Warming Up America

CONVENTIONAL FUELS STILL REIGN IN HOME HEATING **BY RODGER DOYLE**

Central heating, available in the U.S. since the early 19th century, became popular only after the Civil War. Typically, coal-burning furnaces fueled the early systems. The furnaces warped and cracked, causing gases to escape, and had to be stoked frequently. It took years and countless small improvements, but by the mid-1920s the systems had become reliable and, with the emergence of oil-fired furnaces, more convenient.

Natural gas, which became widely available with the building of a pipeline infrastructure after World War II, had developed into the leading fuel by 1960. Its acceptance resulted in part from its versatility—unlike oil, it can power appliances such as clothes washers and dryers, ovens, ranges and outdoor grills. Because it comes primarily from U.S. and Canadian fields, natural gas is also less vulnerable than oil is to war and embargo. Oil remains the predominant fuel in a few areas, such as New England, where natural-gas pipelines have not yet thoroughly penetrated. Oil users in many regions have the advantage of being able to lock in the price of a season's supply and, in contrast to most gas users, can easily change their supplier.

Electric heating, which appeared in less than 1 percent of homes in 1950, now dominates most areas with mild winters and cheap electricity, including the South and the Northwest. Its popularity, at least in the South, was spurred by the low cost of adding electric heating to new houses built with air-conditioning. In the Northeast and Midwest, electricity has not been a popular fuel because of its high cost for cold-weather heating and because it delivers heat at 90 to 95 degrees Fahrenheit, compared with 120 to 140 degrees F for gas and oil, which many in cold climates find preferable. In some areas, such as California, electric heating has not progressed because of building code restrictions. Bottled gas, which is somewhat more expensive than utility gas, is the fuel of choice in rural areas not served by utility pipelines. Wood, the dominant fuel throughout the U.S. economy until the eighth decade of the 19th century, is the leading heating fuel in just a few rural counties.

Home heating, which accounts for less than 7 percent of all energy consumed in the U.S., has had a commendable efficiency record: from 1978 to 1997, the amount of fuel consumed for this purpose declined 44 percent despite a 33 percent increase in the number of housing units and an increase in house size. This improvement came about thanks to better insulation and more efficient equipment following the energy crisis of the 1970s. The U.S. Department of Energy, however, forecasts that energy used in home heating will rise 14 percent over the next two decades. That upsurge is small considering an expected 21 percent increase in the number of houses and the trend toward larger houses. Total energy consumption in the economy, including transportation, manufacturing and commerce, is projected to rise by 31 percent.

Natural gas and electricity will probably dominate the home heating market for the next two decades. Solar heating never took off because of cost and limited winter sunlight in most areas; in 2000 only 47,000 homes relied on it. Fuel cells for home heating are unlikely to be competitively priced until 2010 at the earliest.

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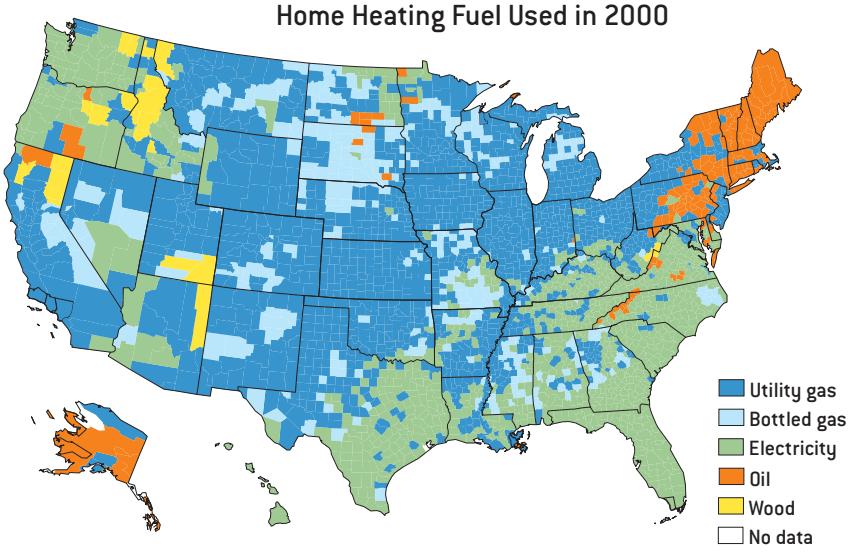
Home Heating Fuel Used in 2000



SOURCE: 2000 U.S. Census

HEATING UP THE HOME

Sixty Years of Home Heating Fuel in the U.S., by Percent of Use

Fuel type	2000	1980	1960	1940
Utility gas	51.2	53.1	43.1	11.3
Electricity	30.4	18.4	1.8	—
Oil	9.0	18.2	32.4	10.0
Bottled gas	6.5	5.6	5.1	—
Coal	0.14	0.6	12.2	54.7
Wood	1.7	3.2	4.2	22.8
Solar	0.04	—	—	—
Other fuels	0.4	0.2	0.4	0.4
No fuel	0.7	0.7	0.9	0.8

SOURCE: U.S. Census Bureau. Oil includes kerosene; coal includes coke; bottled gas includes propane and petroleum gas in tanks or in liquid form.

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