

Massachusetts Interfaith Power & Light

Case Study: Trinity Church, Canton, MA

Things were not looking good in the boiler room at Trinity Church in Canton as recently as November 2002. The original boiler, installed in 1969, was leaking significantly and had left about 2" of water on the floor. This boiler, even when it was working, rated a meager 67% in efficiency. When it stopped working – just in time for the holiday season, like clockwork – it created a serious crisis for Trinity Church as well as the Striar Jewish day care center housed there.



Vintage 1969 boiler, in pool of rusty water, 67% efficiency

Luckily, MIP&L was able to work quickly with Gil Swire, Senior Warden at Trinity; Bay State Gas and RISE Engineering; as well as the Episcopal Diocese of Massachusetts, to turn a lemon into lemonade.

With help from a financial incentive from Bay State Gas as well as a Stokes Loan from the Episcopal Diocese, Trinity Church in Canton was able to upgrade to a boiler with 93% efficiency while also improving its zoning and control systems.



Trinity Church, Canton

This more efficient boiler will save Trinity Church approximately \$33,700 over 20 years (in current dollars)! Even

better, in the next 20 years this will reduce harmful emissions (CO₂, NO_x, SO₂) from the building by an estimated 28%.

Comparison of Options — 20 Year Impacts (Note: Efficiency is estimated seasonal)

	BOILER OPTIONS			
	Best	Good	Average	Current
Efficiency	93%	84%	70%	67%
Therms/Year	5,729	6,178	7,210	8,003
Cost/Therm	\$0.95	\$0.95	\$0.95	\$0.95
New Boiler Cost	\$30,000	\$25,000	\$18,000	\$15,000
Annual Operating Cost	\$5,443	\$5,869	\$6,850	\$7,603
20 Year Operating Cost	\$108,851	\$117,382	\$136,990	\$152,057
TOTAL Cost for 20 Years		\$138,851	\$142,382	\$154,990
Utility Incentive	\$5,500	\$0	\$0	\$0
NET to User	\$133,351	\$142,382	\$154,990	\$167,057
\$s saved (current \$s)	\$33,706	\$24,675	\$12,067	\$0
% \$s saved vs. current boiler	20.2%	14.8%	7.2%	

Inflation rate at >3.0%

New Boiler Cost	\$30,000	\$25,000	\$18,000	\$15,000
20 Year Operating Cost	\$146,243	\$157,705	\$184,049	\$204,291
TOTAL Cost for 20 Years		\$176,243	\$182,705	\$202,049
Utility Incentive	\$5,500	\$0	\$0	\$0
NET to User	\$170,743	\$182,705	\$202,049	\$219,291
\$s saved (inflated \$s)	\$48,548	\$36,587	\$17,243	\$0
% \$s saved vs. current boiler	29.1%	21.9%	10.3%	

20 Year Emissions

CO ₂ (greenhouse gas)	1,924,944		2,075,808	2,422,560
NO _x (health issues)	1,512	1,631	1,903	2,113
% savings vs. current	28.4%	22.8%	9.9%	0.0%