



BENEFITS OF ALL-ELECTRIC NEW HOMES

BETTER FOR HEALTH & SAFETY

NO OPEN FLAMES,
NO CARBON MONOXIDE



- ✓ Electric appliances are safer than gas appliances, because they don't have open flames, which increase the risk of fire.

Plus, going all-electric eliminates the carbon monoxide and nitrogen oxide pollution that results from burning gas (or propane) inside your home, and reduces the risk of gas leaks.

On average, we spend about 90 percent of our time indoors, where pollutant levels are often higher than those outside.

Carbon monoxide (CO) is called the "invisible killer" because it's a colorless, odorless, poisonous gas. More than 150 people in the United States die every year from accidental, non-fire-related CO poisoning. And several studies have found that NOx exposure from gas cooking increases the risk and incidences of asthma in children.[1]

BETTER FOR THE CLIMATE

25-45% LESS GREENHOUSE GAS EMISSIONS



- ✓ Natural gas is a fossil fuel that releases carbon dioxide (CO2) into the atmosphere when burned in a furnace, water heater, or stove. CO2 emissions are the primary cause of climate change. In addition, natural gas processing and distribution results in methane emissions — and methane is an even more potent greenhouse gas (GHG).

Even though natural gas is still used to generate some of the electricity in the southwest states, switching to efficient electric appliances, such as ENERGY STAR heat pumps and heat pump water heaters, reduces the GHG emissions from a home or building. These emissions benefits will increase over time as our utilities continue to move towards more renewable, carbon-free power generation. An all-electric home in Colorado using an efficient heat pump and heat pump water heater will reduce its GHG emissions by about 39% over the next 15 years, compared to an equivalent home using an efficient gas furnace and gas water heater. [2]

LOWER COST, LOWER BILLS

NO EXPENSIVE NATURAL GAS LINE, LOWER BILLS



- ✓ The cost of an all-electric home is slightly less than a similar home with a separate gas furnace and air-conditioning system, because eliminating the cost of the natural gas line to the home more than offsets the slightly higher upfront cost of the electric equipment.

In addition, the annual energy cost for an all-electric home with a heat pump and heat pump water heater is slightly less than that for an equivalent home using gas for space and water heating.[3]

Utility rebates and federal tax credits currently available make heat pumps even more economical.



SOUTHWEST ENERGY EFFICIENCY PROJECT

COMMONLY ASKED QUESTIONS



ARE ELECTRIC APPLIANCES MORE EFFICIENT THAN GAS APPLIANCES?

SHORT ANSWER: YES

Electric heat pumps and heat pump water heaters use less energy and are 2-4 times more energy-efficient than gas-fired equipment.[4]

Induction cooktops and electric convection ovens are more efficient than gas-fired cooktops and ovens. Also, heat pump clothes dryers are 50-75% more efficient than typical gas dryers, based on the CEF energy factor ratings for clothes dryers.

ARE INDUCTION COOKTOPS BETTER THAN GAS STOVES?

SHORT ANSWER: YES

Induction cooktops heat up twice as fast as gas, provide more accurate temperature control and are easier to clean.

And, families with young children appreciate that you can't get burned when touching an induction cooktop.

DO HEAT PUMPS WORK WELL IN COLD CLIMATES SUCH AS DENVER, SALT LAKE CITY OR RENO?

SHORT ANSWER: YES

Newer cold-climate heat pumps work very well in cold weather, delivering 70-80% of their rated heating capacity at temperatures as low as 5 degrees F. Cold-climate heat pumps will work well in cold climates such as Denver's without a backup furnace.[5]

One example is the Basalt Vista all-electric affordable housing development in Basalt, CO.[6] In addition, there have been ten new all-electric homes constructed in Boulder in 2019 and 2020, with an average cost slightly below the cost for equivalent non-electric homes.

[1] Lin, Weiwei et al. <https://academic.oup.com/ije/article/42/6/1724/737113>

[2] The percentage reductions for the other southwest states are 38% for Arizona, 46% for Nevada, 35% for New Mexico, and 23% for Utah. "Benefits of Heat Pumps for Homes in the Southwest," Kolwey and Geller, Southwest Energy Efficiency Project, June 2018, <https://swenergy.org/data/sites/1/media/documents/publications/documents/Heat%20pump%20study%20FINAL%202018-06-18.pdf>

[3] See footnote 2.

[4] See footnote 2. The overall coefficient of performance (COP) for a cold-climate heat pump in Denver will be about 2.8, compared to an efficient gas furnace with an efficiency of 95%. An ENERGY STAR HPWH will achieve a "uniform energy factor" (UEF) of 3.4, compared to a UEF of 0.68 for an ENERGY STAR gas water heater.

[5] For new homes, we recommend installing a cold-climate heat pump, without a backup furnace, in climate zones 4-6. For climate zone 7, which includes some mountain areas in Colorado, installing the heat pump with a backup furnace (gas or propane) may be a more efficient solution for single-family homes.

[6] "All-electric homes offer a prototype for low-carbon housing in Colorado," Energy News Network, October 2019, <https://energynews.us/2019/10/17/west/all-electric-homes-offer-a-prototype-for-low-carbon-housing-in-colorado/>



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