Professional design, installation and service of renewable energy systems

Propane vs. Oil, pros & cons

For most people, the natural first question is the cost difference between fuels. In general, propane and oil prices fluctuate unpredictably, with propane tending to cost anywhere from the same to twice as much as oil per BTU. The lack of a clear choice based on fuel cost suggests that a broader analysis of each fuel's pros and cons is a better way to arrive at an informed decision about the best fuel for you.

These facts may help guide you:

- Propane emits 24% less CO2 into the atmosphere than oil, per gallon burned.
- 1 gallon of propane contains 91,000 BTUs; 1 gallon of oil contains 139,000 BTUs.
- Propane boilers burn at 10-15% higher combustion efficiencies than oil boilers, exacerbating the pollution gap between propane and oil, and narrowing the cost gap.
- Propane boilers never or rarely need cleaning. Oil boilers need cleaning annually and their efficiency drops the further they get from their cleaning throughout the heating season.
- Propane boilers do not need a chimney, allowing the chimney to be used for wood or pellet burning appliances. All oil boilers need their own dedicated chimney (which must be cleaned).
- Modern wallhung propane boilers modulate their firing temperature based on 'outdoor reset control', substantially increasing efficiency over the course of a heating season.
- Modern wallhung propane boilers modulate output to precisely match the load, while oil boilers only have two modes 'full on' or 'off', which is highly inefficient in the shoulder seasons.
- Propane boilers pull combustion air from outdoors. Oil boilers pull combustion air from inside the home, which pulls cold make up air into the house.
- Oil boilers are 'high mass' devices consisting of about 500 lbs. of steel that must be fully heated to 180 degrees each time you need heat or hot water—and it is connected to a drafting chimney. These two factors result in significant annual 'standby heat losses' as excess BTUs from heating the steel go up the chimney and into the basement.
- As a result of the high mass design, oil boilers typically waste ½ to ¾ of a gallon of oil per day, or roughly 180 gallons of oil per year, through standby heat losses.
- Propane boilers are generally quiet; oil boilers are generally loud.

In general, the more fuel you burn, the more oil makes sense, due to the fact that it has more BTUs/$. The less fuel you burn, because your house is smaller, better insulated, or heats with wood, the less oil makes sense. Consider a switch away from oil, to a combination of gas, solar and wood.