

# PortlandTribune

# SustainableLife

## Bioheat vs. Natural Gas: Here's how they match up

*Jo Ostgarden, Pamplin Media Group, Feb 13, 2007*



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Most homeowners barely think twice when it comes to replacing an aging or failing oil heat furnace: They switch to natural gas equipment.

But a growing number of people interested in doing something to help reduce foreign oil dependency as well as carbon dioxide emissions are reconsidering – or at least pondering other options.

Just as in vehicles, cleaner-burning oil made from renewable resources like canola and other natural fats and oils can be used to power oil furnaces and boilers.

Overlooked in the past due to the availability and price of petroleum fuels, modern high-efficiency, forced-air oil furnaces offer a decent alternative to natural gas systems.

We compare bioheat, using B20 biodiesel – a 20 percent mix of biodiesel and low-sulphur diesel – to natural gas.

Here's how they match up:

**Cost:** Unless your decision is driven by equipment failure, it's rarely financially cost-effective to switch from one fuel source to another no matter which direction you go (from oil to gas or gas to oil). But there are other variables (longer life of the equipment) that can make the switch to a bioheat system worthwhile.

If you have an ailing oil furnace, give a call to area biofuel providers (see list at [www.biofuels4oregon.org](http://www.biofuels4oregon.org)). They can provide ways to accurately evaluate switchover or replacement costs.

When considering new equipment, keep in mind that oil furnaces have a life expectancy of 30 years, whereas it's about 15 years for gas furnaces. Repairs and upgrades are cheaper than replacing your furnace with a new oil or gas one.

**Advantage: Even**

**Fuel costs:** The prices of both natural gas and biofuel typically fluctuate from month to month and season to season. Given equal equipment efficiencies, the cost of creating a BTU of heat is less with natural gas than it is with heating oil, but gas bills come with additional services charges, fees and taxes – and one supplier.

Bioheat burns hotter than gas so you'll probably use less of it. There are no added charges, fees and taxes, and you're not stuck with one provider. If you're diligent you can buy biodiesel when the price is low (like in summer), giving you freedom and flexibility in cost efficiencies and in use.

**Advantage: Bioheat**

**Maintenance costs:** A service technician should be called in to adjust the airflow and efficiency one week after running B20 through the furnace for the first time.

Biodiesel acts like a solvent that scours your heating system so the fuel filter may clog, but the filters are simple and cheap to replace. This cleaning effect, by the way, adds years of life to your furnace.

Whether you're using oil or gas, you should get an annual equipment inspection and efficiency adjustment (about \$120 to \$150 total) to make sure you're not pumping more fuel through your system than needed to heat your home (a fairly common system error).

**Advantage: Bioheat**

**Efficiency:** Comparing natural gas therms to biofuel BTUs, you get more heat from biofuel. But overall efficiency depends on the heating system in place (its condition and efficiency rating) and the general energy efficiency of your home.

**Advantage: Bioheat**

**The heat:** Oil burns nearly 400 degrees hotter than natural gas, which is why, when the thermostat kicks on the heat, your home feels toastier so much faster. It's also why oil furnaces are built so sturdy and last so much longer than a gas one.

**Advantage: Bioheat**

**Environmental impact:** Let's face it: Both gas and oil are nonsustainable fossil fuels. Add sustainable biodiesel to the equation and you'll cut home heating emissions by 20 percent.

But the fact is you'll do more for the environment by simply driving your car less than by switching to a new high-efficiency gas or bioheat system.

**Advantage: Even**

**Health impact:** Gas produces high levels of carbon monoxide, which can be fatal or, at the very least, lead to impaired vision and brain damage from exposure. Carbon monoxide also increases other greenhouse gases and eventually turns into carbon dioxide – a common greenhouse gas.

Bioheat produces high levels of oxides of nitrogen. Natural gas does, too, at more moderate levels. Exposure to nitrogen dioxide can lead to respiratory infections in children.

Oxides of nitrogen also cause other greenhouse gases like methane to accumulate in the atmosphere. There are very few known direct human health impacts, but they damage the environment in ways that cause harm to humans.

**Advantage: Even**

**Safety:** Oil and gas heating systems have commendable safety records when the equipment is properly installed and maintained. But hazards do occur when systems malfunction. When natural gas leaks, an explosive mixture of air and fuel rapidly forms. Heating oil is nonexplosive, so an indoor leak isn't an explosion waiting to happen; nor will it burn in a liquid state.

**Advantage: Bioheat**

**Bottom line:** The decision to switch to gas or bioheat really comes down to your comfort level in terms of how quick you like your heat and your willingness to make your home more sustainable while making a tiny, albeit worthwhile, environmental difference. Upgrade to B20 mixed with ultra-low sulfur diesel and you'll make an even bigger difference in emissions.

**Verdict: Bioheat**