

Cost Effectiveness Results Using Standard Tariffs

1992-2010 Dual-Fuel Heat Pump Existing Furnace

Climate Zone	Electric/ Gas Utility	First Incremental Cost	First-year Utility Savings	Lifecycle Net Present Value (NPV) Savings		
				2025 Long-term Systemwide Cost	On-Bill NPV Modest Gas Escalation	On-Bill NPV High Gas Escalation
CZ04	PGE	\$1,670	(\$68)	\$7,322	\$1,880	\$10,049

1992-2010 Standard Efficiency Heat Pump Space Heater

Climate Zone	Electric/ Gas Utility	First Incremental Cost	First-year Utility Savings	Lifecycle Net Present Value (NPV) Savings		
				2025 Long-term Systemwide Cost	On-Bill NPV Modest Gas Escalation	On-Bill NPV High Gas Escalation
CZ04	PGE	\$652	(\$205)	\$8,244	(\$572)	\$11,665

Dual Fuel Heat Pump (DFHP Existing Furnace): Replace the existing ducted furnace with an electric heat pump and install controls to operate the heat pump as the primary space conditioning source and to use the existing gas furnace for backup heat when heating demands cannot be met by the heat pump. In the study (Attachment 1), per the California Energy Code, the existing furnace is required to be disabled when the outdoor temperature reaches 35°F.

Standard Efficiency Heat Pump Space Heater: Replace existing ducted natural gas furnace with an electric heat pump and air handler.

First Incremental Cost: Higher efficiency equipment reduces utility costs in all cases and improves cost-effectiveness in many climate zones (Sunnyvale's climate zone is 4) in the oldest vintage relative to standard efficiency equipment. However, in more efficient newer homes, where cost-effectiveness is generally lower, the savings are insufficient to offset the roughly \$3000 increase in incremental cost.

The authors of the cost-effectiveness study assessed the incremental costs and savings of the packages over the lifecycle of 30 years. Incremental costs represent the equipment, installation, replacement, and maintenance costs of the proposed measure relative to the Energy Code minimum requirements or standard industry practices.

Gas Escalation: The study assumes utility rates escalate over time. Because it is very difficult to predict how the rates will change, the analysis presents two escalation scenarios (modest and high gas escalation) to represent a range of outcomes.

Long-term Systemwide Costs: Long-term systemwide costs are the California Energy Commission's metric for determining cost-effectiveness measures. This metric is intended to capture the long-term projected cost of energy, including costs for providing energy during peak periods of demand, carbon emissions, grid transmission, and distribution impacts.

Note: The Bay Area Air Quality Management District passed Regulation 9 (Inorganic Gaseous Pollutants), Rule 4 (Nitrous Oxide from natural gas-fired furnace) prohibits selling, installing, or offering to sell natural gas-fired furnaces within the district after January 1, 2029. (Amended March 15, 2023)