

Massachusetts Energy Efficiency Program Benefits



The current Massachusetts energy efficiency programs administered by the utilities deliver the following benefits:

- Utility programs invest ~\$125 million per year with total savings to consumers exceeding ~\$500 million
- For every \$1 invested by utilities and customers, more than \$3 are saved
- The efficiency programs deliver energy savings at about 3.2 ¢/kWh while energy supply costs customers about 10 ¢/kWh
- We spend around \$6 Billion/yr on energy supply that costs 10 ¢/kWh, while only investing ~\$125 million per year in 3.2 ¢/kWh efficiency programs – we are not investing in the low-cost resource
- Energy efficiency is the cleanest energy resource with annual program investments yielding avoided consumption of ~5 Million MWh of energy which would be equivalent to ~2.8 Million tons of carbon dioxide – efficiency programs are critical to meeting our clean air and greenhouse gas goals
- Over the next 10 years total savings to MA consumers will be over \$5 Billion
- Efficiency investments put money in consumers wallets, reduce a fossil fuel trade deficit that has grown into the Billions, and grow energy service jobs and the economy
- Current efficiency programs create about 2,000 non-utility jobs and generate hundreds of millions of dollars in economic growth (DOER, 2002)

See detailed tables and sources on the following pages.

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Environment Northeast is a nonprofit research and advocacy organization focusing on the Northeastern United States and Eastern Canada. Our mission is to address large-scale environmental challenges that threaten regional ecosystems, human health, or the management of significant natural resources. We use policy analysis, collaborative problem solving, and advocacy to advance the environmental and economic sustainability of the region.

**Total & Projected Massachusetts
Efficiency Program Costs & Benefits**
Based on 2005 Programs for All Companies



One Year Costs and Benefits (2005)

Utility Cost	\$124 Million
Total Resource Costs	\$164 Million
Total Resource Benefits	\$506 Million
Net Total Resource Benefit	\$343 Million
Electric System Only Benefits	\$410 Million
Total Resource Benefit Cost Ratio	3.1 (Benefit/Cost)
Electric System Benefit Cost Ratio	3.3 (Benefit/Cost)
Peak (Summer) Demand Reduction	58.5 MW
Annual Energy Savings	458,325 MWh
Lifetime Energy Savings	5,123,738 MWh
Total Resource Summer Demand Cost	2,800,376 \$/MW
Total Resource Energy Cost	32.0 \$/Lifetime-MWh
Approx. Avoided Energy Cost (ISO-NE 2005 Avg. LMP)	80.0 \$/MWh
Equivalent Lifetime Emissions Avoided	
SO ₂	5,201 Tons
NO _x	1,383 Tons
CO ₂	2,823,180 Tons

Projected Costs and Benefits over Ten Years

Utility Cost	\$1,242 Million
Total Resource Costs	\$1,637 Million
Total Resource Benefits	\$5,064 Million
Net Total Resource Benefit	\$3,426 Million
Electric System Only Benefits	\$4,096 Million
Peak (Summer) Demand Reduction	585 MW
Annual Energy Savings	4,583,250 MWh
Lifetime Energy Savings	51,237,380 MWh
Equivalent Lifetime Emissions Avoided	
SO ₂	52,006 Tons
NO _x	13,834 Tons
CO ₂	28,231,796 Tons

Sources: All program costs and benefits are compiled from MA DOER spreadsheets based on *2005 Energy Efficiency Annual Reports* filed by each company with MA DOER and DTE
Emissions based on: ISO New England, May 2006, *2004 New England Marginal Emission Rate Analysis*, from annual average (all hours) and lifetime energy savings

2005 Massachusetts Efficiency Program Costs & Benefits

Summary by Company and Sector



														Equivalent Lifetime Emissions Avoided*		
Company	Sector	Utility Costs (\$)	Customer Costs (\$)	Total Resource Costs (\$)	Electric System Benefit (Discounted \$)	Total Resource Benefit (Discounted \$)	Electric System B/C Ratio	Total Resource B/C Ratio	Summer Demand Reduction (MW)	Annual Energy Savings (MWh)	Lifetime Energy Savings (MWh)	Total Resource Summer Demand Cost (\$/MWh)	Total Resource Energy Cost (\$/Lifetime-MWh)	SO ₂	NO _x	CO ₂
														Tons	Tons	Tons
National Grid (MECo)	Residential	\$19,962,794	\$7,857,388	\$27,820,182	\$60,233,870	\$83,684,472	3.02	3.0	9.5	116,207	833,157	\$2,928,440	\$33.4	846	225	459,070
	Low Income	\$9,252,813	\$60,571	\$9,313,384	\$9,771,938	\$34,586,608	1.06	3.7	0.7	8,155	134,264	\$13,304,834	\$69.4	136	36	73,979
	Commercial & Industrial	\$24,976,679	\$9,919,606	\$34,896,285	\$85,924,142	\$90,117,869	3.44	2.6	12.4	74,770	1,170,335	\$2,814,217	\$29.8	1,188	316	644,855
	Total	\$54,192,286	\$17,837,565	\$72,029,851	\$155,929,950	\$208,388,949	2.88	2.9	22.6	199,132	2,137,756	\$3,187,162	\$33.7	2,170	577	1,177,904
NSTAR	Residential	\$12,930,348	\$4,978,612	\$17,908,960	\$38,632,296	\$51,733,810	2.99	2.9	7.2	73,063	493,875	\$2,487,356	\$36.3	501	133	272,125
	Low Income	\$4,984,142	\$0	\$4,984,142	\$8,726,193	\$19,462,479	1.75	3.9	0.7	7,334	122,711	\$7,120,203	\$40.6	125	33	67,614
	Commercial & Industrial	\$34,006,097	\$11,899,918	\$45,906,015	\$153,965,731	\$161,004,401	4.53	3.5	19.7	120,612	1,681,172	\$2,330,255	\$27.3	1,706	454	926,326
	Total	\$51,920,587	\$16,878,530	\$68,799,117	\$201,324,220	\$232,200,690	3.88	3.4	27.6	201,009	2,297,758	\$2,492,722	\$29.9	2,332	620	1,266,065
Western Mass Electric Co. (NU)	Residential	\$3,042,432	\$681,119	\$3,723,551	\$4,653,034	\$7,953,381	1.53	2.1	0.8	8,905	74,389	\$4,654,439	\$50.1	76	20	40,988
	Low Income	\$1,566,135	\$475,442	\$2,041,577	\$814,322	\$2,679,407	0.52	1.3	0.1	962	13,505	\$20,415,770	\$151.2	14	4	7,441
	Commercial & Industrial	\$7,554,862	\$2,417,992	\$9,972,854	\$31,532,422	\$37,748,060	4.17	3.8	4.9	28,968	437,972	\$2,035,276	\$22.8	445	118	241,323
	Total	\$12,163,429	\$3,574,553	\$15,737,982	\$36,999,778	\$48,380,848	3.04	3.1	5.8	38,835	525,866	\$2,713,445	\$29.9	534	142	289,752
Unitil (FG&E)	Residential	\$518,008	\$207,202	\$725,210	\$576,457	\$1,436,808	1.11	2.0	0.1	826	6,776	\$7,252,100	\$107.0	7	2	3,734
	Low Income	\$202,097	\$0	\$202,097	\$133,464	\$640,091	0.66	3.2	0.0	148	2,029	\$20,209,700	\$99.6	2	1	1,118
	Commercial & Industrial	\$916,010	\$182,696	\$1,098,706	\$3,119,738	\$3,183,819	3.41	2.9	0.5	2,508	34,651	\$2,197,412	\$31.7	35	9	19,093
	Total	\$1,636,115	\$389,898	\$2,026,013	\$3,829,659	\$5,260,718	2.34	2.6	0.6	3,482	43,456	\$3,321,333	\$46.6	44	12	23,944
Cape Light Compact	Residential	\$2,188,056	\$364,695	\$2,552,751	\$5,227,818	\$7,328,724	2.39	2.9	0.9	6,799	67,686	\$2,836,390	\$37.7	69	18	37,295
	Low Income	\$703,497	\$84,146	\$787,643	\$514,968	\$1,136,467	0.73	1.4	0.1	596	7,802	\$13,127,383	\$101.0	8	2	4,299
	Commercial & Industrial	\$1,422,048	\$382,556	\$1,804,604	\$5,742,786	\$3,666,479	4.04	2.0	0.9	8,472	43,414	\$2,005,116	\$41.6	44	12	23,921
	Total	\$4,313,601	\$831,397	\$5,144,998	\$11,485,572	\$12,131,670	2.66	2.4	1.9	15,867	118,902	\$2,766,128	\$43.3	121	32	65,515
Summary	Residential	\$38,641,638	\$14,089,016	\$52,730,654	\$109,323,475	\$152,137,195	2.83	2.9	18.5	205,800	1,475,883	\$2,850,306	\$35.7	1,498	398	813,212
	Low Income	\$16,708,684	\$620,159	\$17,328,843	\$19,960,885	\$58,505,052	1.19	3.4	1.6	17,195	280,311	\$11,037,480	\$61.8	285	76	154,451
	Commercial & Industrial	\$68,875,696	\$24,802,768	\$93,678,464	\$280,284,819	\$295,720,628	4.07	3.2	38.4	235,330	3,367,544	\$2,439,543	\$27.8	3,418	909	1,855,517
	Total	\$124,226,018	\$39,511,943	\$163,737,961	\$409,569,179	\$506,362,875	3.30	3.1	58.5	458,325	5,123,738	\$2,800,376	\$32.0	5,201	1,383	2,823,180

Note: Numbers in italics are calculated by ENE based on the sources noted below

Sources: All program costs and benefits are compiled from MA DOER spreadsheets based on 2005 Energy Efficiency Annual Reports filed by each company with MA DOER and DTE

* Emissions based on: ISO New England, May 2006 2004 New England Marginal Emission Rate Analysis, from annual average (all hours) and lifetime energy savings