

OPINION

Highlighting clean energy in San Diego

By Fletcher Miller

Twenty-eight years ago this summer, I took a class at San Diego State University on how to design and install a solar hot water system on a home. We had just been through our second energy crisis of the decade, and the nation was hungry for new sources of energy, preferably free from foreign control. I was a fired-up college student who wanted to make a difference (first) and a career (second) in the alternative energy field, as it was then called.

So, I took the class, installed the hot water system on my parent's home, and went on to earn a Ph.D. in engineering at Berkeley, studying high temperature solar receivers for my dissertation. Unfortunately, while I was busy solving equations, the nation (or our national government, at least), lost interest in solar energy. I was lucky to find employment for two years in Germany on solar energy research, but eventually returned to the United States and changed direction to work in the space program.

I tell this brief life story not because it is unique, but because it represents many people who had dreams of clean energy, only to see them disappear into the national energy non-policy that this country has had since 1980. Other countries, meanwhile, have raced ahead in the quest to harness the sun. In 1995, the United States was the world's largest producer of solar cells, manufacturing more than the rest of the world combined. By 2005, our production had more than doubled.

On the other hand, Japan increased its production more than a factor of 10, and now far out produces us in a technology invented in the United States at Bell Labs. Germany — with a solar resource similar to Alaska — now has more photovoltaic systems installed than any other country, and has also passed the United States as a producer of high-tech solar equipment. China, whose dirty coal we hear so much about, has roughly 60 percent of the world's solar water heating capacity, while the United States has a shamefully low 2 percent.

Fortunately, for the first time in

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decades, there is real hope that solar energy may live up to its potential to provide our country with meaningful amounts of clean, domestic energy. Various forces, from global climate change to rising oil prices to concerns on being overly dependent on imported fuel in this age of terrorism, are causing people to take another, long-overdue look at solar energy.

Thanks to engineers and entrepreneurs who never left the field, and to foreign governments who continued to sponsor research and encourage applications, solar energy technology has made remarkable strides in the last couple of decades so that the renewed look is inviting. Solar water-heating systems are now available pre-designed with

integrated components, so they are not cobbled together as on-off installations. While still expensive, PV systems are more efficient, lower cost, easier to install, Internet-enabled and, thanks to some progressive legislation, no longer need batteries for storage since the power can be sent right to the electrical grid and credit given at full retail rate when the owner is not home or using power. Also gaining popularity again is solar forced air heating, which can be more efficient than solar water heating and three-to four times as cost-effective as PV systems in certain climates.

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Beginning tomorrow, the National Solar Conference, SOLAR 2008, will be held at the Town and Country Hotel in Mission Valley. With a theme of "Catch the Clean Energy Wave," the general public is strongly encouraged to attend on either weekend day by signing up online at solar2008.org, or just showing up. There will be public talks on solar energy, movies, demonstrations, an outdoor display area, and more than 150 companies in the exhibit hall showing off the latest solar technology. This is followed during the week by technical presentations from the American Solar Energy Society and some 175 of the world's leading experts on solar energy and related technologies.

The following week, the IEEE is holding the Photovoltaic Specialists Conference here bringing together the leading researchers in all aspects of solar cell design and manufacture. In October, the Solar Power Conference and Expo is coming to town. This event, held only in California and only for the first time a few years ago, has rapidly grown into the largest solar energy gathering in the country. It is mainly a business-to-business event, but the public is invited one evening. These three major conferences will help advance San Diego's stature in the area of solar energy, but for real success the region needs to embrace the practice of solar energy, not only the preaching.

Last summer, I left the space program after 16 years to become a professor of mechanical engineering at San Diego State University, where I first got my hands dirty with solar energy. I now live in the house where I installed that system as a student 28 years ago, and the panels are still on the roof supplying all our hot water. Unfortunately, we have missed a generation, so it is imperative to educate a new crop of engineers who can propel us toward a solar future.

There will always be doubters, like my neighbor who has had a view of the panels since the day they were installed and still doesn't quite believe they work, but there has never been a better time for San Diegans to commit to solar energy and become America's No. 1 city in solar energy.

We are the pilot city for the state for a new solar hot water program offering substantial rebates, and other state aid and federal tax credits are available for photovoltaic and solar thermal systems.

