

NEW 2015 NAECA STANDARDS:

RESIDENTIAL WATER HEATERS

MIXED CLIMATE ZONE

FACT SHEET

An analysis of energy, economics, and emissions in a mixed climate zone.

Water heaters are the second largest energy user in the home, and one of the most important for reasons of economics and comfort. The U.S. water heater market is currently undergoing major product changes, due to increased water heater efficiency standards from the U.S. Department of Energy as part of the National Appliance Energy Conservation Act. Because of the new standards, homeowners can no longer simply go with the cheapest system or a similar replacement. Rather, they must now consider a water heater's long-term value, whether or not it will fit into the available space [new units' higher efficiency means a larger size], noise and temperature impacts [considerations with heat pump water heaters], and performance characteristics. Fortunately, the new requirements also come with a range of technology solutions.

To aid the decision-making process, a 2015 study by Newport Partners, LLC analyzed the energy, economic, and environmental impact of 14 residential water heating systems across three climate regions, with a special focus on the performance of propane-powered systems versus electric alternatives. This fact sheet presents the analysis findings for the mixed climate zone. The results are broken out by moderate-demand and high-demand homes [which use a greater volume of hot water daily].

ENERGY EFFICIENCY THAT ADDS UP

In moderate-demand homes, the **propane-powered tankless water heater [System D] offers the lowest annual energy**

cost, saving \$120 more per year than a standard efficiency electric storage unit [System E].

In high-demand homes, the cost of an electric "doubled-up" storage tank system [System Ex2] is about \$560/year. **The propane-powered tankless water heater [System D-high] offers an energy cost savings of nearly \$200/year.** Under the new, more stringent standards, electric resistance storage tank water heaters over 55 gallons are not allowed, leaving heat pump water heaters or "twinned" electric tanks [such as system Ex2] of a smaller size as the main electric options.

Mixed Climate Zone



Annual Energy Costs - Mixed Climate





THE BEST LONG-TERM VALUE

Annual Cost of Ownership is the combination of the cost of the original equipment, installation, and annual energy costs.

For new construction, moderate-demand homes, **System D offers an ACO that's 21 percent lower than the standard electric tank (System E) and 13 percent lower than the heat pump water heater (System G-50).** This is due to the tankless system's high efficiency (0.94 Energy Factor), low energy costs, and 20-year life cycle (based on numerous industry sources).

In high-demand homes, **the propane-powered tankless system (System D-high) once again has the lowest ACO, roughly 30 percent lower than both the double electric tanks (System Ex2) and the 80-gallon heat pump water heater (System G-80).**

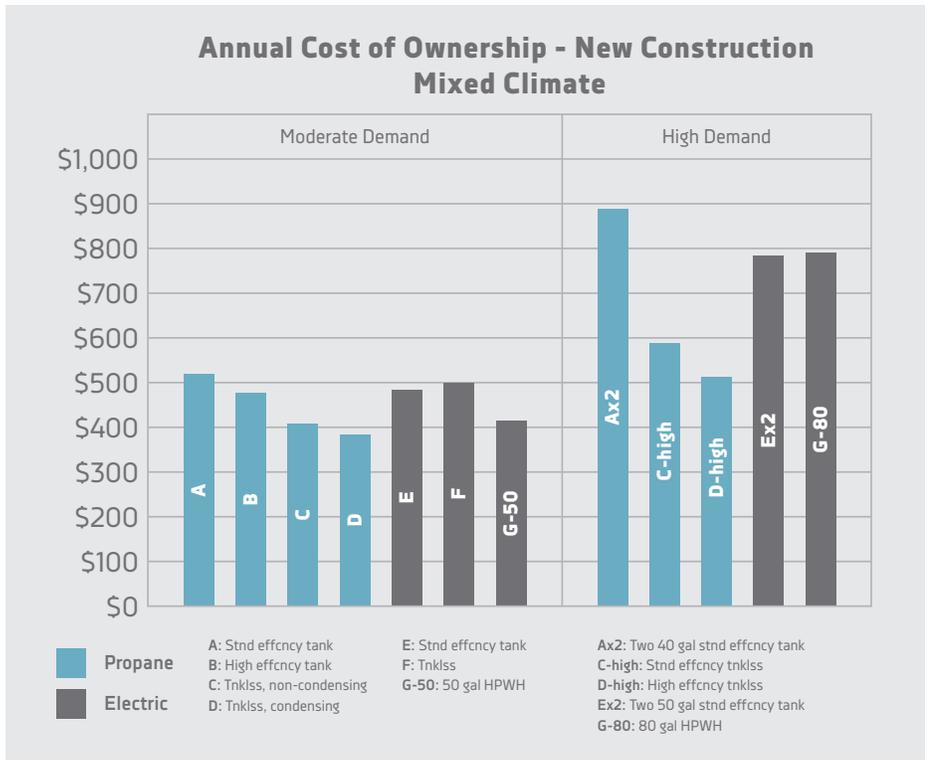
The water heater replacement analysis mirrors the new construction results: propane-powered tankless systems offer the lowest ACO compared with electric and other propane alternatives.

LOWERING YOUR CARBON FOOTPRINT

More and more, homeowners are concerned with lowering their carbon footprint. The CO₂ emissions analysis indicates that in moderate-demand homes, **the electric storage tank water heater has 2.5 times the emissions of the propane-powered tankless system.**

NO MORE BUSINESS AS USUAL

Updated standards for water heaters are forcing contractors, builders, and homeowners to ask different questions when it comes to new construction and system replacements. Propane-powered water heating systems offer many advantages making them strong competition for the "business as usual" choices. And, as traditional tank-based systems grow larger to meet new standards, homeowners will appreciate the space they save with propane-powered tankless systems. In mixed climate zones, propane offers economic, energy, performance, and installation benefits that homeowners want.



FOR MORE INFORMATION

To learn more about propane-powered water heaters, the new NAECA standards, and the Propane Education & Research Council, visit buildwithpropane.com.

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The Propane Education & Research Council was authorized by the U.S. Congress with the passage of Public Law 104-284, the Propane Education and Research Act (PERA), signed into law on October 11, 1996. The mission of the Propane Education & Research Council is to promote the safe, efficient use of odorized propane gas as a preferred energy source.