

PICTURING THE FUTURE OF ENERGY

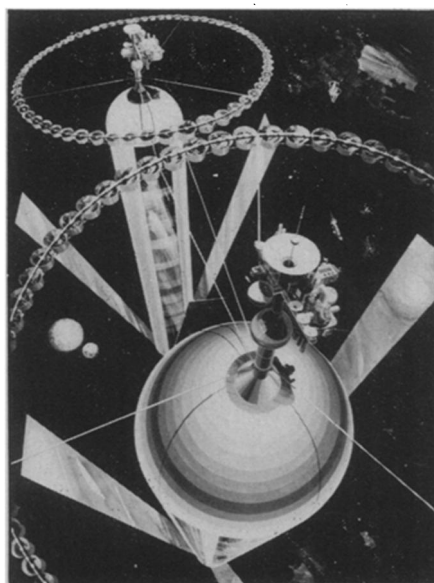


Honeywell

“Power tower” to generate electricity from steam using water heated by solar energy. Heliostats—the bank of computer controlled mirrors at the base of tower—focus sun’s rays on pipes containing water, located in the cylinder at top of tower. Steam under pressure then drives a turbine generator at base. Now in the preliminary experiment stage, an operating tower generating electricity for a city of 5000 homes may be built by 1980. One of the biggest problems will be developing heat storing capacity for cloudy days. Four major firms are competing in the study: Honeywell, McDonnell Douglas, Martin-Marietta and Boeing.

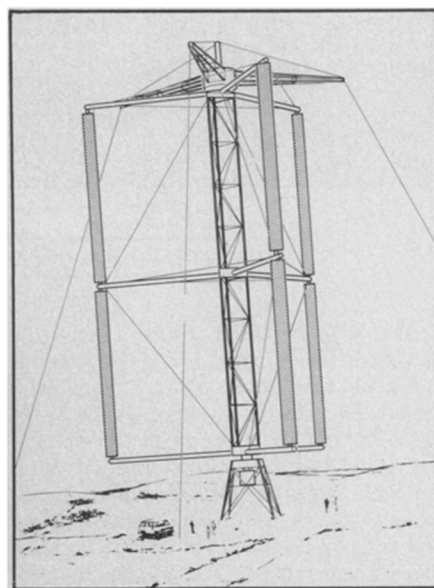
Presenting five of the most imaginative new ideas for alternative energy sources. Each is under intensive current study, mostly with Government funding.

Compiled by John H. Douglas



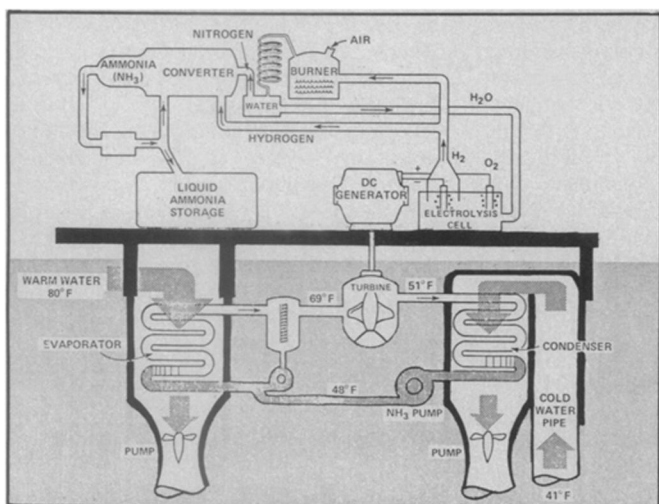
NASA

Space colonies powered by solar energy, reflected by hinged mirrors along the sides. Designed by Gerard K. O’Neill, the colonies are about 19 miles long and four miles in diameter.



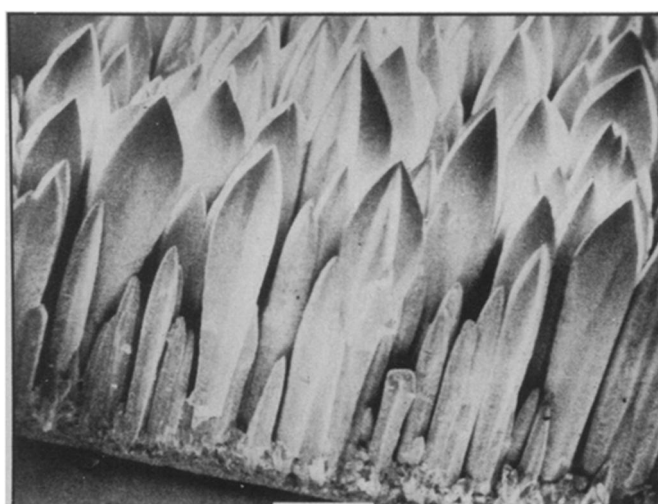
McDonnell Douglas

“Giromill” to generate electricity from wind energy. Vertical windmills offer several advantages over conventional, horizontal axis versions: They are more stable in high winds, do not have to be adjusted for changes in wind direction and may be cheaper to build. Blades are tapered like an airplane wing. A typical Giromill to create 100 kilowatts of electricity in a 15 mile per hour wind (about right to service 40 homes) would have blades 130 feet high, mounted on a rotor with a diameter of 100 feet. In high winds, blades could be released to rotate freely. The McDonnell Douglas Corporation has won a contract to study the design.



Johns Hopkins Univ.

Ocean Thermal Energy Plant OTEP ships may help solve the food crisis as well as the energy crisis. By using the energy derived from ocean thermal gradients to make ammonia, at about one third the present cost, OTEP ships could help compensate for expected fertilizer and natural gas shortfalls a decade hence. Johns Hopkins University Applied Physics Laboratory is studying the possibilities.



IBM

One of the keys to developing new energy technologies is materials research. IBM has developed a new type of light absorbing surface—shown here in electron micrograph—made of vapor-deposited tungsten. Some 96 percent of the light incident at the appropriate angle is absorbed, and the material can hold its heat at high operating temperatures (more than 900 degrees F.).