

COMMERCIAL PROPANE APPLICATIONS: TANKLESS WATER HEATERS

FACT SHEET

Propane tankless water heaters offer an innovative, high performance water heating solution for commercial applications. They are effective in both new commercial projects and as replacements for existing storage tank systems.

PERFORMANCE

Tankless water heaters don't store water, and instead have a gas burner that ignites to heat water only when a faucet, appliance, or other demand event occurs. Individual tankless units can meet the demand of many small commercial building applications, and in high-demand commercial applications, such as hotels and restaurants where high flow rates and/or high temperatures are crucial, banking multiple units together in larger groups provides a high value design solution.

The tankless nature of this technology avoids the excessive energy use of storing large volumes of hot water and greatly reduces the space requirements for the system. These units are extremely efficient compared with storage tank options, including operating costs significantly lower than electric water heating systems. Furthermore, the compact design of propane tankless units saves valuable square footage within commercial buildings.

ENERGY EFFICIENCY

Achieving an efficiency rating of up to 98 percent, many propane tankless water heaters utilize a condensing design, where additional thermal energy is extracted from the combustion gasses to heat incoming

water. Standby losses don't affect tankless systems because most don't store water, so building owners aren't paying to heat water they are not using.

Energy Star rated units have the potential to use 25 percent less energy than a conventional commercial water heater. The Energy Star rating criteria for commercial units are shown in TABLE 1 along with product availability data.

TABLE 1 ENERGY STAR RATING CRITERIA FOR GAS TANKLESS WATER HEATERS AND PRODUCT AVAILABILITY

COMMERCIAL WATER HEATERS — GAS/PROPANE	
Thermal Efficiency	≥ 0.94
Energy Factor	≥ 0.93
Units Available (propane/natural gas)	75

Beyond very high efficiency ratings, a life-cycle as long as 20 years¹ for propane tankless systems also helps strengthen their value proposition in commercial applications. Although propane tankless water heaters may carry a higher initial capital cost, they can offer very attractive paybacks, better reliability, and long-term energy savings.



APPLICATIONS FOR USE

- Restaurants
- Education
- Hospitality
- Multifamily Buildings
- Hospitals
- Laundromats
- Salons
- Health Clubs

AT A GLANCE

- Avoid excessive energy use of storing large volumes of hot water.
- Compact, space-saving design.
- Endless, on-demand hot water.
- Significantly lower CO₂ emissions compared with both electric storage tank and heating oil systems.

1. U.S. DOE, "Tankless or Demand-Type Water Heaters." <http://energy.gov/energysaver/articles/tankless-or-demand-type-water-heaters>

When comparing propane tankless systems with commercial electric storage tanks, building owners and engineers should consider electric demand charges. In addition to the electric rate a facility will pay per kilowatt-hour, most commercial utility tariffs also include a demand charge based on the peak demand drawn by the facility. This charge reflects the load that the facility places on generation and transmission systems, and can be as high as several hundred dollars per month. Limiting demand from large electric equipment — including high kW-rated electric water heaters — is a key strategy to reducing the demand charge and lowering overall energy costs, and should be considered in any analysis of propane versus electric equipment.

ENVIRONMENTAL

Nearly all water heating systems will have some environmental impact linked to their operations in the form of CO₂ emissions. With electric systems, the upstream electric power generation creates CO₂ emissions when the generation is fossil fuel-based [i.e. coal]. Based on energy and environmental analysis of different energy sources,² propane tankless systems offer:

- 50 percent lower CO₂ emissions compared with electric storage tank systems.
- Roughly 33 percent lower CO₂ emissions compared with heating oil storage tank systems in the Northeast.



These numbers reflect water heating systems for small commercial building types, but the emission advantages of propane tankless scale to larger systems as well. Such significant reductions can support corporate sustainability programs and emission reduction policies.

2. Build with Propane, Energy Calculator. <http://www.buildwithpropane.com>

FOR MORE INFORMATION

To learn more about commercial tankless water heaters and the Propane Education & Research Council, visit buildwithpropane.com.

Propane Education & Research Council / 1140 Connecticut Ave. NW, Suite 1075 / Washington, DC 20036
P 202-452-8975 / F 202-452-9054 / propanecouncil.org

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.