of *American Demographics.*

From 1960 to 1970, per capita energy consumption in America jumped 2.9 percent annually. But during the 1970s, total energy demand grew only 10 percent—a mere 1 percent per capita annual gain. If this trend continues, the projected 1995 U.S. population of 253 million will need only 37 percent more energy than it does today, not the 88 percent more that scholars once predicted based on 1960s growth rates.

Yet aggregate figures are only part of the story. Different age groups consume energy at different rates. Children up to the age of 19 and senior citizens over 65 use little energy. The elderly, for example, tend to live in small homes, seldom travel, and frequently reside in mild climates. The young and old will account for roughly 31 and 12 percent of the population, respectively, from now until 1995. America's biggest energy users are working age adults, aged 20 to 64. Their numbers, swollen by the Baby Boom, will continue to account for 57 percent of the population.

Moreover, recent changes in conventional family structure will probably boost per capita energy consumption. More working wives create higher household incomes; and in 1975, households with $30,000 to $35,000 incomes spent 52 percent more on energy for heating and transportation than those living on $10,000 to $15,000. The growing ranks of singles tend to inhabit condominiums and apartments—which use 38 percent less energy than one family homes. But singles also create *more* households to heat, cool, and furnish with appliances.

The effect of migration to the Sunbelt states on energy consumption is unclear. Most homes in the South and West, which burn natural gas, have lower heating and cooling bills than older homes in the North and East heated by imported oil. The average Boston home, for example, cost $1,052 in 1979 to heat versus only $420 for its counterpart in Houston. But the average Houston resident fills up with 671 gallons of gas annually for private transportation compared with 426 gallons purchased by the average Bostonian.

Reynolds suggests that a larger, more geographically dispersed population and a continuing push for higher living standards will reverse the energy use trends of the 1970s and boost American demand by the end of this century.

Europe's Nuclear Fast Track

"How Prometheus Came to be Bound: Nuclear Regulation in America" by Michael W. Golay, in *Technology Review* (June–July 1980), Room 10-140, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

Western European nations regulate nuclear-plant construction in a manner that Americans would do well to heed. So asserts Golay, a nuclear-engineering professor at MIT.

The U.S. Congress has repeatedly declined to set health and safety standards for nuclear plants. This politically touchy task has fallen to

RESOURCES & ENVIRONMENT

the technically oriented Nuclear Regulatory Commission. The result: Foes of nuclear power, finding Capitol Hill unresponsive to their concerns, now take their cause to N.R.C. licensing hearings and to the federal courts. They frequently thwart or delay construction by showering the N.R.C. with objections to design details, or to a utility's environmental impact estimates—and then persuading judges that the commission gave them short shrift. Between 1966 and 1970, the typical reactor-construction schedule increased in the United States from just under five years to just over seven years.

By contrast, the political parties of France, West Germany, Sweden, and Britain stake out firm positions on atomic issues. Once in power, they claim a popular mandate on nuclear policy. Feeling no qualms about setting standards, they close most licensing hearings to the public, which permits regulators and utility representatives to focus on what they are best qualified for—technical design. In France, for example, where President Giscard d'Estaing's government strongly backs nuclear power, reports on nuclear safety systems and the names of licensing officials are not available to the public. In Britain, licensing negotiations between utilities and the Nuclear Installations Inspectorate are shielded by the Official Secrets Act. Throughout Western Europe, nuclear opponents' chief recourse is voting a party out of power—which happened in Sweden in 1976.

According to Golay, the absence of pressure groups at European hearings produces a regulatory climate of "cooperation, trust, and reasonable compromise" between government and nuclear industry technicians. If the United States wants nuclear investment to continue, he argues, Congress must define acceptable levels of nuclear pollution, and then permit N.R.C. and industry officials to work out the technical details without political interference.

Reviving a Rubber Source

"Guayule—Rubber Crop of the Future?" by Edward W. Lawless and Ralph R. Wilkinson, in *MRI Quarterly* (Spring 1980), Midwest Research Institute, 425 Volker Blvd., Kansas City, Mo. 64110.

A two-foot-high desert shrub native to the American Southwest could cushion the impact in the United States of a widely predicted world rubber shortage, according to Lawless and Wilkinson, scientists at the Midwest Research Institute.

Demand for natural rubber [current world production: 9 million tons] is rapidly outstripping supply. And future manufacture of synthetic rubber [current world production: 3.8 million tons] will be crimped by the steadily rising price of petroleum-based ingredients, say the authors. Aside from the hevea tree, which now produces most of the world's natural rubber on plantations in Southeast Asia, North American guayule is the only plant that has ever been grown commercially for rubber.

In 1910, guayule from Mexico and northern California provided 10