



Liberty Utilities (EnergyNorth Natural Gas) Corp.

d/b/a Liberty Utilities

Docket No. DG 17-063

Attachment DBS-1

June 16, 2017

**Liberty Utilities (EnergyNorth Natural Gas) Corp.
Fiscal Year 2017 Cast Iron/Bare Steel Replacement Program Based on Randy's 6/16/17 Email
Computation of Revenue Requirement
June 16, 2017**

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Liberty Utilities (EnergyNorth Natural Gas) Corp.
Fiscal Year 2017 Cast Iron/Bare Steel Replacement Program Based on Randy's 6/16/17 Email
Computation of Revenue Requirement

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Actual FY09	July 1, 2009 through March 31, 2010 9 Months FY10	Actual FY11	Actual FY12	Actual FY13	Actual FY14	Actual FY15	Actual FY16	Actual FY17	Estimate FY18
Incremental Investment										
1 CIBS Program Actual Spend-Mains	1,736,153	4,049,995	3,391,069	1,570,208	2,174,813	2,781,140	3,006,856	3,304,532	\$5,204,619	-
2 CIBS Program Actual Spend-Service	729,463	798,555	668,631	352,005	161,352	370,655	776,086	705,984	\$1,209,322	-
3 CIBS Program Estimated Spend-Mains	-	-	-	-	-	-	-	-	-	13,076,605
4 CIBS Program Estimated Spend-Service	-	-	-	-	-	-	-	-	-	3,038,421
5 Base Spending Amount	500,000	482,110	500,000	500,000	500,000	500,000	506,240	514,244	520,965	520,965
6 Incremental Amount	1,965,616	4,366,440	3,559,700	1,422,213	1,836,165	2,651,795	3,276,702	3,496,272	5,892,976	15,594,061
7 Cumulative CIBS Program Spend Since July 1, 2009	-	4,366,440	7,926,140	9,348,353	11,184,518	13,836,312	17,113,015	20,609,287	26,502,263	42,096,323
Deferred Tax Calculation										
10 Annual Tax Depreciation	1,031,948	4,366,440	3,559,700	1,422,213	1,836,165	2,651,795	3,276,702	3,496,272	5,892,976	15,594,061
11 Cumulative Tax Depreciation Since July 1, 2009	-	4,366,440	7,926,140	9,348,353	11,184,518	13,836,312	17,113,015	20,609,287	26,502,263	42,096,323
13 Annual Book Depreciation	49,836	98,794	179,335	212,059	249,951	307,352	384,247	464,177	600,433	960,980
14 Cumulative Book Depreciation Since July 1, 2009	-	98,794	278,129	490,188	740,138	1,047,490	1,431,737	1,895,914	2,496,347	3,457,327
16 Annual Book/Tax Timer	982,112	4,267,646	3,380,365	1,210,154	1,586,214	2,344,443	2,892,456	3,032,095	5,292,543	14,633,081
17 Cumulative Book/Tax Timer	982,112	4,267,646	7,648,011	8,858,166	10,444,379	12,788,822	15,681,278	18,713,373	24,005,916	38,638,997
18 Statutory Tax Rate	40.53%	40.53%	40.53%	40.53%	40.53%	39.61%	39.61%	39.61%	39.61%	39.41%
19										
20 Deferred Tax Reserve	398,001	1,729,677	3,099,739	3,590,214	4,233,107	5,161,741	6,211,354	7,412,367	9,508,743	15,275,641
Rate Base Calculation										
22 Plant In Service	1,965,616	4,366,440	7,926,140	9,348,353	11,184,518	13,836,312	17,113,015	20,609,287	26,502,263	42,096,323
24 Accumulated Depreciation	(49,836)	(98,794)	(278,129)	(490,188)	(740,138)	(1,047,490)	(1,431,737)	(1,895,914)	(2,496,347)	(3,457,327)
25 Net Plant in Service	1,915,780	4,267,646	7,648,011	8,858,166	10,444,379	12,788,822	15,681,278	18,713,373	24,005,916	38,638,997
26 Deferred Tax Reserve	(398,001)	(1,729,677)	(3,099,739)	(3,590,214)	(4,233,107)	(5,161,741)	(6,211,354)	(7,412,367)	(9,508,743)	(15,275,641)
27 Year End Rate Base	1,517,779	2,537,969	4,548,272	5,267,951	6,211,273	7,627,082	9,469,924	11,301,006	14,497,173	23,363,356
Revenue Requirement Calculation										
30 Year End Rate Base	1,517,779	2,537,969	4,548,272	5,267,951	6,211,273	7,627,082	9,469,924	11,301,006	14,497,173	23,363,356
31 Pre-Tax ROR	11.53%	11.53%	11.63%	11.63%	11.63%	11.50%	10.22%	9.87%	9.87%	9.85%
32 Return and Taxes	175,003	292,628	528,964	612,663	722,371	877,114	967,826	1,115,409	1,430,871	2,300,887
33 Book Depreciation	49,836	98,794	179,335	212,059	249,951	307,352	384,247	464,177	600,433	960,980
34 Property Taxes	37,347	88,340	194,259	231,198	241,265	359,366	503,369	490,290	727,379	1,170,762
35 Annual Revenue Requirement	262,185	479,762	902,558	1,055,920	1,213,587	1,543,832	1,855,442	2,069,876	2,758,683	4,432,629
36										
37 Prior Year Annual Revenue Requirement	-	-	479,762	902,558	1,055,920	1,213,587	1,543,832	1,855,442	2,069,876	2,758,683
38										
39 Incremental Annual Rate Adjustment Since July 1, 2009	262,185	479,762	422,796	153,362	157,667	330,245	311,610	214,434	688,807	1,673,946

Actual Capital Structure/ROR				
	Ratio	Rate	Weighted after-tax	(prior federal tax rate of 35% and state rate of 8.5%) Pre Tax 2.215%
Long Term Debt	50.00%	4.43%	2.215%	2.215%
Short Term Debt	0.00%	0.00%	0.00%	0.00%
Common Equity	50.00%	9.25%	4.625%	7.777%
	100.00%		6.840%	9.992%

	(current federal tax rate of 34% and state rate of 8.5%) Pre Tax 2.215%
	2.215%
	0.00%
	7.659%
	9.874%

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Fiscal Year 2017 Cast Iron/Bare Steel Replacement Program Based on Randy's 6/16/17 Email
Vintage Year Book Depreciation Schedule

		(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
		Actual	July 1, 2009 thru March 31, 2010 9 Months FY10	Actual FY11	Actual FY12	Actual FY13	Actual FY14	Actual FY15	Actual FY16	Actual FY17	Estimate FY18
Book Depreciation Schedule-Mains											
1	Actual CIBS spending	1,736,153	4,049,995	3,391,069	1,570,208	2,174,813	2,781,140	3,006,856	3,304,532	5,204,619	13,076,605
2	Base spending	(352,073)	(402,707)	(417,650)	(408,438)	(465,466)	(441,199)	(402,383)	(423,720)	(422,739)	(423,255)
3	Incremental CIBS spending	1,384,080	3,647,288	2,973,419	1,161,770	1,709,346	2,339,940	2,604,473	2,880,812	4,781,880	12,653,350
4											
5	Book Depreciation Rate:										
6	Year 1	2.54%	35,065	0	0	0	0	0	0	0	0
7	Year 1 beginning in FY10	1.92%		70,028	57,090	22,306	32,819	44,927	50,006	55,312	242,944
8	Year 2	1.92%		70,028	57,090	22,306	32,819	44,927	50,006	55,312	91,812
9	Year 3	1.92%			70,028	57,090	22,306	32,819	44,927	50,006	55,312
10	Year 4	1.92%				70,028	57,090	22,306	32,819	44,927	50,006
11	Year 5	1.92%					70,028	57,090	22,306	32,819	44,927
12	Year 6	1.92%						70,028	57,090	22,306	32,819
13	Year 7	1.92%							70,028	57,090	22,306
14	Year 8	1.92%								70,028	57,090
15	Year 9	1.92%									70,028
16	Book Depreciation Expense-Mains	35,065	70,028	127,118	149,424	182,243	227,170	277,176	332,487	424,299	667,244
17											
18	Accumulated Depreciation Mains-Beginning of Year	-	-	70,028	197,146	346,570	528,813	755,982	1,033,158	1,365,646	1,365,646
19	Accumulated Depreciation Mains-End of Year	35,065	70,028	197,146	346,570	528,813	755,982	1,033,158	1,365,646	1,789,945	2,032,889
20											
21											
22	Book Depreciation Schedule-Services										
23											
24	Actual CIBS spending	729,463	798,555	668,631	352,005	161,352	370,655	776,086	705,984	1,209,322	3,038,421
25	Base spending	(147,927)	(79,403)	(82,350)	(91,562)	(34,534)	(58,801)	(103,857)	(90,524)	(98,226)	(98,346)
26	Incremental CIBS spending	581,536	719,152	586,281	260,443	126,818	311,854	672,229	615,460	1,111,096	2,940,075
27											
28	Book Depreciation Rate:										
29	Year 1	2.54%	14,771	0	0	0	0	0	0	0	0
30	Year 1 beginning in FY10	4.00%		28,766	23,451	10,418	5,073	12,474	26,889	44,444	117,603
31	Year 2	4.00%		28,766	23,451	10,418	5,073	12,474	26,889	44,444	44,444
32	Year 3	4.00%			28,766	23,451	10,418	5,073	12,474	26,889	24,618
33	Year 4	4.00%				28,766	23,451	10,418	5,073	12,474	26,889
34	Year 5	4.00%					28,766	23,451	10,418	5,073	12,474
35	Year 6	4.00%						28,766	23,451	10,418	5,073
36	Year 7	4.00%							28,766	23,451	10,418
37	Year 8	4.00%								28,766	23,451
38	Year 9	4.00%									28,766
39	Book Depreciation Expense-Services	14,771	28,766	52,217	62,635	67,708	80,182	107,071	131,690	176,133	293,736
40											
41	Accumulated Depreciation Services-Beginning of Year	-	-	28,766	80,983	143,618	211,326	291,508	398,579	530,268	706,402
42	Accumulated Depreciation Services-End of Year	14,771	28,766	80,983	143,618	211,326	291,508	398,579	530,268	706,402	1,000,138
43											
44											
45											
46	Total Mains & Services Depreciation Expense	49,836	98,794	179,335	212,059	249,951	307,352	384,247	464,177	600,433	960,980
47											
48	Total Mains & Services Accumulated Depreciation	49,836	98,794	278,129	490,188	740,138	1,047,490	1,431,737	1,895,914	2,496,347	3,033,027

2(g) & 22(g) FY 2018 estimate split 82.6% Mains / 17.4% Services based upon FY 2017 actual spend.

6(a) & 26(a) FY 2009 filing used the composite depreciation rate for both mains and services.

col. (b) See footnote regarding column (b) on page 1 of 5.

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Fiscal Year 2017 Cast Iron/Bare Steel Replacement Program Based on Randy's 6/16/17 Email
Municipal Taxes as a Percentage of Net Plant

	(a) 12/31/2005	(b) 12/31/2006	(c) 12/31/2007	(d) 12/31/2008	(e) 12/31/2009	(f) 12/31/2010	(g) 12/31/2011	(h) 12/31/2012	(i) 12/31/2013	(j) 12/31/2014	(k) 12/31/2015	(l) 12/31/2016
1 Plant in Service	258,573	272,678	289,379	305,221	319,737	332,049	344,966	356,165	381,214	419,215	451,950	494,511
2 Depreciation and Amortization Reserve	(82,363)	(88,564)	(94,562)	(102,587)	(108,270)	(114,294)	(119,973)	(121,047)	(129,209)	(137,656)	(149,943)	(163,209)
3 Net Plant	176,209	184,114	194,817	202,634	211,467	217,756	224,993	235,118	252,006	281,559	302,007	331,302
4												
5 Average Net Plant												
6 Plant in Service		265,625	281,028	297,300	312,479	325,893	338,508	350,565	368,690	400,214	435,582	473,230
7 Depreciation Reserve		(85,463)	(91,563)	(98,575)	(105,429)	(111,282)	(117,133)	(120,510)	(125,128)	(133,432)	(143,799)	(156,576)
8 Net Plant		180,162	189,465	198,726	207,051	214,611	221,375	230,056	243,562	266,782	291,783	316,654
9												
10 Municipal Taxes		3,534	3,641	3,771	4,294	5,459	5,776	5,321	6,835	8,560	7,644	9,596
11												
12 % Municipal Taxes to Net Plant		1.96%	1.92%	1.90%	2.07%	2.54%	2.61%	2.31%	2.81%	3.21%	2.62%	3.03%

Note: Source of above data is the December 31 PUC Annual Report to be consistent with data previously provided to the Commission.

Liberty Utilities (Energy/North Natural Gas) Corp.
Fiscal Year 2017 Cast Iron/Bare Steel Replacement Program Based on Randy's 6/16/17 Email
Bill Impacts due to Cast Iron and Bare Steel Replacement Program

	(a) FY2009	(b) FY2010	(c) FY2011	(d) FY2012	(e) FY2013	(f) FY2014	(g) FY2015	(h) FY2016	(i) FY2017	(j) Estimate FY2018
1 Annual Increase due to Cast Iron Bare Steel program	262,185	479,762	521,590	(44,226)	157,667	330,245	311,610	214,434	688,807	1,673,946
2 Annual Throughput (see Summer COG filing - schedule 10B)	154,702,063	150,828,182	154,648,622	163,588,592	158,062,349	160,018,819	166,523,068	172,103,158	186,909,214	186,909,214
3 Increase Factor	\$0.0017	\$0.0032	\$0.0034	(\$0.0003)	\$0.0010	\$0.0021	\$0.0019	\$0.0012	\$0.0037	\$0.0090
4 Annual Calendar Year Gross Revenues (Annual Report - Page 11)	\$176,520,000	\$151,224,178	\$132,475,941	\$146,365,316	\$119,363,340	\$137,617,008	\$119,363,341	\$156,933,825	\$120,053,649	\$120,053,649
5 Annual Percent Increase	0.15%	0.32%	0.39%	-0.03%	0.13%	0.24%	0.26%	0.14%	0.57%	1.39%
6 Miles of Cast Iron/Bare Steel Main Replaced Annually through CIBS	2.96	3.98	2.79	1.56	1.65	3.51	5.00	5.05	10.26	13.10
7 Cumulative Miles of Main Replaced through CIBS	2.96	6.94	9.73	11.29	12.94	16.45	21.45	26.50	36.76	49.86
8 Total Miles of Cast Iron/Bare Steel Main Remaining ¹	149.8	142.0	137.4	132.1	126.30	120.88	113.96	106.46	93.18	77.48
9 Services Replaced Annually ²	101	127	282	81	84	174	316	291	572	689
10 Cumulative Number of Services Replaced	101	228	510	591	675	849	1,165	1,456	2,028	2,717
11 Typical Residential bill	\$1,292	\$1,107	\$1,118	\$1,059	\$1,020	\$1,123	\$1,309	\$1,309	\$1,078	\$1,078
12 Typical Usage	800	800	800	800	800	800	800	800	763	763
13 Annual Increase for Residential Heating customer	\$1.36	\$2.54	\$2.70	(\$0.22)	\$0.80	\$1.65	\$1.50	\$1.00	\$2.81	\$6.83
14 Percent Bill Increase	0.10%	0.23%	0.24%	-0.02%	0.08%	0.15%	0.11%	0.08%	0.26%	0.63%
15 Typical G-41	\$3,375	\$2,939	\$2,842	\$2,696	\$2,654	\$2,926	\$3,499	\$3,499	\$2,651	\$2,651
16 Typical Usage	2,167	2,167	2,167	2,167	2,167	2,167	2,167	2,167	2,029	2,029
17 Annual Increase for G-41 customer	\$3.67	\$6.89	\$7.31	(\$0.59)	\$2.16	\$4.47	\$4.06	\$2.70	\$7.48	\$18.17
18 Percent Bill Increase	0.11%	0.23%	0.26%	-0.02%	0.08%	0.15%	0.12%	0.08%	0.28%	0.69%
19 Typical G-42	\$22,595	\$18,926	\$18,432	\$17,516	\$16,884	\$18,853	\$22,486	\$22,486	\$16,284	\$16,284
20 Typical Usage	15,567	15,567	15,567	15,567	15,567	15,567	15,567	15,567	14,720	14,720
21 Annual Increase for G-42 customer	\$26.38	\$49.52	\$52.50	(\$4.21)	\$15.53	\$32.13	\$29.13	\$19.40	\$54.25	\$131.83
22 Percent Bill Increase	0.12%	0.26%	0.28%	-0.02%	0.09%	0.17%	0.13%	0.09%	0.33%	0.81%
23 Typical G-52	\$21,973	\$16,707	\$16,605	\$16,025	\$14,629	\$16,555	\$18,667	\$18,667	\$14,087	\$14,087
24 Typical Usage	15,687	15,687	15,687	15,687	15,687	15,687	15,687	15,687	14,566	14,566
25 Annual Increase for G-52 customer	\$26.59	\$49.90	\$52.91	(\$4.24)	\$15.65	\$32.37	\$29.35	\$19.55	\$53.68	\$130.45
26 Percent Bill Increase	0.12%	0.30%	0.32%	-0.03%	0.11%	0.20%	0.16%	0.10%	0.38%	0.93%

Line / Column Notes:

1(b)-16(b) Amounts are cumulative from July 1, 2009

¹These figures are as of the end of the CIBS fiscal year (i.e. FY 2017 data is as of 3/31/2017). Mileage includes Cast Iron/Bare Steel replaced through the CIBS Program as well as City/State Construction.

²These figures include all service replacements and inserts, including bare steel, coated steel and plastic services