

COMMERCIAL PROPANE APPLICATIONS: GENERATORS

FACT SHEET

Commercial propane generators provide supplemental power for a building's electrical loads when power from the electric grid is interrupted.

Loss of grid power can occur at any time, whether planned or unplanned. This loss of power to commercial buildings can impact vital systems like smoke, fire, elevators, refrigeration units, heating and cooling equipment, health and safety equipment, communications, and many other applications.

With roughly 700 large-scale power outages caused by severe weather events between 2003 and 2012¹ — plus many non-weather-related outages — there is a critical need for propane generators to ensure uninterrupted operations for a large number of commercial properties.

Generators are commonly located outside the building and in proximity to the main electric service panel. Propane suppliers can work with specifying engineers to provide siting guidance based on relevant standards.

PERFORMANCE

Commercial generators are typically installed as fully automated systems that ramp up quickly to provide power after an electric grid disruption. Their autonomous design requires little to no involvement for the building occupants to activate, maintain, or shut off power from the generators. Propane-powered generators offer clear advantages when considering fuel storage, fuel maintenance, and reliability.

Compared with diesel, propane has many significant advantages. First, the indefinite shelf life of propane makes it an ideal fuel for generators, whereas diesel degrades over time. Propane also burns cleaner than diesel and can be stored onsite, either above or below ground, without risk of ground or ground water contamination. Diesel, on the other hand, has the potential for contamination from spills and leaks that are retained in the soil.



APPLICATIONS FOR USE

- Hospitals
- Offices
- Data Centers/Communications
- Public Buildings/Shelters
- Fire Departments/Police Departments
- Restaurants
- Retail/Big Box Stores
- Education
- Hospitality
- Correctional Facilities
- Multifamily Buildings

AT A GLANCE

- Ramp up quickly to provide power after an electrical grid interruption.
- Clear advantages over other fuels when considering storage, maintenance, and reliability.
- 5 kW-400 kW capacities.
- Significantly lower emissions than diesel generators.



Notes:

1. Economic Benefits of Increasing Electric Grid Resilience to Weather Outages. Executive Office of the President. energy.gov/sites/prod/files/2013/08/f2/Grid%20Resiliency%20Report_FINAL.pdf (August 2013.)



Propane generators can be configured to service only the most critical building loads or to maintain full operation in the event of power failure. They can also be configured to help with peak-shaving and demand-response programs that provide additional revenue for building owners. Once the targeted loads are identified, the size of the generator is determined. Commercial units can range from 5 kW-400 kW capacities, and are available in single and three phase configurations and voltages of 120, 240, and 480 V. TABLE 1 shows a propane generator's typical fuel consumption per hour when in full operation.



TABLE 1 PROPANE GENERATOR FUEL CONSUMPTION

GENERATOR RATING (KW)	FUEL CONSUMPTION AT 100 PERCENT (BTU/HOUR)
8	129,000
11	175,000
15	260,000
20	350,000
25	430,000
45	725,000
60	818,000
80	1,163,000
100	1,268,000
150	2,075,000

ENVIRONMENTAL

When considering emissions such as nitrous oxides, sulfur oxides, particulate matter, and carbon dioxide, propane generators burn much cleaner than their diesel counterparts. For example, U.S. Department of Energy data shows 16 percent greater CO₂ emissions per unit of energy for diesel compared with propane.² Perhaps even more concerning from a health perspective, PM_{2.5} emissions associated with diesel generators far outweigh those associated with propane generators. The rise in adoption of more stringent air quality regulations is expected to increase first costs for diesel generators and to increasingly shift demand to propane generators.

Notes:

2. Voluntary Reporting of Greenhouse Gases Program Fuel Emission Coefficients. U.S. DOE Energy Information Administration. eia.gov/oiaf/1605/coefficients.html [accessed May 2014].

FOR MORE INFORMATION

To learn more about commercial generators 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.