



Propane-Enhanced Renewable Energy Systems

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Propane's versatility makes it ideal for a range of renewable energy systems.

Overview

Most Americans are now acutely aware of the impact of rapidly fluctuating energy prices and the environmental implications associated with conventional fuels. Yet, while the media gives so-called “renewable energy” sources increasing exposure, the coverage often overlooks the fact that many renewable energy sources — solar and wind, for example — are intermittent and undependable.

Propane, however, is different. Its versatility and low environmental impact make it ideal for enhancing a wide range of renewable energy systems, including solar thermal systems, bio-mass heating systems, electrical generation systems, heat pump systems, and micro-combined heat and power systems.

About propane

Propane gives off less than half the greenhouse gas emissions that electricity does, considering that most of the nation's electricity is produced by coal-fired power plants. Propane is also nontoxic and insoluble in water, so it makes underground storage a popular and environmentally friendly option for homeowners. When compared with fuel sources such as fuel oil, propane is economical. And it's also versatile, making it perfect for space heating, water heating, outdoor living, and standby power generation.

How propane enhances renewable energy systems

What follows is a brief look at how propane can ensure that renewable energy systems deliver optimal performance, reliability, efficiency, and environmental benefits to homeowners. For a wealth of detailed, practical tips — including detailed configuration schematics — a white paper and an online training course are available on buildwithpropane.com.

- **Solar thermal systems.** There are a number of different solar thermal systems available to homeowners, all classifiable as either active (think: panels) or passive (think: windows). In nearly all situations, a solar thermal system is unable to provide for all of a home's energy needs. Propane is ideally suited to provide energy for both space and water heating.
- **Bio-mass heating systems.** Bio-mass fuels include wood, pellets, dry-shell corn, and other indigenous plant materials suitable for producing heat in a combustion chamber. Homeowners who select a bio-mass heating system often opt for hydronic-based delivery of heat. As with solar thermal systems, an auxiliary system is necessary for times when the fire is out or unable to meet a variable heating load. Once again, propane's flexibility makes it an excellent energy source for these applications.
- **Electrical generation systems.** In systems where solar photovoltaic panels are used to generate electricity “off the grid,” a propane generator can provide auxiliary power when stored battery voltage is unable to meet the electrical load of the home.

- **Heat pump systems.** The heating capacity and efficiency of heat pump systems — both air-source and ground-water source — can drop significantly during cold weather in less mild climates. Supplementary electric-resistance strip heaters are often installed in these areas despite the fact that they're comparatively very expensive to operate. A high-efficiency propane supplementary heating unit offers homeowners improved home comfort and a much better payback on their investment over time.
- **Micro-combined heat and power systems.** Micro-combined heat and power (MCHP) systems use a fuel such as propane to power an internal combustion engine, which in turn powers an electrical generator. In an MCHP system, the heat produced by the engine is captured and used for space and water heating through a forced-air or hydronic system. Not only can propane efficiently and reliably power a home's MCHP generator, it provides high-efficiency supplementary heat as well.

Propane's flexibility, efficiency, and green properties make it **ideally suited** to provide auxiliary energy to renewable energy systems.

Conclusion

When properly designed, propane-enhanced renewable energy systems operate with little, if any, intervention by building occupants. With the exception of wood-fired appliances, they operate automatically, providing the same comfort, reliability, and convenience as conventional energy systems. The major differences are reduced use of fossil fuels, a cleaner environment, and lower energy bills. The complete Propane-Enhanced Renewable Energy Systems white paper available on buildwithpropane.com can help you configure the optimal system for your homeowner.

For more information

Download the full propane-enhanced renewable energy systems paper at buildwithpropane.com.

Access information on tax incentives and credits at buildwithpropane.com/stimulus.

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