PROPANE
CLEAN AMERICAN ENERGY™

NEW 2015 NAECA STANDARDS:

RESIDENTIAL WATER HEATERS

HOT CLIMATE ZONE

FACT SHEET

An analysis of energy, economics, and emissions in a hot 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.

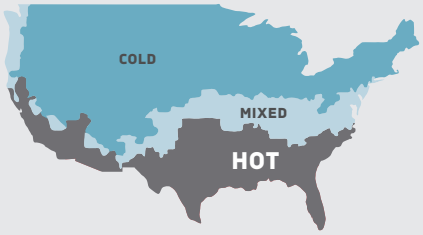
To aid the decision-making process, a 2015 study by Newport Partners, LLC analyzed the energy, economic, and environmental impact of 14 residential water heating systems across three climate regions, with a special focus on the performance of propane-powered systems versus electric alternatives. This fact sheet presents the analysis findings for the hot 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

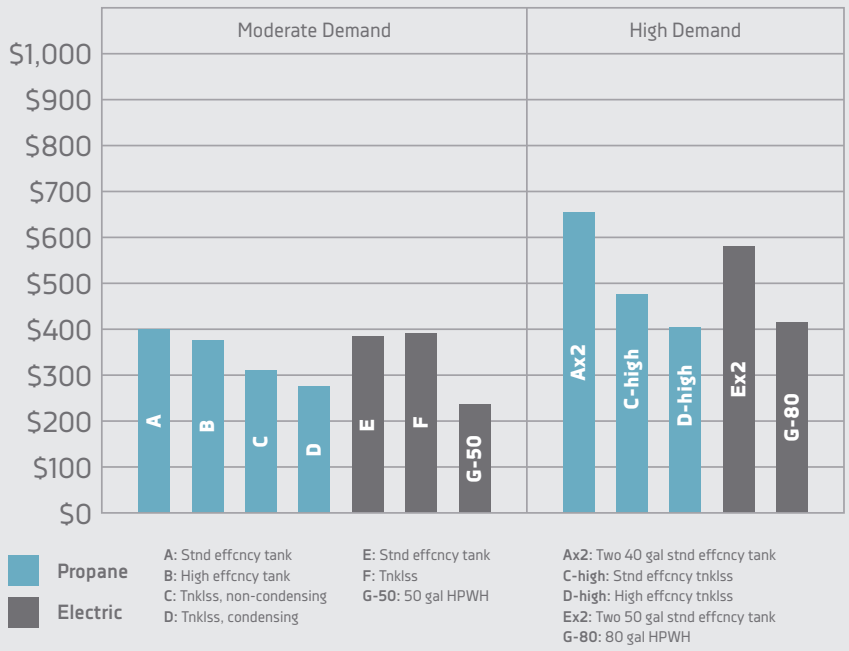
In moderate-demand homes, the **50-gallon heat pump water heater** (System G-50) and the **propane-powered tankless system** (System D) **offer the lowest annual energy costs, with the heat pump about $25 less**. Both systems save at least $100/year compared with the standard efficiency 50-gallon electric storage unit (System E).

However, in high-demand homes, the higher capacity **propane-powered tankless unit** (System D-high) **has the lowest annual energy costs**. Both of the "twinned" systems (Systems Ax2 and Ex2) carry much higher energy costs, due to higher standby losses.

Hot Climate Zone



Annual Energy Costs - Hot Climate



A: Stnd effcncy tank
B: High effcncy tank
C: Tnklss, non-condensing
D: Tnklss, condensing

E: Stnd effcncy tank
F: Tnklss
G-50: 50 gal HPWH

Ax2: Two 40 gal stnd effcncy tank
C-high: Stnd effcncy tnklss
D-high: High effcncy tnklss
Ex2: Two 50 gal stnd effcncy tank
G-80: 80 gal HPWH

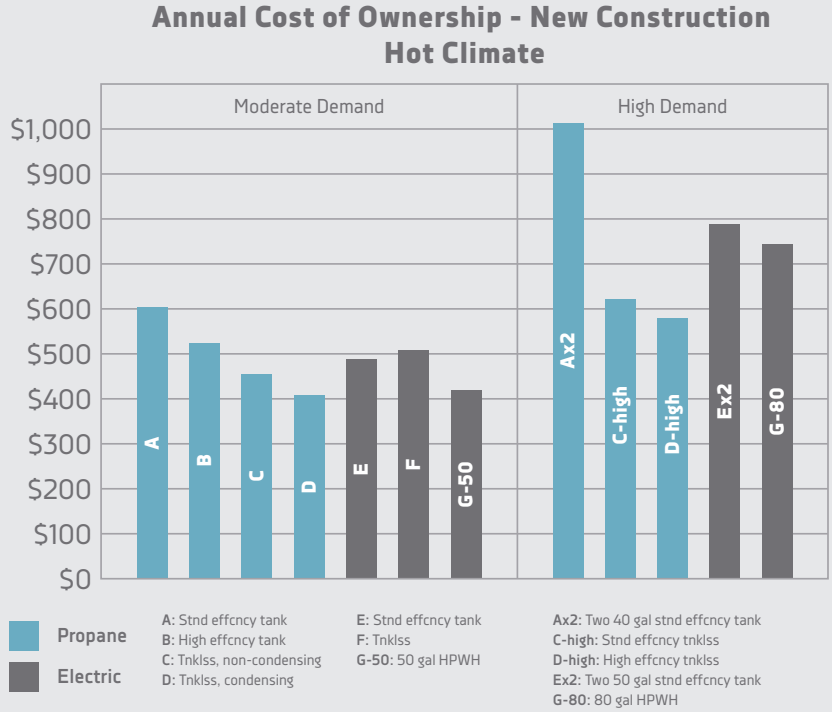
THE BEST LONG-TERM VALUE

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, the **propane-powered condensing tankless system** (System D) **has the lowest ACO**; **four percent lower than the heat pump water heater** (System G-50) and **17 percent lower than the 50-gallon electric water heater** (System E).

High-demand homes see even better results. **The propane-powered tankless unit again has the lowest ACO — 23 percent lower than the heat pump water heater**.

For water heater replacements, the heat pump water heater ACO is slightly lower ($15) than the propane-powered tankless unit. Both systems have an ACO at least 10 percent lower than the system that's typically less expensive to install, yet more expensive to operate: the standard 50-gallon electric tank.



LOWERING YOUR CARBON FOOTPRINT

More and more, homeowners are concerned with lowering their carbon footprint. The CO_2 emissions analysis for the hot climate zone indicates that in moderate-demand homes, **the electric storage tank water heater has nearly double 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 hot 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.