

village view

by Andrea Leonard

If you've been reading the Mobil Oil and Exxon advertisements, you may have received the impression these energy giants are starting to exert their considerable strength and their impressive financial and engineering resources to developing solar energy. And this is true.

It's also true their greatest investments remain in developing fossil fuels and their dedication to solar energy is comparatively small.

The reason appears obvious; when solar power becomes the primary energy source, oil will cease to be of such value; sales of millions and millions of barrels of oil will taper off. Oil companies' profits will decline.

And once solar energy is harnessed efficiently to meet power needs, it will be remarkably inexpensive and trouble-free. Profits from solar power won't compare with those from conventional fuels.

Nevertheless, it's becoming clear that solar energy will be - must be - the major source of power in the near future.

All over the map, industries large and small are researching and developing solar energy systems; some are available today and more are coming on the market as oil prices rise. The argument that solar energy is not yet economically feasible is no longer very convincing.

Solar systems to heat water are already operating right here in Cape Cod homes. Solar systems to provide residential heat have proved feasible in most parts of the country. In some places, it's true, solar heating can't yet do the total job - back-up systems are needed to help out when the sun doesn't shine for a couple of days or the outside temperature is extremely cold.

Today's existing homes already have the necessary back-up systems installed and in working order. In new construction, supplementing traditional heating systems with solar saves precious oil and gas, lowers fuel bills, and as time goes on and companies producing and selling solar heating systems proliferate, installation prices are bound to come down.

The original cost of a solar heating system may pay for itself in only a few years if you heat with electricity; it may take ten or twelve years if you heat with oil or gas. That's assuming fossil fuel prices don't rise any more.

From the break-even point onward, heating our homes, schools and commercial buildings will be less expensive than conventional methods.

Oil companies aren't the only ones devoting time and money to developing solar energy systems. Among others, Grumman Houston Corporation is marketing the Sunstream Solar Domestic Hot Water System.

Installed on your roof, toolshed or fence, Sunstream collectors, filled with anti-freeze, absorb the sun's energy and, in turn, heat water in your storage tank. It's a freeze-proof year-round system through which anti-freeze is pumped through a closed loop, circulated through the collector where it absorbs heat, and then to the storage tank where it gives up heat.

The cold water supply is connected to the storage tank and the delivery pipe from the tank is connected to the existing hot water system. In sunny weather the water in the storage tank is hot enough that the existing heat need not come on. On cloudy days or when family hot water use is heavy, the existing heater is available to "top up" the water temperature.

For information, write Sunstream, Grumman Houston

Corp., 4175 Veterans Memorial Hwy., Ronkonkoma, N.Y. 11779.

Thermal experts at Grumman have captured thirty solar energy development contracts in the last five years. One system being designed will control temperatures of satellite electronic equipment; another will maintain precise temperatures of batteries in a communication satellite.

In a third project, a heat storage system for electric utilities will trap off-peak energy in molten salt for use during high demand periods.

For the Department of Transportation, a system will pump heat from the ground to prevent ice forming on road surfaces. The Army will use a unit to recover and recycle heat used to dry rocket propellants.

At Grumman's own plants and facilities, heat pipes help conserve energy formerly lost in exhaust air from ovens, offices, and air-conditioning systems. These ground systems are designed to pay for themselves within two years, are maintenance free, and easily built.

Westinghouse Electric has been involved in a number of solar-related projects for several years. The U.S. Energy Research and Development Administration's \$20 million solar energy experiment at a new knitwear factory in Georgia will be integrated by Westinghouse. The system is expected to provide 60% to 90% of all the energy needed to operate the factory.

At Fort Hood, Texas, the largest military installation in this country, Westinghouse is helping design the largest non-commercial solar total energy system ever built. The solar system will provide electricity, space heating and cooling, and hot water for the buildings housing more than 1600 troops.

But the oil companies are not just sitting on their hands while this is going on. In a joint venture with Tyco Labs, solar cells have been developed and work is continuing to commercialize them.

Solar cells convert sunlight directly to electricity. Using specially designed winding equipment, scientists at Mobil Tyco Solar Energy Corporation can now "grow" silicone ribbons up to 100 feet long.

Finished solar panels, when they become readily available for the consumer market, will run all electric appliances in a normal home, according to Mobil Tyco.

Ways to cut costs of solar energy systems are being studied since the development of a combined electrical and thermal energy system. For example, experiments are under way with optical collectors to determine if they might be fitted with silicon solar cells produced as tubing which would serve as coolant pipes to absorb the useful low-grade heat-- thermal energy-- created when sunshine falls on solar cell material.

Since efficiency of the silicon cell is diminished by heat, it would be removed by circulating fluid in the silicon "pipe"; this heat captured by the fluid could be pumped into a structure's heating or hot water system.

The inflowing fluid would serve as a coolant to create a uniform temperature of the solar cell and maintain its electrical output.

Mobil Tyco believes the prospect of this heat/electricity system is an intriguing option for reducing the overall cost of solar electric systems. The corporation estimates that by 1990 this nation will have the technology base for the future development of viable solar energy.

By no means are these the only industries devoting research to solar energy; these are just a few I've found out something about. As a non-engineer, I don't understand much of the detail; but I do understand the principles involved.

Anyone who has run water from a hose that's been laying in the sun for a few hours knows the first few gallons of water coming from the hose are hot. They were heated by solar energy.

That's where we're headed. Let's hope the route will be short and direct.