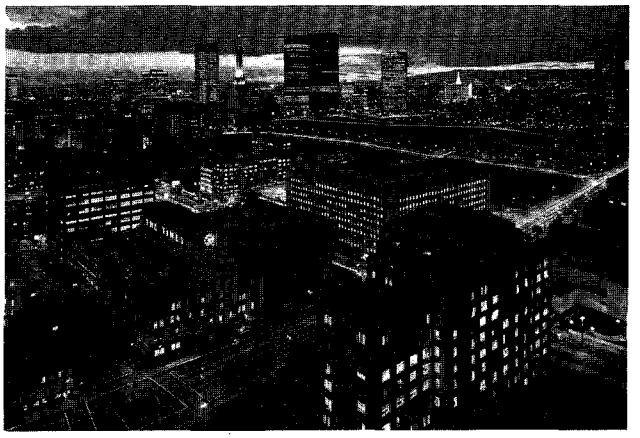
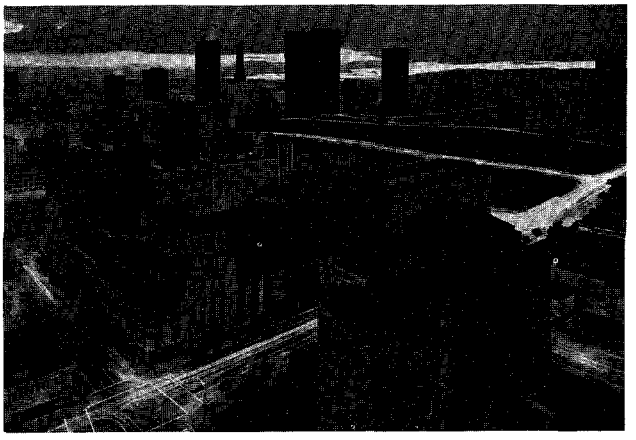
ENERGY CRISIS





Today the United States uses more than a third of the world's energy. Throughout most of our history, energy consumption has increased continuously. Now there are signs that such rapid growth may no longer be possible. The gap between energy supply and demand in recent years has been widening dramatically, and major breakdowns, rationing, and other cutbacks have become commonplace in some parts of the country. These problems have created a concern about an impending energy crisis for both the short term—10 to 30 years—and the long term—100 years or more.

The immediate energy crisis comes from the anxiety that many people feel about the environment. Organized public resistance to nuclear power plants has slowed or stopped construction of these facilities in many areas. Tighter anti-pollution regulations have been imposed on conventional fossil-fueled (coal and oil) power plants, and have reduced their output.

The long-term energy crisis has its roots in a different kind of dilemma—the finite and dwindling sources of fuel for power purposes. If demands for energy continue to grow, this country's usable reserves of oil and coal will be exhausted within 30 years. Usable supplies from other parts of the world would give us another 30 years. But only on the unlikely assumption that the rest of the world is not going to raise its demands for energy. If populations and living standards around the world continue to increase, societies of the future are going to be faced with energy starvation if they have to rely on present sources of energy.

The answers to both the short- and long-term problems appear to be the development of alternative "clean" sources of power and of life-styles that do not demand so much energy. But these answers lead only to more questions. Which sources of power *should* be developed? Where should our money and research efforts be concentrated? How much time can we afford?

The three most promising new sources of energy are geothermal, solar, and fusion power. Each of these has been the subject of much concern and discussion at Caltech in recent months. Some of this discussion is reported in the four articles on the following pages.