ 3,463,596	\$ 3,297,663	\$ 3,311,133	\$ 77,439,254

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the formula in the tariff

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Residential Revenue Decoupling Adjustment Factor

1. Allowed Base Revenue	\$	40,989,509	
2. less: Actual and Estimated Base Revenue		<u>44,891,577</u>	
3. Revenue Deficiency / (Excess)	\$	(3,902,069)	
4. divided by: Forecasted Residential Sales		<u>65,525,887</u>	
5. Residential Revenue Decoupling Adjustment Factor	\$		<u><u>(0.0596)</u></u>

Commercial Revenue Decoupling Adjustment Factor

6. Allowed Base Revenue	\$	31,757,813	
7. less: Actual and Estimated Base Revenue		<u>34,498,640</u>	
8. Revenue Deficiency / (Excess)	\$	(2,740,826)	
9. divided by: Forecasted Commercial Sales		<u>121,652,799</u>	
10. Commercial Revenue Decoupling Adjustment Factor	\$		<u><u>(0.0225)</u></u>

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the formula in the tariff

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EnergyNorth Natural Gas Inc

2018-19 Customers (Equivalent Bills)

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
R-1	3,491	3,605	3,608	3,255	3,606	3,486	3,603	3,430	3,574	3,586	35,243
R-3	71,744	74,476	74,664	67,581	74,916	72,404	74,610	70,766	73,357	73,234	727,751
R-4	5,946	6,203	6,207	5,598	6,168	5,874	5,954	5,603	5,777	5,675	59,006
Total Resid.	81,181	84,284	84,479	76,434	84,690	81,764	84,167	79,799	82,708	82,495	822,000
G-41	9,279	9,683	9,716	8,804	9,751	9,385	9,524	8,882	9,125	9,104	93,253
G-42	1,388	1,439	1,441	1,303	1,442	1,386	1,427	1,351	1,452	1,415	14,042
G-43	57	60	60	54	59	56	58	56	55	56	571
G-51	1,292	1,340	1,341	1,210	1,340	1,293	1,329	1,266	1,261	1,298	12,970
G-52	378	391	390	352	392	381	396	378	396	391	3,846
G-53	37	38	37	34	35	34	36	35	38	38	363
G-54	29	30	29	27	30	28	29	28	29	29	288
Total C/I	12,459	12,981	13,014	11,784	13,049	12,564	12,798	11,994	12,357	12,331	125,332
Total All	93,640	97,265	97,493	88,218	97,740	94,328	96,965	91,793	95,065	94,825	947,332

2018-19 Benchmark Base Revenue Per Bill

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19
R-1	\$ 23.630	\$ 25.588	\$ 26.326	\$ 26.064	\$ 24.359	\$ 21.665	\$ 20.932	\$ 19.551	\$ 18.581	\$ 18.520
R-3	\$ 58.483	\$ 78.412	\$ 89.883	\$ 84.877	\$ 72.716	\$ 45.931	\$ 33.622	\$ 25.883	\$ 22.855	\$ 22.974
R-4	\$ 22.321	\$ 29.930	\$ 33.822	\$ 31.446	\$ 28.720	\$ 19.784	\$ 13.134	\$ 10.516	\$ 9.239	\$ 9.352
G-41	\$ 141.061	\$ 187.336	\$ 213.824	\$ 204.320	\$ 174.282	\$ 120.172	\$ 89.749	\$ 73.104	\$ 67.581	\$ 67.203
G-42	\$ 831.437	\$ 1,139.248	\$ 1,275.090	\$ 1,181.586	\$ 995.503	\$ 692.940	\$ 478.158	\$ 353.842	\$ 296.514	\$ 289.956
G-43	\$ 6,630.216	\$ 7,593.280	\$ 8,769.856	\$ 7,718.973	\$ 6,633.048	\$ 4,338.262	\$ 2,120.739	\$ 1,477.930	\$ 1,276.137	\$ 1,310.918
G-51	\$ 117.110	\$ 128.843	\$ 132.447	\$ 127.517	\$ 117.280	\$ 101.009	\$ 95.963	\$ 86.858	\$ 86.305	\$ 87.102
G-52	\$ 635.041	\$ 672.436	\$ 670.683	\$ 657.599	\$ 601.232	\$ 521.003	\$ 376.781	\$ 342.142	\$ 345.377	\$ 356.854
G-53	\$ 5,288.039	\$ 6,482.182	\$ 5,443.345	\$ 5,509.426	\$ 5,382.287	\$ 4,702.462	\$ 2,553.307	\$ 2,163.553	\$ 2,145.270	\$ 2,343.537
G-54	\$ 4,517.444	\$ 5,041.273	\$ 4,376.519	\$ 3,774.254	\$ 2,908.047	\$ 3,287.867	\$ 2,028.236	\$ 2,391.070	\$ 2,360.857	\$ 2,675.881

2018-19 Allowed Base Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 82,502	\$ 92,247	\$ 94,977	\$ 84,845	\$ 87,832	\$ 75,517	\$ 75,412	\$ 67,052	\$ 66,414	\$ 66,407	\$ 793,203
R-3	\$ 4,195,802	\$ 5,839,765	\$ 6,710,987	\$ 5,736,100	\$ 5,447,653	\$ 3,325,556	\$ 2,508,517	\$ 1,831,622	\$ 1,676,542	\$ 1,682,483	\$ 38,955,028
R-4	\$ 132,717	\$ 185,655	\$ 209,952	\$ 176,022	\$ 177,153	\$ 116,217	\$ 78,200	\$ 58,919	\$ 53,370	\$ 53,073	\$ 1,241,278
Total Resid.	\$ 4,411,021	\$ 6,117,667	\$ 7,015,915	\$ 5,996,967	\$ 5,712,638	\$ 3,517,289	\$ 2,662,129	\$ 1,957,593	\$ 1,796,326	\$ 1,801,963	\$ 40,989,509
G-41	\$ 1,308,945	\$ 1,814,017	\$ 2,077,415	\$ 1,798,781	\$ 1,699,390	\$ 1,127,795	\$ 854,774	\$ 649,284	\$ 616,699	\$ 611,821	\$ 12,558,921
G-42	\$ 1,153,793	\$ 1,639,502	\$ 1,837,512	\$ 1,539,599	\$ 1,435,816	\$ 960,108	\$ 682,108	\$ 477,894	\$ 430,461	\$ 410,240	\$ 10,567,033
G-43	\$ 375,050	\$ 458,636	\$ 525,607	\$ 417,853	\$ 392,235	\$ 243,666	\$ 122,720	\$ 82,124	\$ 70,230	\$ 73,193	\$ 2,761,314
G-51	\$ 151,270	\$ 172,662	\$ 177,620	\$ 154,310	\$ 157,132	\$ 130,608	\$ 127,519	\$ 109,924	\$ 108,874	\$ 113,043	\$ 1,402,963
G-52	\$ 239,876	\$ 262,589	\$ 261,676	\$ 231,692	\$ 235,703	\$ 198,747	\$ 149,220	\$ 129,385	\$ 136,923	\$ 139,482	\$ 1,985,293
G-53	\$ 195,657	\$ 243,513	\$ 202,491	\$ 185,116	\$ 190,353	\$ 162,234	\$ 92,004	\$ 75,508	\$ 82,021	\$ 89,601	\$ 1,518,499
G-54	\$ 131,006	\$ 151,069	\$ 128,766	\$ 102,072	\$ 87,144	\$ 92,608	\$ 58,684	\$ 66,711	\$ 68,308	\$ 77,422	\$ 963,790
Total C/I	\$ 3,555,597	\$ 4,741,988	\$ 5,211,088	\$ 4,429,425	\$ 4,197,774	\$ 2,915,765	\$ 2,087,028	\$ 1,590,830	\$ 1,513,516	\$ 1,514,802	\$ 31,757,813
Total All	\$ 7,966,618	\$ 10,859,655	\$ 12,227,003	\$ 10,426,392	\$ 9,910,412	\$ 6,433,055	\$ 4,749,157	\$ 3,548,422	\$ 3,309,842	\$ 3,316,765	\$ 72,747,322

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the formula in the tariff

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SALES AND TRANSPORT DATA

CUSTOMER COMPONENT

EnergyNorth Natural Gas Inc

2018-19 Customers (Equivalent Bills)

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
R-1	3,491	3,605	3,608	3,255	3,606	3,486	3,603	3,430	3,574	3,586	35,243
R-3	71,744	74,476	74,664	67,581	74,916	72,404	74,610	70,766	73,357	73,234	727,751
R-4	5,946	6,203	6,207	5,598	6,168	5,874	5,954	5,603	5,777	5,875	59,006
Total Resid.	81,181	84,284	84,479	76,434	84,690	81,764	84,167	79,799	82,708	82,495	822,000
G-41	9,279	9,683	9,716	8,804	9,751	9,385	9,524	8,882	9,125	9,104	93,253
G-42	1,388	1,439	1,441	1,303	1,442	1,386	1,427	1,351	1,452	1,415	14,042
G-43	57	60	60	54	59	56	58	56	55	56	571
G-51	1,292	1,340	1,341	1,210	1,340	1,293	1,329	1,266	1,261	1,298	12,970
G-52	378	391	390	352	392	381	396	378	396	391	3,846
G-53	37	38	37	34	35	34	36	35	38	38	363
G-54	29	30	29	27	30	28	29	28	29	29	288
Total C/I	12,459	12,981	13,014	11,784	13,049	12,564	12,798	11,994	12,357	12,331	125,332
Total All	93,640	97,265	97,493	88,218	97,740	94,328	96,965	91,793	95,065	94,825	947,332

2018-19 Customer Charge

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19
R-1	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.20	\$ 15.20
R-3	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.20	\$ 15.20
R-4	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.02	\$ 15.20	\$ 15.20
G-41	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 56.36	\$ 56.36
G-42	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 169.09	\$ 169.09
G-43	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 716.95	\$ 725.66	\$ 725.66
G-51	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 55.68	\$ 56.36	\$ 56.36
G-52	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 167.06	\$ 169.09	\$ 169.09
G-53	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 746.81	\$ 746.81
G-54	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 737.84	\$ 746.81	\$ 746.81

2018-19 Customer Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 52,445	\$ 54,153	\$ 54,192	\$ 48,898	\$ 54,162	\$ 52,359	\$ 54,118	\$ 51,517	\$ 54,337	\$ 54,511	\$ 530,690
R-3	\$ 1,077,685	\$ 1,118,719	\$ 1,121,542	\$ 1,015,149	\$ 1,125,335	\$ 1,087,594	\$ 1,120,732	\$ 1,062,992	\$ 1,115,212	\$ 1,113,336	\$ 10,958,296
R-4	\$ 89,314	\$ 93,178	\$ 93,244	\$ 84,082	\$ 92,654	\$ 88,241	\$ 89,438	\$ 84,163	\$ 87,820	\$ 86,280	\$ 888,413
Total Resid.	\$ 1,219,443	\$ 1,266,049	\$ 1,268,978	\$ 1,148,129	\$ 1,272,152	\$ 1,228,194	\$ 1,264,287	\$ 1,198,672	\$ 1,257,369	\$ 1,254,126	\$ 12,377,400
G-41	\$ 516,704	\$ 539,197	\$ 540,996	\$ 490,224	\$ 542,960	\$ 522,582	\$ 530,331	\$ 494,562	\$ 514,272	\$ 513,073	\$ 5,204,902
G-42	\$ 231,832	\$ 240,418	\$ 240,749	\$ 217,679	\$ 240,952	\$ 231,472	\$ 238,317	\$ 225,630	\$ 245,475	\$ 239,235	\$ 2,351,759
G-43	\$ 40,556	\$ 43,304	\$ 42,969	\$ 38,811	\$ 42,396	\$ 40,269	\$ 41,488	\$ 39,839	\$ 39,936	\$ 40,516	\$ 410,082
G-51	\$ 71,926	\$ 74,622	\$ 74,675	\$ 67,383	\$ 74,605	\$ 72,001	\$ 73,994	\$ 70,471	\$ 71,094	\$ 73,141	\$ 723,912
G-52	\$ 63,104	\$ 65,238	\$ 65,181	\$ 58,861	\$ 65,493	\$ 63,728	\$ 66,163	\$ 63,176	\$ 67,035	\$ 66,091	\$ 644,070
G-53	\$ 27,300	\$ 27,718	\$ 27,447	\$ 24,791	\$ 26,095	\$ 25,455	\$ 26,587	\$ 25,751	\$ 28,553	\$ 28,553	\$ 268,250
G-54	\$ 21,397	\$ 22,110	\$ 21,709	\$ 19,954	\$ 22,110	\$ 20,782	\$ 21,348	\$ 20,586	\$ 21,608	\$ 21,608	\$ 213,212
Total C/I	\$ 972,819	\$ 1,012,607	\$ 1,013,726	\$ 917,704	\$ 1,014,611	\$ 976,290	\$ 998,228	\$ 940,014	\$ 987,972	\$ 982,217	\$ 9,816,187
Total All	\$ 2,192,262	\$ 2,278,656	\$ 2,282,704	\$ 2,065,833	\$ 2,286,763	\$ 2,204,483	\$ 2,262,515	\$ 2,138,686	\$ 2,245,341	\$ 2,236,343	\$ 22,193,587

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the formula in the tariff

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ENERGY COMPONENT

HEADBLOCK

2018-19 Decoupling Year Volume Headblock

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
1											
R-1	73,214	85,581	100,416	84,480	82,937	63,662	51,965	39,387	32,303	32,777	646,722
R-3	7,181,583	8,938,769	11,063,248	9,180,015	7,853,803	4,364,796	2,466,296	1,278,121	990,700	989,490	54,306,822
R-4	566,467	708,647	886,285	727,720	628,857	349,111	194,981	104,252	79,984	78,608	4,324,913
Total Resid.	7,821,264	9,732,997	12,049,950	9,992,215	8,565,597	4,777,570	2,713,242	1,421,760	1,102,988	1,100,875	59,278,457
G-41	698,502	844,939	926,433	787,197	813,404	566,171	193,517	73,932	57,112	57,591	5,018,798
G-42	1,241,041	1,392,503	1,480,358	1,260,637	1,375,317	1,112,595	572,599	307,306	259,161	258,161	9,259,678
G-43	1,334,906	1,508,814	1,906,512	1,561,323	1,414,851	895,435	606,273	359,667	250,469	286,024	10,124,273
G-51	89,214	92,375	99,440	84,888	92,376	86,105	84,659	77,880	74,698	80,167	861,803
G-52	367,561	376,192	397,457	337,575	372,348	351,845	342,708	316,265	318,801	332,044	3,512,797
G-53	983,271	1,037,011	1,337,608	1,066,083	1,039,435	827,593	775,816	668,663	645,679	699,789	9,080,950
G-54	1,738,750	1,395,359	1,366,893	1,274,130	1,250,056	1,369,579	1,680,548	1,669,182	1,578,600	1,678,120	15,001,217
Total C/I	6,453,245	6,647,192	7,514,701	6,371,834	6,357,786	5,209,324	4,256,121	3,472,896	3,184,521	3,391,895	52,859,516
Total All	14,274,509	16,380,190	19,564,651	16,364,049	14,923,384	9,986,893	6,969,363	4,894,655	4,287,509	4,492,770	112,137,973

2018-19 Headblock Charge

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19
R-1	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3786	\$ 0.3786
R-3	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5569	\$ 0.5569
R-4	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5569	\$ 0.5569
G-41	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4566	\$ 0.4621	\$ 0.4621
G-42	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4152	\$ 0.4202	\$ 0.4202
G-43	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.1167	\$ 0.1167	\$ 0.1181	\$ 0.1181
G-51	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2752	\$ 0.2785	\$ 0.2785
G-52	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.2363	\$ 0.1712	\$ 0.1712	\$ 0.1733	\$ 0.1733
G-53	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.0792	\$ 0.0792	\$ 0.0802	\$ 0.0802
G-54	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0342	\$ 0.0342	\$ 0.0346	\$ 0.0346

2018-19 Decoupling Year Volume Headblock Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 27,390	\$ 32,017	\$ 37,568	\$ 31,605	\$ 31,028	\$ 23,817	\$ 19,441	\$ 14,735	\$ 12,231	\$ 12,411	\$ 242,245
R-3	\$ 3,951,110	\$ 4,917,866	\$ 6,086,696	\$ 5,050,593	\$ 4,320,947	\$ 2,401,391	\$ 1,356,889	\$ 703,187	\$ 551,707	\$ 551,033	\$ 29,891,420
R-4	\$ 311,655	\$ 389,878	\$ 487,610	\$ 400,372	\$ 345,980	\$ 192,072	\$ 107,273	\$ 57,356	\$ 44,542	\$ 43,775	\$ 2,380,514
Total Resid.	\$ 4,290,155	\$ 5,339,762	\$ 6,611,873	\$ 5,482,570	\$ 4,697,955	\$ 2,617,280	\$ 1,483,603	\$ 775,279	\$ 608,481	\$ 607,220	\$ 32,514,178
G-41	\$ 318,931	\$ 385,793	\$ 423,003	\$ 359,428	\$ 371,394	\$ 258,510	\$ 88,359	\$ 33,757	\$ 26,394	\$ 26,615	\$ 2,292,184
G-42	\$ 515,285	\$ 578,172	\$ 614,650	\$ 523,421	\$ 571,037	\$ 461,954	\$ 237,745	\$ 127,594	\$ 108,911	\$ 108,491	\$ 3,847,260
G-43	\$ 340,667	\$ 385,048	\$ 486,541	\$ 398,448	\$ 361,069	\$ 228,514	\$ 70,750	\$ 41,972	\$ 29,585	\$ 33,785	\$ 2,376,380
G-51	\$ 24,551	\$ 25,420	\$ 27,365	\$ 23,360	\$ 25,421	\$ 23,695	\$ 23,297	\$ 21,432	\$ 20,807	\$ 22,330	\$ 237,677
G-52	\$ 86,863	\$ 88,902	\$ 93,928	\$ 79,776	\$ 87,994	\$ 83,149	\$ 58,675	\$ 54,148	\$ 55,242	\$ 57,537	\$ 746,213
G-53	\$ 162,390	\$ 171,265	\$ 220,910	\$ 176,067	\$ 171,665	\$ 136,679	\$ 61,480	\$ 52,988	\$ 51,759	\$ 56,097	\$ 1,261,300
G-54	\$ 109,528	\$ 87,897	\$ 86,104	\$ 80,260	\$ 78,744	\$ 86,273	\$ 57,511	\$ 57,122	\$ 54,644	\$ 58,089	\$ 756,172
Total C/I	\$ 1,558,214	\$ 1,722,498	\$ 1,952,499	\$ 1,640,761	\$ 1,667,324	\$ 1,278,773	\$ 597,817	\$ 389,013	\$ 347,342	\$ 362,944	\$ 11,517,187
Total All	\$ 5,848,369	\$ 7,062,260	\$ 8,564,373	\$ 7,123,331	\$ 6,365,279	\$ 3,896,053	\$ 2,081,420	\$ 1,164,292	\$ 955,823	\$ 970,163	\$ 44,031,365

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the formula in the tariff

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TAILBLOCK

2018-19 Decoupling Year Volume Tailblock												
	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T
2	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-18	Aug-18		Total
R-1	-	-	-	-	-	-	-	-	-	-	-	-
R-3	-	-	-	-	-	-	-	-	-	-	-	-
R-4	-	-	-	-	-	-	-	-	-	-	-	-
Total Resid.	-	-	-	-	-	-	-	-	-	-	-	-
G-41	2,376,148	3,184,951	4,245,136	3,491,609	2,719,924	1,192,435	669,054	278,366	188,282	175,600		18,521,506
G-42	3,034,449	3,900,272	5,054,919	4,208,686	3,348,855	1,547,302	906,830	383,451	248,064	272,513		22,905,342
G-43	-	-	-	-	-	-	-	-	-	-		-
G-51	286,385	341,285	414,894	352,778	331,416	246,608	213,478	169,297	144,293	154,725		2,655,158
G-52	546,653	632,195	770,652	650,633	604,054	421,063	314,475	244,807	222,157	241,924		4,648,613
G-53	-	-	-	-	-	-	-	-	-	-		-
G-54	-	-	-	-	-	-	-	-	-	-		-
Total C/I	6,243,635	8,058,704	10,485,601	8,703,706	7,004,248	3,407,408	2,103,836	1,075,921	802,796	844,763		48,730,618
Total All	6,243,635	8,058,704	10,485,601	8,703,706	7,004,248	3,407,408	2,103,836	1,075,921	802,796	844,763		48,730,618

2018-19 Tailblock Charge												
	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T
	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19		
R-1	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3741	\$ 0.3786		\$ 0.3786
R-3	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5502	\$ 0.5569		\$ 0.5569
R-4	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2201	\$ 0.2228		\$ 0.2228
G-41	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3067	\$ 0.3104		\$ 0.3104
G-42	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2766	\$ 0.2800		\$ 0.2800
G-43	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.2552	\$ 0.1167	\$ 0.1167	\$ 0.1181		\$ 0.1181
G-51	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1789	\$ 0.1811		\$ 0.1811
G-52	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.1574	\$ 0.0973	\$ 0.0973	\$ 0.0985		\$ 0.0985
G-53	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.1652	\$ 0.0792	\$ 0.0792	\$ 0.0802		\$ 0.0802
G-54	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0630	\$ 0.0342	\$ 0.0342	\$ 0.0346		\$ 0.0346

2018-19 Decoupling Year Volume Tailblock Revenue												
	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T	S&T
	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19		Total
R-1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
R-3	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
R-4	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
Total Resid.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
G-41	\$ 728,725	\$ 976,772	\$ 1,301,913	\$ 1,070,819	\$ 834,156	\$ 365,700	\$ 205,188	\$ 85,370	\$ 58,448	\$ 54,511		\$ 5,681,600
G-42	\$ 839,330	\$ 1,078,817	\$ 1,398,193	\$ 1,164,125	\$ 926,295	\$ 427,985	\$ 250,830	\$ 106,063	\$ 69,448	\$ 76,293		\$ 6,337,379
G-43	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
G-51	\$ 51,229	\$ 61,050	\$ 74,217	\$ 63,106	\$ 59,284	\$ 44,114	\$ 38,187	\$ 30,284	\$ 26,128	\$ 28,017		\$ 475,615
G-52	\$ 86,032	\$ 99,495	\$ 121,285	\$ 102,396	\$ 95,066	\$ 66,267	\$ 30,603	\$ 23,823	\$ 21,879	\$ 23,825		\$ 670,671
G-53	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
G-54	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -		\$ -
Total C/I	\$ 1,705,316	\$ 2,216,133	\$ 2,895,608	\$ 2,400,445	\$ 1,914,801	\$ 904,065	\$ 524,808	\$ 245,541	\$ 175,902	\$ 182,646		\$ 13,165,265
Total All	\$ 1,705,316	\$ 2,216,133	\$ 2,895,608	\$ 2,400,445	\$ 1,914,801	\$ 904,065	\$ 524,808	\$ 245,541	\$ 175,902	\$ 182,646		\$ 13,165,265

Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Utilities
Revenue Decoupling Adjustment Factor (RDAF)
Allowed Base Revenue based on the formula in the tariff

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RDAF
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HEADBLOCK + TAILBLOCK

2018-19 Decoupling Year Volume Headblock + Tailblock

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-18	S&T Aug-18	S&T Total
R-1	73,214	85,581	100,416	84,480	82,937	63,662	51,965	39,387	32,303	32,777	646,722
R-3	7,181,583	8,938,769	11,063,248	9,180,015	7,853,803	4,364,796	2,466,296	1,278,121	990,700	989,490	54,306,822
R-4	566,467	708,647	886,285	727,720	628,857	349,111	194,981	104,252	79,984	78,608	4,324,913
Total Resid.	7,821,264	9,732,997	12,049,950	9,992,215	8,565,597	4,777,570	2,713,242	1,421,760	1,102,988	1,100,875	59,278,457
G-41	3,074,649	4,029,890	5,171,569	4,278,806	3,533,328	1,758,606	862,571	352,299	245,393	233,191	23,540,304
G-42	4,275,490	5,292,775	6,535,278	5,469,323	4,724,171	2,659,897	1,479,429	690,757	507,225	530,674	32,165,020
G-43	1,334,906	1,508,814	1,906,512	1,561,323	1,414,851	895,435	606,273	359,667	250,469	286,024	10,124,273
G-51	375,599	433,660	514,333	437,666	423,792	332,713	298,137	247,177	218,991	234,892	3,516,961
G-52	914,214	1,008,388	1,168,109	988,208	976,402	772,908	657,183	561,072	540,959	573,969	8,161,411
G-53	983,271	1,037,011	1,337,608	1,066,083	1,039,435	827,593	775,816	668,663	645,679	699,789	9,080,950
G-54	1,738,750	1,395,359	1,366,893	1,274,130	1,250,056	1,369,579	1,680,548	1,669,182	1,578,600	1,678,120	15,001,217
Total C/I	12,696,881	14,705,897	18,000,302	15,075,539	13,362,035	8,616,732	6,359,958	4,548,817	3,987,317	4,236,658	101,590,134
Total All	20,518,144	24,438,894	30,050,252	25,067,754	21,927,632	13,394,301	9,073,200	5,970,576	5,090,305	5,337,533	160,868,592

2018-19 Decoupling Year Volume Headblock + Tailblock Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 27,390	\$ 32,017	\$ 37,568	\$ 31,605	\$ 31,028	\$ 23,817	\$ 19,441	\$ 14,735	\$ 12,231	\$ 12,411	\$ 242,245
R-3	\$ 3,951,110	\$ 4,917,866	\$ 6,086,696	\$ 5,050,593	\$ 4,320,947	\$ 2,401,391	\$ 1,356,889	\$ 703,187	\$ 551,707	\$ 551,033	\$ 29,891,420
R-4	\$ 311,655	\$ 389,878	\$ 487,610	\$ 400,372	\$ 345,980	\$ 192,072	\$ 107,273	\$ 57,356	\$ 44,542	\$ 43,775	\$ 2,380,514
Total Resid.	\$ 4,290,155	\$ 5,339,762	\$ 6,611,873	\$ 5,482,570	\$ 4,697,955	\$ 2,617,280	\$ 1,483,603	\$ 775,279	\$ 608,481	\$ 607,220	\$ 32,514,178
G-41	\$ 1,047,656	\$ 1,362,565	\$ 1,724,915	\$ 1,430,247	\$ 1,205,550	\$ 624,210	\$ 293,546	\$ 119,127	\$ 84,842	\$ 81,126	\$ 7,973,784
G-42	\$ 1,354,615	\$ 1,656,990	\$ 2,012,844	\$ 1,687,546	\$ 1,497,332	\$ 889,938	\$ 488,575	\$ 233,657	\$ 178,360	\$ 184,784	\$ 10,184,640
G-43	\$ 340,667	\$ 385,048	\$ 486,541	\$ 398,448	\$ 361,069	\$ 228,514	\$ 70,750	\$ 41,972	\$ 29,585	\$ 33,785	\$ 2,376,380
G-51	\$ 75,780	\$ 86,470	\$ 101,581	\$ 86,466	\$ 84,705	\$ 67,809	\$ 61,485	\$ 51,716	\$ 46,934	\$ 50,347	\$ 713,292
G-52	\$ 172,895	\$ 188,397	\$ 215,213	\$ 182,173	\$ 183,060	\$ 149,415	\$ 89,278	\$ 77,971	\$ 77,121	\$ 81,362	\$ 1,416,884
G-53	\$ 162,390	\$ 171,265	\$ 220,910	\$ 176,067	\$ 171,665	\$ 136,679	\$ 61,480	\$ 52,988	\$ 51,759	\$ 56,097	\$ 1,261,300
G-54	\$ 109,528	\$ 87,897	\$ 86,104	\$ 80,260	\$ 78,744	\$ 86,273	\$ 57,511	\$ 57,122	\$ 54,644	\$ 58,089	\$ 756,172
Total C/I	\$ 3,263,530	\$ 3,938,632	\$ 4,848,107	\$ 4,041,207	\$ 3,582,125	\$ 2,182,838	\$ 1,122,625	\$ 634,554	\$ 523,245	\$ 545,590	\$ 24,682,452
Total All	\$ 7,553,686	\$ 9,278,393	\$ 11,459,980	\$ 9,523,776	\$ 8,280,080	\$ 4,800,118	\$ 2,606,228	\$ 1,409,833	\$ 1,131,726	\$ 1,152,809	\$ 57,196,630

TOTAL REVENUE

2018-19 Decoupling Year Base Revenue

	S&T Nov-18	S&T Dec-18	S&T Jan-19	S&T Feb-19	S&T Mar-19	S&T Apr-19	S&T May-19	S&T Jun-19	S&T Jul-19	S&T Aug-19	S&T Total
R-1	\$ 79,835	\$ 86,170	\$ 91,759	\$ 80,503	\$ 85,190	\$ 76,176	\$ 73,559	\$ 66,252	\$ 66,568	\$ 66,922	\$ 772,935
R-3	\$ 5,028,795	\$ 6,036,585	\$ 7,208,238	\$ 6,065,742	\$ 5,446,283	\$ 3,488,985	\$ 2,477,620	\$ 1,766,179	\$ 1,666,919	\$ 1,664,369	\$ 40,849,716
R-4	\$ 400,968	\$ 483,056	\$ 580,854	\$ 484,454	\$ 438,634	\$ 280,312	\$ 196,711	\$ 141,519	\$ 132,363	\$ 130,055	\$ 3,268,927
Total Resid.	\$ 5,509,599	\$ 6,605,811	\$ 7,880,851	\$ 6,630,699	\$ 5,970,107	\$ 3,845,474	\$ 2,747,890	\$ 1,973,951	\$ 1,865,850	\$ 1,861,346	\$ 44,891,577
G-41	\$ 1,564,360	\$ 1,901,762	\$ 2,265,911	\$ 1,920,471	\$ 1,748,510	\$ 1,146,792	\$ 823,878	\$ 613,690	\$ 599,114	\$ 594,200	\$ 13,178,686
G-42	\$ 1,586,447	\$ 1,897,408	\$ 2,253,592	\$ 1,905,225	\$ 1,738,283	\$ 1,121,410	\$ 726,892	\$ 459,287	\$ 423,835	\$ 424,019	\$ 12,536,399
G-43	\$ 381,223	\$ 428,352	\$ 529,510	\$ 437,259	\$ 403,465	\$ 268,783	\$ 112,238	\$ 81,811	\$ 69,520	\$ 74,301	\$ 2,786,462
G-51	\$ 147,706	\$ 161,092	\$ 176,257	\$ 153,849	\$ 159,310	\$ 139,809	\$ 135,479	\$ 122,187	\$ 118,028	\$ 123,488	\$ 1,437,204
G-52	\$ 235,999	\$ 253,635	\$ 280,394	\$ 241,033	\$ 248,553	\$ 213,144	\$ 155,441	\$ 141,147	\$ 144,156	\$ 147,453	\$ 2,060,954
G-53	\$ 189,690	\$ 198,983	\$ 248,357	\$ 200,858	\$ 197,760	\$ 162,135	\$ 88,066	\$ 78,739	\$ 80,312	\$ 84,650	\$ 1,529,550
G-54	\$ 130,925	\$ 110,007	\$ 107,812	\$ 100,215	\$ 100,854	\$ 107,055	\$ 78,859	\$ 77,708	\$ 76,252	\$ 79,697	\$ 969,385
Total C/I	\$ 4,236,349	\$ 4,951,239	\$ 5,861,833	\$ 4,958,911	\$ 4,596,736	\$ 3,159,128	\$ 2,120,853	\$ 1,574,568	\$ 1,511,217	\$ 1,527,807	\$ 34,498,640
Total All	\$ 9,745,948	\$ 11,557,049	\$ 13,742,684	\$ 11,589,610	\$ 10,566,843	\$ 7,004,602	\$ 4,868,743	\$ 3,548,519	\$ 3,377,067	\$ 3,389,153	\$ 79,390,217

Liberty Utilities (EnergyNorth Natural Gas) Corp.

Schedule 19

RLIAP

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Residential Low Income Assistance Program (RLIAP)

	Customer Charge	Block	Total
1			
2 R-3 Base Rates	\$ 15.20	\$ 0.5569	
3 R-4 Rate at 40% of R-3	\$ 6.08	\$ 0.2228	
4 Program Subsidy	\$ 9.1195	\$ 0.3341	
5 Average Annual Therms			776
6			
7 Estimated Annual Subsidy	\$ 54.72	\$ 259.13	\$ 313.85
8			
9 Number of Estimated 2019/20 Participants			5,932 (a)
10			
11 Annual Subsidy times Number of Participants (Ln 7 * Ln 11)			\$ 1,861,760
12 Prior Year Ending Balance - RLIAP Page 2			\$ 445,596
13 Estimated Annual Administrative Costs			-
14 Total Program Costs			\$ 2,307,356
15			
16 Estimated weather normalized firm therms billed for the			
17 twelve months ended 10/31/20 sales and transportation			187,178,686
18			
19 Total Residential Low Income Program Charge			\$ 0.0123

(a) Estimated number of participants for 2019/20 is based on the actual number participants as of June 2019.

Liberty Utilities (EnergyNorth Natural Gas) Corp.

NOVEMBER 2018 THROUGH OCTOBER 2019
RESIDENTIAL LOW INCOME ASSISTANCE PROGRAM RECONCILIATION
ACCOUNT 175.6

	(Actual) Nov-18 30	(Actual) Dec-18 31	(Actual) Jan-19 31	(Actual) Feb-19 29	(Actual) Mar-19 31	(Actual) Apr-19 30	(Actual) May-19 31	(Actual) Jun-19 30	(Estimate) Jul-19 31	(Estimate) Aug-19 31	(Estimate) Sep-19 30	(Estimate) Oct-19 31	Total
1 FOR THE MONTH OF:													
2 DAYS IN MONTH													
3 Beginning Balance	\$ 559,997	\$ 536,699	\$ 461,166	\$ 422,199	\$ 384,625	\$ 362,946	\$ 382,955	\$ 417,361	\$ 421,995	\$ 437,148	\$ 450,553	\$ 457,662	\$ 559,997
4													
5 Add: Actual Costs	130,484.2	217,735.6	293,538.4	328,731.0	314,197.5	271,170.0	191,899.5	109,876.6	84,339	80,608	86,637	104,250	2,213,467
6													
7 Less: Collected Revenue	(156,143.5)	(295,491.6)	(334,471.0)	(367,998.0)	(337,621.5)	(252,847.2)	(159,362.0)	(107,138.8)	(71,097)	(69,178)	(81,484)	(118,325)	(2,351,157)
8													
9 Add: Administrative and Start Up Costs	-	-	-	-	-	-	-	-	-	-	-	-	-
10													
11 Ending Balance Pre-Interest	\$ 534,338	\$ 458,943	\$ 420,233	\$ 382,932	\$ 361,201	\$ 381,269	\$ 415,492	\$ 420,098	\$ 435,237	\$ 448,579	\$ 455,707	\$ 443,587	\$ 422,307
12													
13 Month's Average Balance	\$ 547,168	\$ 497,821	\$ 440,700	\$ 402,566	\$ 372,913	\$ 372,107	\$ 399,223	\$ 418,729	\$ 428,616	\$ 442,863	\$ 453,130	\$ 450,624	
14													
15 Interest Rate	5.25%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.50%	5.25%	5.25%	5.25%	5.25%	
16													
17 Interest Applied	\$ 2,361	\$ 2,223	\$ 1,966	\$ 1,692	\$ 1,745	\$ 1,686	\$ 1,869	\$ 1,897	\$ 1,911	\$ 1,975	\$ 1,955	\$ 2,009	23,289
18													
19 Ending Balance	\$ 536,699	\$ 461,166	\$ 422,199	\$ 384,625	\$ 362,946	\$ 382,955	\$ 417,361	\$ 421,995	\$ 437,148	\$ 450,553	\$ 457,662	\$ 445,596	\$ 445,596

Liberty Utilities (Energy/North Natural Gas) Corp.
Energy Efficiency Programs
For Residential Non-Heating and Heating Classes
November 1, 2019 - October 31, 2020
Energy Efficiency Charge

Schedule 19
Energy Efficiency
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Month	Actual or Forecast	Beginning Balance (Over)/Under	Residential DSM Rate Per Therm	DSM Collections	Forecasted DSM Expenditures	Actual DSM Expenditures		Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Monthly Federal Prime Rate	Interest @ Fed Reserve Bank Loan Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Residential Therm Sales	Residential Therm Sales	# of Days
						Residential	Low-Income									
May 19	Actual	(937,930)	(\$0.0287)	(120,310)	294,962	321,246	134,621	13,751	(588,621)	(763,276)	5.50%	(4,694)	(593,315)	4,095,234	4,213,465	31
June 19	Actual	(593,315)	(\$0.0287)	(65,711)	294,962	138,113	13,713	13,751	(493,449)	(543,382)	5.50%	(4,097)	(497,546)	1,981,666	1,785,463	30
July 19	Forecast	(497,546)	(\$0.0287)	(66,117)	294,962	0	0	0	(268,701)	(383,124)	5.25%	(1,708)	(270,409)	1,126,024	2,303,736	31
August 19	Forecast	(270,409)	(\$0.0287)	(31,311)	294,962	0	0	0	(6,757)	(138,583)	5.25%	(618)	(7,375)	1,090,959	0	31
September 19	Forecast	(7,375)	(\$0.0287)	(46,452)	294,962	0	0	0	241,135	116,880	5.25%	504	241,640	1,618,528	0	30
October 19	Forecast	241,640	(\$0.0287)	(82,267)	294,962	0	0	0	454,335	347,987	5.25%	1,552	455,887	2,866,447	0	31
November 19	Forecast	455,887	(\$0.0640)	(275,552)	294,962	0	0	0	475,297	465,592	5.25%	2,009	477,306	4,305,494	0	30
December 19	Forecast	477,306	(\$0.0640)	(503,227)	294,962	0	0	0	269,042	373,174	5.25%	1,664	270,706	7,862,921	0	31
January 20	Forecast	270,706	(\$0.0640)	(717,244)	317,035	0	0	0	(129,503)	70,602	5.25%	315	(129,188)	11,206,936	0	31
February 20	Forecast	(129,188)	(\$0.0640)	(774,420)	317,035	0	0	0	(586,573)	(357,880)	5.25%	(1,441)	(588,014)	12,100,319	0	28
March 20	Forecast	(588,014)	(\$0.0640)	(658,776)	317,035	0	0	0	(929,755)	(758,884)	5.25%	(3,384)	(933,139)	10,293,377	0	31
April 20	Forecast	(933,139)	(\$0.0640)	(450,124)	317,035	0	0	0	(1,066,227)	(999,683)	5.25%	(4,314)	(1,070,541)	7,033,190	0	30
May 20	Forecast	(1,070,541)	(\$0.0640)	(261,578)	317,035	0	0	0	(1,015,083)	(1,042,812)	5.25%	(4,650)	(1,019,733)	4,087,157	0	31
June 20	Forecast	(1,019,733)	(\$0.0640)	(127,121)	317,035	0	0	0	(829,819)	(924,776)	5.25%	(3,990)	(833,810)	1,986,270	0	30
July 20	Forecast	(833,810)	(\$0.0640)	(71,801)	317,035	0	0	0	(588,575)	(711,192)	5.25%	(3,171)	(591,746)	1,121,890	0	31
August 20	Forecast	(591,746)	(\$0.0640)	(69,431)	317,035	0	0	0	(344,141)	(467,944)	5.25%	(2,087)	(346,228)	1,084,856	0	31
September 20	Forecast	(346,228)	(\$0.0640)	(102,761)	317,035	0	0	0	(131,953)	(239,090)	5.25%	(1,032)	(132,985)	1,605,635	0	30
October 20	Forecast	(132,985)	(\$0.0640)	(181,622)	317,035	0	0	0	2,429	(65,278)	5.25%	(291)	2,138	2,837,843	0	31
November 20	Forecast	2,138	(\$0.0640)	(275,552)	317,035	0	0	0	43,622	22,880	5.25%	99	43,720	4,305,494	0	30
December 20	Forecast	43,720	(\$0.0640)	(503,227)	317,035	0	0	0	(142,471)	(49,375)	5.25%	(220)	(142,691)	7,862,921	0	31

Estimated Residential Conservation Charge Effective November 1, 2019 - October 31, 2020	
Beginning Balance	\$ 455,887
Program Budget Nov 19-Oct 20	3,760,280
Projected Interest	(21,359)
Projected Budget with Interest	\$ 4,194,807
Total Charges	\$ 4,194,807
Projected Therm Sales	65,525,887
Residential Rate	\$0.0640
Total Charges with Interest	\$ 4,194,807
Projected Therm Sales	65,525,887
Residential Rate	\$0.0640

Residential Non Heating Therm Sales	0%	642,126	711,615	0%
Residential Heating Therm Sales	35%	65,408,076	64,814,272	35%
C&I Therm Sales	64%	118,604,671	121,652,799	65%
Total Therms	100%	184,654,874	187,178,686	100%
		<u>Budget</u>	<u>Budget</u>	
		2019	2020	
Low-Income Program Budget	\$	1,310,342	\$ 1,676,441	
Other Refund		-	-	
Total Shared Budget	\$	1,310,342	\$ 1,676,441	
Residential Program Budget	\$	2,852,868	\$ 2,962,415	
Residential Program Incentive @ 70%	\$	217,977	\$ 255,137	
Total Residential Program Budget	\$	3,070,845	\$ 3,217,552	
Commercial/Industrial Program Budget	\$	4,419,684	\$ 4,083,759	
Commercial/Industrial Program Incentive at 70%	\$	205,958	\$ 224,607	
Total Commercial/Industrial Program Budget	\$	4,625,642	\$ 4,308,366	
Total Program Budget	\$	9,006,829	\$ 9,202,359	
Shared Expenses Allocation to Residential	\$	468,703	\$ 586,874	
Shared Expenses Allocation to C&I		841,639	1,089,567	
Total Allocated Shared Expenses	\$	1,310,342	\$ 1,676,441	
Total Residential (including allocation of Shared Budget)	\$	3,539,548	\$ 3,804,426	
Total C&I (including allocation of Shared Budget)		5,467,281	5,397,933	
Total Budget	\$	9,006,829	\$ 9,202,359	

Liberty Utilities (EnergyNorth Natural Gas) Corp.
 Energy Efficiency Programs
 For Commercial/Industrial Classes
 November 1, 2019 - October 31, 2020
 Energy Efficiency Charge

Schedule 19
 Energy Efficiency
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Month	Actual or Forecast	Beginning Balance (Over)/Under	DSM Rate Per Therm	DSM Collections	Forecasted DSM Expenditures	Actual DSM Expenditures		Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Fed Reserve Prime Rate	Interest @ Fed Reserve Bank Loan Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Commercial/Industrial Therm Sales	Actual Commercial/Industrial Therm Sales	# of Days
						C&I	Low-Income									
May 19	Actual	(1,185,770)	(\$0.0387)	(312,013)	455,607	146,152	178,452	12,745	(1,160,434)	(1,173,102)	5.50%	(4,351)	(1,164,785)	8,238,574	8,077,113	31
June 19	Actual	(1,164,785)	(\$0.0387)	(230,093)	455,607	113,008	18,177	12,745	(1,250,947)	(1,207,866)	5.50%	(3,797)	(1,254,744)	5,722,003	5,955,271	30
July 19	Forecast	(1,254,744)	(\$0.0387)	(168,174)	455,607	0	0		(967,312)	(1,111,028)	5.25%	(4,954)	(972,266)	4,345,591	0	31
August 19	Forecast	(972,266)	(\$0.0387)	(163,556)	455,607	0	0		(680,215)	(826,241)	5.25%	(3,684)	(683,899)	4,226,257	0	31
September 19	Forecast	(683,899)	(\$0.0387)	(179,980)	455,607	0	0		(408,273)	(546,086)	5.25%	(2,356)	(410,629)	4,650,649	0	30
October 19	Forecast	(410,629)	(\$0.0387)	(240,009)	455,607	0	0		(195,031)	(302,830)	5.25%	(1,350)	(196,382)	6,201,778	0	31
November 19	Forecast	(196,382)	(\$0.0426)	(406,928)	455,607	0	0		(147,703)	(172,042)	5.25%	(742)	(148,445)	9,552,304	0	30
December 19	Forecast	(148,445)	(\$0.0426)	(567,550)	455,607	0	0		(260,389)	(204,417)	5.25%	(911)	(261,300)	13,322,774	0	31
January 20	Forecast	(261,300)	(\$0.0426)	(744,139)	449,828	0	0		(555,612)	(408,456)	5.25%	(1,821)	(557,433)	17,468,054	0	31
February 20	Forecast	(557,433)	(\$0.0426)	(781,199)	449,828	0	0		(888,804)	(723,118)	5.25%	(2,912)	(891,716)	18,337,998	0	28
March 20	Forecast	(891,716)	(\$0.0426)	(683,984)	449,828	0	0		(1,125,873)	(1,008,794)	5.25%	(4,498)	(1,130,371)	16,055,968	0	31
April 20	Forecast	(1,130,371)	(\$0.0426)	(539,871)	449,828	0	0		(1,220,414)	(1,175,393)	5.25%	(5,072)	(1,225,486)	12,673,038	0	30
May 20	Forecast	(1,225,486)	(\$0.0426)	(363,132)	449,828	0	0		(1,138,790)	(1,182,138)	5.25%	(5,271)	(1,144,061)	8,524,221	0	31
June 20	Forecast	(1,144,061)	(\$0.0426)	(249,804)	449,828	0	0		(944,038)	(1,044,050)	5.25%	(4,505)	(948,543)	5,863,950	0	30
July 20	Forecast	(948,543)	(\$0.0426)	(188,185)	449,828	0	0		(686,900)	(817,721)	5.25%	(3,646)	(690,546)	4,417,480	0	31
August 20	Forecast	(690,546)	(\$0.0426)	(183,699)	449,828	0	0		(424,417)	(557,482)	5.25%	(2,486)	(426,903)	4,312,181	0	31
September 20	Forecast	(426,903)	(\$0.0426)	(203,791)	449,828	0	0		(180,866)	(303,885)	5.25%	(1,311)	(182,178)	4,783,833	0	30
October 20	Forecast	(182,178)	(\$0.0426)	(270,127)	449,828	0	0		(2,477)	(92,327)	5.25%	(412)	(2,888)	6,340,998	0	31
November 20	Forecast	(2,888)	(\$0.0426)	(406,928)	449,828	0	0		40,012	18,562	5.25%	80	40,092	9,552,304	0	30
December 20	Forecast	40,092	(\$0.0426)	(567,550)	449,828	0	0		(77,631)	(18,769)	5.25%	(84)	(77,714)	13,322,774	0	31

Estimated C&I Conservation Charge November 1, 2019 - October 31, 2020	
Beginning Balance	(196,382)
Program Budget Nov 19-Oct 20	5,409,491
Projected Interest	(35,261)
Program Budget with Interest	5,177,848
Total Charges	\$5,177,848
Projected Therm Sales	121,652,799
C&I Rate	\$0.0426
Total Charges with Interest	\$5,182,409
Projected Therm Sales	121,652,799
C&I Rate	\$0.0426

**Liberty Utilities (Energy/Natural Gas) Corp.
Energy Efficiency Programs
For Residential and Commercial/Industrial Classes
November 1, 2019 - October 31, 2020
Energy Efficiency Charge**

Schedule 19
Energy Efficiency
Page 3 of 3

Month	Actual or Forecast	Beginning Balance (Over)/Under	DSM Rate Per Therm	DSM Collections	Forecasted DSM Expenditures	Actual DSM Expenditures				Incentive	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Plus Interest Prime Rate	Interest @ Fed Reserve Bank Loan Rate	Ending Bal. Plus Interest (Over)/Under	Forecasted Therm Sales	Actual Therm Sales	# of Days
						Residential	C&I	Low-Income	Total									
May 19	Actual	(2,123,700)	n/a	(432,323)	750,569	321,246	146,152	313,073	780,471	26,496	(1,749,055)	(1,936,378)	5.50%	(9,045)	(1,758,100)	12,333,808	12,290,578	31
June 19	Actual	(1,758,100)	n/a	(295,804)	750,569	138,113	113,008	31,890	283,012	26,496	(1,744,396)	(1,751,248)	5.50%	(7,917)	(1,752,313)	7,703,669	7,740,734	30
July 19	Forecast	(1,752,290)	n/a	(234,292)	750,569	0	0	0	0		(1,236,013)	(1,494,152)	5.25%	(6,662)	(1,242,675)	5,471,615	2,303,736	31
August 19	Forecast	(1,242,675)	n/a	(194,867)	750,569	0	0	0	0		(686,973)	(964,824)	5.25%	(4,302)	(691,275)	5,317,216	0	31
September 19	Forecast	(691,275)	n/a	(226,432)	750,569	0	0	0	0		(167,138)	(429,206)	5.25%	(1,852)	(168,990)	6,269,177	0	30
October 19	Forecast	(168,990)	n/a	(322,276)	750,569	0	0	0	0		259,304	45,157	5.25%	201	259,505	9,068,225	0	31
November 19	Forecast	259,505	n/a	(682,480)	750,569	0	0	0	0		327,594	293,550	5.25%	1,267	328,861	13,857,797	0	30
December 19	Forecast	328,861	n/a	(1,070,777)	750,569	0	0	0	0		8,653	168,757	5.25%	752	9,406	21,185,695	0	31
January 20	Forecast	9,406	n/a	(1,461,383)	766,863	0	0	0	0		(685,114)	(337,854)	5.25%	(1,506)	(686,621)	28,674,991	0	31
February 20	Forecast	(686,621)	n/a	(1,555,619)	766,863	0	0	0	0		(1,475,377)	(1,080,999)	5.25%	(4,354)	(1,479,730)	30,438,317	0	28
March 20	Forecast	(1,479,730)	n/a	(1,342,760)	766,863	0	0	0	0		(2,055,627)	(1,767,679)	5.25%	(7,882)	(2,063,509)	26,349,344	0	31
April 20	Forecast	(2,063,509)	n/a	(989,996)	766,863	0	0	0	0		(2,286,642)	(2,175,075)	5.25%	(9,386)	(2,296,027)	19,706,228	0	30
May 20	Forecast	(2,296,027)	n/a	(624,710)	766,863	0	0	0	0		(2,153,874)	(2,224,950)	5.25%	(9,921)	(2,163,795)	12,611,378	0	31
June 20	Forecast	(2,163,795)	n/a	(376,926)	766,863	0	0	0	0		(1,773,857)	(1,968,826)	5.25%	(8,496)	(1,782,353)	7,850,220	0	30
July 20	Forecast	(1,782,353)	n/a	(259,986)	766,863	0	0	0	0		(1,275,475)	(1,528,914)	5.25%	(6,817)	(1,282,292)	5,539,370	0	31
August 20	Forecast	(1,282,292)	n/a	(253,130)	766,863	0	0	0	0		(768,559)	(1,025,425)	5.25%	(4,572)	(773,131)	5,397,037	0	31
September 20	Forecast	(773,131)	n/a	(306,552)	766,863	0	0	0	0		(312,820)	(542,975)	5.25%	(2,343)	(315,163)	6,389,467	0	30
October 20	Forecast	(315,163)	n/a	(451,748)	766,863	0	0	0	0		(48)	(157,605)	5.25%	(703)	(750)	9,178,841	0	31
November 20	Forecast	(750)	n/a	(682,480)	766,863	0	0	0	0		83,633	41,441	5.25%	179	83,812	13,857,797	0	30
December 20	Forecast	83,812	n/a	(1,070,777)	766,863	0	0	0	0		(220,102)	(68,145)	5.25%	(304)	(220,406)	21,185,695	0	31

Residential (R-1 & R-3) and C & I Conservation Charge November 1, 2019 - October 31, 2020		
Beginning Balance	\$	259,505
Program Budget Nov 19-Oct 20	\$	9,169,771
Projected Interest	\$	(56,620)
Program Budget with Interest	\$	9,372,655
Total Charges		\$9,372,655

Environmental Surcharge - Manufactured Gas Plants**Manufactured Gas Plants**

Required annual Environmental increase	\$ 2,860,522
DG 10-17 Base Rate Revision Collections	\$ -
Environmental Subtotal	\$ 2,860,522
Overall Annual Net Increase to Rates	\$ 2,860,522

Estimated weather normalized firm therms billed for the
twelve months ended 10/31/20 - sales and transportation 187,178,686 therms

Surcharge per therm \$ 0.0153 per therm

Total Environmental Surcharge \$ 0.0153

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

NASHUA FORMER MGP

LINE
NO.

1. SITE LOCATION: 38 Bridge Street, Nashua, New Hampshire.
2. DATE SITE WAS FIRST INVESTIGATED: At the end of 1998, the New Hampshire Department of Environmental Services (NHDES) sent a "Notification of Site Listing and Request for Site Investigation" for the former Nashua Manufactured Gas Plant (MGP) to the former plant owners/operators: EnergyNorth Natural Gas, Inc. d/b/a National Grid (ENGI)¹, and Public Service Company of New Hampshire (PSNH) and its parent company, Northeast Utilities Services Company (NU). NHDES designated the site DES #199810022.
3. NATURE AND SCOPE OF SITE CONTAMINATION: Residual materials from the former MGP have been identified at the site and in the adjacent Nashua River. These residuals, which include tars and oils, have been found mainly in subsurface soil at discrete locations, in groundwater, and in localized river sediments.
4. SUMMARY OF MATERIAL DEVELOPMENTS AND INTERACTIONS WITH ENVIRONMENTAL AUTHORITIES:
 - Prior to the time NHDES issued its notice letter to ENGI, the US Environmental Protection Agency (EPA) was remediating contamination (asbestos) at the former Johns Manville plant located adjacent to, and downstream from the 38 Bridge Street property. In the course of that work, EPA detected what it determined to be MGP related residuals in Nashua River sediments containing asbestos. EPA sought reimbursement from ENGI and PSNH of only those incremental additional costs it incurred to dispose of sediments containing MGP related wastes in addition to asbestos. ENGI and PSNH entered into a settlement agreement with the EPA at the end of September 2000. Under the terms of the agreement, each company received a release from liability associated with the so-called Nashua River Superfund Site and contribution protection against future claims associated with that site. The settlement agreement made it clear that EPA does not contend that ENGI or PSNH contributed any asbestos to the Nashua River.
 - In response to the 1998 notice from NHDES, QST Environmental, Inc. (QST, subsequently Environmental Science and Engineering, Inc. (ESE), and later Harding ESE, Inc. (Harding ESE)), submitted a Scoping Phase Field Investigation Scope of Work to NHDES on behalf of ENGI in February 1999.

¹ In July 2012, EnergyNorth was acquired by Liberty Utilities and its legal name changed to Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities. For consistency purposes, the acronym ENGI will be used throughout this document.

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NO.

- In response to comments from NHDES, QST and ENGI refined the Scope of Work for the Scoping Phase Field Investigation and resubmitted to NHDES in April 1999.
- NHDES approved the refined Scoping Phase Field Investigation Scope of Work in May 1999.
- During the summer of 1999, ENGI and QST conducted the Scoping Phase Field Investigation, collecting site background information and soil, groundwater, surface water and sediment samples from the former Nashua MGP and the adjacent Nashua River.
- ENGI and ESE submitted the Scoping Phase Field Investigation Report to NHDES in December 1999.
- NHDES provided comments to ENGI and ESE in February 2000 on the Scoping Phase Field Investigation Report and requested a Phase II Investigation Scope of Work.
- On behalf of ENGI, ESE submitted a Draft Phase II Investigation Work Plan to NHDES in April 2000.
- ENGI and ESE met with the NHDES site manager in April 2000 to discuss the Draft Phase II Investigation Work Plan.
- NHDES provided written comments on the Draft Phase II Investigation Work Plan in June 2000.
- ENGI and ESE met with NHDES in August 2000 to discuss NHDES' comments on the Phase II Work Plan.
- ENGI submitted a letter to NHDES in August 2000 discussing revisions to the Draft Phase II Investigation Work Plan in response to comments from NHDES and PSNH/NU, along with a proposed schedule for implementation of the work.
- NHDES approved the Revised Phase II Work Plan for the site at the end of August 2000.
- NHDES provided comments to ENGI and Harding ESE on the proposed schedule for Phase II Work Plan implementation in September 2000.

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- ENGI submitted an addendum to the Phase II Work Plan, including a proposed approach for risk evaluation, to NHDES in November 2000.
- Subsequent to meetings and discussions throughout 2000, ENGI and PSNH reached agreement in late 2000 regarding sharing of costs for the remediation work and transfer of management of the remediation work to ENGI.
- Harding ESE implemented the Phase II Work Plan during the fall and winter of 2000/2001. Work entailed a comprehensive field program that included the advancement of river borings and collection of sediment samples as well as the installation of borings and monitoring wells on and off the property.
- NHDES provided comments on the Phase II Work Plan addendum in February 2001.
- Harding ESE responded to NHDES comments on the Phase II Work Plan addendum in March 2001.
- In May 2001, ENGI submitted to NHDES a Draft Site Conceptual Model to assist with finalization of the Phase II Work Plan Addendum and met with NHDES to discuss.
- ENGI and Harding ESE revised the Draft Site Conceptual Model and outlined supplemental field activities to be included in the Phase II Work Plan Addendum and submitted to NHDES in June 2001.
- In July 2001, ENGI and Harding ESE met with NHDES to review the Site Conceptual Model and proposed Phase II supplemental investigation activities.
- ENGI and NHDES met in August 2001 to discuss the overall site objectives.
- In September 2001, Harding ESE, on behalf of ENGI, submitted a Phase IIB Supplemental Site Investigation (SI) Scope of Work to NHDES.
- NHDES provided verbal approval for the Phase IIB Supplemental SI, and Harding ESE initiated the field program on behalf of ENGI in October 2001.
- NHDES provided written approval of the Phase IIB Supplemental SI in October 2001. A modification to the proposed scope of work relating to investigations adjacent to

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LINE
NO.

the gas lines was proposed and verbal approval was obtained from NHDES on November 19, 2001.

- Property owners north of the Nashua River did not provide access to install monitoring wells proposed in the Phase IIB SOW. Harding ESE completed all on-site work outlined in the Phase IIB SOW in February 2002.
- ENGI received access from PSNH to install Phase IIB monitoring wells west of the site in March 2002.
- Harding ESE installed additional groundwater monitoring wells west of the site in March and sampled all newly installed monitoring wells in April 2002. All work outlined in the Phase IIB SOW was completed except for the proposed monitoring wells north of the Nashua River where access was denied.
- The Phase II Report was submitted to NHDES in February 2003. The report was approved by NHDES in August 2003. At the time of approval, NHDES required ENGI to begin work on the Remedial Action Plan for the site, due in 2004.
- ENGI met with NHDES on November 3, 2003, to review the proposed remedial schedule, which called for the Remedial Action Plan to be submitted in July 2004, and remediation to occur in 2005. NHDES approved the schedule by letter dated December 1, 2003. In that letter they concurred with ENGI's request to divide the site into terrestrial and aquatic portions, to facilitate remediation of sediments concurrent with re-armoring of ENGI's gas mains crossing the river.
- By way of a May 5, 2004 letter, ENGI requested that NHDES waive the Remedial Action Plan (RAP) requirement for the aquatic portion of the site and allow ENGI to proceed with capping sediments in conjunction with gas main rearmoring, which was scheduled for completion in 2004. NHDES approved the request by letter dated May 14, 2004.
- ENGI held pre-application meetings with state and federal agencies (NHDES Wetlands Bureau, United States Army Corps of Engineers, United States Department of Fish and Wildlife, United States Environmental Protection Agency and National Oceanic and Atmospheric Administration) in June 2004. These meetings were held in advance of permit application submission for the capping/rearmoring project, to review the project and expedite the approval process. The application was submitted to these agencies as well as the City of Nashua on July 1, 2004. On July 6, 2004, NHDES deemed the permit application administratively complete. The hearing was closed on July 26, 2004 and the permit was issued in September 2004.

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NO.

The capping and re-armoring was completed in October 2004 and the Remedial Completion Report, submitted to NHDES in January 2005, was subsequently approved.

- In October 2005, ENGI submitted the Terrestrial Remedial Action Plan to NHDES, and the document was deemed complete by NHDES in March 2006. NHDES requested supplemental information to be submitted before ENGI proceeded with remediation, and in 2007 ENGI gathered the requested data.
- In November 2007, ENGI submitted a Workplan for DNAPL Recovery Pilot Test to NHDES and the document was approved by NHDES on November 14, 2007.
- ENGI applied for three permits required for the implementation of the NHDES-approved DNAPL pilot testing activities: Nashua Conservation Commission Permit, Nashua Zoning Board of Appeals Permit and NHDES Dredge and Fill Permit. ENGI attended numerous hearings related to obtaining the permits and obtained the three permits on April 21, 2008, April 23, 2008, and May 31, 2008, respectively.
- In June 2008, ENGI installed six extraction wells for DNAPL recovery pilot testing at the site. ENGI completed the construction of the coal tar recovery system trailer (i.e., the equipment that will be used to pump, collect and temporarily store the coal tar) in December 2008. Trenching for the subsurface piping and final system installation was delayed in late 2008 due to weather. ENGI performed manual DNAPL recovery throughout 2008 and the first three quarters of 2009.
- In Spring 2009, ENGI began trenching and final system installation activities for the DNAPL recovery pilot testing. The trenching, pump installations and system electrical work were completed in July 2009. Electrical service was installed in late August 2009. The system was started up in November 2009 and has been operational since that time.
- In September 2010, ENGI submitted an Installation Summary and DNAPL Recovery Pilot test summary report to NHDES. This report recommended that DNAPL extraction activities continue. In October 2010, a work plan for an off-site groundwater investigation program to support the delineation of a Groundwater Management Zone was submitted to NHDES. This work plan was approved by NHDES in a letter dated November 5, 2010. Access negotiations and environmental permitting for the NHDES-approved investigation were completed in June 2011.

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NO.

- The NHDES-approved subsurface soil and groundwater investigation program was initiated on September 26, 2011. The goal of this program was to delineate a Groundwater Management Zone for the site, and allow for the filing of a Groundwater Management Permit (GMP). Due to known asbestos in the off-site area to be investigated, ENGI submitted an "In-active Asbestos Disposal Site (ADS) Work Plan"; NHDES approved the asbestos work plan in October 2011. Soil boring and well installation work was performed between October and December 2011. An In-active ADS Site Completion Report was submitted to and accepted by NHDES on May 4, 2012. Groundwater sampling events were conducted in February and May 2012. A meeting to discuss the preliminary results of the Groundwater Management Zone (GMZ) investigation program with NHDES took place on August 16, 2012. It was agreed that two more rounds of groundwater sampling should occur before a delineation of the GMZ is considered.
- On November 27, 2012 and December 6, 2012, 8.25 feet and 10.83 feet of DNAPL appeared in MW-106, situated in the foot print of historical Holder #2. A weekly monitoring and removal plan was initiated at this time and is ongoing as of July 2013. To date, 109 gallons of DNAPL has been removed manually, in addition to the system removal discussed above.
- In January 2013, a Supplemental Investigation Report (SIR) and DNAPL Recovery System Pilot Test Progress report was submitted to NHDES reporting on additional investigation activities, including the installation of sixteen additional wells in 2011, and the May and September 2012 (second and third of three) rounds of sampling to define groundwater quality and hydrogeologic conditions at the site, so that the GMZ can be delineated. Additionally, the report includes information regarding DNAPL recovery system O&M activities and DNAPL recovery rates demonstrating that the system still effectively recovers DNAPL. A meeting with NHDES took place on March 22, 2013, to discuss these results and next steps.
- NHDES responded to the January 2013 submittal via letter dated May 21, 2013, accepting the SI Report and authorizing ENGI to proceed with the delineation of the GMZ in order to submit a Groundwater Management Permit (GMP) application, and the preparation of a revised Remedial Action Plan (RAP) for the terrestrial portion of the site.
- ENGI responded to the NHDES letter on June 19 with a schedule targeting December 31, 2013, for submittal of the GMP application and revised RAP.

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NO.

- In December 2013, ENGI submitted a request to revise the RAP. The purpose of the request was to summarize activities conducted since submittal of the 2013 Supplemental Investigation Report and to propose a revision to the approved RAP for the area on site known as "Holder # 2."
- The RAP submitted in 2005 selected asphalt capping in the area of Holder #2. The entire area of the Holder was not designated to be capped with asphalt. At the time of the preparation of the RAP, separate phase NAPL was not considered to be present in recoverable quantities in Holder #2. In order to address what appears to be a limited area and quantity of NAPL in a monitoring well in Holder #2, continued manual NAPL recovery from two additional wells in the Holder #2 area was proposed as part of the GMP monitoring program.
- In addition to the NAPL recovery activity, the area of asphalt capping was proposed to be expanded to include all of former Holder #2. This expansion of paving will also address the asbestos contaminated material (ACM) present in this area of the site. The asphalt cap detail presented in the proposed RAP revision will be modified (as necessary) to address the relevant solid waste regulations for ACM in soil.
- On June 4, 2014, the NHDES approved of the requested RAP revision and required that a RAP Summary Report, with the necessary engineering details for the selected remedies, be provided. ENGI plans to submit this RAP Summary Report by December 31, 2014.
- The GMP Application was submitted in March 2014. The GMP proposed a list of monitoring wells and analytical methods in order to monitor the Groundwater Management Zone.
- On June 5, 2014, the NHDES approved the GMP application. This Permit was issued for a period of five years requiring the monitoring of groundwater quality, assessing and recovering any free product found, and visually inspecting the Nashua River sediment cap area. During the first year of the Permit, monitoring events will be conducted in October 2014 and April 2015, and each successive April and October. Annual summary reports are submitted to the NHDES in January of each year.
- The first groundwater monitoring annual summary report was submitted to NHDES in February 2015, and included the groundwater data from the first GMP round of sampling on October 27, 2014.

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NASHUA FORMER MGP

LINE
NO.

- ENGI submitted the draft Activity and Use Restriction (AUR) and RAP Engineering Design details for the cap on September 14, 2015. ENGI received comments from NHDES on December 15, 2016. NHDES altered the design to include an impermeable capping layer, and incorporation of standards in the Waste Management Bureau's Asbestos Disposal Site rules. As ENGI is planning to pave the Nashua property in 2018, the cap will be installed in conjunction with this capital project.
- In May 2017, the NHDES requested by letter that all active hazardous waste sites managed by the Hazardous Waste Remediation Bureau include sampling for Per- and Polyfluoroalkyl Substances (PFAS) in one of their groundwater sampling rounds, as part of a statewide study of these compounds. ENGI fulfilled this request during regularly scheduled sampling in 2018.
- The capping remedy was planned for 2018 in conjunction with an overall paving of the property, however a portion of the City's sewer pipe that transects the property collapsed in early February 2018 prompting the City to plan a lining upgrade to it during summer 2018. This event has caused the remedy construction to be pushed out to 2019.

5. NEW HAMPSHIRE SITE REMEDIATION PROGRAM PHASE: All Supplemental Phase II Site Investigation Work that could be performed (based on property access) has been completed. Phase II Report was submitted to NHDES in February 2003, and approved by NHDES on August 28, 2003. Remediation of the Nashua River sediments was completed in the fall of 2004. A Remedial Action Plan (RAP) for the upland and groundwater was submitted in October 2005, and approved by NHDES in March 2006. DNAPL recovery is on-going. A Groundwater Management Permit was granted on June 5, 2014. A RAP Summary, involving the asphalt capping of the area over Holder #2 and continued groundwater monitoring, was submitted on April 2, 2015. A Monitoring Summary and Progress Report was submitted by ENGI on February 7, 2015. NHDES accepted the RAP Summary on April 10, 2015, with the provisions that ENGI submit the draft Activity and Use Restriction (AUR) and final engineering design plan for the cap by September 15, 2015. ENGI submitted the draft Activity and Use Restriction (AUR) and RAP Engineering Design details for the cap on September 14, 2015. NHDES responded to ENGI with their comments on December 15, 2016. **Design for the engineered cap remedy is progressing, and when the design is completed it will be submitted to NHDES for**

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LINE
NO.

approval. The cap construction and site paving are now planned for the 2020 construction season.

6. HISTORY AND CURRENT STATUS OF USE AND OWNERSHIP: The Nashua Gas Light Company built the original coal gas facility in 1852 or 1853. In 1889, the Nashua Gas Light Company merged with the Nashua Electric Company to form the Nashua Light, Heat and Power Company (NHLPC). In 1914, the NHLPC merged with the Manchester Traction Light & Power Company, and PSNH acquired the facility in 1926. The MGP facility was upgraded and expanded. In 1945, PSNH divested the gas operations to Gas Service, Inc. Gas production was eliminated in 1952 when natural gas was supplied to the city via pipeline. In 1981, Gas Service, Inc. merged with Manchester Gas Company to form ENGI. ENGI currently owns the majority of the former gas plant property.

7. LISTING AND STATUS OF INSURANCE AND 3RD PARTY LAWSUITS AND SETTLEMENTS: The EPA made a claim against ENGI and PSNH related to the so-called Nashua River Asbestos Site located adjacent to the former MGP. EPA was removing asbestos from the Nashua River, when some was found to be mixed with wastes allegedly from the MGP. Without admitting any facts or liability, by agreement effective December 21, 2000, ENGI resolved EPA's claim in exchange for a payment of \$387,371.46, plus interest accrued between settlement and final approval of an administrative consent order by EPA.

ENGI and PSNH have entered into a confidential Site Responsibility and Indemnity Agreement effective as of September 15, 2000, which governs the financial and decision-making responsibilities of the two companies through the remainder of site study and remediation. Under this agreement, ENGI will take the lead on site investigation and remediation.

Numerous, confidential insurance settlements have been entered into. A jury trial commenced against the London Market Insurers and Century Indemnity on November 1, 2005. On November 14, 2005, the jury returned a verdict in favor of EnergyNorth finding that the defendants were obligated to indemnify EnergyNorth for response costs incurred at the site. The Court then awarded ENGI its reasonable costs and attorneys fees to be paid by the defendants. Subsequent to the verdict, the London Market and ENGI entered into a confidential settlement. Century appealed to the First Circuit Court of Appeals in the summer of 2006. However, on the day its brief was due at the First Circuit, Century withdrew its appeal. Because the site has not yet been remediated, the jury was not asked to make a damage determination. Future proceedings will take place after the remedy has been approved by the NHDES to determine the indemnification amounts to be paid by Century. The New Hampshire Supreme Court's ruling and guidance on the proper manner

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NASHUA FORMER MGP

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in which costs are to be allocated among insurers (discussed in more detail in the Manchester MGP summary) will be used in the calculation of that figure.

Note: This summary is an overview only and is not intended to be a comprehensive recitation of all relevant information relating to the site and the associated liability.

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MANCHESTER FORMER MGP

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1. SITE LOCATION: 130 Elm Street, Manchester, New Hampshire.
2. DATE SITE WAS FIRST INVESTIGATED: The New Hampshire Department of Environmental Services (NHDES) compiled a list of all former Manufactured Gas Plants (MGPs) in New Hampshire that were not already subject to a site investigation or remediation. In March of 2000, NHDES sent out notice letters to all parties it deemed responsible for the sites. EnergyNorth Natural Gas, Inc. (ENGI)¹ received a "Notification of Site Listing and Request for Site Investigation" for the former Manchester MGP from NHDES, which designated the site DES #200003011.
3. NATURE AND SCOPE OF SITE CONTAMINATION: Residual materials from the former MGP have been identified at the site. These residuals, which include tars and oils, have been found mainly in subsurface soil at discrete locations and in groundwater at the former MGP, as well as in the downgradient Singer Park and river sediment.
4. SUMMARY OF MATERIAL DEVELOPMENTS AND INTERACTIONS WITH ENVIRONMENTAL AUTHORITIES:
 - On behalf of ENGI, Harding ESE, Inc. (Harding ESE), submitted a Scoping Phase Field Investigation Scope of Work to NHDES in March 2000.
 - NHDES approved the Scoping Phase Field Investigation Scope of Work in June 2000.
 - During the summer and fall of 2000, ENGI and Harding ESE conducted the Scoping Phase Field Investigation, collecting site background information and soil, groundwater, surface water and sediment samples from the former Manchester MGP and the nearby Merrimack River.
 - On August 31, 2000, an underground tank containing MGP residuals was discovered at the site. As required by NHDES regulations, the tank contents were removed and disposed of subject to a permit from NHDES. Harding ESE, on behalf of ENGI, submitted a summary report to NHDES in January 2001 documenting the response action.
 - ENGI and Harding ESE submitted the Scoping Phase Field Investigation Report to NHDES in February 2001.

¹ In July 2012, EnergyNorth was acquired by Liberty Utilities and its legal name changed to Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities. For consistency purposes, the acronym ENGI will be used throughout this document.

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- NHDES provided comments to ENGI and Harding ESE in April 2001 on the Scoping Phase Field Investigation Report and requested a Phase II Investigation Scope of Work.
- ENGI responded to NHDES' comments on the Scoping Phase Investigation Report and indicated that ENGI planned to solicit bids for the Phase II Scope of Work.
- In July 2001, on behalf of ENGI, Harding ESE submitted a Scope of Work to NHDES to fence the ravine near the former Manchester MGP to prevent access to impacted sediments. In October 2001, NHDES accepted ENGI's fence installation plan, but requested clarification on the fence location and signage. In correspondence dated April 3, 2002, ENGI provided proposed language to NHDES for the signs to be attached to the ravine fence. NHDES approved the ravine sign language in April 2002.
- On May 1, 2002, ENGI issued a Request for Proposals to eight environmental consultants for the Phase II Site Investigation and Risk Characterization. ENGI received six proposals for the Phase II work in June 2002.
- In June 2002, the City of Manchester approved the ravine fence location and granted access to City property to install. The work was completed in August 2002.
- URS Consultants were awarded the contract to undertake the next phase of work. A Phase II Site Investigation Scope of Work was submitted in September 2002.
- Phase II field investigations began in the fall of 2002.
- In June 2003, the City of Manchester approved a proposal to construct a minor league ballpark, retail shops, parking garage, hotel and high-rise condominium complex on the Singer Park site, in the same general areas that MGP impacts were detected in ongoing Phase II investigations. Following supplemental ravine investigations during the spring and summer of 2003, the Drainage Ravine Engineering Evaluation was submitted to NHDES in January 2004, and presented four potential remedial alternatives for the ravine, which is located on a portion of Singer Park.
- ENGI had been a regular participant in monthly Singer Park redevelopment meetings with NHDES, the City of Manchester and the various developers from April 2003 until the regular meetings ended on November 15, 2004. ENGI had attended these coordination meetings to ensure that the environmental and construction aspects of

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the redevelopment were being addressed concurrently and that ENGI avoided incurring costs associated with another entity's contamination.

- ENGI entered into confidential agreements with Manchester Parkside Place (the owner of the ravine property) for access and cleanup of MGP byproducts in the ravine in January 2005.
- In January 2005, ENGI submitted a Remedial Design Report to NHDES selecting excavation and off-site disposal of source material and impacted soils as the remedial alternative for the ravine. NHDES approved of this alternative via a letter dated February 7, 2005. Eleven contractors were invited to bid on the ravine remediation in January 2005. The contract was awarded to the low bidder (ENTACT) in February 2005. Remediation of the ravine began in March and was completed in July 2005. A remedial completion report was submitted to NHDES on September 2, 2005.
- ENGI submitted a Phase II Site Investigation Report to NHDES in March 2004. The report concluded that MGP impacts (including impacted soil and groundwater and separate phase coal tar) were present in the subsurface beneath the 130 Elm Street property, portions of Singer Park at depth and the Merrimack River sediment. Further investigations were recommended by ENGI to further assess the nature and extent of this contamination and a work plan proposing those investigations was submitted to NHDES in May 2004 and approved in July 2004. These supplemental investigations were completed and documented in the Supplemental Phase II Investigation Report and the Stage I Ecological Screening Report for the Merrimack River, submitted to NHDES in February and March 2005, respectively. The reports concluded that Remedial Action Plans for the upland and Merrimack River portions of the site were required. On September 15, 2005, NHDES issued a letter accepting the reports and requested ENGI prepare a Remedial Action Plan (RAP) to address impacted sediments in the Merrimack River, as well as MGP-related impacts on the upland portion of the site. Preparation of the RAPs began in August 2006.
- Additional Merrimack River investigations were completed in 2007 and the Remedial Design Report for dredging approximately 9,000 cubic yards of coal tar-impacted sediments from the river was submitted to NHDES on May 11, 2007. ENGI applied for, and was granted, a Dredge and Fill Permit for the remedial dredging from NHDES and the United States Army Corps of Engineers on May 18, 2007. Dredging of the river commenced in June 2007 and was substantially completed by the end of the year. Final site restoration activities associated with the sediment remediation were complete in May 2008. A Remedial Action Implementation Report

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documenting the sediment remediation activities was submitted to NHDES in May 2008.

- Certain pre-design investigations were completed on the upland portion of the site in 2008/2009. ENGI also completed interim Phase I Corrective Actions at the site, including pilot scale light non-aqueous phase liquid (LNAPL) recovery, pilot scale dense non-aqueous phase (DNAPL) recovery, and design for repair/replacement of a deteriorated portion of the site drainage system located within a known LNAPL area of the site. Limited surface soil removal activities were conducted during the summer/fall of 2008 in an area with detected Upper Concentration Limit exceedences in shallow soils.
- ENGI was issued a Groundwater Management Zone (GMZ) permit No. GWP-200003011-M-001 for the former MGP site on June 15, 2009. The permit establishes a groundwater management zone in the vicinity of the former MGP site with associated notification/groundwater monitoring requirements. Groundwater monitoring events to support this GMZ permit have been ongoing, every April and October.
- ENGI submitted an RAP for the upland portion of the site to NHDES on June 30, 2010. The remedial objectives for the site include control of mobile DNAPL, reduction in contaminant mass (where practicable), and management of residual contamination through the use of administrative controls. The recommended remedial alternative includes removal of the contents of certain subsurface structures where removal is anticipated to provide a reduction in the potential for the further release of DNAPL to the subsurface; NAPL recovery from the subsurface; construction of a barrier wall proximate to the Merrimack River to mitigate potential DNAPL migration; and use of administrative controls to address potential human exposure to residual soil and groundwater contamination. Additional investigation activities were recommended to support the preparation of Design Plans and Construction Specifications following NHDES approval of the RAP and to confirm the appropriateness of certain remedial alternatives recommended in the RAP.
- In Fall 2010, ENGI performed storm drain rehabilitation activities on a deteriorated portion of the site drainage system that is located within a known LNAPL area. This work was performed to mitigate the migration of LNAPL to the Merrimack River via the storm drain system. These activities were mainly completed in late 2010.
- In April 2011, NHDES approved of the upland RAP and requested that ENGI proceed with the additional investigation activities recommended in the June 2010 RAP. In addition, ENGI was contacted by both the developer and condominium association

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associated with the property directly downgradient of the site regarding potential impacts to the property, as well as the proposed remedy; ENGI met with both parties in early and mid-2011.

- After meeting with the developer of the property directly downgradient of the site at the potential location of the barrier wall regarding potential impacts to the property in September/October 2011, access was obtained to conduct certain approved pre-design off-site investigation activities as recommended in the June 2010 RAP. The off-property investigations were substantially completed in December 2011. A meeting was held with NHDES in December 2011 to discuss the results. A Remedial Design Report for the off-site property is currently being finalized.
- On-site pre-design investigation activities were conducted during the spring and summer of 2012 including: additional groundwater quality monitoring, former gas holder foundation test pit excavations, supplemental LNAPL delineation, cyanide source investigation test pit excavations, cyanide delineation and source investigation monitoring well installation, and storm drain inspection.
- Further storm drain inspections occurred during July and August 2013. The remedial design and construction specifications report was drafted including a summary of the design investigation activities and findings. The remedial design includes the monitoring and practicable recovery of NAPL at strategic on-site and off-site locations, as well as excavation of subsurface structures with concurrent source removal if encountered. The Remedial Design Report also summarizes the results of cyanide source investigation and delineation work, with further source delineation work anticipated. In addition to routine Groundwater Management Permit (GMP) sampling and reporting, an application for GMP renewal was also submitted to NHDES during June 2014. The Remedial Design Report was submitted to NHDES on December 19, 2014. On July 15, 2015, NHDES accepted the proposed remedial design with exceptions involving further remediation of historical Holder 3, and further investigation of the storm drain system beneath and downstream of the site. ENGI responded to NHDES' comments and requests on May 12, 2017.
- ENGI removed material from a tar-separator and other subsurface structures, installed three new monitoring wells and an extraction well on-site, prior to property paving in Fall 2017. Further removals from subsurface structures are planned for 2018.
- During 2017, NHDES required active hazardous waste sites managed by the NHDES Hazardous Waste Remediation Bureau to include Per- and Polyfluoroalkyl Substances (PFAS) in one of their sampling rounds.

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- In 2019, ENGI continued to address potential site impacts per the Remedial Design Report by removing approximately 9,000 gallons of contaminated liquids and sludge from a subsurface tar liquor decanter structure in the gas plant area. After removal, ENGI cleaned the structure and filled it with inert fill.
- In June 2019, three extraction wells were also installed at the western boundary of the site where an existing well in that area was detecting recoverable product. These wells will be used to remove free product on an ongoing basis. Three additional groundwater monitoring wells were installed in the Holder #3 area to monitor potential impacts detected during previous test pit excavation.
- A pump-down of an existing well on the east side of the property, installed in 2017 to recover oil from a known historical oil tank impact in that area, took place in June 2019. The test succeeded to return recoverable product to the well and it will be used to remove free product on an ongoing basis.

5. NEW HAMPSHIRE SITE REMEDIATION PHASE: Phase I Site Investigation complete. Phase II Site Investigation complete and supplemental report submitted to NHDES in February 2005. Remedial Action Plan (RAP) for the ravine submitted and approved by NHDES in 2005; remediation of ravine completed in July 2005. Remediation of the river sediment was completed in 2007. A RAP for the upland portion of the site was submitted to NHDES for review on June 30, 2010. NHDES issued its approval of the RAP for the upland portion of the site in a letter dated April 11, 2011. The Remedial Design Report summarizing the activities for addressing on-site and off-site impacts was submitted on December 19, 2014. On July 15, 2015, NHDES accepted the proposed remedial design with exceptions. ENGI addressed these concerns and implemented the remedial activities on-site and off-site in 2017.

In 2019, ENGI continued to address potential site impacts per the Remedial Design Report by removing approximately 9,000 gallons of contaminated liquids and sludge from a subsurface structure in the gas plant area, installing three extraction wells at the western boundary of the site, and installing three groundwater monitoring wells in one of the gas holder footprints.

6. HISTORY AND CURRENT STATUS OF USE AND OWNERSHIP: The former Manchester MGP is believed to have started producing coal gas in 1852. Gas was produced at the site

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NO.

by the Manchester Gas Company and its predecessors until the MGP was shut down in 1952 when natural gas was supplied to the city via pipeline. ENGI is the successor by merger to the Manchester Gas Company. ENGI continues to own and operate the 130 Elm Street property as an operations center.

7. LISTING AND STATUS OF INSURANCE AND 3RD PARTY LAWSUITS AND SETTLEMENTS: In late 2000, ENGI filed suit against UGI Utilities, Inc. in the United States District Court for the District of New Hampshire, alleging that during much of the early part of the 20th century, a predecessor to that entity "operated" the Manchester Gas Plant, as defined by the Comprehensive Environmental Response, Compensation and Liability Act (commonly referred to as "CERCLA" or "Superfund"). This claim was similar to a claim litigated and ultimately settled by the parties in the late 1990s, related to the former gas plant in Concord, NH. The case went to trial in June 2003 and was settled after 8 days of trial.

Insurance recovery efforts are complete, and confidential settlements have been entered into with all insurance company defendants. An agreement with the last remaining insurance carrier was negotiated in August 2008, under which that carrier paid ENGI's legal fees incurred in the litigation. That settlement came about after a ruling from the New Hampshire Supreme Court, in response to a question certified by the United States District Court, on allocation of coverage, and the scope and meaning of NH RSA 491:22-a, as it relates to awards of legal fees. *EnergyNorth Natural Gas, Inc. v. Certain Underwriters at Lloyds*, 156 N.H. 333 (2007). As to allocation, the Court ruled as proposed by the carrier that insurance coverage should be allocated on a *pro rata* basis when multiple policies are triggered by an ongoing event. ENGI had argued for an "all sums" allocation approach in which the insured could choose the policy years from which to obtain indemnity. With respect to legal fees, the Court held that "[i]f the insured has obtained rulings that require the excess insurer to indemnify it, the insured has prevailed within the meaning of RSA 491:22-b, and is immediately entitled to recover its reasonable attorneys' fees and costs. Recovery of these fees and costs does not depend on whether, after all is said and done; the excess insurer actually has to pay any indemnification. The insured becomes entitled to the fees and costs once it obtains rulings that demonstrate there is coverage under the excess insurance policy." Under that finding, the insurance carrier was obligated to reimburse legal fees even if the *pro rata* allocation analysis resulted in the carrier owning no indemnity.

Note: This summary is an overview and is not intended to be a comprehensive recitation of all relevant information relating to the site and the associated liability.

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LACONIA FORMER MGP AND LIBERTY HILL DISPOSAL AREA

LINE
NO.

1. **SITE LOCATION:** The former MGP was located on Messer Street in Laconia. Sometime in the early 1950s, during decommissioning of the MGP, wastes from the MGP were disposed of at a location on Liberty Hill Road in Gilford. At the time of the disposal, the property was utilized as a gravel pit, and the disposal reportedly occurred with the permission of the gravel pit owner. The property currently comprises part of a residential neighborhood.
2. **DATE SITE WAS FIRST INVESTIGATED:** In 1994 and 1995, Public Service Company of New Hampshire (PSNH), one of the former owners and operators of the Laconia Manufactured Gas Plant (MGP), conducted limited site investigations at the plant. In 1996, the New Hampshire Department of Environmental Services (NHDES) sent a "Notification of Site Listing and Request for Site Investigation" for the former Laconia MGP to PSNH and its parent company, Northeast Utilities Services Company (NU), and to EnergyNorth Natural Gas, Inc. (ENGI)¹, another former owner. NHDES designated the site DES #199312038. ENGI and PSNH reached a settlement, reported previously to the New Hampshire Public Utilities Commission (NHPUC), in September 1999. As a result of that settlement, PSNH has had responsibility for the MGP site remediation and interactions with NHDES.

Per the aforementioned settlement, ENGI retained responsibility for any decommissioning-related liabilities, including off-site disposal. Therefore, in October 2004, ENGI notified NHDES of the possibility that wastes from the MGP were disposed of at a location on Liberty Hill Road sometime in the early 1950s during decommissioning of the plant. Drinking water samples were collected from two residential properties in the vicinity in December 2004, and from three additional properties in June and July 2005 by the NHDES; no MGP-related contaminants were detected. At the request of NHDES, ENGI began preliminary site investigations in July 2005 that culminated in the submission of a Site Investigation Report to NHDES in June 2006. As detailed in the report, MGP-related constituents have been detected in soil and shallow groundwater on four residential properties, and in the abutting brook. The report concluded that further investigations were necessary to determine the extent of the contamination. Additional investigation activities were completed between 2006 and 2009.
3. **NATURE AND SCOPE OF SITE CONTAMINATION:** Residual materials from the former MGP have been identified at the Laconia MGP site and in the adjacent Winnepesaukee River. Please contact PSNH and refer to PSNH filings with NHDES for complete information on the nature and extent of site contamination at the MGP. Residual materials

¹ In July 2012, EnergyNorth was acquired by Liberty Utilities and its legal name changed to Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities. For consistency purposes, the acronym ENGI will be used throughout this document.

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LINE
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from the former MGP were disposed of at the Liberty Hill disposal area, and MGP-related constituents have been detected in soil and ground water.

4. SUMMARY OF MATERIAL DEVELOPMENTS AND INTERACTIONS WITH ENVIRONMENTAL AUTHORITIES: Based on the settlement with PSNH that has previously been reported to the Commission, ENGI has had no further involvement with the MGP site since the summer of 1999, except with regard to the Liberty Hill disposal area. Please contact PSNH and refer to PSNH filings with NHDES for complete information on material developments and interactions with environmental authorities.

With respect to the Liberty Hill disposal area, in October 2004, ENGI notified NHDES of the possible existence of this disposal site; the site was assigned disposal site number 200411113 by NHDES. NHDES collected drinking water samples from two residential wells in the vicinity in December 2004 and from three additional residential wells in June and July 2005; no MGP-related contaminants were detected. In January 2005, NHDES requested that ENGI conduct a preliminary site investigation on the two residential properties. ENGI submitted a scope of work for the investigation to NHDES on March 2, 2005. The investigation began in July 2005 and was completed in June 2006 with the submission of the Site Investigation Report.

Additional site investigations were conducted in 2006 and summarized in the December 20, 2006, Interim Data Report #2 submitted to NHDES. Based upon the results of the investigations, remediation is required at the site. In response, a Remedial Action Plan (RAP) was submitted to NHDES on February 28, 2007. The RAP presented NHDES with several remedial alternatives to address soil and groundwater contamination at the site. The February 2007 RAP identified soil excavation (to a depth of 3 feet), construction of a containment wall and impermeable cap on the four residential properties purchased by ENGI as the recommended alternative. In September 2007, NHDES responded to the February 2007 RAP and required that ENGI evaluate additional remedial alternatives that included further soil removal. In November 2007, a RAP Addendum was submitted to NHDES. The revised RAP recommended a remedial alternative that included removal of tar-saturated soils to a depth of approximately 45 feet, construction of a containment wall and impermeable cap on the four residential properties owned by ENGI. On February 29, 2008, NHDES issued a letter to ENGI indicating that NHDES had reached a preliminary determination that the remedy recommended in the November 2007 RAP met the NHDES requirements and that a final decision would be reached following a public meeting and comment period.

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On March 24, 2008, NHDES held a public comment meeting to discuss the recommended alternative and began 30-day public comment period. In April 2008, NHDES received a request to extend the public comment period closing date to May 8, 2008, to allow the Town time to provide technical comment. On June 26, 2008, NHDES issued a letter deferring its final decision on the recommended remedial alternative for the Liberty Hill site pending further data analysis following the development of a scope prepared collaboratively between the Town of Gilford and ENGI. In July and August 2008, technical representatives from ENGI, the Town of Gilford, the Liberty Hill neighborhood and NHDES met twice to discuss the comments provided to NHDES during the public comment period and discuss the scope for additional groundwater modeling activities and limited additional site data collection. The Company submitted Scopes of Work for additional data collection and groundwater modeling to NHDES in September and October 2008, respectively. The field activities were completed between November 2008 and January 2009. Modeling efforts began in late 2008 and were completed in May 2009. In March and May 2009, technical representatives from ENGI, the Town of Gilford, the Liberty Hill neighborhood and NHDES met to discuss the results of the field investigations and the modeling activities. One topic discussed with the technical team was that the modelling results indicate that low-flow pumping would need to be added to the selected remedy meet the remedial goals for the site. On June 30, 2009, NHDES issued a letter to ENGI requesting that a second RAP Addendum be prepared for the site to evaluate the technical changes (mainly the addition of low-flow pumping) to the proposed remedy that resulted from the modeling effort. ENGI submitted the second RAP Addendum to NHDES on August 17, 2009 and presented the findings at a public meeting held in Gilford on September 10, 2009. In October 2009, NHDES hired a third party consultant to review the RAP cost estimates and the results were presented in a report to NHDES in April 2010. In October 2010, NHDES issued a Preliminary Decision on RAP Addendum No. 2, in which NHDES indicated that it did not concur with ENGI's recommended remedial alternative and further recommended the complete removal of coal tar-impacted soils at the site. On January 28, 2011, ENGI submitted a comment letter to NHDES further explaining its rationale for the remedial alternative recommended in RAP Addendum No. 2. On November 2, 2011, NHDES announced a Final Decision indicating that it did not concur with ENGI's recommended remedial approach and selecting the full removal option as the remedy for the site. On December 2, 2011, ENGI filed an appeal of the NHDES Final Decision with the New Hampshire Waste Management Council. In March 2012, ENGI attended the Pre-Conference Hearing with the Council related to the appeal. Hearings on the matter were scheduled for October 18 and November 15, 2012. On July 26, 2012, the Hearing Officer granted an Assented to Motion to Continue the hearing until a date after January 3, 2013.

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LINE
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During the period of time the appeal was subject to the continuance, the company, the New Hampshire Department of Justice and NHDES engaged in settlement discussions on a confidential basis. At the conclusion of those negotiations, NHDES and the company agreed on a final remedy for the site, which was approved by NHDES. That approval allowed ENGI to withdraw its appeal as of December 19, 2012, and proceed with implementation of the remedy. The town of Gilford was briefed on the agreed-upon remedy concurrently with NHDES approval and ENGI's withdrawal of the appeal.

ENGI has also performed numerous other activities requested by NHDES between 2008 and 2011, including remediation of the groundwater seep area near Jewett Brook in accordance with NHDES-approved September 2008 Initial Response Action Plan; evaluation of options for providing financial assurances to NHDES for the site remediation activities; coal tar recovery; semi-annual groundwater and surface water sampling activities; and drinking water well sampling. Groundwater sampling is reported to the NHDES in semi-annual reports. In addition, ENGI developed a Liberty Hill Road site website to assist in updating interested parties.

In conjunction with the Site Investigation work, ENGI has acquired 4 properties on Liberty Hill Road to facilitate remediation activities, and eliminate any potential risk to residents associated with a significant remediation and construction project. The properties were obtained based upon arms-length negotiations, and in one instance to settle potential litigation.

The site was remediated in 2014-2015 construction seasons, and was restored to a grass field by December 2015. NHDES approved the Notice of Activity and Use Restriction (AUR) in February 2017. In May 2017, ENGI received the post-construction groundwater monitoring permit, involving annual groundwater sampling.

5. NEW HAMPSHIRE SITE REMEDIATION PROGRAM PHASE: On December 10, 2012, ENGI submitted a Conceptual Remedial Design Report to NHDES describing the approach for full removal. NHDES approved this Conceptual RAP Addendum design on December 18, 2012, and ENGI withdrew their appeal before the New Hampshire Waste Management Council on December 19, 2012. A public meeting was held in the Town of Gilford to present the approved Conceptual Remedial Design on January 23, 2013. The pre-design investigation to confirm extent and depth of contamination commenced on February 20, 2013 and was completed first week in April 2013. A public meeting was held on September 25, 2013 to present the design to the Town. The Remedial Design Report was finalized and approved by NHDES in December 2013. Plans and Specifications were developed concurrently, and the bidding process commenced in September 2013 with a Request for

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Information to ten (10) prospective contractors. On October 28, six (6) contractors were selected to participate in the bidding for the construction, with bids due back on December 6, 2013. On January 9, 2014, three (3) of the bidders were interviewed and Charter Environmental of Boston, MA (the Contractor) was selected for the project. A public meeting took place on February 12, 2014 to further explain details of the anticipated construction and to introduce the project team to the community.

The Contractor mobilized to the site and began set-up in May 2014, with the first load of soil being hauled from the site on June 6, 2014. Construction began to remove tar-impacted soil on the south side of the site in the first season, with little to no impact to the surrounding community. In 2014, approximately 65% of the impacted soil was removed for treatment. On April 8, 2015, ENGI presented the results of the first season of construction at a Gilford Town Select Board meeting, and presented expectations for the second season to the community. Starting on April 13, 2015, the north side of the site was remediated, with the removal of all tar-impacted soil completed on August 3, 2015. The entire project was completed on September 24, 2015 with 2,662 truckloads hauling 93,502 tons of tar-impacted soil removed for thermal treatment. Some additional site restoration work was needed in October 2015 and another seeding in April 2016 to repair damage to the original restoration caused by a heavy rainstorm that occurred on September 30, 2015. Throughout the course of the project there was no disruption to the neighboring community and no safety incidents, logging 26,975 safe working hours. The project was completed within budget parameters.

The only activities on this site during the past year and ongoing are mowing and groundwater and surface sampling, per the new post-remedial Groundwater Management Permit received on May 10, 2017. In May 2017, the NHDES requested by letter that all active hazardous waste sites managed by the Hazardous Waste Remediation Bureau include sampling for Per- and Polyfluoroalkyl Substances (PFAS) in one of their groundwater sampling rounds, as part of a statewide study of these compounds. ENGI fulfilled this request during regularly scheduled sampling in 2018. **ENGI continues to mow the site twice a year and sample the groundwater per the Groundwater Management Permit each September.**

6. HISTORY AND CURRENT STATUS OF USE AND OWNERSHIP: ENGI is the successor by merger to Gas Service, Inc. (GSI). In 1945, GSI acquired the gas manufacturing assets of PSNH. The Laconia MGP, which began operating in 1894, was included in that transaction. Gas manufacturing took place at the property until 1952, when the MGP was converted to propane. Half of the property is now owned by Robert Irwin and maintained

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

LACONIA FORMER MGP AND LIBERTY HILL DISPOSAL AREA

LINE
NO.

as an open field, and the other half is owned by PSNH, which operates an electric substation on the parcel.

The Liberty Hill Road parcel on which disposal was believed to have occurred was utilized as a gravel pit at the time of the disposal. It was subdivided in May 1970, and currently constitutes part of a residential subdivision.

7. LISTING AND STATUS OF INSURANCE AND 3RD PARTY LAWSUITS AND SETTLEMENTS: ENGI and PSNH entered into a confidential settlement in 1999. Under this agreement, PSNH took the lead on the MGP site investigation and remediation and all communications with NHDES. ENGI retained responsibility for any decommissioning-related liabilities, including off-site disposal.

Insurance recovery efforts are complete with respect to the MGP, and numerous confidential settlements have been entered into. In 2003, the United States District Court certified a question to the New Hampshire Supreme Court asking what "trigger of coverage" should be applied to the insurance policies issued by Lloyds of London to ENGI's predecessor, Gas Service, Inc. In May 2004, the Supreme Court responded that a "continuous injury-in-fact" trigger should be applied. The federal court conducted a jury trial against Lloyds of London - the only remaining defendant - in October 5, 2004. At the end of that trial the jury returned a verdict in favor of ENGI. Subsequent to the verdict, ENGI and Lloyds of London entered into a confidential settlement.

With respect to Liberty Hill, insurance carriers have been placed on notice of a potential claim, but no litigation has been initiated. The Company does not expect to pursue any insurance litigation.

Note: This summary is an overview only and is not intended to be a comprehensive recitation of all relevant information relating to the site and the associated liability.

LIBERTYUTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

CONCORD FORMER MGP

LINE
NO.

1. SITE LOCATION: One Gas Street, Concord, New Hampshire.
2. DATE SITE WAS FIRST INVESTIGATED: EnergyNorth Natural Gas, Inc. (ENGI)¹ received a Notice Letter from the New Hampshire Department of Environmental Services (NHDES) in September 1992. The Notice related primarily to contamination identified in the pond adjacent to Exit 13 off Interstate 93, although it was broad enough to also include the former manufactured gas plant (MGP) site itself.
3. NATURE AND SCOPE OF SITE CONTAMINATION: Residual materials from the historic operation of the MGP were discovered in the area of the Exit 13 pond, as the NHDOT began site preparation work for the reconfiguration of that interchange. Subsequent investigations by ENGI and others indicate that contaminants originating from the MGP on Gas Street are present in soil and groundwater between the MGP and the Merrimack River, including within the Exit 13 pond.
4. SUMMARY OF MATERIAL DEVELOPMENTS AND INTERACTIONS WITH ENVIRONMENTAL AUTHORITIES:

Concord MGP: The New Hampshire Department of Transportation (NHDOT) contacted ENGI in August 2001 and February 2002 regarding possible coal tar-related impacts in a sewer line on a parcel adjacent to the former gas plant. NHDOT is currently conducting groundwater monitoring as part of a Groundwater Management Zone Permit on this parcel. ENGI met with NHDOT and NHDES in January 2003 to review the results of its 2002 site investigation. Limited coal tar impacts were observed in groundwater and subsurface soils at select locations.

On July 15, 2003, NHDES issued a letter to ENGI requesting submission of a schedule and scope of work for a site investigation of the MGP site by mid-September 2003. ENGI proposed a May 2005 date for submission of a Site Investigation Report for the MGP site on Gas Street to NHDES by way of a letter dated October 6, 2003. NHDES agreed to the proposed schedule in their response letter dated October 31, 2003.

¹ In July 2012, EnergyNorth was acquired by Liberty Utilities and its legal name changed to Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities. For consistency purposes, the acronym ENGI will be used throughout this document.

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

CONCORD FORMER MGP

LINE
NO.

ENGI submitted the work plan for the MGP site investigation to NHDES on May 20, 2004. NHDES accepted the work plan on June 16, 2004. The investigation took place between September 2004 and March 2005, and the Site Investigation Report was submitted to NHDES on June 6, 2005. The report indicated that subsurface impacts are present at the MGP, and additional investigation as well as limited remediation will be required. NHDES accepted the report on August 12, 2005, and requested ENGI submit a supplemental scope of work to complete the delineation of MGP-related impacts on and off Site. The document was submitted in November 2005. Site investigation activities at and downgradient of the MGP were conducted in 2006. ENGI submitted an additional supplemental scope of work to further delineate MGP impacts on May 31, 2007 and NHDES subsequently approved the scope on June 5, 2007. ENGI bid the NHDES-approved scope of work in June 2008 and awarded the contract in late July 2008. ENGI met with NHDES at the site in August 2008 to discuss the additional supplemental site investigation activities. The field work took place during October through December 2008, during which time 8 groundwater monitoring wells were installed at 4 off-site locations. The Additional Supplemental Site Investigation Report was submitted to NHDES in September 2009. ENGI met with NHDES to discuss the report findings and strategy for moving forward in October 2009. NHDES issued an approval letter for the Supplemental Site Investigation Report on February 9, 2010. The correspondence approved the report and requested that certain additional activities be completed by ENGI. These requested activities include the following: a) preparation and submission of an Initial Response Action Work Plan to remove approximately 3,500 gallons of liquid and sludge from historic subsurface drip pots and tar wells at the MGP property on Gas Street; b) evaluation of the groundwater conditions in the vicinity of the "Tar Pond" which is depicted on a referenced NHDOT site plan; and c) evaluation of potential indoor air impacts at select locations identified during the additional SSI work.

ENGI submitted the Initial Response Work Plan to NHDES in July 2010 to remove approximately 3,500 gallons of liquid and sludge from historic subsurface drip pots. NHDES issued an approval letter for this Work Plan on August 3, 2010 and the work was completed in June 2011. In addition, ENGI submitted a Supplemental Data Collection Work Plan for the additional off-ENGI-owned property investigation activities (items b and c above) to NHDES in August 2010. NHDES approved of the Work Plan on September 16, 2010. ENGI obtained access to 4 properties in the vicinity of the site in order to conduct the supplemental investigation activities, which included soil, ground water and soil vapor sampling, along with further investigation of the brick tar sewer. ENGI submitted a revised Work Plan with revised sampling locations to NHDES in November 2011; the revision was necessary because site access was not granted by the property owners for some of the originally proposed locations. The investigation work was completed in July 2012, and summarized in a Supplement Data Collection Report that was submitted in August 2013, in preparation for submittal of the Remedial Action Plan. This Supplement Data Collection Report was accepted by NHDES on

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

CONCORD FORMER MGP

LINE
NO.

October 24, 2013, and ENGI was authorized to prepare a RAP and Groundwater Management Permit (GMP) application. The GMP application was submitted on September 4, 2014, and the permit was received on December 1, 2014.

On June 16, 2013, wind during a thunderstorm caused a tree to fall on the northern side of the roof of the Holder House located on the former Concord MGP property. Damage to the slate roof and brick was sustained. In a letter dated February 24, 2014 NHDES stated that the holder structure "...serves as a physical barrier to prevent infiltration of precipitation into the foundation and thereby limits the amount of MGP byproducts that may be released to the environment."

On March 31, 2015, ENGI submitted a proposed Remedial Action Plan involving removal of shallow soils displaying MGP-related residual impacts, investigation and remediation of remaining known subsurface structures, capping of components of the local storm water drainage system, site capping design, and continued monitoring of groundwater on the site. NHDES approved the RAP on May 29, 2015, with the condition that roof of the brick gas holder either be restored, or the holder be razed and the soils beneath it remediated. Soil vapor monitoring; soil vapor probe installation; and remedial design investigations including subsurface structure location and inspection, shallow tar-saturated soil delineation, and site storm drain system inspections, as approved by the RAP, were performed in December 2015. A Remedial Design Report (RDR) was submitted to NHDES on March 16, 2016 summarizing the above remedial design investigations. The remediation activities, required to be completed prior to site capping, include tar-impacted material removals and plugging of the on-site drain system, took place in 2017.

In early 2016 ENGI was approached by a commercial developer who was interested in purchasing the property and repurposing the holder house structure. Several site meetings took place with the developer, and ENGI began negotiating the terms of the property's sale. This site developer has not contacted ENGI since May 2017, and appears to have lost interest in the redevelopment project.

Concord Pond: ENGI has continued to monitor groundwater semi-annually at the Exit 13 pond, in May and November, as required by the Groundwater Management Zone Permit that was issued in 1999 as part of the overall remedy following the remediation of the southern end of the Exit 13 pond. The permit was renewed in 2003, 2007 and 2012, and NHDES specified semiannual collection of surface water samples from the pond as an additional condition of the permit.

When the Exit 13 pond was remediated in 1999, NHDES required that the northern portion remained untouched, allowing for storm water input to the pond, with the knowledge that some contamination remained and may require remediation in the future. In 2006, NHDES requested ENGI address the residual contamination in the pond, and in

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

CONCORD FORMER MGP

LINE
NO.

response, ENGI submitted an Interim Data Collection Report and Scope of Work in May 2006, which was approved in July 2006. This Scope of Work was implemented in 2006 and the results were to be used to prepare the Remedial Action Plan (RAP) which NHDES requested be submitted by August 31, 2006. In July 2006, NHDES extended the deadline for submittal of the RAP to June 30, 2007, to allow ENGI additional time for data collection and design. ENGI submitted an Interim Data Collection Report to NHDES in September 2006, and a Conceptual Remedial Design in March 2007. On March 25, 2009, ENGI submitted a Presumptive Remedy Approval Request to NHDES, in order to allow for the design and implementation of an engineered cap without the need to prepare a RAP. On May 4, 2009, NHDES granted the Presumptive Remedy Approval, and the project moved into the remedial design phase.

The proposed remedial work is to be performed on city-owned land and within a NHDOT right-of-way; therefore ENGI is working with these parties to come to agreement on the design features, negotiate access and clarify the responsibilities of the three parties. In April 2010, ENGI met with representatives from NHDES, the City of Concord, and NHDOT to present the proposed remedy, and ENGI submitted the draft design plans to the parties in June 2010. ENGI met with the regulatory permitting agencies in October 2010. The agencies requested that ENGI modify the remedial design to include an upland cap versus a wetland cap to minimize the impacts of the project. The cap was redesigned and ENGI met with the stakeholders in December 2010. At a subsequent meeting in January 2011, the City of Concord requested that the design be further modified to relocate the City's storm water outfall location.

ENGI met with the City in March 2011 to present the feasibility evaluation that was conducted for several alternatives, and concluded that the original design was the appropriate design. Contact was reconvened with the City in 2013, and adjustments to the original design were made to address outfall maintenance and access concerns of the City and NHDOT, respectively. The design was presented to the City on January 26, 2016. A rigorous schedule toward construction in late summer 2017 was agreed to by ENGI and the City in February 2016. The City did not meet an early deadline to determine and communicate details regarding access to their storm water system. Communication was again resumed in July 2016 by the City, however the City remained unresponsive to ENGI on implementation of the joint remedial design.

In March 2018, discussions with the new City Engineer took place and the City's engagement level has increased to come to a design solution on outfall maintenance. These discussions are frequent and ongoing.

Semiannual groundwater monitoring at the pond is ongoing, as is recovery of separate phase coal tar from a monitoring well in the vicinity of the pond. In May 2017, the NHDES requested by letter that all active hazardous waste sites managed by the Hazardous Waste Remediation Bureau include sampling for Per- and Polyfluoroalkyl Substances

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

CONCORD FORMER MGP

LINE
NO.

(PFAS) in one of their groundwater sampling rounds, as part of a statewide study of these compounds. ENGI fulfilled this request during regularly scheduled sampling in 2018.

During May 19, 2009 through May 22, 2009, ENGI implemented a NHDES-approved sediment sampling program in the Merrimack River to evaluate potential MGP-related impacts. ENGI met with NHDES in October 2009 to present the results of the sediment investigation, and submitted the sediment sampling data report to NHDES in October 2009. The investigation indicated limited site-related impacts to the shallow near-shore sediments of the Merrimack River. Based upon the results of the sediment investigation, it is unlikely that remedial actions will be necessary in the river. ENGI met with NHDES on February 20, 2013 to discuss all sampling activities to date, summarized in an SIR Addendum Report, submitted in June 2013.

In May 2016, ENGI submitted a proposed plan for monitoring the near-bank sediments to the pond area in the Merrimack River. After discussions regarding frequency, duration of the Monitored Natural Recovery (MNR) program, and methodologies to be used in determining the contaminant trending in the river sediment, NHDES approved a revised MNR Plan in a letter dated July 2017. The 5-year sampling plan began in 2017 with the first of 5 annual samplings. **The second round of sediment sampling took place in October 2018.**

5. NEW HAMPSHIRE SITE REMEDIATION PROGRAM PHASE:

Concord MGP: In July 2003, NHDES requested that ENGI submit a schedule and scope of work for completion of a site investigation of the MGP site. ENGI submitted the scope to NHDES in May 2004 and implemented the work between September 2004 and March 2005. The results of the investigation were documented in the Site Investigation Report, dated June 6, 2005, which was subsequently approved by NHDES. Supplemental investigation activities were performed in 2006. Additional investigation activities were performed in 2008. The additional SSI report was submitted to NHDES in September 2009. In addition, ENGI submitted the Initial Response Work Plan to NHDES in July 2010 to remove approximately 3,500 gallons of liquid and sludge from historic subsurface drip pots. NHDES issued an approval letter for this Work Plan on August 3, 2010 and the work was completed in June 2011. The Supplemental Data Collection report summarizing the investigation activities was accepted in October 2013, authorizing ENGI to prepare a RAP and GMP Application. The GMP application was submitted on September 4, 2014, and the permit was received on December 1, 2014. On March 31, 2015, ENGI submitted a proposed RAP, and NHDES approved the RAP with conditions. A Remedial Design Report, summarizing pre-design investigations, was provided to NHDES in March 2016.

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
d/b/a LIBERTY UTILITIES

CONCORD FORMER MGP

LINE
NO.

Concord Pond: ENGI submitted an application for a five-year Groundwater Management Zone Permit to the NHDES in April 2002 for the Exit 13 pond. The permit was renewed in October 2007, with the collection of pond surface water samples as an additional condition. Under that permit, groundwater monitoring is expected to be required for the foreseeable future. In addition, as requested by NHDES, ENGI undertook a review of remedial technologies to address the residual contamination remaining in the pond. A conceptual remedial design was submitted to NHDES in March 2007, a Presumptive Remedy Approval was granted by NHDES in May 2009, and the engineered cap design has been drafted. The work will be undertaken pending agreement between the City, NHDOT, and ENGI. ENGI met with these parties on several occasions in 2010 and 2011. The Company reinitiated discussion with the City in July 2014 regarding access to the site to implement the approved design of the wetland cap. The design was adjusted to accommodate the City's desire to simplify maintenance of the storm water system, **however ENGI has is currently engaging with NHDOT for input into the design for a permanent access road which will be incorporated in the wetland cap design.**

A renewal application for the Groundwater Management Permit was submitted on August 24, 2017, and the renewed permit was granted by NHDES on November 22, 2017. Groundwater and surface water monitoring continues under this permit every May and November.

6. **HISTORY AND CURRENT STATUS OF USE AND OWNERSHIP:** The Concord MGP operated from approximately 1850 to 1952, when the natural gas pipeline was extended to Concord. The plant was constructed and operated by predecessors of the Concord Gas Company, which later became known as the Concord Natural Gas Company. By virtue of a merger, ENGI acquired Concord Natural Gas. As has been reported previously by ENGI, it filed a contribution claim in the United States District Court for the District of New Hampshire against the successor to the United Gas Improvement Company. In that claim, ENGI alleged that under the federal Superfund statute, the United Gas Improvement Company exercised control over the operations of the Concord Gas Plant to the extent that the United Gas Improvement Company should be considered an "operator" under the statute. That matter was settled in 1997.
7. **LISTING AND STATUS OF INSURANCE AND 3RD PARTY LAWSUITS AND SETTLEMENTS:** Numerous confidential settlements with insurance carriers and with one private party have been entered into. *Insurance recovery efforts at the Concord Site are complete.*

Note: This summary is an overview only and is not intended to be a comprehensive recitation of all relevant information relating to the site and the associated liability.

ENERGYNORTH NATURAL GAS, INC.
MANUFACTURED GAS PLANT ENVIRONMENTAL COSTS

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Schedule 20.2
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2019 SUMMARY BY SITE

			1101	1102	1105	1106	1101, 1107, 1110		1108	1109	
LINE NO.	SITE	REF NO.	LEGAL EXPENSES	CONSULTING EXPENSES	REMEDATION EXPENSES	SETTLEMENT EXPENSES	OTHER EXPENSES	100 % RECOVERABLE EXPENSES	INSURANCE & THIRD PARTY EXPENSES	INSURANCE & THIRD PARTY RECOVERIES	TOTAL
1	Concord Pond	DEF056	0.00	84,927.07	0.00	0.00	2,354.52	87,281.59			72,283.29
2	Concord MGP	DEF077	0.00	38,894.51	0.00	0.00	8,099.14	46,993.65			43,624.56
3	Laconia/Liberty Hill	DEF086	0.00	12,387.47	0.00	0.00	3,012.25	15,399.72			15,399.72
4	Manchester MGP	DEF057	0.00	143,036.76	0.00	0.00	39,056.20	182,092.96			38,019.03
5	Nashua MGP	DEF054	0.00	127,205.25	0.00	0.00	866.04	128,071.29			81,968.79
6	General Expenses	DEF064	0.00	0.00	0.00	0.00	6,868.03	6,868.03			6,868.03
Total Pool Activity			0.00	406,451.06	0.00	0.00	60,256.18	466,707.24	0.00	(208,543.82)	258,163.42

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
MANUFACTURED GAS PLANT ENVIRONMENTAL COSTS
NASHUA - REMEDIATION
PROJECT DEF054

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Schedule 20.2
Page 2 of 7

LINE NO.	VENDOR	REF NO.	1101	1102	1105	1106	1107	SUBTOTAL EXPENSES	1108	1109	TOTAL SUBMITTED
			LEGAL EXPENSES	CONSULTING EXPENSES	REMEDATION EXPENSES	SETTLEMENT EXPENSES	OTHER EXPENSES		INSURANCE & THIRD PARTY EXPENSE	INSURANCE & THIRD PARTY RECOVERIES	
1	GZA GEOENVIRONMENTAL INC	758047		2,371.58				2,371.58			2,371.58
2	GZA GEOENVIRONMENTAL INC	759680		13,744.50				13,744.50			13,744.50
3	INNOVATIVE ENGINEERING SOLUTIONS, INC.	12875		11,523.88				11,523.88			11,523.88
4	INNOVATIVE ENGINEERING SOLUTIONS, INC.	12904		12,719.00				12,719.00			12,719.00
5	INNOVATIVE ENGINEERING SOLUTIONS, INC.	12951		4,030.90				4,030.90			4,030.90
6	GZA GEOENVIRONMENTAL INC	756598		1,007.50				1,007.50			1,007.50
7	GZA GEOENVIRONMENTAL INC	761022		651.30				651.30			651.30
8	INNOVATIVE ENGINEERING SOLUTIONS, INC.	12962		3,687.08				3,687.08			3,687.08
10	NH DEPT OF ENVIRONMENTAL SERVICES	199810022 10-19-18					235.33	235.33			235.33
12	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13025		1,217.26				1,217.26			1,217.26
13	INNOVATIVE ENGINEERING SOLUTIONS, INC.	12986		2,348.25				2,348.25			2,348.25
14	GZA GEOENVIRONMENTAL INC	766632		4,000.53				4,000.53			4,000.53
15	GZA GEOENVIRONMENTAL INC	766725		723.00				723.00			723.00
16	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13041		3,218.55				3,218.55			3,218.55
17	GZA GEOENVIRONMENTAL INC	766916		856.50				856.50			856.50
18	GZA GEOENVIRONMENTAL INC	766631		577.20				577.20			577.20
19	GZA GEOENVIRONMENTAL INC	766840		445.00				445.00			445.00
21	CLEAN HARBORS	1002654921					468.05	468.05			468.05
22	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13095		2,021.75				2,021.75			2,021.75
23	GZA GEOENVIRONMENTAL INC	768581		598.25				598.25			598.25
24	GZA GEOENVIRONMENTAL INC	768580		225.00				225.00			225.00
25	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13073		1,991.21				1,991.21			1,991.21
26	GZA GEOENVIRONMENTAL INC	769931		1,039.50				1,039.50			1,039.50
27	GZA GEOENVIRONMENTAL INC	769933		1,589.00				1,589.00			1,589.00
28	MARY CASEY	EXP					29.00	29.00			29.00
29	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13124		11,999.21				11,999.21			11,999.21
31	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13203		12,127.81				12,127.81			12,127.81
32	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13175		5,527.63				5,527.63			5,527.63
33	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13159		11,609.33				11,609.33			11,609.33
34	INNOVATIVE ENGINEERING SOLUTIONS, INC.	13225R		11,280.28				11,280.28			11,280.28
35	GZA GEOENVIRONMENTAL INC	776211		4,074.25				4,074.25			4,074.25
37	Environmental Staff Time						133.66	133.66			133.66
Total Pool Activity			-	127,205.25	-	-	866.04	128,071.29	-	(46,102.50)	81,968.79

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
MANUFACTURED GAS PLANT ENVIRONMENTAL COSTS
CONCORD POND - REMEDIATION
PROJECT DEF056

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Schedule 20.2
Page 3 of 7

LINE NO.	VENDOR	REF NO.	1101	1102.00	1105	1106	1107	SUBTOTAL EXPENSES	1108	1109	TOTAL SUBMITTED
			LEGAL EXPENSES	CONSULTING EXPENSES	REMEDATION EXPENSES	SETTLEMENT EXPENSES	OTHER EXPENSES		INSURANCE & THIRD PARTY EXPENSES	INSURANCE & THIRD PARTY RECOVERIES	
1	ANCHOR QEA LLC	57926		8,568.75				8,568.75			8,568.75
2	MARY CASEY	EXP					72.63	72.63			72.63
3	ANCHOR QEA LLC	58317		8,606.00				8,606.00			8,606.00
4	GEI CONSULTANTS, INC.	3040100		1,067.96				1,067.96			1,067.96
5	GEI CONSULTANTS, INC.	3039083		3,730.38				3,730.38			3,730.38
6	ANCHOR QEA LLC	58682		1,075.25				1,075.25			1,075.25
7	GEI CONSULTANTS, INC.	3041719		1,177.36				1,177.36			1,177.36
9	ANCHOR QEA LLC	59089		1,034.00				1,034.00			1,034.00
10	CLEAN HARBORS	1002529642					611.32	611.32			611.32
11	NH DEPT OF ENVIRONMENTAL SERVICES	199212014 101918					33.93	33.93			33.93
12	ANCHOR QEA LLC	59579		10,466.00				10,466.00			10,466.00
13	GEI CONSULTANTS, INC.	3042895		2,925.96				2,925.96			2,925.96
14	ANCHOR QEA LLC	59982		17,484.55				17,484.55			17,484.55
15	GEI CONSULTANTS, INC.	3044371		2,405.91				2,405.91			2,405.91
16	GEI CONSULTANTS, INC.	3045988		1,274.07				1,274.07			1,274.07
17	ANCHOR QEA LLC	60438		9,579.25				9,579.25			9,579.25
18	MARY CASEY	EXP					74.26	74.26			74.26
19	MARY CASEY	EXP					72.63	72.63			72.63
21	GEI CONSULTANTS, INC.	3047543		1,126.78				1,126.78			1,126.78
22	GEI CONSULTANTS, INC.	3049207		865.72				865.72			865.72
23	ANCHOR QEA LLC	60946		6,417.75				6,417.75			6,417.75
24	GEI CONSULTANTS, INC.	3049762		1,282.15				1,282.15			1,282.15
25	GEI CONSULTANTS, INC.	3051176		1,434.10				1,434.10			1,434.10
26	CITY OF CONCORD	2019-50460098					1,020.00	1,020.00			1,020.00
27	GEI CONSULTANTS, INC.	3052918		652.57				652.57			652.57
29	GEI CONSULTANTS, INC.	3054861		3,752.56				3,752.56			3,752.56
30								0.00			-
31	Environmental Staff Time						469.75	469.75			469.75
Total Pool Activity			0.00	84,927.07	0.00	0.00	2,354.52	87,281.59	0.00	(14,998.30)	72,283.29

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
MANUFACTURED GAS PLANT ENVIRONMENTAL COSTS
MANCHESTER - REMEDIATION
PROJECT DEF057

REDACTED
Schedule 20.2
Page 4 of 7

LINE NO.	VENDOR	REF NO.	1101 LEGAL EXPENSES	1102 CONSULTING EXPENSES	1105 REMEDATION EXPENSES	1106 SETTLEMENT EXPENSES	1107 OTHER EXPENSES	SUBTOTAL EXPENSES	1108 INSURANCE & THIRD PARTY EXPENSE	1109 INSURANCE & THIRD PARTY RECOVERIES	TOTAL SUBMITTED
1	GZA GEOENVIRONMENTAL INC	758229		11,913.18				11,913.18			11,913.18
2	R H WHITE CONSTRUCTION CO INC	11940-04					13,308.50	13,308.50			13,308.50
3	CLEAN HARBORS	1002469459					283.53	283.53			283.53
4	CLEAN HARBORS	1002496450					2,766.50	2,766.50			2,766.50
6	R H WHITE CONSTRUCTION CO INC	11940-05					8,689.00	8,689.00			8,689.00
8	GZA GEOENVIRONMENTAL INC	762386		10,070.18				10,070.18			10,070.18
9	CASEY MARY	EXP					35.09	35.09			35.09
10	GZA GEOENVIRONMENTAL INC	766724		1,122.50				1,122.50			1,122.50
11	GZA GEOENVIRONMENTAL INC	766839		12,959.05				12,959.05			12,959.05
12	GZA GEOENVIRONMENTAL INC	766630		8,900.97				8,900.97			8,900.97
13	GZA GEOENVIRONMENTAL INC	766915		9,073.50				9,073.50			9,073.50
14	GZA GEOENVIRONMENTAL INC	765901		12,858.33				12,858.33			12,858.33
15	GZA GEOENVIRONMENTAL INC	766598		3,451.50				3,451.50			3,451.50
16	CLEAN HARBORS	1002638136					3,041.50	3,041.50			3,041.50
19	NH DEPT OF ENVIRONMENTAL SERVICES	200003011 012519					394.59	394.59			394.59
20	ESMI OF NH	1016696					7,297.32	7,297.32			7,297.32
21	GZA GEOENVIRONMENTAL INC	769150		5,297.03				5,297.03			5,297.03
22	GZA GEOENVIRONMENTAL INC	769930		2,681.25				2,681.25			2,681.25
26	GZA GEOENVIRONMENTAL INC	772761		4,679.90				4,679.90			4,679.90
27	NH DEPT OF ENVIRONMENTAL SERVICES	200003011 041919					876.88	876.88			876.88
28	CLEAN HARBORS	1002793797					359.44	359.44			359.44
29	CLEAN HARBORS	1002841267					1,465.33	1,465.33			1,465.33
30	GZA GEOENVIRONMENTAL INC	774989		21,644.25				21,644.25			21,644.25
31	GZA GEOENVIRONMENTAL INC	775926		35,491.84				35,491.84			35,491.84
33	GZA GEOENVIRONMENTAL INC	771721		2,893.28				2,893.28			2,893.28
34								0.00			0.00
35	Environmental Staff Time						\$ 538.52	538.52			538.52
	Total Pool Activity		0.00	143,036.76	0.00	0.00	39,056.20	182,092.96	0.00	(144,073.93)	38,019.03

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
MANUFACTURED GAS PLANT ENVIRONMENTAL COSTS
GENERAL EXPENSES
PROJECT DEF064

Schedule 20.2
Page 5 of 7

LINE NO.	VENDOR	REF NO.	1101	1102	1105	1106	1107	SUBTOTAL EXPENSES	1108	1109	TOTAL SUBMITTED
			LEGAL EXPENSES	CONSULTING EXPENSES	REMEDIAATION EXPENSES	SETTLEMENT EXPENSES	OTHER EXPENSES		INSURANCE & THIRD PARTY EXPENSE	INSURANCE & THIRD PARTY RECOVERIES	
1	ALLEGRA MARKETING PRINT MAIL	32042					190.00	190.00			190.00
2	MARY CASEY	EXPENSE					52.34	52.34			52.34
3	MARY CASEY	EXPENSE					70.33	70.33			70.33
4								0.00			0.00
5	Environmental Staff Time						6,555.36	6,555.36			6,555.36
Total Pool Activity			0.00	0.00	0.00	0.00	6,868.03	6,868.03	0.00	0.00	6,868.03

LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
MANUFACTURED GAS PLANT ENVIRONMENTAL COSTS
CONCORD MGP - REMEDIATION
PROJECT DEF077

REDACTED
Schedule 20.2
Page 6 of 7

LINE NO.	VENDOR	REF NO.	1101	1102	1105	1106	1107	SUBTOTAL EXPENSES	1108	1109	TOTAL SUBMITTED
			LEGAL EXPENSES	CONSULTING EXPENSES	REMEDATION EXPENSES	SETTLEMENT EXPENSES	OTHER EXPENSES		INSURANCE & THIRD PARTY EXPENSE	INSURANCE & THIRD PARTY RECOVERIES	
1	JOE GAUCI LANDSCAPING LLC	2018-6-3576					788.00	788.00			788.00
3	GZA GEOENVIRONMENTAL INC	758228		282.50				282.50			282.50
4	CLEAN HARBORS	1002419388					61.60	61.60			61.60
5	JOE GAUCI LANDSCAPING LLC	2018-7-3576					648.00	648.00			648.00
6	CITY OF CONCORD GSD	410184-001 0718					8.90	8.90			8.90
7	JOE GAUCI LANDSCAPING LLC	2018-8-3576					746.00	746.00			746.00
8	CITY OF CONCORD GSD	410184-001 0818					9.75	9.75			9.75
10	CITY OF CONCORD GSD	410184-001 0918					9.62	9.62			9.62
11	CLEAN HARBORS	1002529642					611.33	611.33			611.33
12	JOE GAUCI LANDSCAPING LLC	2018-9-3576					769.00	769.00			769.00
13	CLEAN HARBORS	1002549060					295.90	295.90			295.90
14	CITY OF CONCORD GSD	410184-001 09/30/18					9.62	9.62			9.62
15	CITY OF CONCORD	410814-001 10-30-18					9.62	9.62			9.62
16	JOE GAUCI LANDSCAPING LLC	2018-10-3576					1,538.00	1,538.00			1,538.00
17	JOE GAUCI LANDSCAPING LLC	2018-11-3576					251.00	251.00			251.00
18	CITY OF CONCORD	410184-001 11-30-18					9.62	9.62			9.62
19	MARY CASEY	EXP					53.44	53.44			53.44
21	GZA GEOENVIRONMENTAL INC	767727		6,044.30				6,044.30			6,044.30
22	GZA GEOENVIRONMENTAL INC	759398		660.50				660.50			660.50
23	GZA GEOENVIRONMENTAL INC	763071		5,853.22				5,853.22			5,853.22
24	GZA GEOENVIRONMENTAL INC	768717		1,682.44				1,682.44			1,682.44
25	GZA GEOENVIRONMENTAL INC	768728		8,483.40				8,483.40			8,483.40
26	GZA GEOENVIRONMENTAL INC	768719		927.00				927.00			927.00
27	GZA GEOENVIRONMENTAL INC	768892		6,863.35				6,863.35			6,863.35
28	CITY OF CONCORD	410184-001 1218					9.76	9.76			9.76
29	CITY OF CONCORD	410184-001 013019					19.52	19.52			19.52
30	CITY OF CONCORD	410184-001 022819					19.52	19.52			19.52
31	GZA GEOENVIRONMENTAL INC	770670		8,097.80				8,097.80			8,097.80
32	CITY OF CONCORD GSD	410184-001 033019					9.62	9.62			9.62
33	CITY OF CONCORD GSD	410184-001 0419					9.76	9.76			9.76
34	CITY OF CONCORD	2019-50460098					1,020.00	1,020.00			1,020.00
35	CLEAN HARBORS	1002890116					177.41	177.41			177.41
37	JOE GAUCI LANDSCAPING LLC	2019-5-3576					680.00	680.00			680.00
38								0.00			0.00
39	Environmental Staff Time						334.15	334.15			334.15
Total Pool Activity			0.00	38,894.51	0.00	0.00	8,099.14	46,993.65	0.00	(3,369.09)	43,624.56

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LIBERTY UTILITIES (ENERGYNORTH NATURAL GAS) CORP.
MANUFACTURED GAS PLANT ENVIRONMENTAL COSTS
LIBERTY HILL - REMEDIATION
PROJECT DEF086

Schedule 20.2
Page 7 of 7

LINE NO.	VENDOR	REF NO.	1101 LEGAL EXPENSES	1102 CONSULTING EXPENSES	1105 REMEDATION EXPENSES	1106 SETTLEMENT EXPENSES	1107 OTHER EXPENSES	SUB-TOTAL EXPENSES	1108 INSURANCE & THIRD PARTY EXPENSES	1109 INSURANCE & THIRD PARTY RECOVERIES	TOTAL SUBMITTED
1	MULLER'S LAWN & LANDSCAPING, LLC	4772					800.00	800.00			800.00
2	GEI CONSULTANTS, INC.	3041716		4,907.12				4,907.12			4,907.12
3	CLEAN HARBORS	1002528812					437.25	437.25			437.25
4	MULLER'S LAWN & LANDSCAPING, LLC	4879					800.00	800.00			800.00
5	GEI CONSULTANTS, INC.	3043976		4,464.02				4,464.02			4,464.02
6	GEI CONSULTANTS, INC.	3044368		1,509.70				1,509.70			1,509.70
7	GEI CONSULTANTS, INC.	3045705		1,506.63				1,506.63			1,506.63
8	BLUE CHIP FILMS LLC	1531					675.00	675.00			675.00
9	BLUE CHIP FILMS LLC	1557					300.00	300.00			300.00
10								0.00			0.00
11	Environmental Staff Time						0.00	0.00			0.00
	Total Pool Activity		0.00	12,387.47	0.00	0.00	3,012.25	15,399.72			15,399.72

Filed under the following protective orders:
Order No. 22,853 dated February 18, 1998 in Docket No. DR 97-130
Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

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Page 1 of 9

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Environmental Remediation - MGPs
Tariff page 95

Concord Pond		DEF056																		
		(thru - 9/99) pool #1 - #3	(9/99 - 9/00) pool #4	(9/03 - 9/04) pool #5	(9/04 - 9/05) pool #6	(9/05 - 9/06) pool #7	(9/06 - 9/07) pool #8	(9/07 - 9/08) pool #9	(9/08 - 9/09) pool #10	(9/09 - 9/10) pool #11	(9/10 - 9/11) pool #12	(9/11 - 9/12) pool #13	(9/12 - 6/13) pool #14	(7/13 - 6/14) pool #15	(7/14 - 6/15) pool #16	(7/15 - 6/16) pool #17	(7/16 - 6/17) pool #18	(7/17 - 6/18) pool #19	(7/18 - 6/19) pool #20	subtotal
1	1 Remediation costs (i.o. 500061)	5,420,852	129,002	60,293	21,613	96,293	155,796	95,374	128,187	143,000	249,160	86,412	78,387	40,314	89,626	43,204	102,196	138,701	87,282	7,165,691
2	2 Remediation costs (i.o. 500005)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	A Subtotal - remediation costs	5,420,852	129,002	60,293	21,613	96,293	155,796	95,374	128,187	143,000	249,160	86,412	78,387	40,314	89,626	43,204	102,196	138,701	87,282	7,165,691
4																				
5	5 Cash recoveries (i.o. 500061)	(2,014,740)	(33,204)	-	-	(14,314)	(13,446)	-	(12,608)	(6,064)	(32,417)	(5,173)	(19,318)	(7,990)	(11,392)	(8,614)	(14,047)	(11,345)	(14,998)	(2,219,669)
6	6 Cash recoveries (i.o. 500004)	(445,985)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(445,985)
7	7 Recovery costs (i.o. 500004)	623,784	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	623,784
8	8 Transfer Credit from Gas Restructuring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	B Subtotal - net recoveries	(1,836,941)	(33,204)	-	-	(14,314)	(13,446)	-	(12,608)	(6,064)	(32,417)	(5,173)	(19,318)	(7,990)	(11,392)	(8,614)	(14,047)	(11,345)	(14,998)	(2,041,870)
10																				
11	A-B Total net expenses to recover	3,583,912	95,796	60,293	21,613	81,979	142,350	95,374	115,579	136,936	216,743	81,238	59,069	32,324	78,235	34,590	88,148	127,356	72,283	5,123,821
12																				
13																				
14	Surcharge revenue:																			
15	Act June 1998 - October 1998	(54,889)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(54,889)
16	Act November 1998 - October 1999	(538,143)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(538,143)
17	Act November 1999 - October 2000	(760,871)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(760,871)
18	Act November 2000 - October 2001	(626,614)	(13,925)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(640,539)
19	Act November 2001 - October 2002	(600,600)	(24,514)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(625,114)
20	Act November 2002 - October 2003	(592,678)	(15,197)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(607,874)
21	Act November 2003 - October 2004	(291,340)	(14,567)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(305,907)
22	Act November 2004-October 2005	(56,719)	(14,180)	(14,180)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(85,078)
23	Act November 2005-October 2006	-	(6,875)	(6,875)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(13,750)
24	Act November 2006-October 2007	-	-	-	-	(14,091)	-	-	-	-	-	-	-	-	-	-	-	-	-	(14,091)
25	Act November 2007-October 2008	-	-	-	-	-	-	-	-	-	(5,002)	(5,002)	-	-	-	-	-	-	-	-
26	Act November 2012-October 2013	-	-	-	-	-	-	-	-	-	(12,749)	(12,749)	-	-	-	-	-	-	-	(10,003)
27	Act November 2013-October 2014	-	-	-	-	-	-	-	-	-	(5,423)	-	-	-	-	-	-	-	-	(25,497)
28	Act Nov 2009-Oct 2010 Base Rate Rev	-	-	-	-	-	-	-	-	-	(32,310)	-	-	-	-	-	-	-	-	(4,423)
29	Act Nov 2010-Oct 2011 Base Rate Rev	-	-	-	-	-	-	-	-	-	(528,448)	-	-	-	-	-	-	-	-	(32,310)
30	Act Nov 2011-Oct 2012 Base Rate Rev	-	-	-	-	-	-	-	-	-	(2,143)	(2,143)	-	-	-	-	-	-	-	(28,448)
31	Act Nov 2012-Oct 2013 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(4,286)
32	Act Nov 2013-Oct 2014 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Act Nov 2014-Oct 2015 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	AES collections	-	-	(33,593)	(11,626)	(11,901)	(12,271)	(12,620)	(12,904)	(13,145)	(13,221)	(13,738)	(13,725)	(13,948)	(14,173)	(14,405)	(14,664)	(14,858)	(14,999)	(235,791)
35	Gas Street overcollection	(23,511)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(23,511)
36	Prior Period Pool under/overcollection	21,038	38,548	45,088	50,734	60,721	116,708	246,787	-	-	-	-	-	-	-	-	-	-	-	0
37																				
38																				
39	C Surcharge Subtotal	(3,524,326)	(50,710)	(9,559)	39,108	34,729	104,437	234,166	(12,904)	(13,145)	(98,295)	(33,631)	(13,725)	(13,948)	(14,173)	(14,405)	(14,664)	(14,858)	(14,999)	(4,010,524)
40																				
41																				
42	D Net balance to be recovered (A-B+C)	59,586	45,088	50,734	60,721	116,708	246,787	329,540	102,675	123,791	47,629	47,608	45,345	18,376	64,062	20,185	73,484	112,498	57,284	1,113,296
43																				
44	E Allocation of Litigated Recovery	-	-	-	-	-	-	(329,540)	(102,675)	(123,791)	(48,159)	-	-	-	-	-	-	-	-	(604,165)
45																				
46	Surcharge calculation	-	-	-	-	-	-	-	-	-	-	-	6,478	5,250	27,455	11,534.27	52,488.74	96,427.16	57,284.37	256,918
47	Unrecovered costs (D+E)	-	-	-	-	-	-	-	-	-	-	-	12	24	36	48	60	72	84	
48	remaining life	-	-	24	36	48	60	72	84	84	84	12	12	12	12	12	12	12	12	
49	one year	-	-	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
50	F amortization	-	-	-	-	-	-	-	-	-	-	-	6,478	2,625	9,152	2,884	10,498	16,071	8,183	55,891
51																				
52	Required annual increase in rates: smaller of D or F	-	-	-	-	-	-	-	-	-	-	-	6,478	2,625	9,152	2,884	10,498	16,071	8,183	55,891
53																				
54																				
55	forecasted therm sales	553,441,400	184,654,874	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686
56																				
57	surcharge per therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0001	\$0.0001	\$0.0000	\$0.0003

1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

Filed under the following protective orders:
Order No. 22,853 dated February 18, 1998 in Docket No. DR 97-130
Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

REDACTED
Schedule 22
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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Environmental Remediation - MGPs
Tariff page 95

Laconia & Liberty Hill																		DEF086	
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1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

Filed under the following protective orders:
Order No. 22,853 dated February 18, 1998 in Docket No. DR 97-130
Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

Schedule 22
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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Environmental Remediation - MGPs
Tariff page 95

Manchester		DEF057																	
(9/00 - 9/03) pool #1 - #3	(9/03 - 9/04) pool #4	(9/04 - 9/05) pool #5	(9/05 - 9/06) pool #6	(9/06 - 9/07) pool #7	(9/07 - 9/08) pool #8 Incl. Audit Corr	(9/08 - 9/09) pool #9	(9/09 - 9/10) pool #10	(9/10 - 9/11) pool #11	(9/11 - 9/12) pool #12	(9/12 - 6/13) pool #13	(7/13 - 6/14) pool #14	(7/14 - 6/15) pool #15	(7/15 - 6/16) pool #16	(7/16 - 6/17) pool #17	(7/17 - 6/18) pool #18	(7/18 - 6/19) pool #19	subtotal		
-	335,338	1,989,848	875,702	561,210	4,387,645	312,185	369,037	372,237	507,622	82,113	92,900	116,496	71,011	54,333	470,725	182,093	10,780,495		
825,092																	825,092		
825,092	335,338	1,989,848	875,702	561,210	4,387,645	312,185	369,037	372,237	507,622	82,113	92,900	116,496	71,011	54,333	470,725	182,093	11,605,587		
-			(545,540)	(220,353)	(1,127,436)		(40,359)	(234,648)	(65,324)	(270,732)	(31,690)	(41,057)	(48,322)	(3,810)	(124,681)	(144,074)	(2,898,026)		
-																			
-	1,242,326			2,546	-												1,244,872		
-																			
-	1,242,326	-	(545,540)	(217,807)	(1,127,436)	-	(40,359)	(234,648)	(65,324)	(270,732)	(31,690)	(41,057)	(48,322)	(3,810)	(124,681)	(144,074)	(1,653,154)		
825,092	1,577,664	1,989,848	330,162	343,402	3,260,209	312,185	328,678	137,589	442,298	(188,619)	61,210	75,440	22,690	50,523	346,043	38,019	9,952,433		
-																	-		
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-																	-		
(73,543)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(73,543)		
(75,984)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(75,984)		
(138,576)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(138,576)		
(113,437)	(212,695)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(326,132)		
(96,247)	(206,243)	(261,242)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(563,732)		
(126,817)	(211,361)	(281,815)	(42,272)	-	-	-	-	-	-	-	-	-	-	-	-	-	(662,265)		
-									(40,012)								-		
-									(50,994)								(40,012)		
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-																	-		
-																	-		
-																	-		
-									(23,337)								(23,337)		
-																	-		
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394,600	276,881	1,224,246	2,671,037	2,958,927	3,302,330	-	-	-									-		
(230,004)	(353,418)	681,189	2,628,765	2,958,927	3,302,330	-	-	-	(114,343)	-	-	-	-	-	-	-	(1,954,576)		
595,088	1,224,246	2,671,037	2,958,927	3,302,330	6,562,539	312,185	328,678	137,589	327,955	(188,619)	61,210	75,440	22,690	50,523	346,043	38,019	7,997,857		
-	-	-	-	-	(6,562,539)	(312,185)	(328,678)	(94,519)	-	-	-	-	-	-	-	-	-	(7,297,921)	
-	-	-	-	-	-	-	-	-	-	(26,946)	17,488	32,331	12,965	36,088	296,609	38,019	406,555		
-	24	36	48	60	70	84	84	12	12	12	24	36	48	60	72	84			
-	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
-	-	-	-	-	-	-	-	-	-	(26,946)	8,744	10,777	3,241	7,218	49,435	5,431			
-	-	-	-	-	-	-	-	-	-	(26,946)	8,744	10,777	3,241	7,218	49,435	5,431	57,901		
553,441,400	184,654,874	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686		
\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	(\$0.0001)	\$0.0000	\$0.0001	\$0.0000	\$0.0000	\$0.0003	\$0.0000	\$0.0003		

1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

Filed under the following protective orders:
Order No. 22,853 dated February 18, 1998 in Docket No. DR 97-130
Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

Schedule 22
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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Environmental Remediation - MGPs
Tariff page 95

		Nashua																	DEF054
		(9/00 - 9/03) pool #1 - #3	(9/03 - 9/04) pool #4	(9/04 - 9/05) pool #5	(9/05 - 9/06) pool #6	Corrected per 2/08 Audit (9/06 - 9/07) pool #7	(9/07 - 9/08) pool #8	(9/08 - 9/09) pool #9	(9/09 - 9/10) pool #10	(9/10 - 9/11) pool #11	(9/11 - 9/12) pool #12	(9/12 - 6/13) pool #13	(7/13 - 6/14) pool #14	(7/14 - 6/15) pool #15	(7/15 - 6/16) pool #16	(7/16 - 6/17) pool #17	(7/17 - 6/18) pool #18	(7/18 - 6/19) pool #19	subtotal
1	1 Remediation costs (I.o. 500061)	-	10,841	206,367	23,354	9,737	107,605	78,535	162,729	65,118	399,400	119,095	63,397	105,917	106,129	100,342	61,478	128,071	1,748,115
2	2 Remediation costs (I.o. 500005)	1,771,567	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,771,567
3	A Subtotal - remediation costs	1,771,567	10,841	206,367	23,354	9,737	107,605	78,535	162,729	65,118	399,400	119,095	63,397	105,917	106,129	100,342	61,478	128,071	3,519,682
4		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	5 Cash recoveries (I.o. 500061)	-	-	-	(18,581)	(4,151)	(10,414)	(62,246)	(63,753)	(31,767)	(2,990)	(199,336)	(27,447)	(40,699)	(43,694)	(15,029)	(45,955)	(46,103)	(612,165)
6	6 Cash recoveries (I.o. 500004)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	7 Recovery costs (I.o. 500004)	-	-	-	5,449	12,938	-	-	-	-	-	-	-	-	-	-	-	-	18,388
8	8 Transfer Credit from Gas Restructuring	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	B Subtotal - net recoveries	-	-	-	(13,131)	8,787	(10,414)	(62,246)	(63,753)	(31,767)	(2,990)	(199,336)	(27,447)	(40,699)	(43,694)	(15,029)	(45,955)	(46,103)	(593,778)
10		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	A-B Total net expenses to recover	1,771,567	10,841	206,367	10,223	18,524	97,191	16,289	98,975	33,351	396,411	(80,241)	35,950	65,217	62,435	85,314	15,523	81,969	2,925,904
12		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13	Surcharge revenue:	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	Act June 1998 - October 1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	Act November 1998 - October 1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17	Act November 1999 - October 2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18	Act November 2000 - October 2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19	Act November 2001 - October 2002	(183,857)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(183,857)
20	Act November 2002 - October 2003	(243,150)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(243,150)
21	Act November 2003 - October 2004	(247,639)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(247,639)
22	Act November 2004- October 2005	(241,054)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(241,054)
23	Act November 2005- October 2006	(247,492)	-	(27,499)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(274,991)
24	Act November 2006- October 2007	(253,833)	-	(28,181)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(281,815)
25	Act November 2007- October 2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	Act November 2012- October 2013	-	-	-	-	-	-	-	-	-	(40,012)	-	-	-	-	-	-	-	(40,012)
27	Act November 2013- October 2014	-	-	-	-	-	-	-	-	-	(38,246)	-	-	-	-	-	-	-	(38,246)
28	Act Nov 2009-Oct 2010 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	Act Nov 2010-Oct 2011 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	Act Nov 2011-Oct 2012 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
31	Act Nov 2012-Oct 2013 Base Rate Rev	-	-	-	-	-	-	-	-	-	(20,916)	-	-	-	-	-	-	-	(20,916)
32	Act Nov 2013-Oct 2014 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33	Act Nov 2014-Oct 2015 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34	AES collections	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35	Gas Street overcollection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36	Prior Period Pool under/overcollection	669,664	543,205	554,046	704,732	714,955	733,479	-	-	-	6,238	-	-	-	-	-	-	-	-
37		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
38		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39	C Surcharge Subtotal	(747,161)	543,205	498,365	704,732	714,955	733,479	-	-	-	(92,936)	-	-	-	-	-	-	-	(1,571,680)
40		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
41		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
42	D Net balance to be recovered (A-B+C)	1,024,405	554,046	704,732	714,955	733,479	830,669	16,289	98,975	33,351	303,475	(80,241)	35,950	65,217	62,435	85,314	15,523	81,969	1,354,225
43		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
44	E Allocation of Litigated Recovery	-	-	-	-	-	(830,669)	(16,289)	(98,975)	(27,113)	-	-	-	-	-	-	-	-	(973,046)
45		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
46	Surcharge calculation	-	-	-	-	-	-	-	-	-	-	(11,463)	10,271	27,950	35,677	60,938	13,306	81,969	218,648
47	Unrecovered costs (D+E)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
48	remaining life	12	24	36	48	60	72	84	84	72	12	12	24	36	48	60	72	84	-
49	one year	24	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	-
50	F amortization	-	-	-	-	-	-	-	-	-	-	(11,463)	5,136	9,317	8,919	12,188	2,218	11,710	-
51		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
52	Required annual increase in rates: smaller of D or F	-	-	-	-	-	-	-	-	-	-	(11,463)	5,136	9,317	8,919	12,188	2,218	11,710	38,024
53		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
54		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
55	forecasted them sales	553,441,400	184,654,874	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686
56		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
57	surcharge per them	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	(\$0.0001)	\$0.0000	\$0.0000	\$0.0000	\$0.0001	\$0.0000	\$0.0001	\$0.0002

1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

Filed under the following protective orders:
Order No. 22,853 dated February 18, 1998 in Docket No. DR 97-130
Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Environmental Remediation - MGPs
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Dover													
DEF059													
	(9/02 - 9/03) pool #1	(9/04 - 9/05) pool #2	(9/06 - 9/07) pool #3	(9/08 - 9/09) pool #4	(9/10 - 9/11) pool #5	(9/12 - 9/13) pool #6	(9/14 - 9/15) pool #7	(9/16 - 9/17) pool #8	(9/18 - 9/19) pool #9	(9/20 - 9/21) pool #10	(9/22 - 9/23) pool #11	(9/24 - 9/25) pool #12	subtotal
1 1 Remediation costs (i.o. 500061)	-	18,854	2,288	-	-	-	-	-	-	-	-	-	21,142
2 Remediation costs (i.o. 500005)	181,066	-	-	-	-	-	-	-	-	-	-	-	181,066
3 A Subtotal - remediation costs	181,066	18,854	2,288	-	-	-	-	-	-	-	-	-	202,208
4 Cash recoveries (i.o. 500061)	-	-	-	-	-	-	-	-	-	-	-	-	-
5 Cash recoveries (i.o. 500004)	-	-	-	-	-	-	-	-	-	-	-	-	-
6 Recovery costs (i.o. 500004)	-	-	-	-	-	-	-	-	-	-	-	-	-
7 Transfer Credit from Gas Restructuring	-	-	-	-	-	-	-	-	-	-	-	-	-
8 B Subtotal - net recoveries	-	-	-	-	-	-	-	-	-	-	-	-	-
9 A-B Total net expenses to recover	181,066	18,854	2,288	-	-	-	-	-	-	-	-	-	202,208
10													
11													
12													
13													
14 Surcharge revenue:													
15 Act June 1998 - October 1998	-	-	-	-	-	-	-	-	-	-	-	-	-
16 Act November 1998 - October 1999	-	-	-	-	-	-	-	-	-	-	-	-	-
17 Act November 1999 - October 2000	-	-	-	-	-	-	-	-	-	-	-	-	-
18 Act November 2000 - October 2001	-	-	-	-	-	-	-	-	-	-	-	-	-
19 Act November 2001 - October 2002	-	-	-	-	-	-	-	-	-	-	-	-	-
20 Act November 2002 - October 2003	-	-	-	-	-	-	-	-	-	-	-	-	-
21 Act November 2003 - October 2004	(29,134)	-	-	-	-	-	-	-	-	-	-	-	(29,134)
22 Act November 2004 - October 2005	(28,359)	-	-	-	-	-	-	-	-	-	-	-	(28,359)
23 Act November 2005 - October 2006	(27,499)	-	-	-	-	-	-	-	-	-	-	-	(27,499)
24 Act November 2006 - October 2007	(28,181)	-	-	-	-	-	-	-	-	-	-	-	(28,181)
25 Act November 2007 - October 2008	-	-	-	-	-	-	-	-	-	-	-	-	-
26 Act November 2008 - October 2009	-	-	-	-	-	-	-	-	-	-	-	-	-
27 Act November 2009 - October 2010	-	-	-	-	-	-	-	-	-	-	-	-	-
28 Act Nov 2009-Oct 2010 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-
29 Act Nov 2010-Oct 2011 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-
30 Act Nov 2011-Oct 2012 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-
31 Act Nov 2012-Oct 2013 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-
32 Act Nov 2013-Oct 2014 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-
33 Act Nov 2014-Oct 2015 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-
34 AES collections	-	-	-	-	-	-	-	-	-	-	-	-	-
35 Gas Street overcollection	-	-	-	-	-	-	-	-	-	-	-	-	-
36 Pnor Period Pool under/overcollection	-	67,892	86,746	89,034	89,034	-	-	-	-	-	-	-	-
37													
38 C Surcharge Subtotal	(113,174)	67,892	86,746	89,034	89,034	-	-	-	-	-	-	-	(113,174)
39													
40													
41 D Net balance to be recovered (A-B+C)	67,892	86,746	89,034	89,034	89,034	-	-	-	-	-	-	-	89,034
42													
43 E Allocation of Litigated Recovery	-	-	-	-	(89,034)	-	-	-	-	-	-	-	(89,034)
44													
45													
46 Surcharge calculation	-	-	-	-	-	-	-	-	-	-	-	-	-
47 Unrecovered costs (D+E)	-	-	-	-	-	-	-	-	-	-	-	-	-
48 remaining life	24	36	48	60	72	84	84	84	84	84	84	84	84
49 one year	12	12	12	12	12	12	12	12	12	12	12	12	12
50 F amortization	-	-	-	-	-	-	-	-	-	-	-	-	-
51													
52 Required annual increase in rates:	-	-	-	-	-	-	-	-	-	-	-	-	-
53 smaller of D or F	-	-	-	-	-	-	-	-	-	-	-	-	-
54													
55 forecasted therm sales	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686
56													
57 surcharge per therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000

1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

Filed under the following protective orders:
Order No. 22,853 dated February 18, 1998 in Docket No. DR 97-130
Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Environmental Remediation - MGPs
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Keene													DEF055
	(9/03 - 9/04) pool #1	(9/04 - 9/05) pool #2	(9/05 - 9/06) pool #3	(9/06 - 9/07) pool #4	(9/07 - 9/08) pool #5	(9/08 - 9/09) pool #6	(9/09 - 9/10) pool #7	(9/10 - 9/11) pool #8	(9/11 - 9/12) pool #9	(9/12 - 6/13) pool #10	(7/13 - 6/14) pool #11	(7/14 - 6/15) pool #12	subtotal
1 1 Remediation costs (I.e. 500061)	-												
2 Remediation costs (I.e. 500005)	10,165	6,606	35,111	8,766	32	269	-	-	488	1,400			
3 A Subtotal - remediation costs	10,165	6,606	35,111	8,766	32	269	-	-	488	1,400			
4													
5 Cash recoveries (I.e. 500061)	-												
6 Cash recoveries (I.e. 500004)	-												
7 Recovery costs (I.e. 500004)			18,831	823	-	-	-	-					
8 Transfer Credit from Gas Restructuring													
9 B Subtotal - net recoveries	-		18,831	823	-	-	-	-	-	-			
10													
11 A-B Total net expenses to recover	10,165	6,606	53,942	9,589	32	269	-	-	488	1,400			
12													
13													
14 Surcharge revenue:													
15 Act June 1998 - October 1998	-												
16 Act November 1998 - October 1999	-												
17 Act November 1999 - October 2000	-												
18 Act November 2000 - October 2001	-												
19 Act November 2001 - October 2002	-												
20 Act November 2002 - October 2003	-												
21 Act November 2003 - October 2004	-												
22 Act November 2004 - October 2005	-	-				-	-	-	-	-	-	-	
23 Act November 2005 - October 2006	-	-				-	-	-	-	-	-	-	
24 Act November 2006 - October 2007	-	-	(14,091)										(14,091)
25 Act November 2007 - October 2008													
26 Act November 2012 - October 2013													
27 Act November 2013 - October 2014													
28 Act Nov 2009-Oct 2010 Base Rate Rev													
29 Act Nov 2010-Oct 2011 Base Rate Rev													
30 Act Nov 2011-Oct 2012 Base Rate Rev													
31 Act Nov 2012-Oct 2013 Base Rate Rev													
32 Act Nov 2013-Oct 2014 Base Rate Rev													
33 Act Nov 2014-Oct 2015 Base Rate Rev													
34 AES collections													
35 Gas Street overcollection													
36 Prior Period Pool under/overcollection		10,165	16,771	56,622	66,211	-	-	-	-	-	-	-	
37													
38													
39 C Surcharge Subtotal	-	10,165	2,680	56,622	66,211	-	-	-	-	-	-	-	(14,091)
40													
41													
42 D Net balance to be recovered (A-B+C)	10,165	16,771	56,622	66,211	66,244	269	-	-	488	1,400			
43													
44 E Allocation of Litigated Recovery	-	-	-	-	(66,244)	(269)	-	-	-	-			
45													
46 Surcharge calculation													
47 Unrecovered costs (D+E)	-	-	-							200			
48 remaining life	24	36	48	60	72	84	84	84	12	12			
49 one year	12	12	12	12	12	12	12	12	12	12			
50 F amortization	-	-	-	-	-	-	-	-	-	200			
51													
52 Required annual increase in rates:													
53 smaller of D or F	-	-	-							200			
54													
55 forecasted therm sales	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686
56													
57 surcharge per therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000			

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1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

Filed under the following protective orders:
Order No. 22,853 dated February 18, 1998 in Docket No. DR 97-130
Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
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Concord																DEF077
	Corrected per 1/24/07 Audit (9/03 - 9/05) pool #1 & #2	Corrected per 2/08 Audit (9/05 - 9/06) pool #3	Corrected per 2/08 Audit (9/06 - 9/07) pool #4	(9/07 - 9/08) pool #5	(9/08 - 9/09) pool #6	(9/09 - 9/10) pool #7	(9/10 - 9/11) pool #8	(9/11 - 9/12) pool #9	(9/12 - 6/13) pool #10	(7/13 - 6/14) pool #11	(7/14 - 6/15) pool #12	(7/15 - 6/16) pool #13	(7/16 - 6/17) pool #14	(7/17 - 6/18) pool #15	(7/18 - 6/19) pool #16	subtotal
1 1 Remediation costs (Lo. 500061)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2 Remediation costs (Lo. 500005)	243,123	44,345	109,642	8,006	77,063	49,403	179,732	289,103	84,256	135,673	192,525	114,749				
3 A Subtotal - remediation costs	243,123	44,345	109,642	8,006	77,063	49,403	179,732	289,103	84,256	135,673	192,525	114,749				
4 Cash recoveries (Lo. 500061)	-	(22,239)	(47,977)	(12,801)	16,623	(3,213)	(11,394)	(31,575)	(38,871)	(12,319)	(28,742)	(19,197)				
5 Cash recoveries (Lo. 500004)	-	-	-	-	-	-	-	-	-	-	-	-				
6 Recovery costs (Lo. 500004)	-	-	-	1,432	(1,007)	-	-	-	-	-	-	-				
7 Transfer Credit from Gas Restructuring	-	-	-	-	-	-	-	-	-	-	-	-				
8 B Subtotal - net recoveries	-	(22,239)	(47,977)	(11,169)	15,616	(3,213)	(11,394)	(31,575)	(38,871)	(12,319)	(28,742)	(19,197)				
9 A-B Total net expenses to recover	243,123	22,106	61,665	(3,163)	92,679	46,190	168,338	257,528	45,384	123,355	163,783	95,553				
10																
11																
12																
13																
14 Surcharge revenue:																
15 Act June 1998 - October 1998	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(27,499)
16 Act November 1998 - October 1999	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(28,181)
17 Act November 1999 - October 2000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
18 Act November 2000 - October 2001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
19 Act November 2001 - October 2002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20 Act November 2002 - October 2003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21 Act November 2003 - October 2004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22 Act November 2004 - October 2005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
23 Act November 2005 - October 2006	(27,499)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(27,499)
24 Act November 2006 - October 2007	(28,181)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(28,181)
25 Act November 2007 - October 2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26 Act November 2012 - October 2013	-	-	-	-	-	-	(20,006)	(20,006)	-	-	-	-	-	-	-	(40,012)
27 Act November 2013 - October 2014	-	-	-	-	-	-	(12,749)	(25,497)	-	-	-	-	-	-	-	(38,246)
28 Act Nov 2009-Oct 2010 Base Rate Rev	-	-	-	-	-	-	(\$1,891)	-	-	-	-	-	-	-	-	(1,891)
29 Act Nov 2010-Oct 2011 Base Rate Rev	-	-	-	-	-	-	(\$13,816)	-	-	-	-	-	-	-	-	(13,816)
30 Act Nov 2011-Oct 2012 Base Rate Rev	-	-	-	-	-	-	(\$12,164)	-	-	-	-	-	-	-	-	(12,164)
31 Act Nov 2012-Oct 2013 Base Rate Rev	-	-	-	-	-	-	(\$6,794)	(\$6,794)	-	-	-	-	-	-	-	(13,588)
32 Act Nov 2013-Oct 2014 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
33 Act Nov 2014-Oct 2015 Base Rate Rev	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
34 AES collections	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
35 Gas Street overcollection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
36 Prior Period Pool under/overcollection	22,191	187,442	209,549	271,214	-	-	-	-	-	-	-	-	-	-	-	-
37																
38																
39 C Surcharge Subtotal	(33,490)	187,442	209,549	271,214	-	-	(67,420)	(52,297)	-	-	-	-	-	-	-	(175,398)
40																
41																
42 D Net balance to be recovered (A-B+C)	209,633	209,549	271,214	268,051	92,679	46,190	100,919	205,231	45,384	123,355	163,783	95,553				
43																
44 E Allocation of Litigated Recovery	-	-	-	(268,051)	(92,679)	(46,190)	(14,371)	-	-	-	-	-				
45																
46 Surcharge calculation	-	-	-	-	-	-	-	-	6,483	35,244	70,193	54,602				
47 Unrecovered costs (D+E)	-	-	-	-	-	-	-	-	-	-	-	-				
48 remaining life	84	60	72	84	84	12	12	12	12	24	36	48				
49 one year	24	12	12	12	12	12	12	12	12	12	12	12				
50 F amortization	-	-	-	-	-	-	-	-	6,483	17,622	23,398	13,650				
51																
52 Required annual increase in rates: smaller of D or F	-	-	-	-	-	-	-	-	6,483	17,622	23,398	13,650				
53																
54 forecasted therm sales	369,309,748	184,654,874	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686	187,178,686
55																
56 surcharge per therm	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0000	\$0.0001	\$0.0001	\$0.0001				
57																

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1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
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General																2019 MGP Remediation	

Filed under the following protective orders:
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Order No. 23,316 dated October 11, 1999 in Docket No. DG 99-132

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
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Expense and Collection Summary per Year

	(thru - 9/07)	(9/07 - 9/08)	(9/08 - 9/09)	(9/09 - 9/10)	(9/10 - 9/11)	(9/11 - 9/12)	(7/13 - 6/14)	(7/14 - 6/15)	(7/15 - 6/16)	(7/16 - 6/17)	(7/17 - 6/18)	(7/17 - 6/19)	(7/18 - 6/19)	Total
1 Remediation costs (i.o. 500061)	9,917,388	4,590,624	518,907	674,766	686,515	993,434	196,611	312,039	220,344	256,871	256,871	670,904	397,446	
2 Remediation costs (i.o. 500005)	13,712,581	255,263	658,324	316,280	459,550	651,906	1,801,404	7,975,914	3,307,910	260,380	260,380	115,841	69,261	
3 A Subtotal - remediation costs	23,629,969	4,845,887	1,177,231	991,045	1,146,065	1,645,340	1,998,015	8,287,953	3,528,254	517,250	517,250	786,745	466,707	
4														
5 Cash recoveries (i.o. 500061)	(2,934,544)	(1,150,452)	(58,231)	(113,390)	(310,226)	(105,062)	(79,446)	(121,889)	(119,826)	(53,116)	(53,116)	(195,423)	(208,544)	
6 Cash recoveries (i.o. 500004)	(445,985)	568	-	-	-	-	-	-	-	-	-	-	-	
7 Recovery costs (i.o. 500004)	1,918,340	39,173	22,946	-	-	(14,068)	2,500,000	2,475,750	-	-	-	-	-	
8 Transfer Credit from Gas Restructuring	-	(3,331)	-	-	-	-	-	-	-	-	-	-	-	
9 B Subtotal - net recoveries	(1,462,188)	(1,114,041)	(35,285)	(113,390)	(310,226)	(119,129)	2,420,554	2,353,861	(119,826)	(53,116)	(53,116)	(195,423)	(208,544)	
10														
11 A-B Total net expenses to recover	22,167,780	3,731,845	1,141,946	877,655	835,839	1,526,211	4,418,569.29	10,641,813.86	3,408,427.63	464,499.00	464,499.00	591,686.20	258,163.42	
12														
13														
14 Surcharge revenue:														
15 Act June 1998 - October 1998	(54,889)	-	-	-	-	-	-	-	-	-	-	-	-	(54,889)
16 Act November 1998 - October 1999	(538,143)	-	-	-	-	-	-	-	-	-	-	-	-	(538,143)
17 Act November 1999 - October 2000	(912,804)	-	-	-	-	-	-	-	-	-	-	-	-	(912,804)
18 Act November 2000 - October 2001	(1,336,776)	-	-	-	-	-	-	-	-	-	-	-	-	(1,336,776)
19 Act November 2001 - October 2002	(1,679,228)	-	-	-	-	-	-	-	-	-	-	-	-	(1,679,228)
20 Act November 2002 - October 2003	(1,732,442)	-	-	-	-	-	-	-	-	-	-	-	-	(1,732,442)
21 Act November 2003 - October 2004	(1,428,735)	-	-	-	-	-	-	-	-	-	-	-	-	(1,428,735)
22 Act November 2004 - October 2005	(1,403,787)	-	-	-	-	-	-	-	-	-	-	-	-	(1,403,787)
23 Act November 2005 - October 2006	(1,694,877)	-	-	-	-	-	-	-	-	-	-	-	-	(1,694,877)
24 Act November 2006 - October 2007	(2,036,113)	-	-	-	-	-	-	-	-	-	-	-	-	(2,036,113)
25 Act November 2007 - October 2008	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26 Act November 2012 - October 2013	-	-	-	-	(30,009)	(130,039)	-	-	-	-	-	-	-	(160,048)
27 Act November 2013 - October 2014	-	-	-	-	(38,246)	(165,731)	-	-	-	-	-	-	-	(203,977)
28 Act Nov 2009-Oct 2010 Base Rate Rev	-	-	-	-	(10,611)	-	-	-	-	-	-	-	-	(10,611)
29 Act Nov 2010-Oct 2011 Base Rate Rev	-	-	-	-	(77,509)	-	-	-	-	-	-	-	-	(77,509)
30 Act Nov 2011-Oct 2012 Base Rate Rev	-	-	-	-	(68,244)	-	-	-	-	-	-	-	-	(68,244)
31 Act Nov 2012-Oct 2013 Base Rate Rev	-	-	-	-	(8,937)	(67,398)	-	-	-	-	-	-	-	(66,335)
32 Act Nov 2013-Oct 2014 Base Rate Rev	-	-	-	-	-	(28,433)	(28,433)	-	-	-	-	-	-	(56,866)
33 Act Nov 2014-Oct 2015 Base Rate Rev	-	-	-	-	-	(21,909)	(21,909)	(21,909)	-	-	-	-	-	(65,728)
34 AES collections	-	(12,620)	(12,904)	(13,145)	(13,221)	(13,738)	(13,948)	(14,173)	(14,405)	(14,664)	(14,858)	(14,858)	(14,999)	(167,533)
35 Gas Street overcollection	(23,511)	-	-	-	-	-	-	-	-	-	-	-	-	(23,511)
36 Prior Period Pool under/overcollection	15,673,547	-	-	-	-	-	-	-	-	-	-	-	-	
37														
38														
39 C Surcharge Subtotal	2,832,243	(12,620)	(12,904)	(13,145)	(246,777)	(427,248)	(64,290)	(36,082)	(14,405)	(14,664)	(14,858)	(14,858)	(14,999)	(13,728,156)
40														
41														
42 D Net balance to be recovered (A-B+C)	25,000,023	3,719,225	1,129,042	864,510	589,062	1,098,962	4,354,279	10,605,732	3,394,023	449,835	449,641	576,828	243,165	
43														
44 E Allocation of Litigated Recovery														
45														
46 Surcharge calculation														
47 Unrecovered costs (D+E)														
48 remaining life														
49 one year														
50 F amortization														
51														
52 Required annual increase in rates:														
53 smaller of D or F														
54														
55 forecasted therm sales														
56														
57 surcharge per therm														

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1. While the recoveries are displayed on the Summary, Cash Recoveries by site, are not exclusive to a particular site.

Liberty Utilities (EnergyNorth Natural Gas) Corp.**Calculation of Supplier Balancing Charge
2019-2020****Rate: \$ 0.2122 /MMBtu**

	Rate	Volume	Total
Injection Cost	\$ 0.0087	400,680	\$ 3,486
Fuel 1.75%	\$ 0.0431	400,680	\$ 17,249
Withdrawal Cost	\$ 0.0087	252,991	\$ 2,201
Delivery Rate	\$ 0.0481	252,991	\$ 12,175
FTA Demand Charge	\$ 0.2624	252,991	\$ 66,374
FTA Commodity Charge	\$ 0.1139	252,991	\$ 28,816
Fuel 1.35%	\$ 0.0332	252,991	\$ 8,402
		Total Cost	\$ 138,703
Absolute Value of the		Sendout Error	653,671 MMBtu
		Rate	\$ 0.2122 /MMBTU

NOTES: See Tennessee Gas Pipeline Tariff Pages in PK Schedule 6

TGP FSMA Injection Charge	\$	0.0087	/ MMBtu
TGP FSMA Withdrawal Charge	\$	0.0087	/ MMBtu
TGP FSMA Deliverability Charge	\$	1.4630	/ MMBtu per month
	\$	0.0481	/ MMBtu per day
TGP Z4-6 Demand Charge	\$	7.9757	/ MMBtu per month
	\$	0.2624	/ MMBtu per day
TGP Z4-6 Commodity Charge	\$	0.1139	/ MMBtu

Liberty Utilities (EnergyNorth Natural Gas) Corp.

Calculation of Supplier Balancing Charge
2019-2020
Estimated Monthly Imbalances

<u>Date</u>	<u>Forecasted DD</u>	<u>Actual DD</u>	<u>Forecaster Error DD</u>	<u>Forecasted Sendout (MMBtu)</u>	<u>Actual Sendout (MMBtu)</u>	<u>Sendout Error (MMBtu)</u>	<u>Abs.Value Sendout Error (MMBtu)</u>	<u>Injections (MMBtu)</u>	<u>Withdrawals (MMBtu)</u>
Nov	853	840	13	1,584,085	1,564,862	19,223	75,414	47,319	28,096
Dec	1,028	1,014	14	2,277,244	2,250,236	27,008	111,891	69,450	42,442
Jan	1,226	1,235	(9)	2,659,218	2,676,581	(17,362)	113,820	48,229	65,591
Feb	1,062	1,050	12	2,321,858	2,298,966	22,892	100,059	61,476	38,583
Mar	905	857	48	1,996,708	1,910,291	86,417	93,619	90,018	3,601
Apr	586	591	(5)	1,306,187	1,313,935	(7,748)	72,832	32,542	40,290
May	103	87	16	505,573	500,361	5,213	8,471	6,842	1,629
Jun	29	34	(5)	249,502	251,288	(1,786)	1,786	-	1,786
Jul	-	-	-	318,829	318,829	-	-	-	-
Aug	-	-	-	335,097	335,097	-	-	-	-
Sep	87	88	(1)	383,781	384,126	(345)	7,254	3,454	3,800
Oct	488	476	12	943,420	929,243	14,177	68,524	41,350	27,173
Total	6,367	6,272	95	14,881,503	14,733,814	147,689	653,671	400,680	252,991

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Calculation of Supplier Balancing Charge
2019-2020
Estimated Daily Imbalances

Date	Predicted MAN HDD	Actual MAN HDD	Forecaster Error MAN HDD	Calculated on Predicted MAN HDD	Calculated on Actual MAN HDD	Sendout Error (MMBtu)	Abs.Value Sendout Error (MMBtu)	Injections (MMBtu)	Withdrawals (MMBtu)
April 1, 2018	22	22	-	47,362	47,362	-	-	-	-
April 2, 2018	25	28	(3)	52,011	56,660	(4,649)	4,649	-	4,649
April 3, 2018	21	23	(2)	45,812	48,912	(3,099)	3,099	-	3,099
April 4, 2018	21	24	(3)	45,812	50,461	(4,649)	4,649	-	4,649
April 5, 2018	30	30	-	59,759	59,759	-	-	-	-
April 6, 2018	24	28	(4)	50,461	56,660	(6,198)	6,198	-	6,198
April 7, 2018	26	27	(1)	53,560	55,110	(1,550)	1,550	-	1,550
April 8, 2018	28	29	(1)	56,660	58,209	(1,550)	1,550	-	1,550
April 9, 2018	27	26	1	55,110	53,560	1,550	1,550	1,550	-
April 10, 2018	25	29	(4)	52,011	58,209	(6,198)	6,198	-	6,198
April 11, 2018	22	23	(1)	47,362	48,912	(1,550)	1,550	-	1,550
April 12, 2018	12	14	(2)	31,866	34,965	(3,099)	3,099	-	3,099
April 13, 2018	11	8	3	30,316	25,667	4,649	4,649	4,649	-
April 14, 2018	25	25	-	52,011	52,011	-	-	-	-
April 15, 2018	31	32	(1)	61,308	62,858	(1,550)	1,550	-	1,550
April 16, 2018	19	21	(2)	42,713	45,812	(3,099)	3,099	-	3,099
April 17, 2018	23	23	-	48,912	48,912	-	-	-	-
April 18, 2018	23	20	3	48,912	44,263	4,649	4,649	4,649	-
April 19, 2018	23	23	-	48,912	48,912	-	-	-	-
April 20, 2018	22	20	2	47,362	44,263	3,099	3,099	3,099	-
April 21, 2018	20	16	4	44,263	38,064	6,198	6,198	6,198	-
April 22, 2018	17	15	2	39,614	36,515	3,099	3,099	3,099	-
April 23, 2018	10	10	-	28,767	28,767	-	-	-	-
April 24, 2018	7	4	3	24,118	19,469	4,649	4,649	4,649	-
April 25, 2018	11	11	-	30,316	30,316	-	-	-	-
April 26, 2018	10	9	1	28,767	27,217	1,550	1,550	1,550	-
April 27, 2018	13	11	2	33,415	30,316	3,099	3,099	3,099	-
April 28, 2018	5	5	-	21,018	21,018	-	-	-	-
April 29, 2018	17	18	(1)	39,614	41,163	(1,550)	1,550	-	1,550
April 30, 2018	16	17	(1)	38,064	39,614	(1,550)	1,550	-	1,550
May 1, 2018	3	3	-	16,204	16,204	-	-	-	-
May 2, 2018	-	-	-	15,226	15,226	-	-	-	-
May 3, 2018	-	-	-	15,226	15,226	-	-	-	-
May 4, 2018	-	-	-	15,226	15,226	-	-	-	-
May 5, 2018	-	-	-	15,226	15,226	-	-	-	-
May 6, 2018	8	6	2	17,833	17,181	652	652	652	-
May 7, 2018	7	6	1	17,507	17,181	326	326	326	-
May 8, 2018	2	-	2	15,878	15,226	652	652	652	-
May 9, 2018	4	2	2	16,530	15,878	652	652	652	-
May 10, 2018	3	-	3	16,204	15,226	977	977	977	-
May 11, 2018	10	7	3	18,484	17,507	977	977	977	-
May 12, 2018	16	16	-	20,439	20,439	-	-	-	-
May 13, 2018	7	8	(1)	17,507	17,833	(326)	326	-	326
May 14, 2018	-	-	-	15,226	15,226	-	-	-	-
May 15, 2018	-	-	-	15,226	15,226	-	-	-	-
May 16, 2018	8	6	2	17,833	17,181	652	652	652	-
May 17, 2018	-	-	-	15,226	15,226	-	-	-	-
May 18, 2018	13	9	4	19,462	18,158	1,303	1,303	1,303	-
May 19, 2018	7	7	-	17,507	17,507	-	-	-	-
May 20, 2018	-	-	-	15,226	15,226	-	-	-	-
May 21, 2018	-	-	-	15,226	15,226	-	-	-	-
May 22, 2018	5	3	2	16,855	16,204	652	652	652	-
May 23, 2018	-	-	-	15,226	15,226	-	-	-	-
May 24, 2018	-	-	-	15,226	15,226	-	-	-	-
May 25, 2018	-	-	-	15,226	15,226	-	-	-	-
May 26, 2018	-	-	-	15,226	15,226	-	-	-	-
May 27, 2018	10	11	(1)	18,484	18,810	(326)	326	-	326
May 28, 2018	-	3	(3)	15,226	16,204	(977)	977	-	977
May 29, 2018	-	-	-	15,226	15,226	-	-	-	-
May 30, 2018	-	-	-	15,226	15,226	-	-	-	-
May 31, 2018	-	-	-	15,226	15,226	-	-	-	-
June 1, 2018	-	-	-	13,286	13,286	-	-	-	-
June 2, 2018	-	-	-	13,286	13,286	-	-	-	-
June 3, 2018	7	8	(1)	15,786	16,144	(357)	357	-	357
June 4, 2018	10	12	(2)	16,658	17,573	(715)	715	-	715
June 5, 2018	7	7	-	15,786	15,786	-	-	-	-
June 6, 2018	1	2	(1)	13,643	14,000	(357)	357	-	357
June 19, 2018	-	-	-	13,286	13,286	-	-	-	-
June 20, 2018	-	-	-	13,286	13,286	-	-	-	-
June 21, 2018	-	-	-	13,286	13,286	-	-	-	-
June 22, 2018	-	-	-	13,286	13,286	-	-	-	-
June 23, 2018	4	5	(1)	14,715	15,072	(357)	357	-	357
June 24, 2018	-	-	-	13,286	13,286	-	-	-	-
June 25, 2018	-	-	-	13,286	13,286	-	-	-	-
June 26, 2018	-	-	-	13,286	13,286	-	-	-	-
June 27, 2018	-	-	-	13,286	13,286	-	-	-	-
June 28, 2018	-	-	-	13,286	13,286	-	-	-	-
June 29, 2018	-	-	-	13,286	13,286	-	-	-	-
June 30, 2018	-	-	-	13,286	13,286	-	-	-	-
July 1, 2018	-	-	-	10,285	10,285	-	-	-	-
July 2, 2018	-	-	-	10,285	10,285	-	-	-	-
July 3, 2018	-	-	-	10,285	10,285	-	-	-	-
July 4, 2018	-	-	-	10,285	10,285	-	-	-	-
July 5, 2018	-	-	-	10,285	10,285	-	-	-	-
July 6, 2018	-	-	-	10,285	10,285	-	-	-	-
July 7, 2018	-	-	-	10,285	10,285	-	-	-	-
July 8, 2018	-	-	-	10,285	10,285	-	-	-	-
July 9, 2018	-	-	-	10,285	10,285	-	-	-	-
July 10, 2018	-	-	-	10,285	10,285	-	-	-	-
July 11, 2018	-	-	-	10,285	10,285	-	-	-	-

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Calculation of Supplier Balancing Charge
2019-2020
Estimated Daily Imbalances

Date	Predicted MAN HDD	Actual MAN HDD	Forecaster Error MAN HDD	Calculated on Predicted MAN HDD	Calculated on Actual MAN HDD	Sendout Error (MMBtu)	Abs.Value Sendout Error (MMBtu)	Injections (MMBtu)	Withdrawals (MMBtu)
July 12, 2018	-	-	-	10,285	10,285	-	-	-	-
July 13, 2018	-	-	-	10,285	10,285	-	-	-	-
July 14, 2018	-	-	-	10,285	10,285	-	-	-	-
July 15, 2018	-	-	-	10,285	10,285	-	-	-	-
July 16, 2018	-	-	-	10,285	10,285	-	-	-	-
July 17, 2018	-	-	-	10,285	10,285	-	-	-	-
July 18, 2018	-	-	-	10,285	10,285	-	-	-	-
July 19, 2018	-	-	-	10,285	10,285	-	-	-	-
July 20, 2018	-	-	-	10,285	10,285	-	-	-	-
July 21, 2018	-	-	-	10,285	10,285	-	-	-	-
July 22, 2018	-	-	-	10,285	10,285	-	-	-	-
July 23, 2018	-	-	-	10,285	10,285	-	-	-	-
July 24, 2018	-	-	-	10,285	10,285	-	-	-	-
July 25, 2018	-	-	-	10,285	10,285	-	-	-	-
July 26, 2018	-	-	-	10,285	10,285	-	-	-	-
July 27, 2018	-	-	-	10,285	10,285	-	-	-	-
July 28, 2018	-	-	-	10,285	10,285	-	-	-	-
July 29, 2018	-	-	-	10,285	10,285	-	-	-	-
July 30, 2018	-	-	-	10,285	10,285	-	-	-	-
July 31, 2018	-	-	-	10,285	10,285	-	-	-	-
August 1, 2018	-	-	-	10,810	10,810	-	-	-	-
August 2, 2018	-	-	-	10,810	10,810	-	-	-	-
August 3, 2018	-	-	-	10,810	10,810	-	-	-	-
August 4, 2018	-	-	-	10,810	10,810	-	-	-	-
August 5, 2018	-	-	-	10,810	10,810	-	-	-	-
August 6, 2018	-	-	-	10,810	10,810	-	-	-	-
August 7, 2018	-	-	-	10,810	10,810	-	-	-	-
August 8, 2018	-	-	-	10,810	10,810	-	-	-	-
August 9, 2018	-	-	-	10,810	10,810	-	-	-	-
August 10, 2018	-	-	-	10,810	10,810	-	-	-	-
August 11, 2018	-	-	-	10,810	10,810	-	-	-	-
August 12, 2018	-	-	-	10,810	10,810	-	-	-	-
August 13, 2018	-	-	-	10,810	10,810	-	-	-	-
August 14, 2018	-	-	-	10,810	10,810	-	-	-	-
August 15, 2018	-	-	-	10,810	10,810	-	-	-	-
August 16, 2018	-	-	-	10,810	10,810	-	-	-	-
August 17, 2018	-	-	-	10,810	10,810	-	-	-	-
August 18, 2018	-	-	-	10,810	10,810	-	-	-	-
August 19, 2018	-	-	-	10,810	10,810	-	-	-	-
August 20, 2018	-	-	-	10,810	10,810	-	-	-	-
August 21, 2018	-	-	-	10,810	10,810	-	-	-	-
August 22, 2018	-	-	-	10,810	10,810	-	-	-	-
August 23, 2018	-	-	-	10,810	10,810	-	-	-	-
August 24, 2018	-	-	-	10,810	10,810	-	-	-	-
August 25, 2018	-	-	-	10,810	10,810	-	-	-	-
August 26, 2018	-	-	-	10,810	10,810	-	-	-	-
August 27, 2018	-	-	-	10,810	10,810	-	-	-	-
August 28, 2018	-	-	-	10,810	10,810	-	-	-	-
August 29, 2018	-	-	-	10,810	10,810	-	-	-	-
August 30, 2018	-	-	-	10,810	10,810	-	-	-	-
August 31, 2018	-	-	-	11,791	11,791	-	-	-	-
September 1, 2018	-	-	-	11,791	11,791	-	-	-	-
September 2, 2018	-	-	-	11,791	11,791	-	-	-	-
September 3, 2018	-	-	-	11,791	11,791	-	-	-	-
September 4, 2018	-	-	-	11,791	11,791	-	-	-	-
September 5, 2018	-	-	-	11,791	11,791	-	-	-	-
September 6, 2018	-	-	-	11,791	11,791	-	-	-	-
September 7, 2018	-	-	-	11,791	11,791	-	-	-	-
September 8, 2018	3	6	(3)	12,827	13,864	(1,036)	1,036	-	1,036
September 9, 2018	9	9	-	14,900	14,900	-	-	-	-
September 10, 2018	2	4	(2)	12,482	13,173	(691)	691	-	691
September 11, 2018	-	-	-	11,791	11,791	-	-	-	-
September 12, 2018	1	-	1	12,136	11,791	345	345	345	-
September 13, 2018	-	-	-	11,791	11,791	-	-	-	-
September 14, 2018	-	-	-	11,791	11,791	-	-	-	-
September 15, 2018	-	-	-	11,791	11,791	-	-	-	-
September 16, 2018	-	-	-	11,791	11,791	-	-	-	-
September 17, 2018	-	-	-	11,791	11,791	-	-	-	-
September 18, 2018	-	-	-	11,791	11,791	-	-	-	-
September 19, 2018	5	4	1	13,518	13,173	345	345	345	-
September 20, 2018	7	4	3	14,209	13,173	1,036	1,036	1,036	-
September 21, 2018	-	-	-	11,791	11,791	-	-	-	-
September 22, 2018	9	8	1	14,900	14,554	345	345	345	-
September 23, 2018	8	8	-	14,554	14,554	-	-	-	-
September 24, 2018	14	14	-	16,627	16,627	-	-	-	-
September 25, 2018	1	3	(2)	12,136	12,827	(691)	691	-	691
September 26, 2018	-	-	-	11,791	11,791	-	-	-	-
September 27, 2018	5	3	2	13,518	12,827	691	691	691	-
September 28, 2018	11	9	2	15,591	14,900	691	691	691	-
September 29, 2018	6	9	(3)	13,864	14,900	(1,036)	1,036	-	1,036
September 30, 2018	6	7	(1)	13,864	14,209	(345)	345	-	345
October 1, 2018	10	10	-	23,649	23,649	-	-	-	-
October 2, 2018	5	11	(6)	17,742	24,831	(7,089)	7,089	-	7,089
October 3, 2018	6	5	1	18,923	17,742	1,181	1,181	1,181	-
October 4, 2018	3	1	2	15,379	13,016	2,363	2,363	2,363	-
October 5, 2018	13	12	1	27,193	26,012	1,181	1,181	1,181	-
October 6, 2018	6	4	2	18,923	16,560	2,363	2,363	2,363	-
October 7, 2018	4	5	(1)	16,560	17,742	(1,181)	1,181	-	1,181
October 8, 2018	9	11	(2)	22,468	24,831	(2,363)	2,363	-	2,363
October 9, 2018	-	-	-	11,835	11,835	-	-	-	-
October 10, 2018	-	-	-	11,835	11,835	-	-	-	-
October 11, 2018	2	9	(7)	14,198	22,468	(8,270)	8,270	-	8,270
October 12, 2018	17	13	4	31,919	27,193	4,726	4,726	4,726	-
October 13, 2018	20	21	(1)	35,464	36,645	(1,181)	1,181	-	1,181
October 14, 2018	18	18	-	33,101	33,101	-	-	-	-
October 15, 2018	15	12	3	29,556	26,012	3,544	3,544	3,544	-
October 16, 2018	18	18	-	33,101	33,101	-	-	-	-
October 17, 2018	21	20	1	36,645	35,464	1,181	1,181	1,181	-

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Calculation of Supplier Balancing Charge
2019-2020
Estimated Daily Imbalances

Date	Predicted MAN HDD	Actual MAN HDD	Forecaster Error MAN HDD	Calculated on Predicted MAN HDD	Calculated on Actual MAN HDD	Sendout Error (MMBtu)	Abs.Value Sendout Error (MMBtu)	Injections (MMBtu)	Withdrawals (MMBtu)
October 18, 2018	29	28	1	46,097	44,915	1,181	1,181	-	-
October 19, 2018	15	10	5	29,556	23,649	5,907	5,907	5,907	-
October 20, 2018	15	14	1	29,556	28,375	1,181	1,181	-	-
October 21, 2018	29	28	1	46,097	44,915	1,181	1,181	1,181	-
October 22, 2018	25	20	5	41,371	35,464	5,907	5,907	5,907	-
October 23, 2018	21	20	1	38,645	35,464	1,181	1,181	1,181	-
October 24, 2018	24	24	-	40,189	40,189	-	-	-	-
October 25, 2018	28	27	1	44,915	43,734	1,181	1,181	1,181	-
October 26, 2018	28	25	3	44,915	41,371	3,544	3,544	3,544	-
October 27, 2018	22	25	(3)	37,826	41,371	(3,544)	3,544	-	3,544
October 28, 2018	21	19	2	36,645	34,282	2,363	2,363	2,363	-
October 29, 2018	21	20	1	36,645	35,464	1,181	1,181	1,181	-
October 30, 2018	27	28	(1)	43,734	44,915	(1,181)	1,181	-	1,181
October 31, 2018	16	18	(2)	30,738	33,101	(2,363)	2,363	-	2,363
November 1, 2018	15	16	(1)	32,939	34,417	(1,479)	1,479	-	1,479
November 2, 2018	5	11	(6)	18,152	27,024	(8,872)	8,872	-	8,872
November 3, 2018	20	19	1	40,332	38,854	1,479	1,479	1,479	-
November 4, 2018	25	24	1	47,726	46,247	1,479	1,479	1,479	-
November 5, 2018	20	22	(2)	40,332	43,290	(2,957)	2,957	-	2,957
November 6, 2018	13	15	(2)	29,981	32,939	(2,957)	2,957	-	2,957
November 7, 2018	18	15	3	37,375	32,939	4,436	4,436	4,436	-
November 8, 2018	24	24	-	46,247	46,247	-	-	-	-
November 9, 2018	23	20	3	44,768	40,332	4,436	4,436	4,436	-
November 10, 2018	31	28	3	56,598	52,162	4,436	4,436	4,436	-
November 11, 2018	32	31	1	58,077	56,598	1,479	1,479	1,479	-
November 12, 2018	26	25	1	49,205	47,726	1,479	1,479	1,479	-
November 13, 2018	29	28	1	53,641	52,162	1,479	1,479	1,479	-
November 14, 2018	41	41	-	71,385	71,385	-	-	-	-
November 15, 2018	34	35	(1)	61,034	62,513	(1,479)	1,479	-	1,479
November 16, 2018	31	31	-	56,598	56,598	-	-	-	-
November 17, 2018	30	26	4	55,119	49,205	5,915	5,915	5,915	-
November 18, 2018	31	32	(1)	56,598	58,077	(1,479)	1,479	-	1,479
November 19, 2018	29	31	(2)	53,641	56,598	(2,957)	2,957	-	2,957
November 20, 2018	34	35	(1)	61,034	62,513	(1,479)	1,479	-	1,479
November 21, 2018	41	42	(1)	71,385	72,864	(1,479)	1,479	-	1,479
November 22, 2018	52	51	1	87,651	86,172	1,479	1,479	1,479	-
November 23, 2018	42	42	-	72,864	72,864	-	-	-	-
November 24, 2018	29	27	2	53,641	50,683	2,957	2,957	2,957	-
November 25, 2018	28	26	2	52,162	49,205	2,957	2,957	2,957	-
November 26, 2018	26	28	(2)	49,205	52,162	(2,957)	2,957	-	2,957
November 27, 2018	31	29	2	56,598	53,641	2,957	2,957	2,957	-
November 28, 2018	30	27	3	55,119	50,683	4,436	4,436	4,436	-
November 29, 2018	31	29	2	56,598	53,641	2,957	2,957	2,957	-
November 30, 2018	32	30	2	58,077	55,119	2,957	2,957	2,957	-
December 1, 2018	30	29	1	67,361	65,432	1,929	1,929	1,929	-
December 2, 2018	23	24	(1)	53,857	55,786	(1,929)	1,929	-	1,929
December 3, 2018	26	24	2	59,644	55,786	3,858	3,858	3,858	-
December 4, 2018	41	39	2	88,582	84,723	3,858	3,858	3,858	-
December 5, 2018	38	35	3	82,794	77,007	5,787	5,787	5,787	-
December 6, 2018	33	32	1	73,148	71,219	1,929	1,929	1,929	-
December 7, 2018	43	41	2	92,440	88,582	3,858	3,858	3,858	-
December 8, 2018	42	46	(4)	90,511	98,227	(7,717)	7,717	-	7,717
December 9, 2018	36	38	(2)	78,936	82,794	(3,858)	3,858	-	3,858
December 10, 2018	40	41	(1)	86,652	88,582	(1,929)	1,929	-	1,929
December 11, 2018	38	37	1	82,794	80,865	1,929	1,929	1,929	-
December 12, 2018	44	43	1	94,369	92,440	1,929	1,929	1,929	-
December 13, 2018	39	39	-	84,723	84,723	-	-	-	-
December 14, 2018	27	23	4	61,573	53,857	7,717	7,717	7,717	-
December 15, 2018	29	27	2	65,432	61,573	3,858	3,858	3,858	-
December 16, 2018	29	29	-	65,432	65,432	-	-	-	-
December 17, 2018	33	33	-	73,148	73,148	-	-	-	-
December 18, 2018	41	41	-	88,582	88,582	-	-	-	-
December 19, 2018	34	36	(2)	75,078	78,936	(3,858)	3,858	-	3,858
December 20, 2018	25	25	-	57,715	57,715	-	-	-	-
December 21, 2018	11	7	4	30,707	22,990	7,717	7,717	7,717	-
December 22, 2018	29	28	1	65,432	63,503	1,929	1,929	1,929	-
December 23, 2018	35	34	1	77,007	75,078	1,929	1,929	1,929	-
December 24, 2018	34	32	2	75,078	71,219	3,858	3,858	3,858	-
December 25, 2018	39	38	1	84,723	82,794	1,929	1,929	1,929	-
December 26, 2018	36	34	2	78,936	75,078	3,858	3,858	3,858	-
December 27, 2018	36	34	2	78,936	75,078	3,858	3,858	3,858	-
December 28, 2018	21	30	(9)	49,998	67,361	(17,362)	17,362	-	17,362
December 29, 2018	36	32	4	78,936	71,219	7,717	7,717	7,717	-
December 30, 2018	35	35	-	77,007	77,007	-	-	-	-
December 31, 2018	25	28	(3)	57,715	63,503	(5,787)	5,787	-	5,787
January 1, 2019	34	31	3	75,078	69,290	5,787	5,787	5,787	-
January 2, 2019	35	36	(1)	77,007	78,936	(1,929)	1,929	-	1,929
January 3, 2019	31	29	2	69,290	65,432	3,858	3,858	3,858	-
January 4, 2019	29	28	1	65,432	63,503	1,929	1,929	1,929	-
January 5, 2019	30	29	1	67,361	65,432	1,929	1,929	1,929	-
January 6, 2019	38	39	(1)	82,794	84,723	(1,929)	1,929	-	1,929
January 7, 2019	40	41	(1)	86,652	88,582	(1,929)	1,929	-	1,929
January 8, 2019	30	34	(4)	67,361	75,078	(7,717)	7,717	-	7,717
January 9, 2019	30	30	-	67,361	67,361	-	-	-	-
January 10, 2019	41	40	1	88,582	86,652	1,929	1,929	1,929	-
January 11, 2019	49	50	(1)	104,015	105,944	(1,929)	1,929	-	1,929
January 12, 2019	48	49	(1)	102,086	104,015	(1,929)	1,929	-	1,929
January 13, 2019	46	47	(1)	98,227	100,157	(1,929)	1,929	-	1,929
January 14, 2019	41	40	1	88,582	86,652	1,929	1,929	1,929	-
January 15, 2019	38	39	(1)	82,794	84,723	(1,929)	1,929	-	1,929
January 16, 2019	40	39	1	86,652	84,723	1,929	1,929	1,929	-
January 17, 2019	42	43	(1)	90,511	92,440	(1,929)	1,929	-	1,929
January 18, 2019	38	35	3	82,794	77,007	5,787	5,787	5,787	-
January 19, 2019	40	43	(3)	86,652	92,440	(5,787)	5,787	-	5,787
January 20, 2019	52	55	(3)	109,802	115,590	(5,787)	5,787	-	5,787

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Calculation of Supplier Balancing Charge
2019-2020
Estimated Daily Imbalances

Date	Predicted MAN HDD	Actual MAN HDD	Forecaster Error MAN HDD	Calculated on Predicted MAN HDD	Calculated on Actual MAN HDD	Sendout Error (MMBtu)	Abs. Value Sendout Error (MMBtu)	Injections (MMBtu)	Withdrawals (MMBtu)
January 21, 2019	59	60	(1)	123,307	125,236	(1,929)	1,929	-	1,929
January 22, 2019	46	45	1	98,227	96,298	1,929	1,929	1,929	-
January 23, 2019	24	24	-	55,786	55,786	-	-	-	-
January 24, 2019	25	22	3	57,715	51,928	5,787	5,787	5,787	-
January 25, 2019	40	37	3	86,652	80,865	5,787	5,787	5,787	-
January 26, 2019	39	42	(3)	84,723	90,511	(5,787)	5,787	-	5,787
January 27, 2019	37	32	5	80,865	71,219	9,646	9,646	9,646	-
January 28, 2019	43	45	(2)	92,440	96,298	(3,858)	3,858	-	3,858
January 29, 2019	37	43	(6)	80,865	92,440	(11,575)	11,575	-	11,575
January 30, 2019	50	52	(2)	105,944	109,802	(3,858)	3,858	-	3,858
January 31, 2019	54	56	(2)	113,661	117,519	(3,858)	3,858	-	3,858
February 1, 2019	51	54	(3)	107,873	113,661	(5,787)	5,787	-	5,787
February 2, 2019	39	39	-	84,723	84,723	-	-	-	-
February 3, 2019	31	33	(2)	69,290	73,148	(3,858)	3,858	-	3,858
February 4, 2019	21	19	2	49,998	46,140	3,858	3,858	3,858	-
February 5, 2019	28	21	7	63,503	49,998	13,504	13,504	13,504	-
February 6, 2019	32	31	1	71,219	69,290	1,929	1,929	1,929	-
February 7, 2019	29	30	(1)	65,432	67,361	(1,929)	1,929	-	1,929
February 8, 2019	34	33	1	75,078	73,148	1,929	1,929	1,929	-
February 9, 2019	41	40	1	88,582	86,652	1,929	1,929	1,929	-
February 10, 2019	40	37	3	86,652	80,865	5,787	5,787	5,787	-
February 11, 2019	44	42	2	94,369	90,511	3,858	3,858	3,858	-
February 12, 2019	36	40	(4)	78,936	86,652	(7,717)	7,717	-	7,717
February 13, 2019	35	33	2	77,007	73,148	3,858	3,858	3,858	-
February 14, 2019	35	34	1	77,007	75,078	1,929	1,929	1,929	-
February 15, 2019	29	29	-	65,432	65,432	-	-	-	-
February 16, 2019	37	36	1	80,865	78,936	1,929	1,929	1,929	-
February 17, 2019	38	36	2	82,794	78,936	3,858	3,858	3,858	-
February 18, 2019	44	44	-	94,369	94,369	-	-	-	-
February 19, 2019	44	45	(1)	94,369	96,298	(1,929)	1,929	-	1,929
February 20, 2019	37	39	(2)	80,865	84,723	(3,858)	3,858	-	3,858
February 21, 2019	29	27	2	65,432	61,573	3,858	3,858	3,858	-
February 22, 2019	34	31	3	75,078	69,290	5,787	5,787	5,787	-
February 23, 2019	31	32	(1)	69,290	71,219	(1,929)	1,929	-	1,929
February 24, 2019	29	28	1	65,432	63,503	1,929	1,929	1,929	-
February 25, 2019	39	38	1	84,723	82,794	1,929	1,929	1,929	-
February 26, 2019	48	50	(2)	102,086	105,944	(3,858)	3,858	-	3,858
February 27, 2019	45	49	(4)	96,298	104,015	(7,717)	7,717	-	7,717
February 28, 2019	45	45	-	96,298	96,298	-	-	-	-
March 1, 2019	37	35	2	78,859	75,259	3,601	3,601	3,601	-
March 2, 2019	36	35	1	77,059	75,259	1,800	1,800	1,800	-
March 3, 2019	30	30	-	66,257	66,257	-	-	-	-
March 4, 2019	39	39	-	82,460	82,460	-	-	-	-
March 5, 2019	43	43	-	89,662	89,662	-	-	-	-
March 6, 2019	49	49	-	100,464	100,464	-	-	-	-
March 7, 2019	45	46	(1)	93,262	95,063	(1,800)	1,800	-	1,800
March 8, 2019	38	38	-	80,660	80,660	-	-	-	-
March 9, 2019	34	31	3	73,458	68,057	5,401	5,401	5,401	-
March 10, 2019	32	30	2	69,858	66,257	3,601	3,601	3,601	-
March 11, 2019	29	27	2	64,457	60,858	3,601	3,601	3,601	-
March 12, 2019	37	32	5	78,859	69,858	9,002	9,002	9,002	-
March 13, 2019	30	27	3	66,257	60,858	5,401	5,401	5,401	-
March 14, 2019	22	21	1	51,854	50,054	1,800	1,800	1,800	-
March 15, 2019	16	11	5	41,052	32,050	9,002	9,002	9,002	-
March 16, 2019	30	28	2	66,257	62,656	3,601	3,601	3,601	-
March 17, 2019	35	33	2	75,259	71,658	3,601	3,601	3,601	-
March 18, 2019	34	33	1	73,458	71,658	1,800	1,800	1,800	-
March 19, 2019	32	33	(1)	69,858	71,658	(1,800)	1,800	-	1,800
March 20, 2019	26	23	3	59,055	53,654	5,401	5,401	5,401	-
March 21, 2019	24	23	1	55,455	53,654	1,800	1,800	1,800	-
March 22, 2019	27	26	1	60,858	59,055	1,800	1,800	1,800	-
March 23, 2019	29	28	1	64,457	62,656	1,800	1,800	1,800	-
March 24, 2019	22	18	4	51,854	44,853	7,201	7,201	7,201	-
March 25, 2019	31	30	1	68,057	66,257	1,800	1,800	1,800	-
March 26, 2019	35	31	4	75,259	68,057	7,201	7,201	7,201	-
March 27, 2019	27	27	-	60,858	60,858	-	-	-	-
March 28, 2019	20	17	3	48,253	42,852	5,401	5,401	5,401	-
March 29, 2019	19	19	-	46,453	46,453	-	-	-	-
March 30, 2019	13	9	4	35,651	28,449	7,201	7,201	7,201	-
March 31, 2019	21	20	1	50,054	48,253	1,800	1,800	1,800	-
Apr	586	591	-5	1,306,187	1,313,935	-7,748	72,832	32,542	40,290
May	103	87	16	505,573	500,361	5,213	8,471	6,842	1,629
Jun	32	36	-4	410,001	411,430	-1,429	2,144	357	1,786
Jul	0	0	0	318,829	318,829	0	0	0	0
Aug	0	0	0	335,097	335,097	0	0	0	0
Sep	87	88	-1	363,781	364,126	-345	7,254	3,454	3,800
Oct	488	476	12	943,420	929,243	14,177	68,524	41,350	27,173
Nov	853	840	13	1,584,085	1,584,862	-777	75,414	47,319	28,096
Dec	1,028	1,014	14	2,277,244	2,250,236	27,008	111,891	69,450	42,442
Jan	1,226	1,235	-9	2,659,218	2,676,581	-17,363	113,820	48,229	65,591
Feb	1,062	1,050	12	2,321,858	2,298,966	22,892	100,059	61,476	38,583
Mar	905	857	48	1,996,708	1,910,291	86,417	93,819	90,018	3,601
Total	6,370	6,274	96	15,042,002	14,893,956	148,046	654,028	401,037	252,991

Liberty Utilities (EnergyNorth Natural Gas) Corp.

**Docket DE 98-124 Gas Restructuring
Peaking Demand Rate**

Source:

1	Peak Day	167,083	Dekatherm	
2				
3	Pipeline MDQ			Attachment B Page 2 of 3: EnergyNorth Capacity Resources
4				
5	PNGTS	1,000	Dekatherm	
6	TGP NET-NE 95346	4,000		
7	TGP FT-A (Z5-Z6) 2302	3,122		
8	TGP FT-A (Z0-Z6) 8587	7,035		
9	TGP FT-A (Z1-Z6) 8587	14,561		
10	TGP FT-A (Z6-Z6) 42076	20,000		
11	TGP FT-A (Z6-Z6) 72694	30,000		
12		79,718	Dekatherm	
13	Underground Storage MDQ			Attachment B Page 3 of 3: EnergyNorth Capacity Resources
14				
15	TGP FT-A (Z4-Z6) 632	15,265	Dekatherm	
16	TGP FT-A (Z4-Z6) 8587	3,811		
17	TGP FT-A (Z4-Z6) 11234	7,082		
18	TGP FT-A (Z5-Z6) 11234	1,957		
19		28,115		
20	Peaking MDQ	59,250	Dekatherm	Line 1 - Line 10 - Line 18
21				
22				
23	Peaking Costs			
24				
25	Gas Supply	\$4,459,829		Attachment B Page 3 Line 11
26	Indirect Production & Storage Capacity	\$1,980,428		Summary Page Line 68
27	Granite Ridge	\$ -		Attachment B Page 3 Line 1
28	Total	\$6,440,257		Sum Line 24 - 26
29	Annual Peaking Rate per MDQ	\$ 108.70		Line 27 divided by Line 20
30				
31	Monthly Peaking MDQ	\$ 18.12	/Dekatherm	Line 29 divided by 6 month

Liberty Utilities (EnergyNorth Natural Gas) Corp.

Tennessee Allocations:

Resource Type	High Load Factor	Low Load Factor
Pipeline	60.3%	46.5%
Storage	12.8%	17.2%
Peaking	26.9%	36.3%
TOTAL:	100.00%	100.00%

Capacity Resources effective November 1, 2017:

Resource	Pipeline Company	Rate Schedule	Contract #	Peak MDQ/ MDWQ	Storage MSQ	Rate \$/Dth/Month Demand	Storage Capacity	Termination Date	LDC Managed
Pipeline	TCPL + Union	FT to Parkway & IGTS	M12200 & 41232	4,000		\$11.0099		10/31/2022	
	Iroquois	RTS to Wright	470-01	4,047		\$5.4177		11/1/2022	
	TGP	NET-NE (Z5-Z6)	95346	4,000		\$7.0050		11/30/2021	
	TGP	FT-A (Z5-Z6)	2302	3,122		\$7.0050		10/31/2020	
	TGP	FT-A (Z0-Z6)	8587	7,035		\$22.7344		10/31/2020	
	TGP	FT-A (Z1-Z6)	8587	14,561		\$20.1801		10/31/2020	
	TGP	FT-A (Z6-Z6)	42076	20,000		\$4.6431		10/31/2020	
	TGP	FT-A (Z6-Z6)	72694	30,000		\$12.1868		10/31/2029	
	TGP	FS-MA (Storage)	523*	21,844	1,560,391	\$1.4938	\$0.0205	10/31/2020	
	TGP	FT-A (Z4-Z6)	632	15,265		\$7.9757		10/31/2020	
Storage	TGP	FT-A (Z4-Z6)	8587	3,811		\$7.9757		10/31/2020	
	National Fuel	FSS-1 (Storage)	O02357*	6,098	670,800	\$2.4329	\$0.0373	3/31/2020	
	National Fuel	FST (Transport)	N02358	6,098		\$3.7049		3/31/2020	
	TGP	FT-A (Z4-Z6)	11234	6,150		\$7.9757		10/31/2020	
	Honeoye	SS-NY (Storage)	SS-NY**	1,957	245,380	\$4.4683	\$0.0000	4/1/2020	X
	TGP	FT-A (Z5-Z6)	11234	1,957		\$7.0050		10/31/2020	
	Dominion	GSS (Storage)	300076*	934	102,700	\$1.8683	\$0.0145	3/31/2021	
	TGP	FT-A (Z4-Z6)	11234	932		\$7.9757		10/31/2020	
	Energy North	LNG/Propane****		59,250	-	\$18.1200	\$0.0000		X
Peaking									

* All gas transferred for storage contracts will be based on LDC's monthly WACOG

**All commodity volumes nominated will be invoiced at LDC's WACOG + fuel retention. Demand charge applicable for 6 months

Note: All capacity will be released at maximum tariff rates. Above rates are maximum tariff rates effective 11/01/19. Because rates can change, please refer to the applicable pipeline tariff for current rates.

Above capacity is for all customers in the EnergyNorth Service territory with the exception of Berlin, NH. Any customers behind the Berlin citygate will be allocated 100% PNGTS capacity at a demand rate of \$18.2633 /dth.

ENERGYNORTH NATURAL GAS, INC.

**Docket 98-124 Gas Restructuring
Peaking Demand Rate
Peaking Costs**

	Volume	Rate	Monthly Cost	Months/Year	Annual Cost
1					
2					
3					
4 Subtotal					\$ 4,459,829.00 *
5					
6 Total					\$ 4,459,829.00

* Contract currently being negotiated for an effective date of November 1, 2019

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Calculation of Capacity Allocators
Docket No DE 98-124

Capacity Assignment Table

			Pipeline	% of Peak Day Requirement		Total
				Storage	Peaking	
G-41	LAHW	Low Annual C&I - High Winter Use	46.5%	17.2%	36.3%	100.0%
G-51	LALW	Low Annual C&I - Low Winter Use	60.3%	12.8%	26.9%	100.0%
G-42	MAHW	Medium C&I - High Winter Use	46.5%	17.2%	36.3%	100.0%
G-52	MALW	Medium C&I - Low Winter Use	60.3%	12.8%	26.9%	100.0%
G-43	HAHW	High Annual C&I - High Winter Use	46.5%	17.2%	36.3%	100.0%
G-53	HALW90	High Annual C&I - LF < 90%	60.3%	12.8%	26.9%	100.0%
G-54	HALWG90	High Annual C&I - LF > 90%	60.3%	12.8%	26.9%	100.0%

HLF	High Load Factor	60.30%	12.78%	26.93%	100%
LLF	Low Load Factor	46.46%	17.23%	36.31%	100%
	Total	47.71%	16.83%	35.46%	100%

Liberty Utilities (EnergyNorth Natural Gas) Corp

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Calculation of Capacity Allocators

Docket No DE 98-124

Allocation of Peak Day

Design Day Throughput Allocated to Rate Classes

Allocate Class Design Day Throughput to Supply Sources

% of Peak Day Requirement

Design DD		71,458					Base	Remaining	Sub-total				
		Base load	Heat load	Total			Pipeline	Pipeline	Pipeline	Storage	Peaking	Total	
HLF	R-1 RNSH	100	379	479	R-1 RNSH	100	167	267	68	143.72	479		
LLF	R-3 RSH	3,607	68,557	72,164	R-3 RSH	3,607	30,210	33,817	12,340	26,006	72,164		
LLF	G-41 SL	815	31,042	31,857	G-41 SL	815	13,679	14,494	5,588	11,776	31,857		
HLF	G-51 SH	690	1,821	2,511	G-51 SH	690	802	1,492	328	691	2,511		
LLF	G-42 ML	1,584	37,436	39,020	G-42 ML	1,584	16,497	18,081	6,738	14,201	39,020		
HLF	G-52 MH	1,751	3,776	5,527	G-52 MH	1,751	1,664	3,415	680	1,432	5,527		
LLF	G-43 LL	500	8,440	8,940	G-43 LL	500	3,719	4,220	1,519	3,201	8,940		
HLF	G-53 LLL90	1,616	1,882	3,498	G-53 LLL90	1,616	829	2,446	339	714	3,498		
HLF	G-54 LLG90	225	2,862	3,086	G-54 LLG90	225	1,261	1,486	515	1,086	3,086		
	TOTAL	10,890	156,193	167,083	TOTAL	10,890	68,828	79,718	28,115	59,250	167,083		

HLF	4,382	10,719	15,102	HLF	4,382	4,724	9,106	1,929	4,066	15,102
LLF	6,507	145,474	151,981	LLF	6,507	64,105	70,612	26,186	55,184	151,981
Total	10,890	156,193	167,083	Total	10,890	68,828	79,718	28,115	59,250	167,083

	Pipeline	Storage	Peaking	Total
R-1 RNSH	55.8%	14.2%	30.0%	100.0%
R-3 RSH	46.9%	17.1%	36.0%	100.0%
G-41 SL	45.5%	17.5%	37.0%	100.0%
G-51 SH	59.4%	13.1%	27.5%	100.0%
G-42 ML	46.3%	17.3%	36.4%	100.0%
G-52 MH	61.8%	12.3%	25.9%	100.0%
G-43 LL	47.2%	17.0%	35.8%	100.0%
G-53 LLL90	69.9%	9.7%	20.4%	100.0%
G-54 LLG90	48.1%	16.7%	35.2%	100.0%
TOTAL	47.7%	16.8%	35.5%	100.0%

High Load Factor	60.30%	12.78%	26.93%	100%
Low Load Factor	46.46%	17.23%	36.31%	100%
Total	47.71%	16.83%	35.46%	100%

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Calculation of Capacity Allocators
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Allocate Design Day Sendout

Calculate Design Day Throughput (BBTU)

Design DD	71.458			
	Daily Baseload * 1000	Max Heating Factor * 1000	Heat load (Heating Factor * Design DD)	Total
R-1 RNSH	100	5.25	375	476
R-3 RSH	3,607	950.56	67,925	71,532
G-41 SL	815	430.41	30,756	31,571
G-51 SH	690	25.25	1,804	2,494
G-42 ML	1,584	519.06	37,091	38,675
G-52 MH	1,751	52.35	3,741	5,492
G-43 LL	500	117.02	8,362	8,862
G-53 LLL90	1,616	26.09	1,865	3,481
G-54 LLG90	225	39.68	2,836	3,060
TOTAL	10,890	2,166.45	154,754	165,643

HLF	4,382	149	10,620	15,003
LLF	6,507	2,018	144,134	150,641
Total	10,890	2,166	154,754	165,643

Design Day from 2019-2020 COG			167,083
Design Day from Billing Calculation			165,643
Variance			1,440

Allocate Design Day Sendout to
Rate Classes

Baseload as % of Total Class Load	Heat Load as % of Total
21%	0.243%
5%	43.892%
3%	19.874%
28%	1.166%
4%	23.968%
32%	2.417%
6%	5.403%
46%	1.205%
7%	1.832%
	100.000%

Base Load	Heat Load	Total
100	379	479
3,607	68,557	72,164
815	31,042	31,857
690	1,821	2,511
1,584	37,436	39,020
1,751	3,776	5,527
500	8,440	8,940
1,616	1,882	3,498
225	2,862	3,086
10,890	156,193	167,083

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CALCULATION OF NORMAL SALES VOLUMES

Actual Volumes

Total Core Sales Volumes(000's) MMBTU

		Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-18	Aug-18	Sep-18	Oct-18	Total	Monthly Baseload	Daily Baseload
															(Jul+Aug)/2	
HLF	R-1 RNSH	5	7	8	9	8	7	6	5	3	3	3	3	68	3.108	0.100
LLF	R-3 RSH	451	887	1,019	1,131	1,018	713	413	224	122	101	108	157	6,345	111.824	3.607
LLF	G-41 SL	159	351	425	472	436	295	146	69	29	21	23	43	2,469	25.269	0.815
HLF	G-51 SH	28	40	44	47	45	37	32	29	23	20	23	24	391	21.392	0.690
LLF	G-42 ML	240	464	535	586	544	399	221	113	56	42	47	78	3,325	49.113	1.584
HLF	G-52 MH	74	98	105	108	104	89	75	64	57	51	57	61	942	54.284	1.751
LLF	G-43 LL	48	95	112	146	123	115	72	42	19	12	12	7	802	15.515	0.500
HLF	G-53 LLL90	45	48	50	75	62	70	52	45	58	43	47	42	636	50.106	1.616
HLF	G-54 LLL110	45	51	30	31	45	8	9	19	15	7	8	4	271	6.830	0.220
HLF	G-99 LLG110	0	0	0	0	1	0	0	0	0	0	0	0	2	0.133	0.004
TOTAL		1,095	2,041	2,327	2,604	2,386	1,734	1,025	611	381	301	327	419	15,252	341.359	11.012
HLF		197	244	236	269	265	212	173	163	155	124	137	133	2,310	135.854	4.504
LLF		898	1,797	2,091	2,335	2,121	1,522	852	448	226	177	190	285	12,942	201.721	6.507

Baseload (= the lesser of actual volumes or the average of July and August volumes)

		Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-18	Aug-18	Sep-18	Oct-18	Total
		30	31	31	28	31	30	31	30	31	31	30	31	365
HLF	R-1 RNSH	3	3	3	3	3	3	3	3	3	3	3	3	37
LLF	R-3 RSH	108	112	112	101	112	108	112	108	122	101	108	112	1,317
LLF	G-41 SL	24	25	25	23	25	24	25	24	29	21	23	25	298
HLF	G-51 SH	21	21	21	19	21	21	21	21	23	20	21	21	252
LLF	G-42 ML	48	49	49	44	49	48	49	48	56	42	47	49	578
HLF	G-52 MH	53	54	54	49	54	53	54	53	57	51	53	54	639
LLF	G-43 LL	15	16	16	14	16	15	16	15	19	12	12	7	183
HLF	G-53 LLL90	45	48	50	45	50	48	50	45	58	43	47	42	590
HLF	G-54 LLL110	7	7	7	6	7	7	7	7	15	7	7	4	80
HLF	G-63 LLG110	0	0	0	0	0	0	0	0	0	0	0	0	2
TOTAL		354	366	368	333	369	357	369	354	412	332	350	349	4,019
HLF		128	134	135	123	136	131	136	128	155	124	130	124	1,600
LLF		195	202	202	182	202	195	202	195	226	177	190	193	2,375

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Heating Volumes (= Actual Volumes - Baseload)

		Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-18	Aug-18	Sep-18	Oct-18	Total
HLF	R-1 RNSH	2	4	5	6	5	4	3	2	0	0	0	0	31
LLF	R-3 RSH	343	775	907	1,030	906	605	301	116	0	0	0	45	5,029
LLF	G-41 SL	135	326	399	449	410	270	121	44	0	0	0	18	2,172
HLF	G-51 SH	8	18	23	28	24	16	11	8	0	0	2	2	140
LLF	G-42 ML	192	415	486	541	495	351	172	66	0	0	0	29	2,747
HLF	G-52 MH	21	44	50	59	49	37	20	12	0	0	4	6	303
LLF	G-43 LL	33	79	96	132	107	100	56	27	0	0	0	0	620
HLF	G-53 LLL90	0	0	0	29	12	21	1	0	0	0	0	0	46
HLF	G-54 LLL110	38	44	23	24	38	2	2	13	0	0	1	0	190
HLF	G-63 LLG110	0	0	0	0	1	0	0	0	0	0	0	0	1
	TOTAL	742	1,675	1,959	2,271	2,017	1,377	657	257	(31)	(31)	(23)	70	11,233
HLF		69	111	101	146	129	80	37	34	0	0	7	9	710
LLF		703	1,595	1,889	2,152	1,919	1,327	650	253	0	0	0	92	10,567
Actual BDD		658.0	927.0	1124.5	1125.0	953.5	691.5	374.0	144.0	18.0	0.0	44.0	282.0	6341.5

Heat Factors

		Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-18	Aug-18	Sep-18	Oct-18	Total	AVG	AVG Peak
HLF	R-1 RNSH	0.0029	0.0046	0.0047	0.0051	0.0053	0.0060	0.0070	0.0122	0.0000	0.0000	0.0000	0.0014	0.0053	0.0042	0.0048
LLF	R-3 RSH	0.5212	0.8357	0.8066	0.9157	0.9506	0.8753	0.8056	0.8049	0.0000	0.0000	0.0000	0.1613	0.9506	0.5564	0.8175
LLF	G-41 SL	0.2051	0.3518	0.3552	0.3993	0.4304	0.3907	0.3228	0.3081	0.0000	0.0000	0.0000	0.0622	0.4304	0.2355	0.3554
HLF	G-51 SH	0.0116	0.0195	0.0204	0.0245	0.0252	0.0232	0.0289	0.0575	0.0000	0.0000	0.0419	0.0077	0.0252	0.0217	0.0208
LLF	G-42 ML	0.2918	0.4474	0.4323	0.4812	0.5191	0.5081	0.4600	0.4578	0.0000	0.0000	0.0000	0.1030	0.5191	0.3084	0.4466
HLF	G-52 MH	0.0320	0.0473	0.0447	0.0524	0.0517	0.0533	0.0545	0.0812	0.0000	0.0000	0.0969	0.0228	0.0524	0.0447	0.0469
LLF	G-43 LL	0.0501	0.0856	0.0856	0.1170	0.1127	0.1452	0.1504	0.1860	0.0000	0.0000	0.0000	0.0000	0.1170	0.0777	0.0994
HLF	G-53 LLL90	0.0000	0.0000	0.0000	0.0261	0.0130	0.0305	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0261	0.0061	0.0116
HLF	G-54 LLL110	0.0585	0.0478	0.0202	0.0217	0.0397	0.0025	0.0054	0.0884	0.0000	0.0000	0.0255	0.0000	0.0397	0.0258	0.0317
HLF	G-63 LLG110	0.0000	0.0000	0.0000	0.0002	0.0008	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.0001	0.0002
	TOTAL	1.1276	1.8065	1.7421	2.0185	2.1158	1.9919	1.7555	1.7876	-1.7222	0.0000	-0.5175	0.2484	2.1664	1.0295	1.8004

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Actual BillingDD	658.0	927.0	1,124.5	1,125.0	953.5	691.5	374.0	144.0	18.0	0.0	44.0	282.0	6341.5
Norm Billing DD	558.3	883.5	1136.4	1126.5	967.2	704.6	370.8	140.2	28.1	7.0	58.8	257.5	6238.9

Normal Volumes (= Heating Volumes * Normal EDD/Actual EDD + Baseload)

		Nov-18	Dec-18	Jan-19	Feb-19	Mar-19	Apr-19	May-19	Jun-19	Jul-18	Aug-18	Sep-18	Oct-18	Total
HLF	R-1 RNSH	5	7	8	9	8	7	6	5	3	3	3	3	67
LLF	R-3 RSH	399	850	1,028	1,133	1,031	725	411	221	122	101	108	153	6,283
LLF	G-41 SL	139	336	429	473	442	300	145	68	29	21	23	41	2,445
HLF	G-51 SH	27	39	45	47	46	37	32	29	23	20	23	23	390
LLF	G-42 ML	210	444	540	586	551	406	220	112	56	42	47	76	3,291
HLF	G-52 MH	70	96	105	108	104	90	74	64	57	51	58	60	939
LLF	G-43 LL	43	91	113	146	125	117	71	41	19	12	12	7	797
HLF	G-53 LLL90	45	48	50	75	63	70	52	45	58	43	47	42	636
HLF	G-54 LLL110	39	49	30	31	45	8	9	19	15	7	8	4	264
HLF	G-63 LLG110	0	0	0	0	1	0	0	0	0	0	0	0	2
	TOTAL	983	1,963	2,348	2,607	2,415	1,760	1,019	604	364	301	319	412	15,096

HLF	187	239	237	269	267	213	173	162	155	124	140	133	2,299
LLF	792	1,722	2,110	2,337	2,148	1,548	846	442	226	177	190	277	12,816

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Peak 2019 - 2020 Winter Cost of Gas Filing
Short-Term Debt Limitations

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**For Purposes
of Fuel Financing**

Total Direct Gas Costs	\$	52,211,274
Total Indirect Gas Costs		2,251,330
Total Gas Costs	\$	54,462,603
% of Debt to Total Gas Costs		30%
Short Term Debt	\$	16,338,781

**For Purposes Other
Than Fuel Financing**

12/31/2020 Projected Net Plant	\$	498,223,199
% of Debt to Net Plant		20%
Short Term Debt	\$	99,644,640

**Liberty Utilities (EnergyNorth Natural Gas) Corp.
d/b/a Liberty Utilities
2019 - 2020 Winter Cost of Gas Filing**

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Company Allowance Calculation

	Jul-2018	Aug-2018	Sep-2018	Oct-2018	Nov-2018	Dec-2018	Jan-2019	Feb-2019	Mar-2019	Apr-2019	May-2019	Jun-2019	Total
Total Sendout- Therms	5,153,400	5,403,640	5,989,072	12,635,675	20,711,849	24,674,431	30,350,881	25,305,685	22,152,858	13,526,545	9,166,303	6,029,943	181,100,282
Total Throughput- Therms	5,676,539	4,961,119	5,301,252	6,583,995	13,344,348	22,603,052	25,526,264	28,069,927	25,868,938	19,306,742	12,187,508	8,190,025	177,619,709
Variance	(523,139)	442,521	687,820	6,051,680	7,367,501	2,071,379	4,824,617	(2,764,242)	(3,716,080)	(5,780,197)	(3,021,205)	(2,160,082)	3,480,573
Company Allowance													1.92%

Lost and Unaccounted For Gas ("LAUF") Calculation

	Jul-2018	Aug-2018	Sep-2018	Oct-2018	Nov-2018	Dec-2018	Jan-2019	Feb-2019	Mar-2019	Apr-2019	May-2019	Jun-2019	Total
Total Sendout- Therms	5,153,400	5,403,640	5,989,072	12,635,675	20,711,849	24,674,431	30,350,881	25,305,685	22,152,858	13,526,545	9,166,303	6,029,943	181,100,282
Total Throughput- Therms	5,676,539	4,961,119	5,301,252	6,583,995	13,344,348	22,603,052	25,526,264	28,069,927	25,868,938	19,306,742	12,187,508	8,190,025	177,619,709
Company Use	3,839	3,196	4,184	8,184	25,346	43,661	57,622	53,073	52,011	21,711	12,965	6,893	292,685
Variance	(526,978)	439,325	683,636	6,043,496	7,342,155	2,027,718	4,766,995	(2,817,315)	(3,768,091)	(5,801,908)	(3,034,170)	(2,166,975)	3,187,888
LAUF													1.76%

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
d/b/a Liberty Utilities
Fuel Inventory Revenue Requirement

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	(a)	(b)	(c)	(d)	(e)	(f)	(g)
1		5 Quarter Avg	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019
2	Gas Stored Underground	\$ 2,767,234	\$ 2,340,667	\$ 4,438,120	\$ 4,000,251	\$ 667,033	\$ 2,390,098
3	Fuel Stock - Propane	\$ 1,247,332	\$ 1,295,942	\$ 1,293,416	\$ 1,327,800	\$ 1,138,459	\$ 1,181,045
4	UG Storage - LNG	<u>\$ 68,332</u>	\$ 65,051	\$ 72,528	\$ 67,506	\$ 66,132	\$ 70,444
5		\$ 4,082,898					
6	ROR	<u>6.3%</u>	Pre-Tax Rate of 6.28% & Statutory Tax Rate of 27.08%				
		\$ 256,406					
7	Income Tax Gross-up	1.3714					
8	Revenue Requirement	<u>\$ 351,641</u>					

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