

HEATING WITH OIL



The thick black oil that once bubbled up out of the ground for Jed Clampett of the Beverly Hillbillies could never heat your home.

Straight crude oil is pretty boring. But when it's refined—into products like gasoline, jet fuel and No. 2, No. 4 or No. 6 heating oil—it can be downright surprising.

Homeowners burn No. 2 heating oil—the cleanest and most refined of the three heating oil grades. No. 2 heating oil can be distinguished by its pure cranberry color.

As the most refined grade of heating oil, No. 2 oil burns much cleaner than its oil “relatives” and has little negative impact on the environment. Used with a technologically advanced oilheat system, it produces near-zero levels of particulate matter during the combustion process.

No. 2 heating oil also generates a whopping 138,000 Btu's of heating energy for every gallon burned, allowing homeowners to enjoy high comfort levels and great value.

For more information:

Call the **National Oilheat Research Alliance (NORA)**. NORA works in conjunction with the U.S. Department of Energy on research to improve heating oil and oilheat equipment. Its core mission also includes consumer education and technical training for those in the industry.

Website: oilheatamerica.com

Or, contact the oilheat association in your state.



7952-6893



The more you know about oil, the better you'll feel

You may have lived in an oil-heated home for years, or you may be having your first experience with oilheat. Either way, you'll find the material in this guide helpful—and perhaps even a little surprising.

As an oilheat consumer, you should know that oil is a clean, efficient, cost-effective, safe and versatile fuel.

Knowing the facts about oil will help you make educated decisions, save money and keep your home as comfortable as possible.

Please look to the oilheat dealers in your area as a resource for information and help. It would be their pleasure to answer any questions you may have after reading this guide.

Fast facts about oilheat

- 1 There are approximately 10 million oil-heated homes in the U.S.; 350,000 oil-heated homes were built during the past decade alone.
- 2 The efficiency levels of today's oilheat systems can exceed 90% (see page 3).
- 3 Adjusted for inflation, heating oil prices today are virtually unchanged from 30 years ago (see page 5).
- 4 Clearburn Science has made oilheat 99.9% clean (see page 4).
- 5 The chances of an underground storage tank leak are much less than 1% and a modern tank has an even lower risk (see page 12).
- 6 For every gallon of oil burned, a whopping 138,000 Btu's are generated. The amount of heat your home receives depends on the efficiency of the appliance.
- 7 Oil companies received a rating of 94% for friendly and fast service (see page 14).

New advances raise efficiency and lower consumer costs

Q: Is oilheat an efficient way to heat a home?

A: Yes. Oilheat has always provided efficient and affordable warmth and it's gotten even better in recent years. Many oil-fired systems now display the prestigious Energy Star label, which signifies that they are technologically advanced and



clean-burning. Some oilheat systems have efficiency ratings that exceed 90%.

Q: What's behind this success?

A: "Clearburn Science" has produced dramatic improvements in oilheat technology, with advances such as the high static pressure flame-retention burner, solid-state microprocessor electronic controls and cleaner burning fuel.

Higher efficiency = big savings



average annual fuel consumption in the 1970s

average annual fuel consumption today

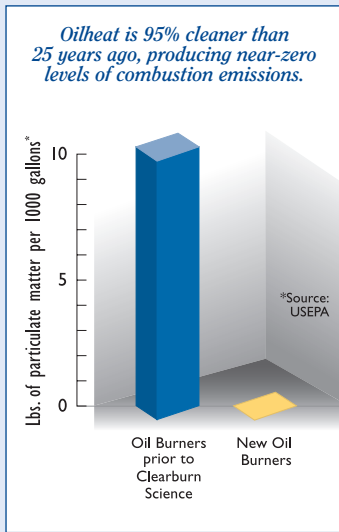
Improved efficiencies in oilheat equipment have saved homeowners hundreds of dollars a year.

Cleaner than ever

Q: I have some concern that oilheat isn't clean. What's the truth?

A: Just like older cars, older heating systems produced undesirable levels of combustion emissions. But today's oilheat technology has been tested by the U.S. Department of Energy's Brookhaven National Laboratory, and it has been found to be virtually soot-free! In fact, the technology of Clearburn Science has increased the overall cleanliness of today's oilheat systems to **99.9%**.

That's one reason oilheat emissions aren't even regulated by the Federal Clean Air Act. And for old systems still in use, excess soot and dirt can be substantially reduced with regular, professional tune-ups.



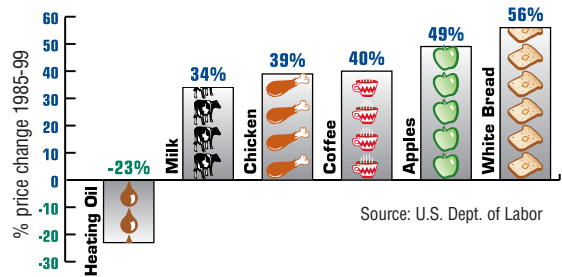
Spot Check

Sometimes people see dark spots or streaks on the walls of oil-heated homes and erroneously assume they are caused by soot from the heating system. These marks are typically created by common household dust that has been "baked on" walls and other surfaces near heating vents, radiators or baseboards. To prevent these streaks and spots, dust around baseboards, vents or radiators, especially during the heating season.

Looking at fuel prices

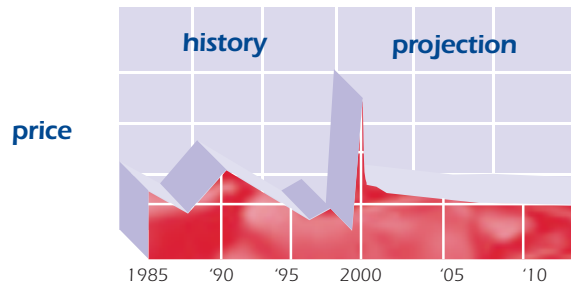
Q: Is heating oil a good value?

A: Yes. Heating oil, like other forms of energy, is a commodity traded on the open market, so you can expect occasional blips—both up and down—in the price. But overall, the price of heating oil has remained exceptionally low. In fact, a few years ago, heating oil prices dropped to a 25-year low. Competition among local oilheat companies also plays a big role in giving homeowners more choices and better value.



Prices for many consumer items rose during the 1980s and 1990s, but heating oil bucked that trend. Adjusted for inflation, the price of heating oil has stayed virtually the same since the 1950s.

For the last 20 years, oilheat has been a terrific value and the U.S. Department of Energy projects good news about prices and supplies over the next 15 years. This chart shows the history of and projections for wholesale heating oil prices.



Sources: history—U.S. Dept. of Labor; projection—U.S. Dept. of Energy

Abundant supplies



Q: Should I be concerned about heating oil supplies?

A: No. It's been more than 30 years since there was a significant problem with energy supplies. Today, improvements in drilling technology have opened up reserves in more countries than ever before (see chart at right).

The United States also has a Strategic Petroleum Reserve with a capacity of 700 million barrels. It's the world's largest emergency oil stockpile. A few years ago, the U.S. also established a two-million-barrel heating oil reserve.

Made in the USA

▶ Heating oil represents only 3% of total petroleum consumption in the U.S.

▶ Approximately 85% of the heating oil used in the U.S. is refined domestically.

▶ Studies show that there are as many as two trillion barrels of crude oil in the world still untapped, enough to last for nearly a century.

...and easy deliveries

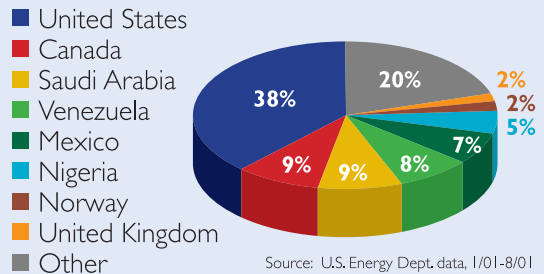
Q: What's the easiest way to get a delivery?

A: The easiest way to get heating oil is through automatic delivery. The oil company normally counts "degree-days" to keep track of how cold the weather has been and calculates an individual burn rate for each customer. This lets the company know just when a customer will need a delivery, long before most people would know it themselves.

Automatic delivery doesn't mean more fuel is burned. It provides peace of mind because you don't have to think twice about how much fuel is in your tank.



Where in the world does our oil come from?



About three-quarters of the oil used in the U.S. comes from outside the Persian Gulf. That's due to three big North American producers: the U.S., Canada and Mexico.

How oilheat systems work

The heat produced by an oilheat system is distributed through a home in one of three ways: warm air (registers or vents), hot water (baseboard, radiators or radiant) or steam.

While the system in your home may look a bit

different from those in the diagrams below, it operates on the same principles.

Whatever the system, any emissions are safely vented to the outside and never mix with the indoor air.

The thermostat **(1)** has a sensor that measures room temperature. When the temperature drops below your thermostat setting (or when the setting is raised), the thermostat sends a signal to the controls **(2)** on the burner **(3)** to get into action.

A fuel pump **(4)** draws oil through a filter **(5)** to the burner. The nozzle on the burner turns this oil into a fine spray, mixes it with air and ignites it in the combustion chamber **(6)**, causing the chamber to get very hot.

What happens next depends on the type of heating system.

- ▶ In a warm air system (see diagram below), air absorbs heat in the furnace's heat exchanger **(7)**. A blower **(8)** sends this air through ducts **(9)** to heat the home.

diagram of warm air system

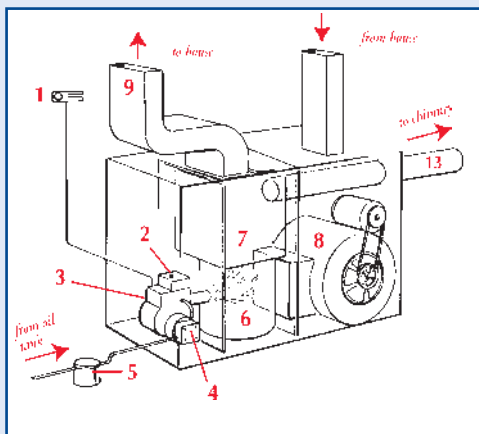
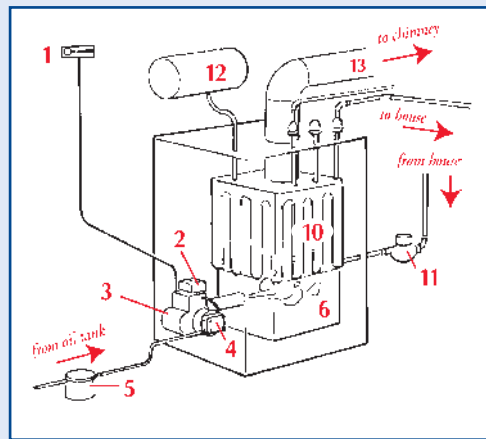


diagram of hot water (hydronic) system



- ▶ In a hot water, or hydronic, system (see diagram above), water circulates around the boiler's **(10)** combustion chamber **(6)**. A circulator **(11)** pumps the heated water through radiators or baseboards. An expansion tank **(12)** adjusts to varying water pressures. Eventually, the water returns to the heating unit to begin the cycle again.

- ▶ Steam systems are similar to hot water systems except that steam rather than hot water is generated. Steam rises up to radiators or baseboards; no circulators are needed. A low water cut-off shuts down the boiler if water levels drop, preventing boiler damage.

In all systems, combustion emissions go up the flue **(13)**, never mixing with the air, water or steam being distributed through the house.

Upgrading to a lean, clean modern machine

Q: What should I do about an old system?

A: An old oilheat system is no different than any other outdated heating system, regardless of the fuel used. Old systems can generate high fuel bills, but they can easily be replaced with equipment that incorporates new oilheat technology.

The price of conversion to another fuel can be substantial, up to several thousand dollars more than an equipment upgrade. The nonprofit Consumer Energy Council of America concluded that converting to another fuel from oil makes “no economic sense” and a better investment would be to upgrade older equipment in order to improve efficiency.

Upgrading to a new oilheat system pays

current AFUE* rating	percent savings on fuel bills by upgrading to an AFUE of 85
70	20%
65	33%
60	40%

* annual fuel utilization efficiency



Q: How do I know if my system should be replaced?

A: Oilheat systems typically last 30 years and longer. However, the older the system, the greater the gain in efficiency and cleanliness through upgrading. If your oilheat system is less than 20 years old, you are already benefiting from some of the technological advances of Clearburn Science.



Size Matters

Modern oilheat systems are smaller, cleaner and more efficient than ever.

Q: Besides a total replacement, are there lower cost ways to improve an oilheat system's efficiency?

A: Yes. A professional tune-up once a year can increase efficiency by as much as 10%. Homeowners can also improve efficiency—by as much as 25%—if they replace an old burner with a modern, flame-retention burner rather than replacing the entire furnace or boiler. Purchasing a new burner is a modest investment with a rapid payback. It is estimated that flame-retention burners have saved homeowners billions of dollars in fuel costs and have conserved more than six billion gallons of oil.

Oilheat gives you all the hot water you need

Oilheat is a great way to heat water. It's especially valued by growing families whose dishwashers, washing machines and showers always seem to be running. With the rapid “recovery” rates of oil-fired water heaters, it's unlikely that you will run out of hot water—and you'll save money, too! Contact a local heating oil company to find out which water heating option is best for you and your family.



The truth about tanks

“I love the house, but what about the oil tank?”



There are many misconceptions about oil storage tanks. Tanks can last for decades, and when the time comes for replacement, there are many new options that can benefit the homeowner.

- ◆ With an oil storage tank on your property, you always have supply on hand.
- ◆ With a tank, you pay for the fuel you are delivered—no estimates, no questions.
- ◆ According to a major national study, the chance of a leak from an underground heating oil tank is less than one-quarter of 1%.*
- ◆ There are no state or federal regulations requiring residential underground oil tanks to be removed if there is no leak.**
- ◆ Advances in technology have resulted in the manufacture of tanks made from corrosion-resistant materials such as fiberglass. Properly installed and maintained, today's average oil tank can last as long as 50 years.

If you have more questions about storage tanks, call a local oil company. They will be able to address any of your concerns.

* Environ Corporation, “Analysis of the Potential Hazards Posed by No. 2 Fuel Oil Contained in Underground Storage Tanks.”

**Some restrictions apply in the state of Maine.

Customized storage solutions

Several options are available if you plan to renovate and want to save space.

- ◆ Today's aboveground tanks are relatively small (275 gallons) and they can be customized for hard-to-fit places. For example, a vertical tank can be installed in small or unusual-shaped spaces in a basement or garage. Tanks can also be installed outside the home and hidden in a tank enclosure, like the one pictured here.



- ◆ You can also upgrade an old buried tank with a modern one. These new units are guaranteed to be corrosion resistant. If you decide to replace an underground tank, you should contact a local oil company for the best options because regulations regarding tank abandonment can be confusing. In the past, homeowners have been misled in ways that can be expensive.

On-site Storage

An oil tank on your property puts you in control of your comfort. The storage tank allows you to have an adequate supply of heating oil ready for immediate use with the arrival of cold weather. Many oil dealers offer the option of automatic delivery. By tracking the weather and each customer's fuel consumption, they can refill the tank before the fuel level gets too low. You never need to think about it.

Service and safety

Oilheat companies pride themselves on providing peace of mind and responsive service to their customers. Consider the following:

- ◆ Oilheat users gave their oil companies an average rating of 94% for friendly and fast service in a recent national survey.
- ◆ Oilheat companies aren't large monopolies, so homeowners can choose a company that best suits their needs and personalities. Most oil dealers are locally owned and operated with deep roots in their communities.



Heating your home with oil is safe. Were you aware of the two facts below?

- ◆ **Heating oil cannot explode.** If you dropped a lit match into a barrel of oil, the match would go out as if you dropped it in water. Oil must be turned into a fine-particle mist before it will ignite and burn, typically at a temperature of 130°–140°.
- ◆ Oilheat poses an extraordinarily low risk for carbon monoxide poisoning.

Tips for added convenience

- ❖ Don't wait until it's cold before arranging for service from an oil company.
- ❖ Keep your tank full in the summer to prevent condensation from forming inside the tank.
- ❖ Get a professional tune-up to increase the efficiency and cleanliness of your heating system.
- ❖ Take advantage of oilheat's **versatility**. Oil is now used in radiant floor heating systems; for warming pools and spas; and for melting snow from driveways.
- ❖ If you plan to add a room or renovate, contact your local home heating company. The people there may know about options that a typical contractor is not familiar with.



If you have trouble getting heat, follow these steps.

- ◆ See if the oil burner switch is on.
- ◆ Check your thermostat. Make sure that it's set above room temperature.
- ◆ Check fuses and/or circuit breakers.
- ◆ Check your oil tank to see if you have fuel.
- ◆ Press the reset button on the burner relay **once only**.

If, after these steps, your heating system still hasn't come on, call your oil company.