Liberty Utilities (Energy North Natural Gas) Corp. d/b/a Liberty Uitilities
Local Distribution Adjustment Charge (LDAC) increase due to Lost Revenue Adjustment Mechanism
For LDAC effective November 1, 2017 - October 31, 2018

Schedule 19
LRAM
Page 1 of 2

	Residential	
1	October 31, 2017 Projected Balance	($39,021)
2	Calculated Lost Distribution Revenue - November 2017 through October 2018	$165,852
3	Calculated Interest - January 2017 through October 2017	($1,958)
4		
5	Total to be recovered	$124,873
6		
7	Estimated January 2017 - October 2017 Sales (therms)	66,499,132
8		
9	LRAM residential rate per therm January 2017 - October 2017	$0.0019
	Commercial & Industrial	
10	October 31, 2016 Balance	($18,597)
11	Calculated Lost Distribution Revenue - January 2017 through October 2017	$262,648
12	Calculated Interest - January 2017 through October 2017	($2,215)
13		
14	Total to be recovered	$241,836
15		
16	Estimated January 2017 - October 2017 Sales (therms)	115,871,154
17		
18	LRAM C&I rate per therm January 2017 - October 2017	$0.0021

Liberty Utilities (EnergyNorth Natural Gas) Corp.

NOVEMBER 2017 THROUGH OCTOBER 2018
LOST REVENUE ADJUSTMENT MECHANISM

		(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	(Estimate)	
1	**FOR THE MONTH OF:**	**Nov-17**	**Dec-17**	**Jan-18**	**Feb-18**	**Mar-18**	**Apr-18**	**May-18**	**Jun-18**	**Jul-18**	**Aug-18**	**Sep-18**	**Oct-18**	**Total**
2	**DAYS IN MONTH**	**30**	**31**	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	
							RESIDENTIAL							
3	Beginning Balance	$ (39,021)	$ (38,374)	$ (43,080)	$ (53,628)	$ (65,347)	$ (73,099)	$ (73,650)	$ (67,653)	$ (56,654)	$ (43,035)	$ (28,357)	$ (13,682)	**$ (595,579)**
4														
5	Add: Lost Distribution Revenues	8,987	10,450	11,014	11,578	12,142	13,081	14,021	14,961	15,901	16,840	17,780	19,096	**165,852**
6														
7	Less: Lost Distribution Revenue Collections	(8,207)	(15,002)	(21,369)	(23,085)	(19,630)	(13,377)	(7,780)	(3,765)	(2,127)	(2,061)	(3,058)	(5,413)	**(101,664)**
8														
9	Add: Other	-	-	-	-	-	-	-	-	-	-	-	-	-
10														
11	Ending Balance Pre-Interest	$ (38,240)	$ (42,925)	$ (53,435)	$ (65,135)	$ (72,836)	$ (73,394)	$ (67,409)	$ (56,456)	$ (42,880)	$ (28,255)	$ (13,635)	$ 0	**$ (554,601)**
12														
13	Month's Average Balance	$ (38,630)	$ (40,649)	$ (48,258)	$ (59,382)	$ (69,092)	$ (73,246)	$ (70,530)	$ (62,054)	$ (49,767)	$ (35,645)	$ (20,996)	$ (6,841)	
14														
15	Interest Rate	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	
16														
17	Interest Applied	$ (134)	$ (155)	$ (193)	$ (212)	$ (263)	$ (256)	$ (243)	$ (197)	$ (155)	$ (102)	$ (48)	$ 0	**(1,958)**
18														
19	Ending Balance	**$ (38,374)**	**$ (43,080)**	**$ (53,628)**	**$ (65,347)**	**$ (73,099)**	**$ (73,650)**	**$ (67,653)**	**$ (56,654)**	**$ (43,035)**	**$ (28,357)**	**$ (13,682)**	**$ 0**	
							COMMERCIAL & INDUSTRIAL							
3	Beginning Balance	$ (18,597)	$ (23,761)	$ (34,140)	$ (51,433)	$ (69,753)	$ (82,778)	$ (87,552)	$ (82,211)	$ (70,304)	$ (54,102)	$ (36,144)	$ (17,564)	**$ (628,339)**
4														
5	Add: Lost Distribution Revenues	14,354	16,691	17,561	18,432	19,302	20,752	22,203	23,653	25,104	26,555	28,005	30,036	**262,648**
6														
7	Less: Lost Distribution Revenue Collections	(19,435)	(26,948)	(34,670)	(36,525)	(32,029)	(25,221)	(16,567)	(11,501)	(8,707)	(8,467)	(9,295)	(12,471)	**(195,454)**
8														
9	Add: Other	-	-	-	-	-	-	-	-	-	-	-	-	-
10														
11	Ending Balance Pre-Interest	$ (23,678)	$ (34,017)	$ (51,248)	$ (69,527)	$ (82,480)	$ (87,247)	$ (81,915)	$ (70,059)	$ (53,907)	$ (36,014)	$ (17,434)	$ 0	**$ (607,527)**
12														
13	Month's Average Balance	$ (21,138)	$ (28,889)	$ (42,694)	$ (60,480)	$ (76,117)	$ (85,012)	$ (84,733)	$ (76,135)	$ (62,105)	$ (45,058)	$ (26,789)	$ (8,782)	
14														
15	Interest Rate	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	
16														
17	Interest Applied	$ (83)	$ (123)	$ (185)	$ (227)	$ (298)	$ (305)	$ (296)	$ (245)	$ (195)	$ (130)	$ (130)	$ 0	**(2,215)**
18														
19	Ending Balance	**$ (23,761)**	**$ (34,140)**	**$ (51,433)**	**$ (69,753)**	**$ (82,778)**	**$ (87,552)**	**$ (82,211)**	**$ (70,304)**	**$ (54,102)**	**$ (36,144)**	**$ (17,564)**	**$ 0**	

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Calculation of Lost Revenue Rate (LRR)
Effective November 1, 2017

Line	Sector			Reference
	Residential Classes- R1, R3, R4			
1	Sector Ending Balance-October 31, 2017	$	(39,021)	Page 2, Ln 2, Nov-2017
2	Lost Distribution Revenue-November 2017 through October 2018	$	165,852	Page 2, Ln 12, Total
3	Interest - November 2017 through October 2018	$	(1,958)	Page 2, Ln 25, Total
4	**Total to be recovered**	**$**	**124,873**	Line 1+ Line 2+Line 3
5	Sector Sales - Therms- November 2017 through October 2018		66,499,132	Page 2, Line 15
6	**Lost Revenue Rate ($ per therm)**		**$0.0019**	Line 4 / Line 5
	Commercial & Industrial Classes-G41, G42, G43, G51, G52, G53, G54			
7	Sector Ending Balance-October 31, 2017	$	(18,597)	Page 2, Ln 29, Nov-2017
8	Lost Distribution Revenue-November 2017 through October 2018	$	262,648	Page 2, Ln 40, Total
9	Interest - November 2017 through October 2018	$	(2,215)	Page 2, Ln 53, Total
10	**Total to be recovered**	**$**	**241,836**	Line 7+Line 8+Line 9
11	Sector Sales - Therms- November 2017 through October 2018		115,871,154	Page 2, Line 43
12	**Lost Revenue Rate ($ per therm)**		**$0.0021**	Line 10 / Line 11

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

Line	Sector / Description	Unit	Estimate Nov-17	Estimate Dec-17	Estimate Jan-18	Estimate Feb-18	Estimate Mar-18	Estimate Apr-18	Estimate May-18	Estimate Jun-18	Estimate Jul-18	Estimate Aug-18	Estimate Sep-18	Estimate Oct-18	Total
1	**RESIDENTIAL**														
2	**Beginning Balance - (Over)/Under**	$'s	($39,021)	$ (38,374)	$ (43,080)	$ (53,628)	$ (65,347)	$ (73,099)	$ (73,650)	$ (67,653)	$ (56,654)	$ (43,035)	$ (28,357)	$ (13,682)	
3	**COSTS**														
4	Incremental Annualized Savings	Therms	50,134	50,134	19,321	19,321	19,321	32,202	32,202	32,202	32,202	32,202	32,202	45,082	396,523
5	Incremental Monthly Savings	Therms	4,178	4,178	1,610	1,610	1,610	2,683	2,683	2,683	2,683	2,683	2,683	3,757	33,044
6															
7	Cumulative Savings - Current	Therms	4,178	8,356	9,966	11,576	13,186	15,869	18,553	21,236	23,920	26,603	29,287	33,044	215,773
8	Cumulative Savings - Prior	Therms	21,486	21,486	21,486	21,486	21,486	21,486	21,486	21,486	21,486	21,486	21,486	21,486	257,834
9	Cumulative LBR Savings	Therms	25,664	29,842	31,452	33,062	34,672	37,356	40,039	42,723	45,406	48,089	50,773	54,530	473,608
10															
11	Average Distribution Rate	$/Therm	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	$ 0.3502	
12	Lost Distribution Revenue	**$'s**	$ 8,987	$ 10,450	$ 11,014	$ 11,578	$ 12,142	$ 13,081	$ 14,021	$ 14,961	$ 15,901	$ 16,840	$ 17,780	$ 19,096	**$ 165,852**
13															
14	**REVENUE**														
15	Sector Sales	Therms	4,370,332	7,989,089	11,379,716	12,293,522	10,453,820	7,123,475	4,143,166	2,004,800	1,132,729	1,097,392	1,628,276	2,882,815	66,499,132
16	Lost Revenue Rate	$/Therm	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	$0.0019	
17	Revenue	**$'s**	$ 8,207	$ 15,002	$ 21,369	$ 23,085	$ 19,630	$ 13,377	$ 7,780	$ 3,765	$ 2,127	$ 2,061	$ 3,058	$ 5,413	**$ 124,873**
18															
19	(Over)/Under-Recovery (Exc interest)		$ (38,240)	$ (42,925)	$ (53,435)	$ (65,135)	$ (72,836)	$ (73,394)	$ (67,409)	$ (56,456)	$ (42,880)	$ (28,255)	$ (13,635)	$ 0	
20															
21	**INTEREST**														
22	Average Monthly Balance		$ (38,630)	$ (40,649)	$ (48,258)	$ (59,382)	$ (69,092)	$ (73,246)	$ (70,530)	$ (62,054)	$ (49,767)	$ (35,645)	$ (20,996)	$ (6,841)	
23	Interest Rate-WSJ Prime Rate	Annual %	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	Total
24	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
25	Computed Interest	$'s	$ (133.58)	$ (154.94)	$ (192.88)	$ (212.36)	$ (262.91)	$ (256.38)	$ (243.32)	$ (197.21)	$ (154.78)	$ (101.99)	$ (47.63)	$ 0.00	$ (1,958)
26															
27	**Ending Balance**	**$'s**	$ (38,374)	$ (43,080)	$ (53,628)	$ (65,347)	$ (73,099)	$ (73,650)	$ (67,653)	$ (56,654)	$ (43,035)	$ (28,357)	$ (13,682)	$ 0	
28	**COMMERCIAL & INDUSTRIAL**														
29	**Beginning Balance - (Over)/Under**	**$'s**	($18,597)	$ (23,761)	$ (34,140)	$ (51,433)	$ (69,753)	$ (82,778)	$ (87,552)	$ (82,211)	$ (70,304)	$ (54,102)	$ (36,144)	$ (17,564)	
30															
31	**COSTS**														
32	Incremental Annualized Savings	Therms	122,743	122,743	45,715	45,715	45,715	76,192	76,192	76,192	76,192	76,192	76,192	106,668	946,450
33	Incremental Monthly Savings	Therms	10,229	10,229	3,810	3,810	3,810	6,349	6,349	6,349	6,349	6,349	6,349	8,889	78,871
34															
35	Cumulative Savings - Current	Therms	10,229	20,457	24,267	28,076	31,886	38,235	44,585	50,934	57,283	63,632	69,982	78,871	518,437
36	Cumulative Savings - Prior	Therms	52,604	52,604	52,604	52,604	52,604	52,604	52,604	52,604	52,604	52,604	52,604	52,604	631,250
37	Cumulative LBR Savings	Therms	62,833	73,061	76,871	80,681	84,490	90,839	97,189	103,538	109,887	116,237	122,586	131,475	1,149,687
38															
39	Average Distribution Rate	$/Therm	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	$ 0.2285	
40	Lost Distribution Revenue	**$'s**	$ 14,354	$ 16,691	$ 17,561	$ 18,432	$ 19,302	$ 20,752	$ 22,203	$ 23,653	$ 25,104	$ 26,555	$ 28,005	$ 30,036	**$ 262,648**
41															
42	**REVENUE**														
43	Sector Sales	Therms	9,311,828	12,911,402	16,611,276	17,500,370	15,345,913	12,084,384	7,937,624	5,510,709	4,172,029	4,056,814	4,453,539	5,975,266	115,871,154
44	Lost Revenue Rate	$/Therm	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	$0.0021	
45	Revenue	**$'s**	$ 19,435	$ 26,948	$ 34,670	$ 36,525	$ 32,029	$ 25,221	$ 16,567	$ 11,501	$ 8,707	$ 8,467	$ 9,295	$ 12,471	**$ 241,836**
46															
47	(Over)/Under-Recovery (Exc interest)	$'s	$ (23,678)	$ (34,017)	$ (51,248)	$ (69,527)	$ (82,480)	$ (87,247)	$ (81,915)	$ (70,059)	$ (53,907)	$ (36,014)	$ (17,434)	$ 0	
48															
49	**INTEREST**														
50	Average Monthly Balance		$ (21,138)	$ (28,889)	$ (42,694)	$ (60,480)	$ (76,117)	$ (85,012)	$ (84,733)	$ (76,135)	$ (62,105)	$ (45,058)	$ (26,789)	$ (8,782)	
51	Interest Rate-WSJ Prime Rate	Annual %	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	Total
52	Days per Month		30	31	31	28	31	30	31	30	31	31	31	31	365
53	Computed Interest	$'s	$ (82.71)	$ (122.79)	$ (184.98)	$ (226.68)	$ (297.72)	$ (304.77)	$ (295.68)	$ (244.73)	$ (194.58)	$ (130.00)	$ (130.00)	$ 0.00	$ (2,215)
54															
55	**Ending Balance**	**$'s**	$ (23,761)	$ (34,140)	$ (51,433)	$ (69,753)	$ (82,778)	$ (87,552)	$ (82,211)	$ (70,304)	$ (54,102)	$ (36,144)	$ (17,564)	$ 0	

NOTES:
Line 11 and Line 39, see Page 3. Line 4 and Line 32, see Page 4.

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Calculation of Average Distribution Rate for Lost Revenue
Based on Actual Billing Determinants for 2016 at Current Distribution Rates (August 1, 2017)

		(1)	(2)	(3)		(4)		(5) = (3) X (4)	(6)		(7)		(8) = (6) X (7)	(9) = ((1) x (2)) + (5) + (8)	(10) = (5) + (8)	(11) = (3) + (6)	(12) = (10) / (11)
		Average Number Of Customers	Customer Charge	Billing Determinants - Winter First Therms	Excess Therms	Winter Distribution Rates First Therms $/thm	Excess Therms $/thm	Winter Distribution Volumetric Revenue	Billing Determinants - Summer First Therms	Excess Therms	Summer Distribution Rates First Therms $/thm	Excess Therms $/thm	Summer Distribution Volumetric Revenue	Total Distribution Revenue	Total Volumetric Distribution Revenue	Total Annual Therms	Average Distribution Rate $/therm
R-1	Residential, Non-Heating	3,657	$16.88	523,777		$ 0.2231		$116,855	241,039		$ 0.2231		$53,776	$232,361	$170,630		
R-3	Residential, Heating	67,087	$24.43	30,774,960	12,710,718	$ 0.3863	$ 0.3197	$15,951,984	7,256,173	2,349,048	$ 0.3863	$ 0.3197	$3,554,050	$21,144,969	$19,506,034		
R-4	Residential Heating, Low Income	4,835	$9.77	2,499,252	834,957	$ 0.1545	$ 0.1278	$492,842	551,323	154,737	$ 0.1545	$ 0.1278	$104,955	$645,035	$597,797		
Total Residential Service				33,797,989	13,545,675			$16,561,680	8,048,535	2,503,785			$3,712,781	$22,022,365	$20,274,461	57,895,984	$ 0.3502
G-41	Low Annual, High Winter Use	7,803	$53.45	4,033,198	14,483,600	$ 0.4383	$ 0.2944	$6,031,723	651,152	2,531,534	$ 0.4383	$ 0.2944	$1,030,684	$7,479,476	$7,062,406		
G-42	Medium Annual, High Winter Use	1,567	$160.36	8,940,761	18,311,348	$ 0.3986	$ 0.2655	$8,425,450	2,745,971	3,801,378	$ 0.3986	$ 0.2655	$2,103,810	$10,780,544	$10,529,260		
G-43	High Annual, High Winter Use	44	$688.20	7,443,161		$ 0.2449		$1,822,830	2,149,522		$ 0.1120		$240,746	$2,093,857	$2,063,577		
G-51	Low Annual, Low Winter Use	1,294	$53.45	601,547	1,977,186	$ 0.2642	$ 0.1717	$498,412	413,921	915,918	$ 0.2642	$ 0.1717	$266,621	$834,197	$765,033		
G-52	Medium Annual, Low Winter Use	312	$160.36	1,824,072	2,764,273	$ 0.2268	$ 0.1511	$831,381	1,475,408	1,305,683	$ 0.1644	$ 0.0934	$364,508	$1,245,921	$1,195,889		
G-53	High Annual, Load Factor Less Than 90%	38	$708.24	5,870,602		$ 0.1585		$930,490	4,013,652		$ 0.0760		$305,038	$1,262,441	$1,235,528		
G-54	High Annual, Load Factor Greater Than 90%	22	$708.24	8,307,009		$ 0.0605		$502,574	8,952,751		$ 0.0328		$293,650	$811,806	$796,224		
Total Commercial/Industrial Service				37,020,350	37,536,407			$19,042,860	20,402,377	8,554,513			$4,605,057	$24,508,243	$23,647,917	103,513,647	$ 0.2285
Total Company				70,818,339	51,082,082			$35,604,540	28,450,912	11,058,298			$8,317,837	$46,530,608	$43,922,378	161,409,631	

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Gas Savings for LRR Calculation

Planned Gas Savings	2017 Annual Therms	2018 Annual Therms	
Residential Programs			
Residential	358,103	386,419	744,522
Commercial & Industrial Programs			
Commercial & Industrial	876,736	914,301	1,791,037

LBR Savings Allocation		Unit	Estimate Nov-17	Estimate Dec-17	Estimate Jan-18	Estimate Feb-18	Estimate Mar-18	Estimate Apr-18	Estimate May-18	Estimate Jun-18	Estimate Jul-18	Estimate Aug-18	Estimate Sep-18	Estimate Oct-18	Total
1.	Residential Programs		14%	14%	5%	5%	5%	8%	8%	8%	8%	8%	8%	12%	105%
2.	Annualized Therms	Therms	50,134	50,134	19,321	19,321	19,321	32,202	32,202	32,202	32,202	32,202	32,202	45,082	396,523
3.															
4.	Monthly Incremental	Therms	4,178	4,178	1,610	1,610	1,610	2,683	2,683	2,683	2,683	2,683	2,683	3,757	33,044
5.	Monthly Cumulative	Therms	4,178	8,356	9,966	11,576	13,186	15,869	18,553	21,236	23,920	26,603	29,287	33,044	215,773
6.															
7.	Commercial & Industrial Programs		14%	14%	5%	5%	5%	8%	8%	8%	8%	8%	8%	12%	105%
8.	Annualized Therms	Therms	122,743	122,743	45,715	45,715	45,715	76,192	76,192	76,192	76,192	76,192	76,192	106,668	946,450
9.															
10.	Monthly Incremental	Therms	10,229	10,229	3,810	3,810	3,810	6,349	6,349	6,349	6,349	6,349	6,349	8,889	78,871
11.	Monthly Cumulative	Therms	10,229	20,457	24,267	28,076	31,886	38,235	44,585	50,934	57,283	63,632	69,982	78,871	518,437

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Residential 2017 Lost Base Revenue Reconciliation
January 1, 2017 to October 31, 2017

Line	Description	Actual Jan-17	Actual Feb-17	Actual Mar-17	Actual Apr-17	Actual May-17	Actual Jun-17	Actual Jul-17	Forecast Aug-17	Forecast Sep-17	Forecast Oct-17	Total
1	(Over)/Under Beginning Balance	0	($10,835)	($21,120)	($31,015)	($39,092)	($40,413)	($40,359)	($38,606)	($38,745)	($38,880)	
2	Revenue	$15,978	$14,968	$14,110	$13,121	$5,773	$3,822	$2,060	$3,297	$2,637	$3,612	$79,379
3	Corrected Revenue Calculation*	$5,160	$4,730	$4,300	$5,160	$4,587	$4,013	$3,956	$3,297	$2,637	$3,612	$41,451
4	Monthly (Over)/Under Recovery	($10,818)	($10,239)	($9,810)	($7,961)	($1,187)	$191	$1,895	$0	$0	$0	($37,928)
5	(Over)/Under Ending Balance	($10,818)	($21,074)	($30,930)	($38,977)	($40,278)	($40,222)	($38,463)	($38,606)	($38,745)	($38,880)	
6	Balance Subject to Interest	($5,409)	($15,955)	($26,025)	($34,996)	($39,685)	($40,318)	($39,411)	($38,606)	($38,745)	($38,880)	
7	Interest Rate	3.75%	3.75%	3.88%	4.00%	4.00%	4.13%	4.25%	4.25%	4.25%	4.25%	
8	Interest	($17)	($46)	($86)	($115)	($135)	($137)	($142)	($139)	($135)	($140)	
9	Cumulative Interest	($17)	($63)	($132)	($201)	($250)	($272)	($279)	($282)	($275)	($276)	
10	**Cumulative (Over)/Under Collection:**	**($39,021)**										

Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities
Commercial & Industrial 2017 Lost Base Revenue Reconciliation
January 1, 2017 to October 31, 2017

Line	Description	Actual Jan-17	Actual Feb-17	Actual Mar-17	Actual Apr-17	Actual May-17	Actual Jun-17	Actual Jul-17	Forecast Aug-17	Forecast Sep-17	Forecast Oct-17	Total
1	(Over)/Under Beginning Balance	0	($5,270)	($10,947)	($16,801)	($20,729)	($20,687)	($20,321)	($18,399)	($18,466)	($18,530)	
2	Revenue	$12,778	$12,543	$12,072	$11,383	$6,569	$5,410	$3,771	$4,802	$3,842	$5,261	$78,430
3	Corrected Revenue Calculation*	$7,516	$6,890	$6,263	$7,516	$6,681	$5,846	$5,762	$4,802	$3,842	$5,261	$60,379
4	Monthly (Over)/Under Recovery	($5,262)	($5,653)	($5,808)	($3,867)	$112	$435	$1,992	$0	$0	$0	($18,051)
5	(Over)/Under Ending Balance	($5,262)	($10,923)	($16,755)	($20,667)	($20,617)	($20,252)	($18,330)	($18,399)	($18,466)	($18,530)	
6	Balance Subject to Interest	($2,631)	($8,097)	($13,851)	($18,734)	($20,673)	($20,470)	($19,325)	($18,399)	($18,466)	($18,530)	
7	Interest Rate	3.75%	3.75%	3.88%	4.00%	4.00%	4.13%	4.25%	4.25%	4.25%	4.25%	
8	Interest	($8)	($23)	($46)	($62)	($70)	($69)	($70)	($66)	($65)	($67)	
9	Cumulative Interest	($8)	($32)	($69)	($107)	($132)	($140)	($139)	($136)	($131)	($131)	
10	**Cumulative (Over)/Under Collection:**	**($18,597)**										

* The original revenue projection included the customer charge.

Revenue Projection DG 16-814 Bates 118 (includes Customer Charges)

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Total
Residential (avg rate $0.5772 per therm)	$10,335	$9,474	$8,612	$10,335	$9,187	$8,038	$7,923	$6,603	$5,282	$7,234	$83,023
C&I (avg rate $0.2485 per therm)	$10,893	$9,986	$9,078	$10,893	$9,683	$8,473	$8,352	$6,960	$5,568	$7,625	$87,511

Revised Revenue Projection minus Customer Charges

	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Total
Residential (avg rate $0.2882 per therm)	$5,160	$4,730	$4,300	$5,160	$4,587	$4,013	$3,956	$3,297	$2,637	$3,612	$41,451
C&I (avg rate $0.1715 per therm)	$7,516	$6,890	$6,263	$7,516	$6,681	$5,846	$5,762	$4,802	$3,842	$5,261	$60,379

Calculation of Lost Revenues - Liberty Utilities Gas (Energy North)
Cumulative
Savings and lost revenues are estimated based on a calendar year.

	Annualized	"Installed" Savings												
	Therm Savings	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
Residential														
Jan-17	17,905	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	17,905
Feb-17	17,905		1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	16,413
Mar-17	17,905			1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	1,492	14,921
Apr-17	23,874				1,989.46	1,989	1,989	1,989	1,989	1,989	1,989	1,989	1,989	17,905
May-17	23,874					1,989	1,989	1,989	1,989	1,989	1,989	1,989	1,989	15,916
Jun-17	23,874						1,989	1,989	1,989	1,989	1,989	1,989	1,989	13,926
Jul-17	27,455							2,288	2,288	2,288	2,288	2,288	2,288	13,727
Aug-17	27,455								2,288	2,288	2,288	2,288	2,288	11,439
Sep-17	27,455									2,288	2,288	2,288	2,288	9,152
Oct-17	50,134										4,178	4,178	4,178	12,534
Nov-17	50,134											4,178	4,178	8,356
Dec-17	50,134												4,178	4,178
Total 2017	358,103	1,492	2,984	4,476	6,466	8,455	10,445	12,733	15,020	17,308	21,486	25,664	29,842	156,372
Total 2017		29,842	29,842	29,842	29,842	29,842	29,842	29,842	29,842	29,842	29,842	29,842	29,842	358,103
Jan-18	19,321	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	19,321
Feb-18	19,321		1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	17,711
Mar-18	19,321			1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	1,610	16,101
Apr-18	32,202				2,683	2,683	2,683	2,683	2,683	2,683	2,683	2,683	2,683	24,151
May-18	32,202					2,683	2,683	2,683	2,683	2,683	2,683	2,683	2,683	21,468
Jun-18	32,202						2,683	2,683	2,683	2,683	2,683	2,683	2,683	18,784
Jul-18	32,202							2,683	2,683	2,683	2,683	2,683	2,683	16,101
Aug-18	32,202								2,683	2,683	2,683	2,683	2,683	13,417
Sep-18	32,202									2,683	2,683	2,683	2,683	10,734
Oct-18	45,082										3,757	3,757	3,757	11,271
Nov-18	45,082											3,757	3,757	7,514
Dec-18	45,082												3,757	3,757
Total 2018	386,419	31,452	33,062	34,672	37,356	40,039	42,723	45,406	48,089	50,773	54,530	58,287	62,044	538,432
Proposed Distribution Rate														**$ 0.3502**
Lost Revenue														**$ 188,552**
C&I														
Jan-17	43,837	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	43,837
Feb-17	43,837		3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	40,184
Mar-17	43,837			3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	3,653	36,531
Apr-17	58,449				4,871	4,871	4,871	4,871	4,871	4,871	4,871	4,871	4,871	43,837
May-17	58,449					4,871	4,871	4,871	4,871	4,871	4,871	4,871	4,871	38,966
Jun-17	58,449						4,871	4,871	4,871	4,871	4,871	4,871	4,871	34,095
Jul-17	67,216							5,601	5,601	5,601	5,601	5,601	5,601	33,608
Aug-17	67,216								5,601	5,601	5,601	5,601	5,601	28,007
Sep-17	67,216									5,601	5,601	5,601	5,601	22,405
Oct-17	122,743										10,229	10,229	10,229	30,686
Nov-17	122,743											10,229	10,229	20,457
Dec-17	122,743												10,229	10,229
Total 2017	876,736	3,653	7,306	10,959	15,830	20,701	25,571	31,173	36,774	42,376	52,604	62,833	73,061	382,841
Total 2017		73,061	73,061	73,061	73,061	73,061	73,061	73,061	73,061	73,061	73,061	73,061	73,061	876,736
Jan-18	45,715	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	45,715
Feb-18	45,715		3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	41,905
Mar-18	45,715			3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	3,810	38,096
Apr-18	76,192				6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	57,144
May-18	76,192					6,349	6,349	6,349	6,349	6,349	6,349	6,349	6,349	50,795
Jun-18	76,192						6,349	6,349	6,349	6,349	6,349	6,349	6,349	44,445
Jul-18	76,192							6,349	6,349	6,349	6,349	6,349	6,349	38,096
Aug-18	76,192								6,349	6,349	6,349	6,349	6,349	31,747
Sep-18	76,192									6,349	6,349	6,349	6,349	25,397
Oct-18	106,668										8,889	8,889	8,889	26,667
Nov-18	106,668											8,889	8,889	17,778
Dec-18	106,668												8,889	8,889
Total 2018	914,301	76,871	80,681	84,490	90,839	97,189	103,538	109,887	116,237	122,586	131,475	140,364	149,253	1,303,410
Proposed Distribution Rate														**$ 0.2285**
Lost Revenue														**$ 297,767**
Total Lost Revenue														**$ 486,319**

Program Cost-Effectiveness - 2018 PLAN

	Total Resource Benefit / Cost Ratio	Benefit ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
Home Energy Assistance	1.08	$ 366.4	$ 339.5	$ -	19.1	151.2	1.8	1.1	60	1,859.4	38,285.3
ENERGY STAR Homes	1.15	$ 289.2	$ 174.0	$ 77.1	7.2	51.9	1.3	0.5	39	1,312.5	32,046.0
Home Performance with Energy Star	1.10	$ 265.2	$ 183.0	$ 58.7	23.3	219.0	4.4	3.6	89	1,381.3	24,573.3
ENERGY STAR Products	1.23	$ 596.4	$ 293.6	$ 190.1	17.0	264.8	8.6	-	458	3,629.4	60,691.6
Home Energy Reports	1.02	$ 147.4	$ 145.1	$ -	-	-	-	-	10,000	4,980.0	13,010.0
Sub-Total Residential	**1.14**	**$ 1,664.6**	**$ 1,135.2**	**$ 325.9**	**66.6**	**686.9**	**16.1**	**5.2**	**10,646**	**13,162.5**	**168,606.2**
Commercial, Industrial & Municipal											
Large Business Energy Solutions	1.93	$ 1,753.2	$ 535.0	$ 372.9	-	-	-	-	60	14,000.2	203,586.7
Small Business Energy Solutions	1.68	$ 868.5	$ 310.3	$ 205.3	1.5	27.2	0.1	-	262	6,380.9	107,870.9
C&I Education		$ -	$ 16.7	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**1.82**	**$ 2,621.6**	**$ 862.0**	**$ 578.2**	**1.5**	**27.2**	**0.1**	**-**	**322**	**20,381.1**	**311,457.6**
Total	**1.48**	**$ 4,286.2**	**$ 1,997.2**	**$ 904.1**	**68.1**	**714.1**	**16.2**	**5.2**	**10,968**	**33,543.6**	**480,063.8**

Present Value Benefits - 2018 PLAN

	Total Benefits ($000)	CAPACITY Summer Generation	Winter Generation	Transmission	Distribution	ENERGY Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Gas Benefit	Gas DRIPE	Other Fuels Benefit	Water Benefit	Other Non-Resource Benefit
Residential Programs															
Home Energy Assistance	$ 366.4	$ 1.9	$ -	$ 0.3	$ 1.1	$ 3.7	$ 2.9	$ 1.4	$ 1.0	$ 0.1	$ 294.2	$ 25.6	$ -	$ 1.0	$ 33.2
ENERGY STAR Homes	$ 289.2	$ 0.3	$ -	$ 0.1	$ 0.2	$ 1.5	$ 0.7	$ 0.6	$ 0.3	$ 0.0	$ 239.0	$ 19.7	$ -	$ 0.6	$ 26.2
Home Performance with Energy Star	$ 265.2	$ 5.7	$ -	$ 0.8	$ 3.4	$ 4.8	$ 4.4	$ 2.0	$ 1.8	$ 0.1	$ 191.2	$ 18.1	$ -	$ 9.5	$ 23.2
ENERGY STAR Products	$ 596.4	$ -	$ -	$ -	$ -	$ 8.9	$ 7.8	$ 0.1	$ 0.2	$ 0.1	$ 478.3	$ 46.8	$ -	$ -	$ 54.2
Home Energy Reports	$ 147.4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 98.5	$ 35.5	$ -	$ -	$ 13.4
Sub-Total Residential	**$ 1,664.6**	**$ 7.9**	**$ -**	**$ 1.2**	**$ 4.7**	**$ 18.8**	**$ 15.8**	**$ 4.2**	**$ 3.2**	**$ 0.4**	**$ 1,301.3**	**$ 145.7**	**$ -**	$ 11.1	$ 150.3
Commercial/Industrial Programs															
Large Business Energy Solutions	$ 1,753.2	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,408.5	$ 185.3	$ -	$ -	$ 159.4
Small Business Energy Solutions	$ 868.5	$ -	$ -	$ -	$ -	$ 0.7	$ 1.0	$ -	$ 0.0	$ 0.0	$ 686.2	$ 92.9	$ -	$ 9.5	$ 78.1
C&I Education	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Commercial & Industrial	**$ 2,621.6**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 0.7**	**$ 1.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 2,094.7**	**$ 278.2**	**$ -**	**$ 9.5**	**$ 237.5**
Total	**$ 4,286.2**	**$ 7.9**	**$ -**	**$ 1.2**	**$ 4.7**	**$ 19.5**	**$ 16.8**	**$ 4.2**	**$ 3.2**	**$ 0.4**	**$ 3,396.0**	**$ 423.9**	**$ -**	**$ 20.6**	**$ 387.8**

Performance Incentive Calculation
2018

	Planned	Actual
Commercial/Industrial Incentive		
1. Benefit/Cost Ratio	**1.76**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime MMBtu Savings	**311,458**	
4. Threshold Lifetime MMBtu Savings (65%) [2]	202,447	
5. Implementation Expenses	$862,008	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	$47,410	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$59,263	
Residential Incentive		
10. Benefit / Cost Ratio	**1.09**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime MMBtu Savings	**168,606**	
13. Threshold Lifetime MMBtu Savings (65%) [2]	109,594	
14. Implementation Expenses	$1,135,230	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	$62,438	
18. Maximum Residential Performance Incentive (6.875%)	$78,047	
19. TOTAL PLANNED / EARNED INCENTIVE	**$109,848**	

Notes

[1] Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.

[2] Actual Lifetime MMBtu Savings for each sector must be greater than or equal to 65% of projected savings.

Planned Versus Actual Benefit / Cost Ratio by Sector
2018

		Planned	Actual
Commercial & Industrial			
1.	Benefits (Value) From Eligible Programs	$ 2,621,616	
2.	Implementation Expenses	$ 862,008	
3.	Customer Contribution	$ 578,226	
4.	Performance Incentive	$ 47,410	
5.	Total Costs	$ 1,487,644	
6.	Benefit/Cost Ratio - Commercial & Industrial Sector	**1.76**	
Residential			
7.	Benefits (Value) From Eligible Programs	$ 1,664,581	
8.	Implementation Expenses	$ 1,135,230	
9.	Customer Contribution	$ 325,905	
10.	Performance Incentive	$ 62,438	
11.	Total Costs	$ 1,523,572	
12.	Benefit/Cost Ratio - Residential Sector	**1.09**	

Lifetime Energy Savings by Sector and Program
2018

	Lifetime MMBtu Savings	
	Planned	Actual
Commercial & Industrial		
Large Business Energy Solutions	203,586,714	
Small Business Energy Solutions	107,870,867	
Total Commercial & Industrial	**311,457,580**	
Residential		
Home Energy Assistance	38,285,272	
ENERGY STAR Homes	32,046,000	
Home Performance with Energy Star	24,573,300	
ENERGY STAR Products	60,691,600	
Home Energy Reports	13,010,000	
Total Residential	**168,606,172**	

Program Cost-Effectiveness - 2019 PLAN

	Total Resource Benefit / Cost Ratio	Benefit ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
Home Energy Assistance	1.05	$ 391.5	$ 374.0	$ -	16.9	143.4	1.7	1.0	62	1,964.6	40,000.9
ENERGY STAR Homes	1.18	$ 324.5	$ 191.4	$ 84.2	9.2	64.2	1.7	0.6	43	1,436.1	35,031.0
Home Performance with Energy Star	1.06	$ 282.1	$ 204.2	$ 61.0	19.4	202.4	3.2	2.6	100	1,473.7	25,814.4
ENERGY STAR Products	1.29	$ 670.6	$ 315.2	$ 205.7	19.9	312.6	10.0	-	502	4,000.8	66,448.6
Home Energy Reports	1.20	$ 111.6	$ 93.3	$ -	-	-	-	-	10,000	3,170.0	9,620.0
									-		
Sub-Total Residential	**1.16**	**$ 1,780.2**	**$ 1,178.2**	**$ 350.9**	**65.4**	**722.6**	**16.7**	**4.2**	**10,707**	**12,045.2**	**176,914.9**
Commercial, Industrial & Municipal											
Large Business Energy Solutions	2.00	$ 2,106.0	$ 623.0	$ 431.6	-	-	-	-	72	16,432.7	241,209.7
Small Business Energy Solutions	1.75	$ 1,083.3	$ 380.5	$ 239.7	1.5	27.2	0.1	-	317	8,229.1	130,383.7
C&I Education		$ -	$ 18.4	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**1.88**	**$ 3,189.3**	**$ 1,022.0**	**$ 671.4**	**1.5**	**27.2**	**0.1**	**-**	**389**	**24,661.8**	**371,593.3**
Total	**1.54**	**$ 4,969.5**	**$ 2,200.1**	**$ 1,022.3**	**66.9**	**749.8**	**16.8**	**4.2**	**11,096**	**36,707.1**	**548,508.2**

Present Value Benefits - 2019 PLAN

		CAPACITY				ENERGY									
	Total Benefits ($000)	**Summer Generation**	**Winter Generation**	**Transmission**	**Distribution**	**Winter Peak**	**Winter Off Peak**	**Summer Peak**	**Summer Off Peak**	**Electric DRIPE**	**Gas Benefit**	**Gas DRIPE**	**Other Fuels Benefit**	**Water Benefit**	**Other Non-Resource Benefit**
Residential Programs															
Home Energy Assistance	$ 391.5	$ 2.0	$ -	$ 0.3	$ 1.1	$ 3.7	$ 3.0	$ 1.4	$ 1.0	$ 0.1	$ 320.3	$ 21.4	$ -	$ 1.3	$ 36.0
ENERGY STAR Homes	$ 324.5	$ 0.4	$ -	$ 0.1	$ 0.3	$ 1.9	$ 1.0	$ 0.8	$ 0.4	$ 0.0	$ 271.4	$ 17.4	$ -	$ 1.0	$ 29.8
Home Performance with Energy Star	$ 282.1	$ 4.7	$ -	$ 0.6	$ 2.6	$ 4.5	$ 4.5	$ 2.0	$ 1.8	$ 0.1	$ 209.8	$ 15.0	$ -	$ 11.5	$ 24.9
ENERGY STAR Products	$ 670.6	$ -	$ -	$ -	$ -	$ 11.0	$ 9.6	$ 0.2	$ 0.2	$ 0.1	$ 547.7	$ 39.9	$ -	$ -	$ 61.8
Home Energy Reports	$ 111.6	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 85.4	$ 15.9	$ -	$ -	$ 10.3
Sub-Total Residential	**$ 1,780.2**	**$ 7.1**	**$ -**	**$ 1.0**	**$ 4.0**	**$ 21.1**	**$ 18.1**	**$ 4.4**	**$ 3.4**	**$ 0.3**	**$ 1,434.6**	**$ 109.6**	**$ -**	$ 13.7	$ 162.9
Commercial/Industrial Programs															
Large Business Energy Solutions	$ 2,106.0	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 1,741.0	$ 170.9	$ -	$ -	$ 194.2
Small Business Energy Solutions	$ 1,083.3	$ -	$ -	$ -	$ -	$ 0.7	$ 1.0	$ -	$ 0.0	$ 0.0	$ 875.2	$ 92.4	$ -	$ 15.5	$ 98.5
C&I Education	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Commercial & Industrial	**$ 3,189.3**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 0.7**	**$ 1.0**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 2,616.2**	**$ 263.3**	**$ -**	**$ 15.5**	**$ 292.6**
Total	**$ 4,969.5**	**$ 7.1**	**$ -**	**$ 1.0**	**$ 4.0**	**$ 21.9**	**$ 19.1**	**$ 4.4**	**$ 3.4**	**$ 0.3**	**$ 4,050.8**	**$ 372.9**	**$ -**	**$ 29.2**	**$ 455.5**

Performance Incentive Calculation
2019

	Planned	Actual
Commercial/Industrial Incentive		
1. Benefit/Cost Ratio	**1.82**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime MMBtu Savings	**371,593**	
4. Threshold Lifetime MMBtu Savings (65%) [2]	241,536	
5. Implementation Expenses	$1,021,951	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	$56,207	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$70,259	
Residential Incentive		
10. Benefit / Cost Ratio	**1.12**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime MMBtu Savings	**176,915**	
13. Threshold Lifetime MMBtu Savings (65%) [2]	114,995	
14. Implementation Expenses	$1,178,199	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	$64,801	
18. Maximum Residential Performance Incentive (6.875%)	$81,001	
19. TOTAL PLANNED / EARNED INCENTIVE	**$121,008**	

Notes

[1] Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.

[2] Actual Lifetime MMBtu Savings for each sector must be greater than or equal to 65% of projected savings.

Planned Versus Actual Benefit / Cost Ratio by Sector
2019

		Planned	Actual
Commercial & Industrial			
1.	Benefits (Value) From Eligible Programs	$ 3,189,307	
2.	Implementation Expenses	$ 1,021,951	
3.	Customer Contribution	$ 671,379	
4.	Performance Incentive	$ 56,207	
5.	Total Costs	$ 1,749,538	
6.	Benefit/Cost Ratio - Commercial & Industrial Sector	**1.82**	
Residential			
7.	Benefits (Value) From Eligible Programs	$ 1,780,242	
8.	Implementation Expenses	$ 1,178,199	
9.	Customer Contribution	$ 350,915	
10.	Performance Incentive	$ 64,801	
11.	Total Costs	$ 1,593,915	
12.	Benefit/Cost Ratio - Residential Sector	**1.12**	

Lifetime Energy Savings by Sector and Program
2019

	Lifetime MMBtu Savings	
	Planned	Actual
Commercial & Industrial		
Large Business Energy Solutions	241,209,657	
Small Business Energy Solutions	130,383,663	
Total Commercial & Industrial	**371,593,319**	
Residential		
Home Energy Assistance	40,000,861	
ENERGY STAR Homes	35,031,000	
Home Performance with Energy Star	25,814,400	
ENERGY STAR Products	66,448,600	
Home Energy Reports	9,620,000	
Total Residential	**176,914,861**	

Program Cost-Effectiveness - 2020 PLAN

	Total Resource Benefit / Cost Ratio	Benefit ($000)	Utility Costs ($000)	Customer Costs ($000)	Annual MWh Savings	Lifetime MWh Savings	Winter kW Savings	Summer kW Savings	Number of Customers Served	Annual MMBTU Savings	Lifetime MMBTU Savings
Residential Programs											
Home Energy Assistance	1.02	$ 420.2	$ 410.2	$ -	20.7	167.8	2.1	1.1	64	2,055.3	41,991.6
ENERGY STAR Homes	1.19	$ 342.4	$ 201.7	$ 86.9	9.6	67.6	1.8	0.7	44	1,486.0	36,212.0
Home Performance with Energy Star	1.07	$ 300.0	$ 218.4	$ 62.1	21.3	214.4	3.6	2.8	114	1,547.1	26,682.0
ENERGY STAR Products	1.33	$ 741.5	$ 337.0	$ 221.7	22.0	347.1	11.2	-	550	4,351.3	72,102.4
Home Energy Reports	0.89	$ 83.4	$ 93.3	$ -	-	-	-	-	10,000	2,110.0	7,320.0
Sub-Total Residential	**1.16**	**$ 1,887.4**	**$ 1,260.7**	**$ 370.8**	**73.6**	**796.9**	**18.7**	**4.6**	**10,772**	**11,549.7**	**184,308.0**
Commercial, Industrial & Municipal											
Large Business Energy Solutions	2.06	$ 2,532.4	$ 726.1	$ 500.5	-	-	-	-	85	19,311.0	285,853.4
Small Business Energy Solutions	1.97	$ 1,331.1	$ 407.5	$ 268.4	1.8	33.3	0.1	-	351	9,382.7	159,340.6
C&I Education	0.00	$ -	$ 18.6	$ -	-	-	-	-	-	-	-
Sub-Total Commercial & Industrial	**2.01**	**$ 3,863.5**	**$ 1,152.1**	**$ 768.9**	**1.8**	**33.3**	**0.1**	**-**	**436**	**28,693.7**	**445,194.0**
Total	**1.62**	**$ 5,750.9**	**$ 2,412.8**	**$ 1,139.6**	**75.5**	**830.1**	**18.8**	**4.6**	**11,208**	**40,243.4**	**629,502.0**

Present Value Benefits - 2020 PLAN

	Total Benefits ($000)	CAPACITY Summer Generation	Winter Generation	Transmission	Distribution	ENERGY Winter Peak	Winter Off Peak	Summer Peak	Summer Off Peak	Electric DRIPE	Gas Benefit	Gas DRIPE	Other Fuels Benefit	Water Benefit	Other Non-Resource Benefit
Residential Programs															
Home Energy Assistance	$ 420.2	$ 2.3	$ -	$ 0.3	$ 1.2	$ 4.7	$ 3.6	$ 1.8	$ 1.2	$ 0.1	$ 345.7	$ 19.0	$ -	$ 1.1	$ 39.2
ENERGY STAR Homes	$ 342.4	$ 0.5	$ -	$ 0.1	$ 0.3	$ 2.1	$ 1.1	$ 0.9	$ 0.4	$ 0.0	$ 288.1	$ 15.5	$ -	$ 1.3	$ 31.9
Home Performance with Energy Star	$ 300.0	$ 5.3	$ -	$ 0.7	$ 2.7	$ 5.1	$ 4.9	$ 2.3	$ 2.0	$ 0.1	$ 223.1	$ 13.0	$ -	$ 14.1	$ 26.7
ENERGY STAR Products	$ 741.5	$ -	$ -	$ -	$ -	$ 12.7	$ 11.2	$ 0.2	$ 0.2	$ 0.1	$ 611.9	$ 35.9	$ -	$ -	$ 69.3
Home Energy Reports	$ 83.4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 68.4	$ 7.2	$ -	$ -	$ 7.8
Sub-Total Residential	**$ 1,887.4**	**$ 8.1**	**$ -**	**$ 1.0**	**$ 4.2**	**$ 24.7**	**$ 20.8**	**$ 5.2**	**$ 3.9**	**$ 0.2**	**$ 1,537.2**	**$ 90.5**	**$ -**	$ 16.5	$ 174.9
Commercial/Industrial Programs															
Large Business Energy Solutions	$ 2,532.4	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 2,127.7	$ 167.9	$ -	$ -	$ 236.8
Small Business Energy Solutions	$ 1,331.1	$ -	$ -	$ -	$ -	$ 1.0	$ 1.3	$ -	$ 0.0	$ 0.0	$ 1,096.0	$ 93.0	$ -	$ 16.9	$ 122.9
C&I Education	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Sub-Total Commercial & Industrial	**$ 3,863.5**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 1.0**	**$ 1.3**	**$ -**	**$ 0.0**	**$ 0.0**	**$ 3,223.8**	**$ 260.9**	**$ -**	**$ 16.9**	**$ 359.7**
Total	**$ 5,750.9**	**$ 8.1**	**$ -**	**$ 1.0**	**$ 4.2**	**$ 25.7**	**$ 22.2**	**$ 5.2**	**$ 3.9**	**$ 0.2**	**$ 4,761.0**	**$ 351.4**	**$ -**	**$ 33.4**	**$ 534.6**

Performance Incentive Calculation
2020

	Planned	Actual
Commercial/Industrial Incentive		
1. Benefit/Cost Ratio	**1.95**	
2. Threshold Benefit / Cost Ratio [1]	1.00	
3. Lifetime MMBtu Savings	**445,194**	
4. Threshold Lifetime MMBtu Savings (65%) [2]	289,376	
5. Implementation Expenses	$1,152,108	
6. Benefit / Cost Percentage of Implementaton Expenses	2.75%	
7. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
8. Commercial & Industrial Performance Incentive	$63,366	
9. Maximum Commercial & Industrial Performance Incentive (6.875%)	$79,207	
Residential Incentive		
10. Benefit / Cost Ratio	**1.11**	
11. Threshold Benefit / Cost Ratio [1]	1.00	
12. Lifetime MMBtu Savings	**184,308**	
13. Threshold Lifetime MMBtu Savings (65%) [2]	119,800	
14. Implementation Expenses	$1,260,716	
15. Benefit / Cost Percentage of Implementation Expenses	2.75%	
16. Lifetime MMBtu Percentage of Implementation Expenses	2.75%	
17. Residential Performance Incentive	$69,339	
18. Maximum Residential Performance Incentive (6.875%)	$86,674	
19. TOTAL PLANNED / EARNED INCENTIVE	**$132,705**	

Notes

[1] Actual Benefit / Cost Ratio for each sector must be greater than or equal to 1.0.

[2] Actual Lifetime MMBtu Savings for each sector must be greater than or equal to 65% of projected savings.

Planned Versus Actual Benefit / Cost Ratio by Sector
2020

			Planned	Actual
Commercial & Industrial				
1.	Benefits (Value) From Eligible Programs	$	3,863,484	
2.	Implementation Expenses	$	1,152,108	
3.	Customer Contribution	$	768,869	
4.	Performance Incentive	$	63,366	
5.	Total Costs	$	1,984,343	
6.	Benefit/Cost Ratio - Commercial & Industrial Sector		**1.95**	
Residential				
7.	Benefits (Value) From Eligible Programs	$	1,887,422	
8.	Implementation Expenses	$	1,260,716	
9.	Customer Contribution	$	370,756	
10.	Performance Incentive	$	69,339	
11.	Total Costs	$	1,700,811	
12.	Benefit/Cost Ratio - Residential Sector		**1.11**	

Lifetime Energy Savings by Sector and Program
2020

	Lifetime MMBtu Savings	
	Planned	**Actual**
Commercial & Industrial		
Large Business Energy Solutions	241,209,657	
Small Business Energy Solutions	130,383,663	
Total Commercial & Industrial	**371,593,319**	
Residential		
Home Energy Assistance	40,000,861	
ENERGY STAR Homes	35,031,000	
Home Performance with Energy Star	25,814,400	
ENERGY STAR Products	66,448,600	
Home Energy Reports	9,620,000	
Total Residential	**176,914,861**	

Northern Utilities Inc. Home Energy Assistance Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life	Electric Realization Rate	Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBtu)		
	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan
Boiler - NG Boiler Replacement AFUE>=90%	1	1	2	142	142	142	20	86.9%	2,468	2,468	4,936	19	19	19	100.0%	388	388	776
Furnace - NG Furnace Replacement AFUE>=90%	4	5	6	168	168	168	18	86.9%	10,511	13,139	15,767	21	21	21	100.0%	1,490	1,863	2,236
Direct Install Water Measures	60	75	64		-	-	7	86.9%		-	-	1	1	1	98.1%	412	515	439
Heating System Tune-up	4	5	5		-	-	1	86.9%		-	-	10	10	10	98.1%	39	49	49
Multifamily weatherization	17	19	19	38	38	38	22	86.9%	12,350	13,803	13,803	24	24	24	98.1%	8,805	9,841	9,841
Single Family weatherization	43	43	45	58	58	58	22	86.9%	47,680	47,680	49,898	28	28	28	98.1%	25,985	25,985	27,193
Thermostat - Standard, 7-Day Programmable	12	14	15		-	-	15	86.9%		-	-	7	7	7	98.1%	1,165	1,360	1,457
LED lighting	360	305	384	50	50	50	5	86.9%	78,210	66,261	83,424	-	-	-	98.1%	-	-	-
Program Summary*				**19,078**	**16,900**	**20,703**			**151,220**	**143,352**	**167,828**	**1,859**	**1,965**	**2,055**		**38,285**	**40,001**	**41,992**

*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. Home Performance with ENERGY STAR®

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life	Electric Realization Rate	Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBtu)		
	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan
Direct Install Water Measures	52	62	75	-	-	-	8	100%	-	-	-	4	4	4	100%	1,726	2,058	2,490
Single Family weatherization	37	38	39	174	174	174	20	100%	128,760	132,240	135,720	29	29	29	100%	21,460	22,040	22,620
Thermostat - Standard, 7-Day Programmable	6	7	8		-	-	15	100%		-	-	3	3	3	100%	288	336	384
Thermostat - WiFI (Cooling & Heating)	11	12	12	52	52	52	15	100%	8,658	9,360	9,360	7	7	7	100%	1,099	1,188	1,188
LED Lighting	537	400	456	30	30	30	5	100%	81,624	60,800	69,312	-	-	-	100%	-	-	-
Program Summary*				**23,340**	**19,396**	**21,272**			**219,042**	**202,400**	**214,392**	**1,381**	**1,461**	**1,547**		**24,573**	**25,622**	**26,682**

*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. ENERGY STAR® Homes Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life	Electric Realization Rate	Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBtu)		
	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan
Clothes washer	2	3	4	124	124	124	11	100%	2,726	4,089	5,452	3	3	3	100%	66	99	132
Water Heating Savings	39	43	44		-	-	20	100%		-	-	4	4	4	100%	2,730	2,982	3,080
ES Homes	39	43	44		-	-	25	100%		-	-	30	30	30	100%	29,250	31,950	33,000
LED lighting	195	256	264	30	30	30	5	100%	29,640	38,851	40,128	-	-	-	100%	-	-	-
Lighting and Appliances	39	43	44	25	25	25	20	100%	19,500	21,300	22,000	-	-	-	100%	-	-	-
Program Summary*				**7,151**	**9,207**	**9,621**			**51,866**	**64,240**	**67,580**	**1,313**	**1,436**	**1,486**		**32,046**	**35,031**	**36,212**

*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. ENERGY STAR® Products Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life	Electric Realization Rate	Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBtu)		
	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE	2	3	3		-	-	19	100%		-	-	10	10	10	100%	391	587	587
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE	10	11	12		-	-	19	100%		-	-	13	13	13	100%	2,432	2,675	2,918
Water Heater - Tankless, On-Demand >=.94	20	22	23		-	-	19	100%		-	-	10	10	10	100%	3,762	4,138	4,326
Boiler Reset Controls	25	28	31		-	-	15	100%		-	-	5	5	5	100%	1,688	1,890	2,093
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	13	16	17		-	-	18	100%		-	-	11	11	11	100%	2,668	3,283	3,488
Condensing Boiler >= 95% AFUE (Up to 300 MBH)	59	58	60		-	-	19	100%		-	-	14	14	14	100%	15,806	15,538	16,074
Furnace 95+ AFUE (<150) w/ECM Motor	20	23	27	168	168	168	17	100%	57,120	65,688	77,112	8	8	8	100%	2,754	3,167	3,718
Furnace 97+ AFUE (<150) w/ECM Motor	25	29	32	168	168	168	17	100%	71,400	82,824	91,392	9	9	9	100%	3,910	4,536	5,005
Heat Recovery Ventilator (-133 kWh penalty)	8	4	5	(133)	(133)	(133)	20	100%	(21,280)	(10,640)	(13,300)	8	8	8	100%	1,232	616	770
Thermostat - Standard, 7-Day Programmable	25	52	61		-	-	15	100%		-	-	3	3	3	100%	1,200	2,496	2,928
Thermostat - WiFI (Cooling & Heating)	101	112	123	104	104	104	15	100%	157,560	174,720	191,880	7	7	7	100%	9,999	11,088	12,177
Thermostat - WiFI (Heating Only)	150	166	182		-	-	15	100%		-	-	7	7	7	100%	14,850	16,434	18,018
Program Summary*				**17,000**	**19,852**	**22,039**			**264,800**	**312,592**	**347,084**	**3,629**	**4,001**	**4,351**		**60,692**	**66,449**	**72,102**

*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. Home Energy Reports Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life	Electric Realization Rate	Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBtu)		
	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan
Behavioral Savings	10,000	10,000	10,000			-	3	100%			-	0	0	0	100%	13,010	8,281	5,512
Program Summary*				**-**	**-**	**-**			**-**	**-**	**-**	**4,980**	**3,170**	**2,110**		**13,010**	**8,281**	**5,512**

*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. Large Business Energy Solutions Programs

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life	Electric Realization Rate	Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBtu)		
	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan
Large Business Custom	6	7	8		-	-	14	100%		-	-	2,065	2,013	2,055	91.4%	158,542	180,308	210,315
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	1	2	3		-	-	25	100%		-	-	95	95	95	102.1%	2,412	4,824	7,236
Condensing Boiler >= 90% thermal efficiency (1701 to 2000 MBH)	2	3	4		-	-	25	100%		-	-	165	165	165	102.1%	8,439	12,658	16,877
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	2	3	4		-	-	25	100%		-	-	28	28	28	102.1%	1,429	2,144	2,859
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	2	2	4		-	-	25	100%		-	-	51	51	51	102.1%	2,624	2,624	5,248
Infrared Heater, Low Intensity (all sizes)	6	5	5		-	-	17	100%		-	-	12	12	12	102.1%	1,250	1,041	1,041
Steam Trap	10	12	15		-	-	6	100%		-	-	12	12	12	102.1%	747	897	1,121
Kitchen - Convection Oven (>= 44% efficiency)	2	2	3		-	-	12	100%		-	-	13	13	13	102.1%	316	316	474
Upstream Volume Water Heater >75 MBTUh 92%	6	8	9		-	-	15	100%		-	-	234	234	234	102.1%	21,473	28,630	32,209
Program Summary*				**-**	**-**	**-**			**-**	**-**	**-**	**14,000**	**16,433**	**19,311**		**203,587**	**241,210**	**285,853**

*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities Inc. Small Business Energy Solutions Program

Measure	Quantity			Gross Annual Savings per Unit (kWh)			Measure Life	Electric Realization Rate	Net Total Lifetime Savings (kWh)			Gross Annual Savings Per Unit (MMBtu)			Non-Electric Realization Rate	Net Total Lifetime Savings (MMBtu)		
	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan	2018 Plan	2019 Plan	2020 Plan	All 3 Years of Plan	2018 Plan	2019 Plan	2020 Plan
Small Business Custom	6	7	8		-	-	20	100%		-	-	222	293	292	100%	26,667	40,969	46,667
Upstream Water Heater - Condensing > 75 MBTUh (EF 0.90)					-	-	15	100%							100%			
Upstream Water Heater - Indirect	16	20	22		-	-	15	100%		-	-	19	19	19	100%	4,560	5,700	6,270
Water Heater - Integrated w/Condensing Boiler >= 90% AFUE	1	2	3		-	-	20	100%		-	-	25	25	25	100%	492	984	1,476
Water Heater - Integrated w/Condensing Boiler >= 95% AFUE	2	3	4		-	-	20	100%		-	-	31	31	31	100%	1,220	1,830	2,440
Upstream Water Heater - Stand Alone Storage Tank (EF 0.67) <75 MBTUh					-	-	13	100%							100%			
Upstream Water Heater - Tankless, On-Demand >=.82					-	-	20	100%							100%			
Upstream Water Heater - Tankless, On-Demand >=.94 (< 200 MBTUh .90 EF)	40	50	55		-	-	20	100%		-	-	9	9	9	100%	7,112	8,890	9,779
Boiler Reset Controls	7	9	10		-	-	15	100%		-	-	11	11	11	100%	1,197	1,539	1,710
Condensed Unit Heater >= 90% thermal efficiency (up to 300 MBH)	1	2	3		-	-	18	100%		-	-	41	41	41	100%	736	1,472	2,209
Condensing Boiler >= 90% AFUE (Up to 300 MBH)	10	11	12		-	-	25	100%		-	-	15	15	15	100%	3,675	4,043	4,410
Condensing Boiler >= 90% thermal efficiency (1000 to 1700 MBH)	1	2	2		-	-	25	100%		-	-	95	95	95	100%	2,363	4,725	4,725
Condensing Boiler >= 90% thermal efficiency (301 to 499 MBH)	1	2	3		-	-	25	100%		-	-	28	28	28	100%	700	1,400	2,100
Condensing Boiler >= 90% thermal efficiency (500 to 999 MBH)	12	13	14		-	-	25	100%		-	-	51	51	51	100%	15,420	16,705	17,990
Condensing Boiler >= 96% AFUE (Up to 300 MBH)	6	4	5		-	-	25	100%		-	-	18	18	18	100%	2,655	1,770	2,213
Furnace 95+ AFUE (<150) w/ECM Motor	4	4	5	168	168	168	18	100%	12,096	12,096	15,120	6	6	6	100%	410	410	513
Furnace 97+ AFUE (<150) w/ECM Motor	5	5	6	168	168	168	18	100%	15,120	15,120	18,144	7	7	7	100%	603	603	724
Infrared Heater, Low Intensity (all sizes)	6	6	6		-	-	17	100%		-	-	12	12	12	100%	1,224	1,224	1,224
Kitchen - Pre Rinse Sprayers	25	40	43		-	-	8	100%		-	-	11	11	11	100%	2,280	3,648	3,922
Steam Trap	8	15	17		-	-	6	100%		-	-	12	12	12	100%	586	1,098	1,244
Thermostat - WiFI (Cooling & Heating)	60	67	72		-	-	15	100%		-	-	7	7	7	100%	5,940	6,633	7,128
Thermostat - WiFi (Heating Only)	25	29	32		-	-	15	100%		-	-	7	7	7	100%	2,475	2,871	3,168
Kitchen - Convection Oven (>= 44% efficiency)	2	2	-		-	-	12	100%		-	-	13	13	13	100%	310	310	-
Kitchen - Conveyor Oven (>= 44% efficiency)	6	7	8		-	-	12	100%		-	-	88	88	88	100%	6,365	7,426	8,486
Kitchen - Fryer	8	4	5		-	-	12	100%		-	-	51	51	51	100%	4,877	2,438	3,048
Kitchen - Griddle	3	3	4		-	-	12	100%		-	-	13	13	13	100%	472	472	629
Kitchen - Rack Oven (>= 50% efficiency)	3	4	5		-	-	12	100%		-	-	211	211	211	100%	7,607	10,142	12,678
Kitchen - Steamer (ES >= 38% efficiency)	3	4	5		-	-	12	100%		-	-	105	105	105	100%	3,794	5,059	6,324
Program Summary*				**1,512**	**1,512**	**1,848**			**27,216**	**27,216**	**33,264**	**6,381**	**8,229**	**9,383**		**107,871**	**140,626**	**159,341**

*Program Summary Total Savings Values are Net (Multiplied by the Realization Rate)

Northern Utilities, Inc. -- New Hampshire Division

EEC Budget

	Residential	Low-Income	Gen Service	Total
August-17	$29,508	$23,488	$50,959	$103,955
September-17	$29,508	$23,488	$56,982	$109,979
October-17	$53,885	$42,892	$93,055	$189,832
November-17	$53,885	$42,892	$93,055	$189,832
December-17	$53,885	$42,892	$99,078	$195,855
January-18	$10,344	$4,414	$10,989	$25,747
February-18	$20,688	$8,828	$21,978	$51,494
March-18	$30,237	$12,902	$36,297	$79,435
April-18	$40,581	$17,316	$43,111	$101,007
May-18	$50,925	$21,730	$54,100	$126,754
June-18	$61,269	$26,144	$69,264	$156,676
July-18	$71,613	$30,558	$76,078	$178,248
August-18	$81,957	$34,972	$87,067	$203,995
September-18	$91,505	$39,046	$101,385	$231,937
October-18	$101,850	$43,460	$108,199	$253,509
Total	$781,640	$415,020	$1,001,597	$2,198,256

Budget with Low-Income Costs Allocated to Residential and General Service Classes

	Residential	Low-Income	Gen Service	Total
August-17	$32,768	0	$71,188	$103,955
September-17	$32,666	0	$77,313	$109,979
October-17	$61,348	0	$128,484	$189,832
November-17	$64,727	0	$125,105	$189,832
December-17	$66,274	0	$129,581	$195,855
January-18	$11,697	0	$14,050	$25,747
February-18	$23,477	0	$28,017	$51,494
March-18	$34,015	0	$45,421	$79,435
April-18	$45,648	0	$55,360	$101,007
May-18	$56,232	0	$70,522	$126,754
June-18	$65,761	0	$90,915	$156,676
July-18	$76,354	0	$101,894	$178,248
August-18	$86,872	0	$117,124	$203,995
September-18	$96,483	0	$135,454	$231,937
October-18	$109,548	0	$143,961	$253,509
Total	$863,868	$0	$1,334,389	$2,198,256

EEC Charge Factor Calculation

EEC Charge Factors for Residential Customers

EEC Reconciliation Adjustment	$68,263	Schedule 16 EEC Page 3 Nov '17 - Oct '18 Totals- November 2017 Beginning Balance
EEC Costs	$668,738	Schedule 16 EEC Page 3 Nov '17 - Oct '18 Totals- Column 2
EEC Performance Incentive	$41,121	Schedule 16 EEC Page 3 Nov '17 - Oct '18 Totals- Column 3
EEC Low-Income Costs	$68,348	Schedule 16 EEC Page 3 Nov '17 - Oct '18 Totals- Column 4
EEC Allocated Low-Income Performance Incentive	$4,060	Schedule 16 EEC Page 3 Nov '17 - Oct '18 Totals- Column 5
Total	$850,530	
Forecasted Annual Throughput Volumes for Residential Customers	19,633,024	Schedule 16 EEC Page 3 Nov '17 - Oct '18 Totals- Column 6
Energy Efficiency Charge Factor for Residential Customers	**$0.0433**	

EEC Charge Factors for Commercial and Industrial Customers (C&I)

EEC Reconciliation Adjustment	($117,039)	Schedule 16 EEC Page 4 Nov '17 - Oct '18 Totals- November 2017 Beginning Balance
EEC Costs	$800,601	Schedule 16 EEC Page 4 Nov '17 - Oct '18 Totals- Column 2
EEC Performance Incentive	$45,648	Schedule 16 EEC Page 4 Nov '17 - Oct '18 Totals- Column 3
EEC Low-Income Costs	$256,804	Schedule 16 EECPage 4 Nov '17 - Oct '18 Totals- Column 4
EEC Allocated Low-Income Performance Incentive	$13,712	Schedule 16 EEC Page 4 Nov '17 - Oct '18 Totals- Column 5
Total	$999,725	
Forecasted Annual Throughput Volumes for C&I Customers	54,326,090	Schedule 16 EEC Page 4 Nov '17 - Oct '18 Totals- Column 6
Energy Efficiency Charge Factor for C&I Customers	**$0.0184**	

Northern Utilities, Inc.

New Hampshire Division

Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge

To Be Effective November 1, 2017 through October 31, 2018

Residential Customers

		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income Costs	Allocated Low Income PI	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Prime Rate	Interest @ Prime Rate	Ending Balance plus Interest (Over)/Under	Therm Sales	# of Days
August-16	Actual	($120,821)	$0.0297	$10,359	$76,233	$3,792	$715	$62	($50,379)	($85,600)	3.50%	($254)	($50,633)	348,871	31
September-16	Actual	($50,633)	$0.0297	$10,002	$34,015	$3,792	$4,418	$384	($18,026)	($34,329)	3.50%	($98)	($18,124)	336,716	30
October-16	Actual	($18,124)	$0.0297	$16,876	$37,746	$3,792	$3,980	$346	$10,864	($3,630)	3.50%	($11)	$10,853	568,241	31
November-16	Actual	$10,853	$0.0331	$38,713	$55,789	$11,291	($1,008)	($88)	$38,126	$24,489	3.50%	$414	$38,539	1,232,751	30
December-16	Actual	$38,539	$0.0331	$76,673	$108,334	$3,789	$6,887	$599	$81,475	$60,007	3.50%	$99	$81,574	2,316,380	31
January-17	Actual	$81,574	$0.0331	$99,563	$12,485	$2,326	$1,418	$123	($1,637)	$39,968	3.50%	$119	($1,518)	3,007,957	31
February-17	Actual	($1,518)	$0.0331	$93,935	$53,145	$2,326	$1,955	$170	($37,857)	($19,688)	3.50%	($53)	($37,910)	2,837,897	28
March-17	Actual	($37,910)	$0.0331	$87,478	$42,241	$2,326	$1,936	$168	($78,717)	($58,314)	3.50%	($173)	($78,890)	2,642,839	31
April-17	Actual	($78,890)	$0.0331	$72,153	$18,223	$2,326	$1,638	$142	($128,714)	($103,802)	3.75%	($320)	($129,034)	2,179,888	30
May-17	Actual	($129,034)	$0.0331	$36,716	$91,117	$2,326	$1,407	$122	($70,779)	($99,906)	3.75%	($394)	($71,173)	1,109,119	31
June-17	Actual	($71,173)	$0.0331	$22,791	$42,745	$2,326	$3,465	$301	($45,127)	($58,150)	3.75%	($179)	($45,306)	688,778	30
July-17	Forecast	($45,306)	$0.0331	$12,567	$29,508	$2,326	$3,640	$171	($22,229)	($33,767)	4.00%	($115)	($22,343)	379,672	31
August-17	Forecast	($22,343)	$0.0331	$11,514	$29,508	$2,326	$3,259	$153	$1,390	($10,477)	4.00%	($36)	$1,354	347,843	31
September-17	Forecast	$1,354	$0.0331	$11,747	$29,508	$2,326	$3,158	$149	$24,747	$13,051	4.00%	$43	$24,790	354,884	30
October-17	Forecast	$24,790	$0.0331	$20,561	$53,885	$2,326	$7,463	$192	$68,096	$46,443	4.25%	$168	$68,263	621,166	31
November-17	Forecast	**$68,263**	$0.0433	$66,143	$53,885	$2,326	$10,842	$279	$69,452	$68,858	4.25%	$241	$69,693	1,527,546	30
December-17	Forecast	$69,693	$0.0433	$105,411	$53,885	$2,326	$12,389	$319	$33,200	$51,446	4.25%	$186	$33,386	2,434,445	31
January-18	Forecast	$33,386	$0.0433	$152,434	$10,344	$3,647	$1,353	$477	($103,228)	($34,921)	4.25%	($126)	($103,354)	3,520,419	31
February-18	Forecast	($103,354)	$0.0433	$158,441	$20,688	$3,647	$2,789	$492	($234,179)	($168,766)	4.25%	($550)	($234,729)	3,659,144	28
March-18	Forecast	($234,729)	$0.0433	$125,973	$30,237	$3,647	$3,778	$456	($322,585)	($278,657)	4.25%	($1,006)	($323,591)	2,909,301	31
April-18	Forecast	($323,591)	$0.0433	$94,556	$40,581	$3,647	$5,067	$455	($368,396)	($345,993)	4.25%	($1,209)	($369,605)	2,183,734	30
May-18	Forecast	($369,605)	$0.0433	$50,661	$50,925	$3,647	$5,307	$380	($360,006)	($364,806)	4.25%	($1,317)	($361,323)	1,169,988	31
June-18	Forecast	($361,323)	$0.0433	$21,331	$61,269	$3,647	$4,492	$267	($312,979)	($337,151)	4.25%	($1,178)	($314,156)	492,637	30
July-18	Forecast	($314,156)	$0.0433	$16,729	$71,613	$3,647	$4,741	$241	($250,643)	($282,400)	4.25%	($1,019)	($251,662)	386,344	31
August-18	Forecast	($251,662)	$0.0433	$15,664	$81,957	$3,647	$4,915	$219	($176,589)	($214,125)	4.25%	($773)	($177,362)	361,750	31
September-18	Forecast	($177,362)	$0.0433	$14,233	$91,505	$3,647	$4,977	$198	($91,266)	($134,314)	4.25%	($469)	($91,735)	328,700	30
October-18	Forecast	($91,735)	$0.0433	$28,535	$101,850	$3,647	$7,698	$276	($6,801)	($49,268)	4.25%	($178)	($6,978)	659,015	31
Nov 17 thru Oct 18 Totals				$850,110	$668,738	$41,121	$68,348	$4,060						19,633,024	

Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 1 of 3, filed on September 15, 2017 in this Cost of Gas Docket.
Actual Performance Incentives includes reconciliations from prior year(s).

Northern Utilities, Inc.

New Hampshire Division

Calculation of the EEC Charge, a Component of the Local Distribution Adjustment Charge

To Be Effective November 1, 2017 through October 31, 2018

General Service Customers

		Beginning Balance (Over)/Under	EEC Rate per Therm	EEC Collections	EEC Costs	DSM PI	Allocated Low Income Costs	Allocated Low Income PI	Ending Balance (Over)/Under	Average Balance (Over)/Under	Interest Prime Rate	Interest @ Prime Rate	Ending Balance plus Interest (Over)/Unde	Therm Sales	# of Days
August-16	Actual	($297,651)	$0.0146	$33,594	$12,566	$3,800	$4,715	$410	($309,754)	($303,702)	3.50%	($900)	($310,654)	2,301,130	31
September-16	Actual	($310,654)	$0.0146	$33,797	$13,739	$3,800	$30,375	$2,641	($293,896)	($302,275)	3.50%	($867)	($294,763)	2,314,864	30
October-16	Actual	($294,763)	$0.0146	$42,581	$34,049	$3,800	$20,425	$1,776	($277,295)	($286,029)	3.50%	($848)	($278,142)	2,915,811	31
November-16	Actual	($278,142)	$0.0142	$59,322	$78,561	$8,691	($3,390)	($295)	($253,897)	($266,020)	3.50%	($918)	($254,815)	4,147,524	30
December-16	Actual	($254,815)	$0.0142	$83,060	$272,509	$3,800	$17,136	$1,490	($42,940)	($148,878)	3.50%	($363)	($43,303)	5,849,267	31
January-17	Actual	($43,303)	$0.0142	$99,147	$6,035	$3,069	$3,291	$286	($129,767)	($86,535)	3.50%	($247)	($130,015)	6,982,140	31
February-17	Actual	($130,015)	$0.0142	$92,855	$11,377	$3,069	$4,506	$392	($203,525)	($166,770)	3.50%	($421)	($203,946)	6,539,051	28
March-17	Actual	($203,946)	$0.0142	$94,045	$43,145	$3,069	$4,853	$422	($246,501)	($225,224)	3.50%	($620)	($247,121)	6,622,861	31
April-17	Actual	($247,121)	$0.0142	$72,598	$7,339	$3,069	$3,843	$334	($305,134)	($276,127)	3.75%	($775)	($305,909)	5,112,504	30
May-17	Actual	($305,909)	$0.0142	$49,281	$10,205	$3,069	$4,401	$383	($337,131)	($321,520)	3.75%	($917)	($338,049)	3,470,431	31
June-17	Actual	($338,049)	$0.0142	$33,805	$13,568	$3,069	$11,976	$1,041	($342,199)	($340,124)	3.75%	($918)	($343,116)	2,380,668	30
July-17	Forecast	($343,116)	$0.0142	$29,400	$50,959	$3,069	$19,849	$934	($297,706)	($320,411)	4.00%	($1,089)	($298,794)	2,070,431	31
August-17	Forecast	($298,794)	$0.0142	$30,656	$50,959	$3,069	$20,229	$952	($254,241)	($276,518)	4.00%	($939)	($255,181)	2,158,882	31
September-17	Forecast	($255,181)	$0.0142	$32,447	$56,982	$3,069	$20,331	$956	($206,289)	($230,735)	4.00%	($759)	($207,048)	2,284,992	30
October-17	Forecast	($207,048)	$0.0142	$41,873	$93,055	$3,069	$35,429	$913	($116,455)	($161,751)	4.25%	($584)	($117,039)	2,948,806	31
November-17	Forecast	**($117,039)**	$0.0184	$83,086	$93,055	$3,069	$32,050	$826	($71,125)	($94,082)	4.25%	($329)	($71,454)	4,515,525	30
December-17	Forecast	($71,454)	$0.0184	$110,290	$99,078	$3,069	$30,503	$786	($48,307)	($59,881)	4.25%	($216)	($48,523)	5,994,048	31
January-18	Forecast	($48,523)	$0.0184	$146,559	$10,989	$3,951	$3,061	$1,079	($176,002)	($112,263)	4.25%	($405)	($176,407)	7,965,148	31
February-18	Forecast	($176,407)	$0.0184	$145,798	$21,978	$3,951	$6,039	$1,065	($289,173)	($232,790)	4.25%	($759)	($289,932)	7,923,782	28
March-18	Forecast	($289,932)	$0.0184	$129,280	$36,297	$3,951	$9,124	$1,100	($368,740)	($329,336)	4.25%	($1,189)	($369,929)	7,026,066	31
April-18	Forecast	($369,929)	$0.0184	$97,133	$43,111	$3,951	$12,249	$1,101	($406,650)	($388,290)	4.25%	($1,356)	($408,006)	5,278,951	30
May-18	Forecast	($408,006)	$0.0184	$66,616	$54,100	$3,951	$16,423	$1,176	($398,973)	($403,490)	4.25%	($1,456)	($400,429)	3,620,426	31
June-18	Forecast	($400,429)	$0.0184	$43,688	$69,264	$3,951	$21,651	$1,289	($347,962)	($374,196)	4.25%	($1,307)	($349,269)	2,374,348	30
July-18	Forecast	($349,269)	$0.0184	$38,710	$76,078	$3,951	$25,817	$1,315	($280,819)	($315,044)	4.25%	($1,137)	($281,956)	2,103,792	31
August-18	Forecast	($281,956)	$0.0184	$40,710	$87,067	$3,951	$30,057	$1,337	($200,254)	($241,105)	4.25%	($870)	($201,124)	2,212,497	31
September-18	Forecast	($201,124)	$0.0184	$41,399	$101,385	$3,951	$34,069	$1,358	($101,760)	($151,442)	4.25%	($529)	($102,289)	2,249,948	30
October-18	Forecast	($102,289)	$0.0184	$56,333	$108,199	$3,951	$35,762	$1,281	($9,430)	($55,860)	4.25%	($202)	($9,632)	3,061,560	31
Nov 17 thru Oct 18 Totals				$999,602	$800,601	$45,648	$256,804	$13,712						54,326,089	

Forecast therm Sales from Company Forecast as seen in Attachment 2 to Schedule 10 B, Page 1 of 3, filed on September 15, 2017 in this Cost of Gas Docket. Does not include Special Contracts.
Actual Performance Incentives includes reconciliations from prior year(s).

Northern Utilities, Inc.
Calculation of Lost Revenue Rate (LRR)
Effective November 1, 2017

Line	Sector			Reference
	Residential Classes- R5, R6, R10, R11			
1	Sector Ending Balance-October 31, 2017	$	1,696	Page 2, Ln 2, Nov-2017
2	Lost Distribution Revenue-November 2017 through October 2018	$	54,159	Page 2, Ln 12, Total
3	Interest- November 2017 through October 2018	$	(697)	Page 2, Ln 25, Total
4	**Total to be recovered**	**$**	**55,157**	Line 1+ Line 2+Line 3
5	Sector Sales - Therms- November 2017 through October 2018		19,633,024	Page 2, Line 15
6	**Lost Revenue Rate ($ per therm)**		**$0.0028**	Line 4 / Line 5
	Commercial & Industrial Classes-G40/T40, G50/T50, G41/T41, G51/T51, G42/T42, G-52/T52			
7	Sector Ending Balance-October 31, 2017		2,962	Page 2, Ln 29, Nov-2017
8	Lost Distribution Revenue-November 2017 through October 2018	$	51,468	Page 2, Ln 40, Total
9	Interest- November 2017 through October 2018	**$**	**(329)**	Page 2, Ln 53, Total
10	**Total to be recovered**	**$**	**54,100**	Line 7+Line 8+Line 9
11	Sector Sales - Therms- November 2017 through October 2018		54,326,089	Page 2, Line 43
12	**Lost Revenue Rate ($ per therm)**		**$0.0010**	Line 10 / Line 11

Northern Utilities, Inc.
Lost Revenue Reconciliation
2018

Line	Sector / Description	Unit	Estimate Nov-17	Estimate Dec-17	Estimate Jan-18	Estimate Feb-18	Estimate Mar-18	Estimate Apr-18	Estimate May-18	Estimate Jun-18	Estimate Jul-18	Estimate Aug-18	Estimate Sep-18	Estimate Oct-18	Total
1	**RESIDENTIAL**														
2	**Beginning Balance - (Over)/Under**	$'s	$ 1,696	$ (238)	$ (3,994)	$ (10,591)	$ (17,443)	$ (21,999)	$ (24,233)	$ (23,256)	$ (19,922)	$ (15,757)	$ (10,908)	$ (5,280)	
3	**COSTS**														
4	Incremental Annualized Savings	Therms	5,360	18,089	1,566	3,132	4,577	6,143	7,709	9,275	10,841	12,407	13,852	15,418	108,367
5	Incremental Monthly Savings	Therms	447	1,507	130	261	381	512	642	773	903	1,034	1,154	1,285	9,031
6															-
7	Cumulative Savings - Current	Therms	447	1,507	130	261	381	512	642	773	903	1,034	1,154	1,285	9,031
8	Cumulative Savings - Prior	Therms	3,629	-	-	-	-	-	-	-	-	-	-	-	-
9	Cumulative LBR Savings	Therms	4,076	5,583	5,713	5,974	6,356	6,868	7,510	8,283	9,187	10,220	11,375	12,660	93,805
10															
11	Average Distribution Rate	$/Therm	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	$ 0.57736	
12	Lost Distribution Revenue	**$'s**	$ 2,353	$ 3,223	$ 3,299	$ 3,449	$ 3,670	$ 3,965	$ 4,336	$ 4,782	$ 5,304	$ 5,901	$ 6,567	$ 7,309	**$ 54,159**
13															
14	**REVENUE**														
15	Sector Sales	Therms	1,527,546	2,434,445	3,520,419	3,659,144	2,909,301	2,183,734	1,169,988	492,637	386,344	361,750	328,700	659,015	19,633,024
16	Lost Revenue Rate	$/Therm	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	$0.0028	
17	Revenue	**$'s**	$ 4,277	$ 6,816	$ 9,857	$ 10,246	$ 8,146	$ 6,114	$ 3,276	$ 1,379	$ 1,082	$ 1,013	$ 920	$ 1,845	**$ 54,972**
18															
19	(Over)/Under-Recovery (Exc interest)		$ (228)	$ (3,831)	$ (10,552)	$ (17,387)	$ (21,920)	$ (24,148)	$ (23,172)	$ (19,853)	$ (15,700)	$ (10,869)	$ (5,261)	$ 184	
20															
21	**INTEREST**														
22	Average Monthly Balance		$ 734	$ (2,035)	$ (7,273)	$ (13,989)	$ (19,682)	$ (23,074)	$ (23,702)	$ (21,555)	$ (17,811)	$ (13,313)	$ (8,085)	$ (2,548)	
23	Interest Rate-WSJ Prime Rate	Annual %	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	Total
24	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
25	Computed Interest	$'s	$ (10)	$ (163)	$ (38)	$ (57)	$ (79)	$ (84)	$ (84)	$ (69)	$ (57)	$ (39)	$ (18)	$ 1	$ (697.40)
26															
27	**Ending Balance**	**$'s**	$ (238)	$ (3,994)	$ (10,591)	$ (17,443)	$ (21,999)	$ (24,233)	$ (23,256)	$ (19,922)	$ (15,757)	$ (10,908)	$ (5,280)	$ 185	
28	**COMMERCIAL & INDUSTRIAL**														
29	**Beginning Balance - (Over)/Under**	**$'s**	$ 2,962	$ 1,125	$ (1,417)	$ (5,847)	$ (10,152)	$ (13,438)	$ (14,794)	$ (14,260)	$ (12,192)	$ (9,519)	$ (6,570)	$ (3,229)	
30															
31	**COSTS**														
32	Incremental Annualized Savings	Therms	28,649	59,686	3,206	6,412	9,371	12,578	15,784	18,990	22,196	25,402	28,361	31,567	262,201
33	Incremental Monthly Savings	Therms	2,387	4,974	267	534	781	1,048	1,315	1,582	1,850	2,117	2,363	2,631	21,850
34															-
35	Cumulative Savings - Current	Therms	2,387	4,974	267	534	781	1,048	1,315	1,582	1,850	2,117	2,363	2,631	21,850
36	Cumulative Savings - Prior	Therms	12,534	-	-	-	-	-	-	-	-	-	-	-	-
37	Cumulative LBR Savings	Therms	14,922	19,895	20,163	20,697	21,478	22,526	23,841	25,424	27,273	29,390	31,754	34,384	**291,746**
38															
39	Average Distribution Rate	$/Therm	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	$ 0.17641	
40	Lost Distribution Revenue	**$'s**	$ 2,632	$ 3,510	$ 3,557	$ 3,651	$ 3,789	$ 3,974	$ 4,206	$ 4,485	$ 4,811	$ 5,185	$ 5,602	$ 6,066	**$ 51,468**
41															
42	**REVENUE**														
43	Sector Sales	Therms	4,515,525	5,994,048	7,965,148	7,923,782	7,026,066	5,278,951	3,620,426	2,374,348	2,103,792	2,212,497	2,249,948	3,061,560	54,326,089
44	Lost Revenue Rate	$/Therm	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	$0.0010	
45	Revenue	**$'s**	$ 4,516	$ 5,994	$ 7,965	$ 7,924	$ 7,026	$ 5,279	$ 3,620	$ 2,374	$ 2,104	$ 2,212	$ 2,250	$ 3,062	**$ 54,326**
46															
47	(Over)/Under-Recovery (Exc interest)	$'s	$ 1,079	$ (1,360)	$ (5,826)	$ (10,119)	$ (13,389)	$ (14,743)	$ (14,209)	$ (12,149)	$ (9,484)	$ (6,546)	$ (3,218)	$ (225)	
48															
49	**INTEREST**														
50	Average Monthly Balance		$ 2,020	$ (117)	$ (3,622)	$ (7,983)	$ (11,771)	$ (14,090)	$ (14,502)	$ (13,205)	$ (10,838)	$ (8,032)	$ (4,894)	$ (1,727)	
51	Interest Rate-WSJ Prime Rate	Annual %	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	4.25%	Total
52	Days per Month		30	31	31	28	31	30	31	30	31	31	30	31	365
53	Computed Interest	$'s	$ 46	$ (58)	$ (21)	$ (33)	$ (48)	$ (51)	$ (51)	$ (42)	$ (34)	$ (24)	$ (11)	$ (1)	$ (329)
54															
55	**Ending Balance**	**$'s**	$ 1,125	$ (1,417)	$ (5,847)	$ (10,152)	$ (13,438)	$ (14,794)	$ (14,260)	$ (12,192)	$ (9,519)	$ (6,570)	$ (3,229)	$ (226)	

NOTES:

Line 11 and Line 39, see page 3.
Line 4 and Line 32, see Page 4.

Northern Utilities, Inc.
Summary of Average Distribution Rate for Lost Revenue

Calculation of Average Distribution Rate for Lost Revenue (Detail)

		(1) Number of Customers	(2) Customer Charge	(3)=(1)X(2) Calculated Customer	(4) Billing Determinants - Winter First Therms	(4) Billing Determinants - Winter Excess Therms	(5) Winter Distribution Rates First Therms $/thm	(5) Winter Distribution Rates Excess Therms $/thm	(6) = (4) X (5) Calculated Winter Distribution Revenue	(7) Billing Determinants - Summer First Therms	(7) Billing Determinants - Summer Excess Therms	(8) Summer Distribution Rates First Therms $/thm	(8) Summer Distribution Rates Excess Therms $/thm	(9) = (7) X (8) Calculated Summer Distribution Revenue
R-5	Residential, Heating	270,640	$21.36	$5,780,870	5,789,680	7,839,764	$ 0.6468	$ 0.5332	$7,924,927	2,642,288	382,014	$ 0.5678	$ 0.5678	$1,717,198
R-10	Residential Heating, Low Income	12,052	$8.54	$102,924	267,004	283,179	$ 0.6468	$ 0.5332	$323,689	108,201	8,800	$ 0.5678	$ 0.5678	$66,433
R-6	Residential, Non-Heating	16,650	$21.36	$355,644	55,016	94,660	$ 0.4443	$ 0.4443	$66,501	55,804	33,594	$ 0.4443	$ 0.4443	$39,720
R-11	Residential Non-Heating, Low Incom	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Residential Service		299,342		$6,239,438	6,111,700	8,217,602			$8,315,117	2,806,293	424,408			$1,823,351
G-40/T-40	Low Annual, High Winter Use	58,925	$67.45	$3,974,491	1,839,901	6,193,053	$ 0.1844	$ 0.1844	$1,481,277	729,110	576,749	$ 0.1844	$ 0.1844	$240,800
G-50/T-50	Low Annual, Low Winter Use	9,708	$67.45	$654,805	218,399	697,489	$ 0.1844	$ 0.1844	$168,890	219,197	545,720	$ 0.1844	$ 0.1844	$141,051
G-41/T-41	Medium Annual, High Winter Use	8,266	$196.73	$1,626,170	10,640,539		$ 0.2327		$2,476,053	2,508,973		$ 0.1851		$464,411
G-51/T-51	Medium Annual, Low Winter Use	3,103	$196.73	$610,453	1,631,320	979,727	$ 0.1749	$ 0.1467	$429,044	1,234,616	636,585	$ 0.1412	$ 0.1187	$249,890
G-42/T-42	High Annual, High Winter Use	450	$1,124.19	$505,886	5,047,220		$ 0.1993		$1,005,911	1,710,865		$ 0.1295		$221,557
G-52/T-52	High Annual, Low Winter Use	385	$1,124.19	$432,813	9,238,799		$ 0.1770		$1,635,267	7,699,964		$ 0.0936		$720,717
Total General Service		80,837		$7,804,618	28,616,178	7,870,269			$7,196,442	14,102,725	1,759,053			$2,038,426
Total Company		380,179		$14,044,056	34,727,878	16,087,871			$15,511,559	16,909,018	2,183,460			$3,861,777

Notes:

Column (1),Column (4) and Column (7): 2016 actual billing determinants.

Column (2), Column (5) and Column (8): Winter distribution rates effective August 1, 2017, Summer distribution rates effective August 1, 2017.

R-11 Rate Class is closed May 1, 2017. R-11 Rate Class Customers migrated to R-6 Rate Class.

Calculation of Average Distribution Rate for Lost Revenue (Summary)

		(10)=(3) Total Calculated Customer	(11) = (6) + (9) Total Volumetric Revenue	12=(10+(11) Total Distribution Revenue	(13)=(4)+(7) Total Annual Therms
R-5	Residential, H	$5,780,870	$9,642,125	$15,422,996	16,653,745
R-10	Residential H	$102,924	$390,122	$493,046	667,183
R-6	Residential, N	$355,644	$106,221	$461,865	239,074
R-11	Residential N	NA	NA		NA
Total Residential Service		$6,239,438	$10,138,468	$16,377,906	17,560,002
G-40/T-40	Low Annual, I	$3,974,491	$1,722,077	$5,696,568	9,338,812
G-50/T-50	Low Annual, I	$654,805	$309,940	$964,745	1,680,805
G-41/T-41	Medium Ann	$1,626,170	$2,940,464	$4,566,635	13,149,512
G-51/T-51	Medium Ann	$610,453	$678,934	$1,289,387	4,482,248
G-42/T-42	High Annual,	$505,886	$1,227,468	$1,733,353	6,758,085
G-52/T-52	High Annual,	$432,813	$2,355,984	$2,788,797	16,938,763
Total General Service		$7,804,618	$9,234,868	$17,039,486	52,348,225
Total Company		$14,044,056	$19,373,336	$33,417,392	$69,908,227

Based on Actual Billing Determinants for 2016 at Current Distribution Rates

	(1) Revenue	(2) therms	(3)=(1)X(2) $/therm
R-5	$9,642,125	16,653,745	$0.5790
R-10	$390,122	667,183	$0.5847
R-6	$106,221	239,074	$0.4443
Total	$10,138,468	17,560,002	**$0.5774**
G-40/T-40	$1,722,077	9,338,812	$0.1844
G-50/T-50	$309,940	1,680,805	$0.1844
G-41/T-41	$2,940,464	13,149,512	$0.2236
G-51/T-51	$678,934	4,482,248	$0.1515
G-42/T-42	$1,227,468	6,758,085	$0.1816
G-52/T-52	$2,355,984	16,938,763	$0.1391
Total General	$9,234,868	52,348,225	**$0.1764**

Northern Utilities, Inc.
Gas Savings for LRR Calculation

	Planned Gas Savings - 2018	Annual Therms
1.	Residential Programs	
2.	Home Energy Assistance	19,646
3.	EnergyStar® Homes	14,361
4.	Home Perf w/ EnergyStar®	14,737
5.	EnergyStar® Appliances	40,008
6.	Home Energy Reports	31,700
7.	Residential	120,452
8.		
9.	Commercial & Industrial Programs	
10.	Large Business Energy Solutions	164,327
11.	Small Business Energy Solutions	82,291
12.	Education (Gas)	-
13.	Commercial & Industrial	246,618

LBR Savings Allocation	Unit	Estimate Nov-17	Estimate Dec-17	Estimate Jan-18	Estimate Feb-18	Estimate Mar-18	Estimate Apr-18	Estimate May-18	Estimate Jun-18	Estimate Jul-18	Estimate Aug-18	Estimate Sep-18	Estimate Oct-18	Estimate Nov-18	Estimate Dec-18	Nov-17 to Oct-18 Total	Jan 18 to Dec-18 Total
14. Residential Programs		8.0%	27.0%	1.3%	2.6%	3.8%	5.1%	6.4%	7.7%	9.0%	10.3%	11.5%	12.8%	14.1%	15.4%	105.5%	100.0%
15. Annualized Therms	Therms	5,360	18,089	1,566	3,132	4,577	6,143	7,709	9,275	10,841	12,407	13,852	15,418	16,984	18,550	108,367	120,452
16.																	
17. Monthly Incremental	Therms	447	1,507	130	261	381	512	642	773	903	1,034	1,154	1,285	1,415	1,546		10,038
18. Monthly Cumulative	Therms	4,076	5,583	5,713	5,974	6,356	6,868	7,510	8,283	9,187	10,220	11,375	12,660	14,075	15,621	93,805	113,842
19.																	
20. Commercial & Industrial Programs		12%	25%	1.3%	2.6%	3.8%	5.1%	6.4%	7.7%	9.0%	10.3%	11.5%	12.8%	14.1%	15.4%		
21. Annualized Therms	Therms	28,649	59,686	3,206	6,412	9,371	12,578	15,784	18,990	22,196	25,402	28,361	31,567	34,773	37,979	262,201	246,618
22.																	
23. Monthly Incremental	Therms	2,387	4,974	267	534	781	1,048	1,315	1,582	1,850	2,117	2,363	2,631	2,898	3,165	21,850	20,552
24. Monthly Cumulative	Therms	14,922	19,895	20,163	20,697	21,478	22,526	23,841	25,424	27,273	29,390	31,754	34,384	37,282	40,447	291,746	334,657

Northern Utilities, Inc.
Lost Revenue Reconciliation
2017

Line	Sector / Description	Unit	Recast Jan-17	Recast Feb-17	Recast Mar-17	Recast Apr-17	Recast May-17	Recast Jun-17	Estimate Jul-17	Estimate Aug-17	Estimate Sep-17	Estimate Oct-17	Total
1	**RESIDENTIAL**												
2	**Beginning Balance - (Over)/Under**	$'s	$ -	$ (653)	$ (2,083)	$ (3,236)	$ (3,989)	$ (3,984)	$ (3,604)	$ (2,735)	$ (1,538)	$ (10)	
3	**COSTS**												
4	Incremental Annualized Savings	Therms	2,680	3,350	3,350	2,680	2,680	2,680	6,700	6,700	5,360	7,370	43,547
5	Incremental Monthly Savings	Therms	223	279	279	223	223	223	558	558	447	614	3,629
6													
7	Cumulative Savings - Current	Therms	223	502	782	1,005	1,228	1,452	2,010	2,568	3,015	3,629	16,414
8	Cumulative Savings - Prior	Therms	-	-	-	-	-	-	-	-	-	-	-
9	Cumulative LBR Savings	Therms	223	502	782	1,005	1,228	1,452	2,010	2,568	3,015	3,629	16,414
10													
11	Average Distribution Rate	$/Therm	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.55356	$ 0.57736	$ 0.57736	$ 0.57736	
12	Lost Distribution Revenue (Actual thru April)	**$'s**	$ 124	$ 278	$ 433	$ 556	$ 680	$ 804	$ 1,113	$ 1,483	$ 1,741	$ 2,095	**$ 9,305**
13													
14	**REVENUE**												
15	Sector Sales	Therms	3,007,957	2,837,897	2,642,839	2,179,888	1,109,119	668,778	390,499	468,347	354,785	659,206	14,319,316
16	Lost Revenue Rate	$/Therm	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	$0.0006	
17	Revenue	**$'s**	$ 775	$ 1,702	$ 1,585	$ 1,307	$ 654	$ 408	$ 234	$ 281	$ 213	$ 396	**$ 7,555**
18													
19	(Over)/Under-Recovery (Exc interest)		$ (651)	$ (2,077)	$ (3,235)	$ (3,987)	$ (3,963)	$ (3,589)	$ (2,725)	$ (1,533)	$ (10)	$ 1,689	
20													
21	**INTEREST**												
22	Average Monthly Balance		$ (326)	$ (1,365)	$ (2,659)	$ (3,611)	$ (3,976)	$ (3,786)	$ (3,164)	$ (2,134)	$ (774)	$ 840	
23	Interest Rate-WSJ Prime Rate	Annual %	3.50%	3.50%	3.50%	3.75%	3.75%	3.75%	4.00%	4.00%	4.00%	4.25%	Total
24	Days per Month		31	28	31	30	31	30	31	31	30	31	365
25	Computed Interest	$'s	$ (2)	$ (6)	$ (1)	$ (2)	$ (21)	$ (15)	$ (9)	$ (5)	$ (0)	$ 6	$ (55)
26													
27	**Ending Balance**	**$'s**	$ (653)	$ (2,083)	$ (3,236)	$ (3,989)	$ (3,984)	$ (3,604)	$ (2,735)	$ (1,538)	$ (10)	$ 1,696	
28	**COMMERCIAL & INDUSTRIAL**												
29	**Beginning Balance - (Over)/Under**	**$'s**	$ -	$ (768)	$ (1,896)	$ (2,764)	$ (2,929)	$ (2,605)	$ (1,940)	$ (1,226)	$ (6)	$ 1,398	
30													
31	**COSTS**												
32	Incremental Annualized Savings	Therms	7,162	7,162	21,487	31,037	11,937	9,550	7,162	16,712	16,712	21,487	150,409
33	Incremental Monthly Savings	Therms	597	597	1,791	2,586	995	796	597	1,393	1,393	1,791	12,534
34													
35	Cumulative Savings - Current	Therms	597	1,194	2,984	5,571	6,565	7,361	7,958	9,351	10,743	12,534	64,859
36	Cumulative Savings - Prior	Therms	-	-	-	-	-	-	-	-	-	-	-
37	Cumulative LBR Savings	Therms	597	1,194	2,984	5,571	6,565	7,361	7,958	9,351	10,743	12,534	64,859
38													
39	Average Distribution Rate	$/Therm	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.15551	$ 0.17641	$ 0.17641	$ 0.17641	
40	Lost Distribution Revenue	**$'s**	$ 93	$ 186	$ 464	$ 866	$ 1,021	$ 1,145	$ 1,238	$ 1,650	$ 1,895	$ 2,211	**$ 10,768**
41													
42	**REVENUE**												
43	Sector Sales	Therms	6,982,140	6,539,051	6,622,861	5,112,504	3,470,431	2,380,668	2,595,235	2,151,565	2,476,883	3,290,136	41,621,474
44	Lost Revenue Rate	$/Therm	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	$0.0002	
45	Lost Distribution Revenue (Actual thru April)	**$'s**	$ 859	$ 1,308	$ 1,324	$ 1,022	$ 688	$ 474	$ 519	$ 430	$ 495	$ 658	**$ 7,779**
46													
47	(Over)/Under-Recovery (Exc interest)	$'s	$ (766)	$ (1,891)	$ (2,756)	$ (2,920)	$ (2,596)	$ (1,934)	$ (1,221)	$ (6)	$ 1,394	$ 2,951	
48													
49	**INTEREST**												
50	Average Monthly Balance		$ (383)	$ (1,330)	$ (2,326)	$ (2,842)	$ (2,763)	$ (2,269)	$ (1,581)	$ (616)	$ 694	$ 2,175	
51	Interest Rate-WSJ Prime Rate	Annual %	3.50%	3.50%	3.50%	3.75%	3.75%	3.75%	4.00%	4.00%	4.00%	4.25%	Total
52	Days per Month		31	28	31	30	31	30	31	31	30	31	365
53	Computed Interest	$'s	$ (2)	$ (5)	$ (8)	$ (9)	$ (8)	$ (6)	$ (4)	$ (0)	$ 5	$ 11	$ (28)
54													
55	**Ending Balance**	**$'s**	$ (768)	$ (1,896)	$ (2,764)	$ (2,929)	$ (2,605)	$ (1,940)	$ (1,226)	$ (6)	$ 1,398	$ 2,962	

Note: Recast denotes change from accounting records. Savings recast to match original budget. Lost revenue is calculated based on original estimated savings. The final reconciliation using actual savins will be provided in the June 2018 filing.

Calculation of Lost Revenues - Northern Utilities, Inc.
Year 2018
Savings and lost revenues are estimated based on a calendar year. Does not include prior cumulative savings.

	Annualized Therm Savings	"Installed" Savings Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Residential														
Jan	1,566	130	130	130	130	130	130	130	130	130	130	130	130	1,566
Feb	3,132		261	261	261	261	261	261	261	261	261	261	261	2,871
Mar	4,577			381	381	381	381	381	381	381	381	381	381	3,814
Apr	6,143				512	512	512	512	512	512	512	512	512	4,607
May	7,709					642	642	642	642	642	642	642	642	5,139
Jun	9,275						773	773	773	773	773	773	773	5,410
Jul	10,841							903	903	903	903	903	903	5,420
Aug	12,407								1,034	1,034	1,034	1,034	1,034	5,169
Sep	13,852									1,154	1,154	1,154	1,154	4,617
Oct	15,418										1,285	1,285	1,285	3,854
Nov	16,984											1,415	1,415	2,831
Dec	18,550												1,546	1,546
Total	120,452	130	391	773	1,285	1,927	2,700	3,604	4,637	5,792	7,077	8,492	10,038	46,846
		130	522	1,295	2,580	4,507	7,207	10,811	15,448	21,240	28,316	36,808	46,846	
Proposed Distribution Rate														**$ 0.5774**
Lost Revenue														**$ 27,047**
C&I														
Jan	3,206	267	267	267	267	267	267	267	267	267	267	267	267	3,206
Feb	6,412		534	534	534	534	534	534	534	534	534	534	534	5,878
Mar	9,371			781	781	781	781	781	781	781	781	781	781	7,810
Apr	12,578				1,048	1,048	1,048	1,048	1,048	1,048	1,048	1,048	1,048	9,433
May	15,784					1,315	1,315	1,315	1,315	1,315	1,315	1,315	1,315	10,522
Jun	18,990						1,582	1,582	1,582	1,582	1,582	1,582	1,582	11,077
Jul	22,196							1,850	1,850	1,850	1,850	1,850	1,850	11,098
Aug	25,402								2,117	2,117	2,117	2,117	2,117	10,584
Sep	28,361									2,363	2,363	2,363	2,363	9,454
Oct	31,567										2,631	2,631	2,631	7,892
Nov(Staff1-10)	34,773											2,898	2,898	5,796
Dec(Staff 1-10)	37,979												3,165	3,165
Total	246,618	267	802	1,582	2,631	3,946	5,528	7,378	9,495	11,858	14,489	17,387	20,552	95,914
		267	1,069	2,651	5,282	9,228	14,756	22,134	31,629	43,487	57,976	75,362	95,914	
Proposed Distribution Rate														**$ 0.1764**
Lost Revenue														**$ 16,920**
Total Lost Revenue														**$ 43,967**