

## Exhibit 2: 2016-2017 Cost-Effectiveness Estimates

### Summary

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#### Electric Programs: Benefit Cost Summary

Program Name	Energy Savings	Utility Costs	Present Value of Non-Energy Benefits	UCT	TRC
Low Income Weatherization	3,120,692	\$ 6,761,963	\$ 1,486,217	0.93	1.45
Residential Lighting	142,069,430	\$ 28,634,457	\$ -	3.71	1.72
Space Heat	14,567,380	\$ 8,219,101	\$ 1,844,024	2.71	1.48
Water Heat	1,142,600	\$ 818,046	\$ -	1.15	1.16
Home Energy Assessment	6,846,404	\$ 4,388,907	\$ 307,738	1.19	1.38
Home Appliances	20,581,000	\$ 11,593,528	\$ 5,123,275	0.98	1.33
Showerheads Elect	9,580,476	\$ 1,308,295	\$ 7,426,195	4.88	6.47
Weatherization Total	13,976,298	\$ 6,022,111	\$ 922,782	4.13	2.36
Home Energy Reports	5,722,290	\$ 229,221	\$ -	4.17	4.59
Fuel Conversion Rebate	3,793,400	\$ 1,670,187	\$ -	4.36	1.33
Multifamily Existing	36,286,248	\$ 19,927,098	\$ 4,398,912	2.07	1.69
Multifamily New Construction	4,000,000	\$ 1,442,290	\$ -	2.24	1.66
<b>Total Residential Energy Management</b>	<b>261,686,218</b>	<b>\$ 91,160,152</b>	<b>\$ 21,509,144</b>	<b>2.62</b>	<b>1.76</b>
Commercial/Industrial Retrofit	53,000,000	\$ 15,720,603	\$ -	2.27	1.59
Business Lighting Grants	80,600,000	\$ 21,494,963	\$ -	2.54	1.76
Commercial/Industrial New Construction	17,089,465	\$ 4,679,985	\$ -	2.75	2.87
Resource Conservation Management	28,500,000	\$ 2,772,925	\$ -	2.00	1.36
Resource Conservation Management Urban Smart	16,000,000	\$ 1,514,086	\$ -	2.06	2.27
High Voltage, Self-Directed 449	12,040,079	\$ 4,023,830	\$ -	2.36	2.11
High Voltage, Self Directed non-449	32,568,380	\$ 10,879,358	\$ -	2.37	2.12
Technology Evaluation	0	\$ -	\$ -	-	-
Business Rebates	60,305,478	\$ 14,312,025	\$ 832,547	2.80	2.50
<b>Total Business Energy Management</b>	<b>300,103,402</b>	<b>\$ 75,631,781</b>	<b>\$ 832,547</b>	<b>2.47</b>	<b>1.94</b>
Residential HER Expansion	17,346,930	\$ 976,899	\$ -	2.97	3.26
Commercial Energy Report Pilot	0	\$ -	\$ -	-	-
<b>Total Pilots</b>	<b>17,346,930</b>	<b>\$ 976,899</b>	<b>\$ -</b>	<b>2.97</b>	<b>3.26</b>
Northwest Energy Efficiency Alliance	22,776,000	\$ 10,400,000	\$ -	0.69	0.76
Transmission & Distribution	3,281,325	\$ -	\$ -	-	-
<b>Total Regional Programs</b>	<b>26,057,325</b>	<b>\$ 10,400,000</b>	<b>\$ -</b>	<b>0.69</b>	<b>0.76</b>
Total Portfolio Support	0	\$ 11,983,200			
Total Research & Compliance	0	\$ 6,107,424			
<b>Total All Programs used in CE Calculations</b>	<b>605,193,875</b>	<b>196,259,456</b>	<b>22,341,691</b>	<b>2.22</b>	<b>1.69</b>
Total Other Electric Programs	0	\$ 2,725,362		n/a	n/a
<b>Total Electric Portfolio</b>	<b>605,193,875</b>	<b>198,984,818</b>	<b>22,341,691</b>		

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#### Gas Programs: Benefit Cost Summary

Program Name	Energy Savings	Utility Costs	Present Value of Non-Energy Benefits	UCT	TRC
Low Income Weatherization	37,283	\$ 568,090	\$ 83,972	0.80	1.21
Residential Space Heat	1,291,410	\$ 4,844,604	\$ -	3.11	1.99
Residential Appliances 1	93,860	\$ 33,300	\$ -	15.56	17.11
Residential Showerheads	653,262	\$ 1,059,548	\$ 10,362,039	2.92	4.58
Web Enabled Thermostats	68,000	\$ 406,382	\$ -	2.08	0.87
Single Family Retrofit-Wx	782,375	\$ 5,277,089	\$ 2,856,689	2.03	0.89
Home Energy Reports	239,967	\$ 66,178	\$ -	3.69	4.06
EnergyStar Manufactured Home	0	\$ -	\$ -	-	-
Single Family New Construction	0	\$ 95,949	\$ -	-	-
Multifamily Existing	233,892	\$ 1,958,481	\$ 1,045,462	1.24	1.04
Multifamily New Construction	105,260	\$ 361,509	\$ -	2.22	2.39
<b>Total Residential Efficiency Programs</b>	<b>3,505,308</b>	<b>\$ 14,671,130</b>	<b>\$ 14,348,161</b>	<b>2.33</b>	<b>1.56</b>
Commercial / Industrial Retrofit	730,000	\$ 3,658,655	\$ -	-	-
Commercial/Industrial New Construction	322,875	\$ 1,294,451	\$ -	2.81	2.31
Resource Conservation Manager	1,050,000	\$ 963,800	\$ 1,477,956	1.90	2.34
Energy Efficient Technology Evaluation	0	\$ -	\$ -	-	-
Commercial Rebates	1,350,103	\$ 3,576,683	\$ 1,561,732	1.99	1.96
<b>Total Commercial Programs</b>	<b>3,452,978</b>	<b>\$ 9,536,740</b>	<b>\$ 3,039,688</b>	<b>2.01</b>	<b>1.88</b>
<b>Total Pilots</b>	<b>430,529</b>	<b>\$ 181,029</b>	<b>\$ -</b>	<b>2.42</b>	<b>2.67</b>
<b>Total Regional Program (Gas Market Transformation)</b>	<b>37,680</b>	<b>\$ 2,475,756</b>	<b>\$ -</b>	<b>0.11</b>	<b>0.12</b>
<b>Total Portfolio Support</b>	<b>0</b>	<b>\$ 1,632,464</b>	<b>\$ -</b>		
<b>Total Research &amp; Compliance</b>	<b>0</b>	<b>\$ 984,044</b>	<b>\$ -</b>		
<b>Total Gas Portfolio</b>	<b>7,426,495</b>	<b>\$ 29,481,163</b>	<b>\$ 17,387,848</b>	<b>1.83</b>	<b>1.50</b>

2016-2017 Program Planning Electric Cost-Effectiveness Tests:

WACC 7.80%																
Program Number	Program Name	Weighted Measure Life by Program	kWh Savings	Program Overhead Costs	Total Incentive Payments	Customer Costs	Incremental Measure Costs	Total Utility Costs	Total Resource Costs	Present Value of Total Utility Program Costs in Time Zero*	Present Value of Total Resource Costs in Time Zero*	Utility Cost Test: Present Value Electric Savings In Time Zero	Present Value of Non Energy Benefits in time Zero	Utility Cost Test: Benefit Cost Ratio	Total Resource Cost Test: Benefit Cost Ratio	
<a href="#">Go to Gas Portfolio page</a>																
E201	Weatherization Assistance	20	3,120,692	\$ 614,595	\$ 6,147,368	\$ 386,453	\$ 5,509,260	\$ 6,761,963	\$ 6,123,855	\$ 4,663,283	\$ 4,315,201	\$ 4,322,227	\$ 1,486,217	0.93	1.45	
E214	Residential Lighting	11	142,069,430	\$ 7,963,707	\$ 20,670,750	\$ 39,436,860	\$ 60,045,310	\$ 28,634,457	\$ 68,009,017	\$ 26,562,576	\$ 63,088,142	\$ 98,488,960	\$ -	3.71	1.72	
E214	Space Heat	16	14,567,380	\$ 775,101	\$ 7,444,000	\$ 10,149,620	\$ 17,109,420	\$ 8,219,101	\$ 17,884,521	\$ 7,624,398	\$ 16,590,465	\$ 20,625,236	\$ 1,844,024	2.71	1.48	
E215	Water Heat	13	1,142,600	\$ 238,046	\$ 580,000	\$ 70,000	\$ 650,000	\$ 818,046	\$ 888,046	\$ 758,855	\$ 823,790	\$ 870,308	\$ -	1.15	1.16	
E214	Home Energy Assessment	11	6,846,404	\$ 653,931	\$ 3,734,976	\$ -	\$ 3,734,976	\$ 4,388,907	\$ 4,388,907	\$ 4,071,342	\$ 4,071,342	\$ 4,829,811	\$ 307,738	1.19	1.38	
E214	Home Appliances	8	20,581,000	\$ 2,447,998	\$ 9,145,530	\$ 2,127,816	\$ 11,176,846	\$ 11,593,528	\$ 13,624,844	\$ 10,754,664	\$ 12,639,002	\$ 10,571,274	\$ 5,123,275	0.98	1.33	
E214	Showerheads Elect	10	9,580,476	\$ 379,145	\$ 929,150	\$ 1,016,150	\$ 1,945,300	\$ 1,308,295	\$ 2,324,445	\$ 1,213,632	\$ 2,156,257	\$ 5,924,947	\$ 7,426,195	4.88	6.47	
E214	Weatherization Total		13,976,298	\$ 1,500,640	\$ 4,521,471	\$ 5,972,775	\$ 10,494,226	\$ 6,022,111	\$ 11,994,866	\$ 5,586,374	\$ 11,126,963	\$ 23,049,264	\$ 922,782	4.13	2.36	
E214	SF Weatherization	24	6,442,773	\$ 747,364	\$ 1,814,096	\$ 4,084,715	\$ 5,898,811	\$ 2,561,460	\$ 6,646,175	\$ 2,376,122	\$ 6,165,283	\$ 12,334,770	\$ 657,703	5.19	2.31	
E214	Mobile Home Duct Sealing	6	5,837,525	\$ 440,556	\$ 2,407,375	\$ 1,229,000	\$ 3,636,355	\$ 2,847,931	\$ 4,076,911	\$ 2,641,865	\$ 3,781,921	\$ 7,926,558	\$ 265,079	3.00	2.38	
E214	Web Enabled Thermostats	20	1,696,000	\$ 312,720	\$ 300,000	\$ 659,060	\$ 959,060	\$ 612,720	\$ 1,271,780	\$ 568,386	\$ 1,179,759	\$ 2,787,936	\$ -	4.91	2.60	
E214	Home Energy Reports	2	5,722,290	\$ 128,988	\$ 100,232	\$ -	\$ 100,238	\$ 229,221	\$ 229,226	\$ 212,635	\$ 212,640	\$ 886,608	\$ -	4.17	4.59	
E215	Single Family New Construction	30	0	\$ 144,949	\$ -	\$ -	\$ -	\$ 144,949	\$ 144,949	\$ 134,461	\$ 134,461	\$ -	\$ -	-	-	
E215	EnergyStar Manufactured Home	30														
E216	Fuel Conversion Rebate	30	3,793,400	\$ 409,187	\$ 1,261,000	\$ 1,945,000	\$ 3,206,000	\$ 1,670,187	\$ 3,615,187	\$ 1,549,338	\$ 3,353,605	\$ 6,748,501	\$ -	4.36	1.33	
E217	Multifamily Existing	17	36,286,248	\$ 3,247,734	\$ 16,679,364	\$ 9,847,790	\$ 26,520,194	\$ 19,927,098	\$ 29,767,928	\$ 18,485,249	\$ 27,614,034	\$ 38,352,420	\$ 4,398,912	2.07	1.69	
E218	Multifamily New Construction	11	4,000,000	\$ 709,381	\$ 732,909	\$ 696,668	\$ 1,429,577	\$ 1,429,577	\$ 2,138,958	\$ 1,337,932	\$ 1,984,191	\$ 3,002,973	\$ -	2.24	1.66	
	<b>Total Residential Energy Management</b>		<b>261,686,218</b>	<b>\$ 19,213,402</b>	<b>\$ 71,946,751</b>	<b>\$ 71,649,132</b>	<b>\$ 141,921,347</b>	<b>\$ 91,160,152</b>	<b>\$ 161,134,749</b>	<b>\$ 82,954,739</b>	<b>\$ 148,110,094</b>	<b>\$ 217,672,529</b>	<b>\$ 21,509,144</b>	<b>2.62</b>	<b>1.76</b>	
E250	Commercial/Industrial Retrofit	12	53,000,000	\$ 4,220,603	\$ 11,500,000	\$ 9,035,714	\$ 20,535,714	\$ 15,720,603	\$ 24,756,317	\$ 14,583,119	\$ 22,965,044	\$ 33,095,827	\$ -	2.27	1.59	
E250	Business Lighting Grants	11	80,600,000	\$ 5,414,963	\$ 16,080,000	\$ 12,634,286	\$ 28,714,286	\$ 21,494,963	\$ 34,129,249	\$ 19,939,669	\$ 31,659,786	\$ 50,615,688	\$ -	2.54	1.76	
E251	Commercial/Industrial New Construction	14	17,089,465	\$ 829,985	\$ 3,850,000	\$ 245,745	\$ 4,095,745	\$ 4,679,985	\$ 4,925,729	\$ 4,341,359	\$ 4,569,322	\$ 11,937,930	\$ -	2.75	2.87	
E253	Resource Conservation Management	3	28,500,000	\$ 1,842,925	\$ 930,000	\$ 1,727,143	\$ 2,657,143	\$ 2,772,925	\$ 4,500,068	\$ 2,572,287	\$ 4,174,460	\$ 5,152,086	\$ -	2.00	1.36	
E253	Resource Conservation Management Urban Smart	3	16,000,000	\$ 1,514,086	\$ -	\$ -	\$ -	\$ 1,514,086	\$ 1,514,086	\$ 1,404,532	\$ 1,404,532	\$ 2,892,399	\$ -	2.06	2.27	
E253	Resource Accounting System	na	0	\$ 234,006	\$ -	\$ -	\$ -	\$ 234,006	\$ 234,006	\$ 217,074	\$ 217,074	\$ -	\$ -	-	-	
E258	High Voltage, Self-Directed 449	15	12,040,079	\$ 325,275	\$ 3,698,556	\$ 924,639	\$ 4,623,194	\$ 4,023,830	\$ 4,948,469	\$ 3,732,681	\$ 4,590,417	\$ 8,824,507	\$ -	2.36	2.11	
E258	High Voltage, Self Directed non-449	15	32,568,380	\$ 877,684	\$ 10,001,674	\$ 2,500,418	\$ 12,502,092	\$ 10,879,358	\$ 13,379,776	\$ 10,092,169	\$ 12,411,666	\$ 23,870,266	\$ -	2.37	2.12	
E261	Technology Evaluation	na														
E262	Business Rebates		60,305,478	\$ 4,490,266	\$ 9,821,759	\$ 3,865,492	\$ 13,464,964	\$ 14,312,025	\$ 17,955,230	\$ 13,276,461	\$ 16,656,058	\$ 37,117,665	\$ 832,547	2.80	2.50	
E262	Business Lighting - Markdown	5	19,984,846	\$ 968,103	\$ 1,640,183	\$ -	\$ 1,640,183	\$ 2,608,286	\$ 2,608,286	\$ 2,419,561	\$ 2,419,561	\$ 7,166,867	\$ -	2.96	3.26	
E262	Commercial Kitchen/Laundry (E)	11	2,124,016	\$ 181,739	\$ 285,170	\$ 151,658	\$ 356,828	\$ 466,909	\$ 538,567	\$ 433,125	\$ 499,598	\$ 1,355,674	\$ 232,308	3.13	3.45	
E262	Commercial Direct Install (E)	na														
E262	Commercial HVAC (E)	11	6,665,125	\$ 442,045	\$ 1,138,500	\$ 1,242,818	\$ 2,381,318	\$ 1,580,545	\$ 2,823,363	\$ 1,466,183	\$ 2,619,075	\$ 9,905,987	\$ -	6.76	4.16	
E262	Small Ag DI Electric	7	2,995,770	\$ 393,494	\$ 503,002	\$ 321,103	\$ 824,105	\$ 896,496	\$ 1,217,599	\$ 831,629	\$ 1,129,499	\$ 1,437,050	\$ 600,240	1.73	1.93	
E262	Lodging DI Electric	7	6,181,881	\$ 807,480	\$ 1,492,979	\$ 165,887	\$ 1,658,865	\$ 2,300,459	\$ 2,466,345	\$ 2,134,006	\$ 2,287,890	\$ 3,208,439	\$ -	1.50	1.54	
E262	Small Business Direct Install (E)	10	22,353,840	\$ 1,697,405	\$ 4,761,925	\$ 1,984,027	\$ 6,603,664	\$ 6,459,330	\$ 8,301,069	\$ 5,991,957	\$ 7,700,435	\$ 14,043,647	\$ -	2.34	2.01	
E262	Business Express Lighting	5														
	<b>Total Business Energy Management</b>		<b>300,103,402</b>	<b>\$ 19,749,793</b>	<b>\$ 55,881,988</b>	<b>\$ 30,933,437</b>	<b>\$ 86,593,138</b>	<b>\$ 75,631,781</b>	<b>\$ 106,342,931</b>	<b>\$ 70,159,352</b>	<b>\$ 98,648,359</b>	<b>\$ 173,506,368</b>	<b>\$ 832,547</b>	<b>2.47</b>	<b>1.94</b>	
E249	Commercial Energy Report Pilot	na														
E249R	Residential Home Energy Report Expansion	2	17,346,930	\$ 554,378	\$ 422,521	\$ -	\$ 422,521	\$ 976,899	\$ 976,899	\$ 906,214	\$ 906,214	\$ 2,687,721	\$ -	2.97	3.26	
	<b>Total Pilots</b>		<b>17,346,930</b>	<b>\$ 554,378</b>	<b>\$ 422,521</b>	<b>\$ -</b>	<b>\$ 422,521</b>	<b>\$ 976,899</b>	<b>\$ 976,899</b>	<b>\$ 906,214</b>	<b>\$ 906,214</b>	<b>\$ 2,687,721</b>	<b>\$ -</b>	<b>2.97</b>	<b>3.26</b>	
E245	Northwest Energy Efficiency Alliance	5	22,776,000	\$ 3,120,000	\$ 7,280,000	\$ -	\$ 7,280,000	\$ 10,400,000	\$ 10,400,000	\$ 9,647,495	\$ 9,647,495	\$ 6,691,413	\$ -	0.69	0.76	
	Transmission & Distribution	15	3,281,325													
	<b>Total Regional Programs</b>		<b>26,057,325</b>	<b>\$ 3,120,000</b>	<b>\$ 7,280,000</b>	<b>\$ -</b>	<b>\$ 7,280,000</b>	<b>\$ 10,400,000</b>	<b>\$ 10,400,000</b>	<b>\$ 9,647,495</b>	<b>\$ 9,647,495</b>	<b>\$ 6,691,413</b>	<b>\$ -</b>	<b>0.69</b>	<b>0.76</b>	
	Customer Engagement & Education							3,812,965	3,812,965	3,537,073	3,537,073					
	Energy Advisors							2,290,664	2,290,664	2,124,920	2,124,920					
	Events							1,315,966	1,315,966	1,220,748	1,220,748					
	Brochures, non program-specific							188,735	188,735	175,079	175,079					
	Education							17,600	17,600	16,327	16,327					
	Electronic Media Tools & Marketing							2,087,303	2,087,303	1,936,274	1,936,274					
	Customer Digital Experience							1,177,980	1,177,980	1,092,746	1,092,746					
	Market Integration							656,616	656,616	609,106	609,106					
	Automated Benchmarking System							252,707	252,707	234,422	234,422					
	Rebates Processing							1,341,093	1,341,093	1,244,057	1,244,057					
	Programs Support							621,389	621,389	576,428	576,428					
	Data and Systems Services							2,087,044	2,087,044	1,936,033	1,936,033					
	Energy Efficient Communities							1,825,784	1,825,784	1,693,677	1,693,677					
	Trade Ally Support							235,322	235,322	218,295	218,295					
	Contractor Alliance Network (revenue + cost)							(27,700)	(27,700)	(25,696)	(25,696)					
	<b>Total Portfolio Support</b>							<b>11,983,200</b>	<b>11,983,200</b>	<b>11,116,141</b>	<b>11,116,141</b>					
	Conservation Supply Curves							616,840	616,840	572,208	572,208					
	Strategic Planning							286,483	286,483	265,754	265,754					
	Market Research							572,669	572,669	531,233	531,233					
	Program Evaluation							3,630,110	3,630,110	3,367,449	3,367,449					
	Biennial Elec. Conserv. Acquisitr. Review							170,000	170,000	157,699	157,699					
	Verification Team							831,322	831,322	771,171	771,171					
	<b>Total Research and Compliance</b>							<b>6,107,424</b>	<b>6,107,424</b>	<b>5,665,514</b>	<b>5,665,514</b>					
	<b>Total In CE Calculations</b>		<b>605,193,875</b>	<b>\$ 42,637,572</b>	<b>\$ 135,531,260</b>	<b>\$ 102,582,570</b>	<b>\$ 236,217,006</b>	<b>\$ 196,259,456</b>	<b>\$ 296,945,203</b>	<b>\$ 180,449,455</b>	<b>\$ 274,093,816</b>	<b>\$ 400,558,031</b> </				

2016-2017 Program Planning: Gas Cost-Effectiveness Tests

WACC 7.80%																
Prog. No.	Program Name	Weighted Measure Life by Program	Therm Savings	Program Overhead Costs	Total Incentive Payments	Customer Costs & Agency Costs	Incremental Measure Costs	Total Utility Costs	Total Resource Costs	Present Value of Total Utility Costs in Time Zero	Present Value of Total Resource Costs in Time Zero	Present Value Therm Savings In Time Zero	Present Value of Non Energy Benefits in time Zero	Utility Cost Test: Benefit Cost Ratio	Total Resource Cost Test: Benefit Cost Ratio	
<a href="#">Go to Electric Portfolio Page</a>																
G201	Low Income Weatherization	22	37,283	\$ 89,883	\$ 478,207	\$ -	\$ 398,506	\$ 568,090	\$ 488,389	\$ 526,985	\$ 453,051	\$ 422,454	\$ 83,972	0.80	1.21	
G214	Home Energy Assessment															
G214	SF Existing Water Heat															
G214	Residential Space Heat	18	1,291,410	\$ 734,104	\$ 4,110,500	\$ 3,506,770	\$ 7,617,270	\$ 4,844,604	\$ 8,351,374	\$ 4,494,067	\$ 7,747,101	\$ 13,994,418	\$ -	3.11	1.99	
G214	Residential Appliances 1	12	93,860	\$ -	\$ 33,300	\$ -	\$ 33,300	\$ 33,300	\$ 33,300	\$ 30,891	\$ 30,891	\$ 480,563	\$ -	15.56	17.11	
G214	Residential Showerheads	10	653,262	\$ 304,766	\$ 754,782	\$ 2,124,450	\$ 2,879,232	\$ 1,059,548	\$ 3,183,998	\$ 982,883	\$ 2,953,616	\$ 2,874,349	\$ 10,362,039	2.92	4.58	
G214	Mobile Home Duct Sealing															
G214	Web Enabled Thermostats	10	68,000	\$ 106,382	\$ 300,000	\$ 659,060	\$ 959,060	\$ 406,382	\$ 1,065,442	\$ 376,978	\$ 988,351	\$ 784,515	\$ -	2.08	0.87	
G214	Single Family Retrofit-Wx	25	782,375	\$ 822,479	\$ 4,454,610	\$ 11,482,800	\$ 15,937,410	\$ 5,277,089	\$ 16,759,889	\$ 4,895,259	\$ 15,547,207	\$ 9,936,877	\$ 2,856,689	2.03	0.89	
G214	Home Energy Reports	2	239,967	\$ 40,520	\$ 25,658	\$ -	\$ 25,658	\$ 66,178	\$ 66,178	\$ 61,389	\$ 61,389	\$ 226,830	\$ -	3.69	4.06	
G216	EnergyStar Manufactured Home	30	0	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -			
G215	Single Family New Construction	30	0	\$ 95,949	\$ -	\$ -	\$ -	\$ 95,949	\$ 95,949	\$ 89,006	\$ 89,006	\$ -	\$ -	0.00	0.00	
G217	Multifamily Existing	20	233,892	\$ 644,053	\$ 1,314,428	\$ 1,680,870	\$ 2,995,298	\$ 1,958,481	\$ 3,639,351	\$ 1,816,773	\$ 3,376,021	\$ 2,255,282	\$ 1,045,462	1.24	1.04	
G218	Multifamily New Construction	14	105,260	\$ 145,269	\$ 216,240	\$ 7,490	\$ 223,730	\$ 361,509	\$ 368,999	\$ 335,352	\$ 342,300	\$ 743,762	\$ -	2.22	2.39	
	<b>Total Residential Efficiency Programs</b>		<b>3,505,308</b>	<b>\$ 2,983,406</b>	<b>\$ 11,687,725</b>	<b>\$ 19,461,440</b>	<b>\$ 31,069,464</b>	<b>\$ 14,671,130</b>	<b>\$ 34,052,869</b>	<b>\$ 13,609,583</b>	<b>\$ 31,588,932</b>	<b>\$ 31,719,049</b>	<b>\$ 14,348,161</b>	<b>2.33</b>	<b>1.56</b>	
G250	Commercial / Industrial Retrofit	17	730,000	\$ 1,058,655	\$ 2,600,000	\$ 1,168,116	\$ 3,768,116	\$ 3,658,655	\$ 4,826,771	\$ 3,393,928	\$ 4,477,524	\$ 6,135,364	\$ -			
G251	Commercial/Industrial New Construction	24	322,875	\$ 219,451	\$ 1,075,000	\$ 439,085	\$ 1,514,085	\$ 1,294,451	\$ 1,733,536	\$ 1,200,790	\$ 1,608,104	\$ 3,373,126	\$ -	2.81	2.31	
G253	Resource Conservation Manager	3	1,050,000	\$ 653,800	\$ 310,000	\$ 575,714	\$ 885,714	\$ 963,800	\$ 1,539,514	\$ 894,063	\$ 1,428,121	\$ 1,694,946	\$ 1,477,956	1.90	2.34	
G253	Resource Accounting Software	na		\$ 43,151	\$ -	\$ -	\$ -	\$ 43,151	\$ 43,151	\$ 40,029	\$ 40,029	\$ -	\$ -			
G261	Energy Efficient Technology Evaluation															
G262	Commercial Rebates		1,350,103	\$ 524,710	\$ 3,051,973	\$ 1,435,462	\$ 4,320,852	\$ 3,576,683	\$ 4,845,562	\$ 3,317,887	\$ 4,494,955	\$ 6,600,951	\$ 1,561,732	1.99	1.96	
G262	Small Business Direct Install (G)	9	558,910	\$ 214,622	\$ 1,488,933	\$ 871,529	\$ 2,360,462	\$ 1,703,555	\$ 2,575,084	\$ 1,580,292	\$ 2,388,761	\$ 2,958,855	\$ -	1.87	1.36	
G262	Commercial Kitchen/Laundry (G)	11	435,063	\$ 143,491	\$ 681,860	\$ 429,500	\$ 944,777	\$ 825,351	\$ 1,088,269	\$ 765,632	\$ 1,009,526	\$ 2,065,844	\$ 557,679	2.70	2.80	
G262	Commercial Direct Install (G)	6														
G262	Commercial HVAC (G)	9	51,000	\$ 47,513	\$ 56,250	\$ 115,500	\$ 171,750	\$ 103,763	\$ 219,263	\$ 96,255	\$ 203,398	\$ 269,312	\$ -	2.80	1.46	
G262	Small Agr. DI Gas	5	38,790	\$ 65,368	\$ 25,826	\$ 18,933	\$ 44,759	\$ 91,194	\$ 110,127	\$ 84,596	\$ 102,159	\$ 104,772	\$ 1,004,053	1.24	10.96	
G262	Lodging DI Gas	6	266,340	\$ 53,716	\$ 799,103	\$ -	\$ 799,103	\$ 852,819	\$ 852,819	\$ 791,112	\$ 791,112	\$ 1,202,168	\$ -	1.52	1.67	
	<b>Total Commercial Programs</b>		<b>3,452,978</b>	<b>\$ 2,499,767</b>	<b>\$ 7,036,973</b>	<b>\$ 3,618,377</b>	<b>\$ 10,488,767</b>	<b>\$ 9,536,740</b>	<b>\$ 12,988,534</b>	<b>\$ 8,846,697</b>	<b>\$ 12,048,732</b>	<b>\$ 17,804,388</b>	<b>\$ 3,039,688</b>	<b>2.01</b>	<b>1.88</b>	
	NEEA Gas Market Transformation Study	10	37,680	\$ 2,475,756	\$ -	\$ -	\$ -	\$ 2,475,756	\$ 2,475,756	\$ 2,296,620	\$ 2,296,620	\$ 251,663	\$ -	0.11	0.12	
	<b>Total Regional Programs</b>		<b>37,680</b>	<b>\$ 2,475,756</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 2,475,756</b>	<b>\$ 2,475,756</b>	<b>\$ 2,296,620</b>	<b>\$ 2,296,620</b>	<b>\$ 251,663</b>	<b>\$ -</b>	<b>0.11</b>	<b>0.12</b>	
G249	Commercial Home Energy Reports Pilot															
G249	Residential Home Energy Report Expansion	2	430,529	\$ 103,550	\$ 77,479	\$ -	\$ 77,479	\$ 181,029	\$ 181,029	\$ 167,930	\$ 167,930	\$ 406,959	\$ -	2.42	2.67	
	<b>Total Pilots</b>		<b>430,529</b>	<b>\$ 103,550</b>	<b>\$ 77,479</b>	<b>\$ -</b>	<b>\$ 77,479</b>	<b>\$ 181,029</b>	<b>\$ 181,029</b>	<b>\$ 167,930</b>	<b>\$ 167,930</b>	<b>\$ 406,959</b>	<b>\$ -</b>	<b>2.42</b>	<b>2.67</b>	
	Customer Engagement & Education															
	Energy Advisors							\$ 430,256	\$ 430,256	\$ 399,124	\$ 399,124					
	Events							\$ 170,357	\$ 170,357	\$ 158,031	\$ 158,031					
	Brochures, non program-specific							\$ 227,724	\$ 227,724	\$ 211,247	\$ 211,247					
	Education							\$ 30,225	\$ 30,225	\$ 28,038	\$ 28,038					
	Electronic Media Tools & Marketing							\$ 1,950	\$ 1,950	\$ 1,809	\$ 1,809					
	Customer Digital Experience							\$ 319,931	\$ 319,931	\$ 296,782	\$ 296,782					
	Market Integration							\$ 176,020	\$ 176,020	\$ 163,284	\$ 163,284					
	Automated Benchmarking System							\$ 104,025	\$ 104,025	\$ 96,498	\$ 96,498					
	Rebates Processing							\$ 39,886	\$ 39,886	\$ 37,000	\$ 37,000					
	Programs Support							\$ 200,393	\$ 200,393	\$ 185,893	\$ 185,893					
	Data and Systems Services							\$ 91,845	\$ 91,845	\$ 85,199	\$ 85,199					
	Energy Efficient Communities							\$ 309,412	\$ 309,412	\$ 287,024	\$ 287,024					
	Trade Ally Support							\$ 266,253	\$ 266,253	\$ 246,988	\$ 246,988					
	Contractor Alliance Network (revenue + cost)							\$ 42,030	\$ 42,030	\$ 38,989	\$ 38,989					
	Contractor Alliance Network (revenue + cost)							\$ (27,656)	\$ (27,656)	\$ (25,655)	\$ (25,655)					
	<b>Total Portfolio Support</b>							<b>\$ 1,632,464</b>	<b>\$ 1,632,464</b>	<b>\$ 1,514,345</b>	<b>\$ 1,514,345</b>					
	Conservation Supply Curves							\$ 92,172	\$ 92,172	\$ 85,503	\$ 85,503					
	Strategic Planning							\$ 42,808	\$ 42,808	\$ 39,711	\$ 39,711					
	Market Research							\$ 85,571	\$ 85,571	\$ 79,379	\$ 79,379					
	Program Evaluation							\$ 542,430	\$ 542,430	\$ 503,182	\$ 503,182					
	Verification Team							\$ 221,063	\$ 221,063	\$ 205,068	\$ 205,068					
	<b>Total Research &amp; Compliance</b>							<b>\$ 984,044</b>	<b>\$ 984,044</b>	<b>\$ 912,842</b>	<b>\$ 912,842</b>					
	<b>Grand Total All Gas Programs</b>		<b>7,426,495</b>	<b>\$ 8,062,479</b>	<b>\$ 18,802,177</b>	<b>\$ 23,079,817</b>	<b>\$ 41,635,709</b>	<b>\$ 29,481,163</b>	<b>\$ 52,314,696</b>	<b>\$ 27,348,018</b>	<b>\$ 48,529,402</b>	<b>\$ 50,182,059</b>	<b>\$ 17,387,848</b>	<b>1.83</b>	<b>1.50</b>	

1. The electric residential appliance program offers clothes washers that save both gas and electricity. The bulk of the savings is electric savings. Therefore, the gas savings are simply an extra non-electric benefit of the program. This is why there are gas savings with no program incentives, overhead, or customer costs.

"Time Zero" means the current year. "Time Zero" means the current year. "Time Zero" means the current year. "Time Zero" means the current year.

**Electric Conservation Cost Effectiveness Standard, 2016-2017**

Includes Energy and Capacity and does NOT apply the conservation Credit to energy or capacity

Measure Life	Single Family Space Heat	Single Family Heat Pump	Multifamily Space Heat	Residential Water Heat	Residential Refrigerator	Residential Plug Load	Residential Lighting	Commercial Space Heat	Commercial Refrigeration	Commercial Cooling	Commercial Cooking	Commercial Lighting	Commercial Flat	Commercial Water Heat
	SF Space Heat	SF Heat Pump	MF Space Heat	Res Water Heat	Res Refrigerator	Res Plug Load	Res Lighting	Comm Space Heat	Comm Refrigeration	Comm Cooling	Comm Cooking	Comm Lighting	Comm Flat	Comm Water Heat
1	0.139577943	0.130523396	0.119612529	0.076387879	0.065930238	0.078911891	0.079566818	0.185614204	0.071462644	0.044823543	0.072634521	0.078524053	0.072630656	0.072752508
2	0.270991333	0.253436802	0.232388201	0.148780959	0.128530793	0.153652604	0.154939297	0.359804659	0.13913261	0.087307374	0.141490419	0.152617533	0.141435686	0.141714166
3	0.39488416	0.369375503	0.338821143	0.217344087	0.187857275	0.224388452	0.226310398	0.523464946	0.203141955	0.127492008	0.206713152	0.222479242	0.206532798	0.207039586
4	0.511897063	0.478902748	0.43952071	0.282652077	0.244501656	0.291705118	0.294230512	0.677565857	0.264172601	0.166281674	0.268868907	0.289007736	0.269301462	0.269301462
5	0.622404783	0.582458259	0.534794808	0.344845515	0.298616996	0.355793631	0.358912794	0.822635521	0.322426922	0.203830447	0.328146726	0.352384244	0.327754712	0.328677247
6	0.727456053	0.681043428	0.625636027	0.404799966	0.351053806	0.417550646	0.421218304	0.378830182	0.241126082	0.166281674	0.385413155	0.413696153	0.384977272	0.38604553
7	0.826876441	0.774459253	0.711768001	0.462015577	0.401271132	0.476503202	0.480666952	1.090157091	0.432848356	0.277407114	0.440168107	0.472415662	0.439725485	0.440900774
8	0.920868141	0.862822542	0.793336081	0.516530026	0.449217604	0.53262999	0.537271422	1.21250991	0.484267374	0.312015159	0.49234699	0.528077279	0.491862422	0.49317112
9	1.009910105	0.946568525	0.870709506	0.568533378	0.495015152	0.586124088	0.591277262	1.327911853	0.533221066	0.344950334	0.542150225	0.580806635	0.541527634	0.543059516
10	1.09442707	1.026123079	0.944307234	0.618439769	0.539055161	0.637391935	0.643044418	1.437043642	0.580271993	0.377146394	0.589960366	0.631532233	0.58923558	0.590960864
11	1.177326625	1.104460231	1.016853011	0.668836676	0.58386205	0.689046812	0.69523975	1.54288378	0.628012339	0.411138028	0.682694509	0.637552883	0.63946025	0.63946025
12	1.255789286	1.178609459	1.085633497	0.716591926	0.626391187	0.738023677	0.744686838	1.642999223	0.673346861	0.443621421	0.6843176	0.731380906	0.683429664	0.68549831
13	1.329561266	1.24839515	1.150344899	0.761690517	0.666602647	0.791382686	0.784284219	1.731777781	0.791382686	0.474442956	0.727745328	0.77376504	0.726790094	0.729006343
14	1.399633391	1.314720806	1.211885024	0.80501357	0.705282614	0.828640463	0.836192492	1.82608837	0.757271644	0.504132478	0.769451783	0.82124437	0.768370065	0.770784528
15	1.465886859	1.377419716	1.270143544	0.846067928	0.741980197	0.870688318	0.878648011	1.91065066	0.796196787	0.532266768	0.80905947	0.862803536	0.80777069	0.810409183
16	1.528455244	1.436670284	1.325245902	0.885107859	0.776966633	0.91066853	0.919035945	1.98916741	0.833256152	0.559250171	0.846673244	0.902300178	0.845292845	0.84813985
17	1.587502949	1.492682899	1.377314369	0.92203859	0.810186875	0.948557139	0.957289231	2.063739316	0.868511568	0.585284502	0.882402284	0.880922733	0.88932093	0.88932093
18	1.643381329	1.545722845	1.42669546	0.957409061	0.842038941	0.984757668	0.993805431	2.13440787	0.902332179	0.610678432	0.916604022	0.976092302	0.915076281	0.918192818
19	1.696422709	1.596103571	1.473650728	1.023366776	0.90166482	1.052253279	1.061859598	2.264068458	0.965304447	0.657706497	0.980413445	1.042964107	0.978724429	0.9821083
20	1.746660839	1.643830133	1.518196708	1.053830429	0.929243398	1.083401138	1.093273216	2.323313154	0.994365066	0.679477894	1.009892123	1.073741937	1.008106009	1.011634118
21	1.795794913	1.688834057	1.560214949	1.082646556	0.955352283	1.122858244	1.122858244	2.379086802	1.021864993	0.700151979	1.037786565	1.102850242	1.035906781	1.035906781
22	1.843949477	1.731276511	1.637254322	1.09907101	0.980072073	1.140719358	1.1510846	2.43160052	1.047890611	0.719784766	1.06418453	1.130382522	1.062214431	1.066013066
23	1.891241983	1.809778302	1.672546352	1.103478797	1.003478797	1.167073739	1.177667625	2.481052117	1.072523355	0.738429363	1.089168745	1.156426847	1.08711161	1.091036975
24	1.937783302	1.844701952	1.705853552	1.16010296	1.025644181	1.192005471	1.20281682	2.527626961	1.095840005	0.756136121	1.112817203	1.18106619	1.110676232	1.114722925
25	2.029025875	1.878321379	1.737291657	1.183196838	1.046635902	1.215593778	1.226611954	2.571498787	1.11791296	0.772952783	1.135203441	1.204378728	1.132981755	1.137144581
26	2.073920203	1.910048644	1.766969395	1.20505284	1.066517824	1.23791331	1.2491282	2.612830451	1.138810499	0.788924622	1.156396813	1.226438135	1.15409745	1.158371414
27	2.118450313	1.939994167	1.79498893	1.225739328	1.085350223	1.259034425	1.270436408	2.651774632	1.158597025	0.804094571	1.176462726	1.247313845	1.178488945	1.178488945
28	2.162700859	1.968261677	1.821446269	1.245320753	1.103189993	1.27902344	1.290603366	2.688474493	1.177333291	0.818503347	1.195462882	1.267071311	1.193016948	1.197498979
29	2.206752388	1.994948634	1.846431649	1.263857896	1.120090845	1.29794287	1.309692037	2.72306429	1.195076619	0.832189567	1.213455492	1.285772239	1.210940495	1.215519826

	Single Family Space Heat	Single Family Heat Pump	Multifamily Space Heat	Multifamily Heat Pump	Residential Water Heat	Residential Refrigerator	Residential Plug Load	Residential Lighting	Residential Dryer	Commercial Space Heat	Commercial Refrigeration	Commercial Cooling	Commercial Cooking	Commercial Lighting	Commercial Flat	Commercial Water Heat
2016	0.139577943	0.130523396	0.119612529	0.113441924	0.076387879	0.065930238	0.078911891	0.079566818	0.07663302	0.185614204	0.071462644	0.044823543	0.072634521	0.078524053	0.072630656	0.072752508
2017	0.270991333	0.253436802	0.232388201	0.22042474	0.148780959	0.128530793	0.153652604	0.154939297	0.14920087	0.359804659	0.13913261	0.087307374	0.141490419	0.152617533	0.141435686	0.141714166
2018	0.39488416	0.369375503	0.338821143	0.321456143	0.217344087	0.187857275	0.224388452	0.226310398	0.217850254	0.523464946	0.203141955	0.127492008	0.206713152	0.222479242	0.206532798	0.207039586
2019	0.511897063	0.478902748	0.43952071	0.417059545	0.282652077	0.244501656	0.291705118	0.294230512	0.283222435	0.677565857	0.264172601	0.166281674	0.268868907	0.289007736	0.269301462	0.269301462
2020	0.622404783	0.582458259	0.534794808	0.507604542	0.344845515	0.298616996	0.355793631	0.358912794	0.345500667	0.822635521	0.322426922	0.203830447	0.328146726	0.352384244	0.327754712	0.328677247
2021	0.727456053	0.681043428	0.625636027	0.594038326	0.404799966	0.351053806	0.417550646	0.421218304	0.405593585	0.96011911	0.378830182	0.241126082	0.385413155	0.413696153	0.384977272	0.38604553
2022	0.826876441	0.774459253	0.711768001	0.676105958	0.462015577	0.401271132	0.476503202	0.480666952	0.462998414	1.090157091	0.432848356	0.277407114	0.440168107	0.472415662	0.439725485	0.440901
2023	0.920868141	0.862822542	0.793336081	0.753872637	0.516530026	0.449217604	0.53262999	0.537271422	0.517640263	1.21250991	0.484267374	0.312015159	0.49234699	0.528077279	0.491862422	0.493171
2024	1.009910105	0.946568525	0.870709506	0.827677944	0.568533378	0.495015152	0.586124088	0.591277262	0.569688586	1.327911853	0.533221066	0.344950334	0.542150225	0.580806635	0.541527634	0.54306
2025	1.09442707	1.026123079	0.944307234	0.897934071	0.618439769	0.539055161	0.637391935	0.643044418	0.619635018	1.437043642	0.580271993	0.377146394	0.589960366	0.631532233	0.58923558	0.590961
2026	1.177326625	1.104460231	1.016853011	0.96746183	0.668836676	0.58386205	0.689046812	0.69523975	0.670067696	1.54288378	0.628012339	0.411138028	0.638359157	0.682694509	0.637552883	0.63946
2027	1.255789286	1.178609459	1.085633497	1.03335664	0.716591926	0.626391187	0.738023677	0.744686838	0.717935205	1.642999223	0.673346861	0.443621421	0.6843176	0.731380906	0.683429664	0.685498
2028	1.329561266	1.24839515	1.150344899	1.09544192	0.761690517	0.666602647	0.784284219	0.791382686	0.763144803	1.731777781	0.716205884	0.474442956	0.727745328	0.77376504	0.726790094	0.729006
2029	1.399633391	1.314720806	1.211885024	1.154532667	0.80501357	0.705282614	0.828640463	0.836192492	0.806491216	1.82608837	0.757271644	0.504132478	0.769451783	0.82124437	0.768370065	0.770785
2030	1.465886859	1.377419716	1.270143544	1.210445556	0.846067928	0.741980197	0.870688318	0.878648011	0.847572185	1.91065066	0.796196787	0.532266768	0.80905947	0.862803536	0.80777069	0.810409
2031	1.528455244	1.436670284	1.325245902	1.263361502	0.885107859	0.776966633	0.91066853	0.919035945	0.886642867	1.98916741	0.833256152	0.559250171	0.846673244	0.902300178	0.845292845	0.84814
2032	1.587502949	1.492682899	1.377314369	1.313440333	0.92203859	0.810186875	0.948557139	0.957289231	0.923699202	2.063739316	0.868511568	0.585284502	0.882402284	0.939924216	0.88932093	0.88932093
2033	1.643381329	1.545722845	1.42669546	1.36096085	0.957409061	0.842038941	0.984757668	0.993805431	0.959165552	2.13440787	0.902332179	0.610678432	0.915076281	0.918193	0.915076281	0.918193
2034	1.696422709	1.596103571	1.473650728	1.406168938	0.991157994	0.872531093	1.019314043	1.028640937	0.99299578	2.201127362	0.934					

**Gas Conservation Cost Effectiveness Standard,2016-2017**

Includes Both Capacity, Energy, but does not include 10% conservation credit

Measure Life	For MFNC			For MFNC		For MFNC
	Single Family Space Heat	Single Family Water Heat	OFFICE_SPACE_HEAT_FURNACE	RESTAURANT_COOKING	RESTAURANT_WATER_HEAT	Industrial
	Res Space Heat	Res Water Heat	Comm Space Heat	Comm Cooking	Comm Water Heat	Comm Flat
1	0.616559808225830	0.480478975087805	0.596406664534036	0.484889626822717	0.482606527125390	0.481263837942013
2	1.207998250966960	0.945253317654067	1.166424554643670	0.954170140792045	0.949572213028902	0.946752618536329
3	2.006147792051220	1.435628765118540	1.890921480129110	1.454582314850040	1.444689332149650	1.392267642114420
4	2.761087636282890	1.903814008431670	2.577460788740330	1.932101938309540	1.917284457856490	1.818838846041870
5	3.491947771642750	2.357496095057850	3.242857701266590	2.394805187088200	2.375225214985200	2.231909959811450
6	4.189569719337450	2.795401928014100	3.880044553765750	2.841161444984160	2.817118594862220	2.632101247402020
7	4.854258556808010	3.216765889270190	4.488945758772360	3.270440282062690	3.242215832998960	3.018440251629350
8	5.485455171493990	3.621526697561420	5.068156567301990	3.682651279072130	3.650494541192970	3.390683560401680
9	6.088480439481950	4.012425464646010	5.622880809521900	4.080712805770540	4.044791092843290	3.751353149073540
10	6.678956407181240	4.399998124776500	6.167322225733820	4.474757638089120	4.435411670177220	4.109538775991010
11	7.277655738175750	4.812663727221320	6.722572547392420	4.893113178307220	4.850733616761940	4.492739670513710
12	7.849973052719520	5.206089488126520	7.255574825141510	5.292387946720140	5.246925724855370	4.860795750682340
13	8.389205305588520	5.579034924721950	7.758262519472960	5.670716171946260	5.622413309827300	5.210217572140250
14	8.907546464107030	5.940793500649230	8.243379138459020	6.037505905383930	5.986554853611320	5.550120822859090
15	9.406557499432130	6.287216578176710	8.711065150539950	6.388826436541160	6.335302920395560	5.875192429541650
16	9.875288234808400	6.616824198325680	9.149407520156980	6.722996170923350	6.667070393180560	6.185061583591400
17	10.320847624518500	6.932601339402860	9.566767100669240	7.043029383664260	6.984862990247750	6.482523843350550
18	10.744567851343800	7.235247373921650	9.964320273733860	7.349646167232510	7.289389835056800	6.768175690203180
19	11.148282568326200	7.525534945473730	10.343624996894200	7.643653879992880	7.581439859926460	7.042701524867610
20	11.536985586252200	7.804815659506770	10.708681635253900	7.926523212100680	7.862420389690910	7.306627220474720
21	11.907346462333500	8.072672575719580	11.056981357324100	8.197742982559880	8.131870527962930	7.560242893717160
22	12.257730311749900	8.327012299424990	11.386783096713600	8.455233802803630	8.387703445265730	7.801374241990230
23	12.589247246928700	8.568524583170930	11.699095710843300	8.699699195434830	8.630615382008080	8.030636164225780
24	12.902943544267400	8.797863445942590	11.994871264194300	8.931806029445480	8.861266412464020	8.248613247779300
25	13.202604003692100	9.016180215427220	12.277177218156600	9.152791739757360	9.080848156976650	8.455861264490410
26	13.486157374999500	9.223493421213930	12.544535979784700	9.362606572871060	9.289347274791400	8.652908592770600
27	13.754495000322000	9.420363590539320	12.797759676079100	9.561821893687690	9.487329400961510	8.840257569385330
28	14.008457204093500	9.607322278721490	13.037614916455200	9.750979373383750	9.675330859171880	9.018385774415210
29	14.248836321926300	9.784873595845510	13.264825435038300	9.930592565257560	9.853860211504380	9.187747252707540
30	14.478398042919300	9.953878754052870	13.481638911300200	10.101584954014700	10.023807812192500	9.348773674964980