



Liberty Utilities (EnergyNorth Natural Gas) Corp.
d/b/a Liberty Utilities
Docket No. DG 16-449
Revised Attachment DBS-1
April 15, 2016

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Fiscal Year 2016 Cast Iron/Bare Steel Replacement Program
Computation of Revenue Requirement
April 15, 2016

Computation of Revenue Requirement	1
Vintage Year Book Depreciation Schedule	2
Municipal Taxes as a Percentage of Net Plant	3
Bill Impacts due to Cast Iron and Bare Steel Replacement Program	4

Liberty Utilities (EnergyNorth Natural Gas) Corp.
Fiscal Year 2016 Cast Iron/Bare Steel Replacement Program
Computation of Revenue Requirement

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Actual FY09	July 1, 2009 through March 31, 2010 9 Months FY10	Actual FY11	Actual FY12	Actual FY13	Actual FY14	Actual FY15	Actual FY16	Estimate FY17
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	\$2,790,092	-
2 CIBS Program Actual Spend-Service	729,463	798,555	668,631	352,005	161,352	370,655	776,086	\$705,984	-
3 CIBS Program Estimated Spend-Mains	-	-	-	-	-	-	-	-	6,571,682
4 CIBS Program Estimated Spend-Service	-	-	-	-	-	-	-	-	1,383,737
5 Base Spending Amount	500,000	482,110	500,000	500,000	500,000	500,000	506,240	514,244	514,244
6 Incremental Amount	1,965,616	4,366,440	3,559,700	1,422,213	1,836,165	2,651,795	3,276,702	2,981,832	7,441,175
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	20,094,847	27,536,022
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	2,981,832	7,441,175
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	20,094,847	27,536,022
13 Annual Book Depreciation	49,836	98,794	179,335	212,059	249,951	307,352	384,247	454,023	623,814
14 Cumulative Book Depreciation Since July 1, 2009	-	98,794	278,129	490,188	740,138	1,047,490	1,431,737	1,885,760	2,509,574
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	2,527,810	6,817,360
17 Cumulative Book/Tax Timer	982,112	4,267,646	7,648,011	8,858,165	10,444,379	12,788,822	15,681,278	18,209,088	25,026,448
18 Statutory Tax Rate	40.53%	40.53%	40.53%	40.53%	40.53%	39.61%	39.61%	39.61%	39.61%
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	7,212,620	9,912,976
Rate Base Calculation									
23 Plant In Service	1,965,616	4,366,440	7,926,140	9,348,353	11,184,518	13,836,312	17,113,015	20,094,847	27,536,022
24 Accumulated Depreciation	(49,836)	(98,794)	(278,129)	(490,188)	(740,138)	(1,047,490)	(1,431,737)	(1,885,760)	(2,509,574)
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	18,209,087	25,026,448
26 Deferred Tax Reserve	(398,001)	(1,729,677)	(3,099,739)	(3,590,214)	(4,233,107)	(5,161,741)	(6,211,354)	(7,212,620)	(9,912,976)
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	10,996,468	15,113,472
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	10,996,468	15,113,472
31 Pre-Tax ROR	11.53%	11.53%	11.63%	11.63%	11.63%	11.50%	10.22%	9.87%	9.87%
32 Return and Taxes	175,003	292,628	528,964	612,663	722,371	877,114	967,826	1,085,351	1,491,700
33 Book Depreciation	49,836	98,794	179,335	212,059	249,951	307,352	384,247	454,023	623,814
34 Property Taxes	2.62%	37,347	88,340	194,259	231,198	241,265	359,366	503,369	477,078
35 Annual Revenue Requirement	262,185	479,762	902,558	1,055,920	1,213,587	1,543,832	1,855,442	2,016,452	2,771,207
36									
37 Prior Year Annual Revenue Requirement	-	-	479,762	902,558	1,055,920	1,213,587	1,543,832	1,855,442	2,016,452
38									
39 Incremental Annual Rate Adjustment Since July 1, 2009	262,185	479,762	422,796	153,362	157,667	330,245	311,610	161,010	754,756
40									
41									
Actual Capital Structure/ROR									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									

Line / Column Notes:

- 13 Using an effective tax rate of 39.61% starting in FY 2014 and an effective tax rate of 40.53% additions prior to fiscal 2014
34 Property tax rate reflects actual calendar year 2015 ratio of municipal tax expense to average net plant in service per page 3 of 4.
Col (b) In accordance with Exhibit EN-3 of the National Grid/KeySpan Merger Settlement Agreement (Docket No. DG 06-107), EnergyNorth is allowed to implement on July 1 of each year, a permanent increase in its base distribution delivery rates to recover the annual revenue requirement for those investments made in the preceding fiscal year ended March 31st in excess of the CIBS base amount. As shown on Attachment A of Exhibit EN-3, the revenue requirement in any year reflects deferred income tax reserves based on the cumulative book/tax timing difference of all prior year CIBS investments. However, on July 1, 2010, EnergyNorth implemented new temporary base distribution delivery rates as part of its rate case in Docket No. DG 10-017. These new rates were based on the historic test year ended June 30, 2009 which included the first three months of CIBS investment for the fiscal year ended March 31, 2010. As a consequence, the revenue requirement for the fiscal year ended March 31, 2010 reflected CIBS investment for only the last nine months of the fiscal year ended March 31, 2010. In addition, this revenue requirement did not reflect deferred income tax reserves based on cumulative book/tax timing differences on CIBS spending prior to June 30, 2009.

Liberty Utilities (Energy/North Natural Gas) Corp.
Fiscal Year 2016 Cast Iron/Bare Steel Replacement Program
Vintage Year Book Depreciation Schedule

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Actual	July 1, 2009 thru March 31, 2010 9 Months	Actual	Actual	Actual	Actual	Actual	Actual	Estimate
	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17
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	2,790,092	6,571,682
2 Base spending	(352,073)	(402,707)	(417,650)	(408,438)	(465,466)	(441,199)	(402,383)	(410,400)	(424,798)
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	2,379,692	6,146,884
4									
5 Book Depreciation Rate:									
6 Year 1	2.54%	35.065	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	45.690
8 Year 2	1.92%		70.028	57.090	22.306	32.819	44.927	50.006	45.690
9 Year 3	1.92%			57.090	22.306	32.819	44.927	50.006	45.690
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 Book Depreciation Expense-Mains	35.065	70.028	127.118	149.424	182.243	227.170	277.176	322.866	440.886
16 Accumulated Depreciation Mains-Beginning of Year	-	-	70.028	197.146	346.570	528.813	755.982	1,033.158	1,356.024
17 Accumulated Depreciation Mains-End of Year	35.065	70.028	197.146	346.570	528.813	755.982	1,033.158	1,356.024	1,796.910
18									
19									
20 Book Depreciation Schedule-Services									
21									
22 Actual CIBS spending	729,463	798,555	668,631	352,005	161,352	370,655	776,086	705,984	1,383,737
23 Base spending	(147,927)	(79,403)	(82,350)	(91,562)	(34,534)	(58,801)	(103,857)	(103,844)	(89,446)
24 Incremental CIBS spending	581,536	719,152	586,281	260,443	126,818	311,854	672,229	602,140	1,294,291
25									
26 Book Depreciation Rate:									
27 Year 1	2.54%	14.771	0	0	0	0	0	0	0
28 Year 1 beginning in FY10	4.00%		28.766	23.451	10.418	5.073	12.474	24.086	51.772
29 Year 2	4.00%		28.766	23.451	10.418	5.073	12.474	24.086	51.772
30 Year 3	4.00%			23.451	10.418	5.073	12.474	24.086	51.772
31 Year 4	4.00%			28.766	23.451	10.418	5.073	12.474	24.086
32 Year 5	4.00%				28.766	23.451	10.418	5.073	12.474
33 Year 6	4.00%					28.766	23.451	10.418	5.073
34 Year 7	4.00%						28.766	23.451	10.418
35 Year 8	4.00%							28.766	10.418
36 Book Depreciation Expense-Services	14.771	28.766	52.217	62.635	67.708	80.182	107.071	131.157	182.928
37 Accumulated Depreciation Services-Beginning of Year	-	-	28.766	80.983	143.618	211.326	291.508	398.579	529.736
38 Accumulated Depreciation Services-End of Year	14.771	28.766	80.983	143.618	211.326	291.508	398.579	529.736	712.664
39									
40									
41									
42 Total Mains & Services Depreciation Expense	49.836	98.794	179.335	212.059	249.951	307.352	384.247	454.023	623.814
43									
44 Total Mains & Services Accumulated Depreciation	49.836	98.794	278.129	490.188	740.138	1,047.490	1,431.737	1,885.760	2,509.574

2(g) & 22(g) FY 2017 estimate split 82.6% Mains / 17.4% Services based upon FY 2016 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 2016 Cast Iron/Bare Steel Replacement Program
Municipal Taxes as a Percentage of Net Plant

	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	12/31/2005	12/31/2006	12/31/2007	12/31/2008	12/31/2009	12/31/2010	12/31/2011	12/31/2012	12/31/2013	12/31/2014
1 Plant in Service	258,573	272,678	289,379	305,221	319,737	332,049	344,966	356,165	381,214	419,215
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)
3 Net Plant	176,209	184,114	194,817	202,634	211,467	217,756	224,993	235,118	252,006	281,559
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
7 Depreciation Reserve		(85,463)	(91,563)	(98,575)	(105,429)	(111,282)	(117,133)	(120,510)	(125,128)	(133,432)
8 Net Plant		180,162	189,465	198,726	207,051	214,611	221,375	230,056	243,562	266,782
9										
10 Municipal Taxes		3,534	3,641	3,771	4,294	5,459	5,776	5,321	6,835	8,560
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%

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 2016 Cast Iron Bare Steel Replacement Program
Bill Impacts due to Cast Iron and Bare Steel Replacement Program

	(a) FY 2009	(b) FY 2010	(c) FY 2011	(d) FY 2012	(e) FY 2013	(f) FY 2014	(g) FY 2015	(h) FY 2016	(i) Estimate FY 2017
1 Annual Increase due to Cast Iron Bare Steel program	262,185	479,762	521,590	(44,226)	157,667	330,245	311,610	161,010	754,756
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	172,103,158
3 Increase Factor	\$0.0017	\$0.0032	\$0.0034	(\$0.0003)	\$0.0010	\$0.0021	\$0.0019	\$0.0009	\$0.0044
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	\$156,933,825
5 Annual Percent Increase	0.15%	0.32%	0.39%	-0.03%	0.13%	0.24%	0.26%	0.10%	0.48%
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	9.00
7 Cumulative Miles of Main Replaced through CIBS	2.96	6.94	9.73	11.29	12.94	16.45	21.45	26.50	35.50
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	95.46
9 Services Replaced Annually ²	101	127	282	81	84	174	316	291	535
10 Cumulative Number of Services Replaced	101	228	510	591	675	849	1,165	1,456	1,991
11 Typical Residential bill	\$1,292	\$1,107	\$1,118	\$1,059	\$1,020	\$1,123	\$1,309	\$1,309	\$1,309
12 Typical Usage	800	800	800	800	800	800	800	800	800
13 Annual Increase for Residential Heating customer	\$1.36	\$2.54	\$2.70	(\$0.22)	\$0.80	\$1.65	\$1.50	\$0.75	\$3.51
14 Percent Bill Increase	0.10%	0.23%	0.24%	-0.02%	0.08%	0.15%	0.11%	0.06%	0.27%
15 Typical G-41	\$3,375	\$2,939	\$2,842	\$2,696	\$2,654	\$2,926	\$3,499	\$3,499	\$3,499
16 Typical Usage	2,167	2,167	2,167	2,167	2,167	2,167	2,167	2,167	2,167
17 Annual Increase for G-41 customer	\$3.67	\$6.89	\$7.31	(\$0.59)	\$2.16	\$4.47	\$4.06	\$2.03	\$9.50
18 Percent Bill Increase	0.11%	0.23%	0.26%	-0.02%	0.08%	0.15%	0.12%	0.06%	0.27%
19 Typical G-42	\$22,595	\$18,926	\$18,432	\$17,516	\$16,884	\$18,853	\$22,486	\$22,486	\$22,486
20 Typical Usage	15,567	15,567	15,567	15,567	15,567	15,567	15,567	15,567	15,567
21 Annual Increase for G-42 customer	\$26.38	\$49.52	\$52.50	(\$4.21)	\$15.53	\$32.13	\$29.13	\$14.56	\$68.27
22 Percent Bill Increase	0.12%	0.26%	0.28%	-0.02%	0.09%	0.17%	0.13%	0.06%	0.30%
23 Typical G-52	\$21,973	\$16,707	\$16,605	\$16,025	\$14,629	\$16,555	\$18,667	\$18,667	\$18,667
24 Typical Usage	15,687	15,687	15,687	15,687	15,687	15,687	15,687	15,687	15,687
25 Annual Increase for G-52 customer	\$26.59	\$49.90	\$52.91	(\$4.24)	\$15.65	\$32.37	\$29.35	\$14.68	\$68.30
26 Percent Bill Increase	0.12%	0.30%	0.32%	-0.03%	0.11%	0.20%	0.16%	0.08%	0.37%

Line / Column Notes:

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

These figures are as of the end of the prior calendar year (i.e. FY 2016 data is as of 12/31/2015)

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