

The National Energy Modeling System: An Overview 2003

Characteristics of Selected Space Heating Equipment in the Commercial Sector

Equipment Type ¹	Vintage	Efficiency ²	Capital Cost (2001 dollars per thousand Btu per hour) ³	Maintenance Cost (2001 dollars per thousand Btu per hour) ³	Service Life (years)
Electric Heat Pump	Current Standard	6.8	\$81.39	\$3.33	14
	2000- typical	7.5	\$97.92	\$3.33	14
	2000- high efficiency	9.8	\$155.56	\$3.33	14
	2005- typical	7.5	\$97.22	\$3.33	14
	2005- high efficiency	9.8	\$155.56	\$3.33	14
	2010 - typical	7.5	\$97.22	\$3.33	14
	2010 - high efficiency	9.8	\$155.56	\$3.33	14
	2020 - typical	7.8	\$97.22	\$3.33	14
Ground-Source Heat Pump	2020 - high efficiency	10.0	\$150.00	\$3.33	14
	2000- typical	3.4	\$167.50	\$1.46	20
	2000- high efficiency	4.0	\$229.17	\$1.46	20
	2005- typical	3.4	\$166.67	\$1.46	20
	2005- high efficiency	4.3	\$229.17	\$1.46	20
	2010 - typical	3.4	\$166.67	\$1.46	20
	2010 - high efficiency	4.3	\$208.33	\$1.46	20
	2020- typical	3.8	\$166.67	\$1.46	20
Electric Boiler	2020 -high efficiency	4.5	\$197.92	\$1.46	20
	Current Standard	0.98	\$21.83	\$0.14	21
Packaged Electric	1995	0.93	\$19.77	\$3.49	18
Natural Gas Furnace	Current Standard	0.80	\$9.11	\$1.00	15
	2000- high efficiency	0.92	\$14.82	\$0.88	15
	2010 - typical	0.81	\$8.70	\$0.96	15
Natural Gas Boiler	Current Standard	0.80	\$16.11	\$0.55	25
	2000 - high efficiency	0.87	\$33.82	\$0.69	25
	2005- typical	0.81	\$17.87	\$0.55	25
	2005- high efficiency	0.90	\$31.68	\$0.67	25
Natural Gas Heat Pump	2005- absorption	1.4	\$173.61	\$4.17	15
Distillate Oil Furnace	Current Standard	0.81	\$14.25	\$1.00	15
	2000	0.86	\$23.46	\$1.00	15
	2010	0.89	\$22.69	\$1.00	15
Distillate Oil Boiler	Current Standard	0.83	\$15.76	\$0.13	20
	2000- high efficiency	0.88	\$18.83	\$0.12	20
	2005- typical	0.83	\$15.76	\$0.13	20
	2005- high efficiency	0.88	\$18.83	\$0.12	20

¹Equipment listed is for the New England Census division but is also representative of the technology data for the rest of the United States.

²Efficiency measurements vary by equipment type. Electric air-source and natural gas heat pumps are rated for heating performance using the Heating Seasonal Performance Factor (HSPF); natural gas and distillate furnaces are based on Annual Fuel Utilization Efficiency; ground-source heat pumps are rated on coefficient of performance; and boilers are based on combustion efficiency.

³Capital and maintenance costs are given in 2001 dollars.

Source: Energy Information Administration, "Technology Forecast Updates - Residential and Commercial Building Technologies - Reference Case", Arthur D. Little, Inc., Reference Number 8675309, October 2001.