

DOE WINS POPULAR SCIENCE "BEST OF WHAT'S NEW" AWARDS

From U.S. Dept. of Energy

■(WASHINGTON) Flexible solar electric shingles, a desert tower that stores the sun's energy, an inexpensive device to disinfect water, and a new aerosol-based technology for sealing air leaks in heating, cooling, and ventilation (HVAC) ducts — all developed with support from the Department of Energy's Office of Energy Efficiency and Renewable Energy — are winners of *Popular Science* magazine's "Best of What's New" awards for 1996. The Grand Award in Environmental Technology went to the solar shingles.

"These award winners represent not only the 'Best of What's New,' but also the power the Department of Energy's research and development programs offer the Nation and the world," said Secretary of Energy Hazel R. O'Leary.

The solar electric shingle roofing modules were developed by United Solar Systems Corp., in collaboration with Energy Conversion Devices Inc., both of Troy, Mich. They are solar electric modules, resembling conventional asphalt roofing shingles, that are composed of amorphous silicon photovoltaic (PV) cells deposited on flexible stainless steel. These overlapping shingles replace ordinary architectural roofing materials. The modules can produce 5-6 watts AC/square

foot peak power in full sun conditions and produce approximately 25 watt-hours/square foot on average for daily energy output. Actual performance depends on several factors including local climate, roof orientation, and building features.

Solar Two is the world's most technically advanced solar power plant. It uses an innovative molten salt technology to capture and store the sun's energy — a technology vastly different from other solar technologies because it allows the practical storage of solar energy, generating electricity when needed, including at night and in bad weather. Located in California's Mojave Desert, Solar Two uses 1,926 heliostats (mirrors) in a circular formation around a 300-foot tower. The mirrors track the sun's path, focusing sunlight onto a central receiver to generate a clean, inexhaustible supply of energy. Solar Two is a joint effort of DOE and a consortium of electric utilities and high tech companies led by Southern California Edison.

Scientist Ashok Gadgil of DOE's Lawrence Berkeley National Laboratory (LBNL) in Berkeley, Calif., was cited for his development of UV Waterworks. This inexpensive device uses ultraviolet light to cheaply disinfect water from the viruses and bacteria that every year kill millions of people in developing nations. Waterborne diseases such as cholera, typhoid, and dysentery are transmitted mainly through the drinking of unsanitary water. The two most common methods of disinfecting water in developing nations — chlorination and boiling — both have drawbacks and limitations. The UV Waterworks is a purification system that uses an

off-the-shelf ultraviolet light to kill bacterial and viral contaminants. Running on a car battery if necessary, one unit can provide water for a village of 1,000 people. Each unit should cost between \$250 and \$600.

A new aerosol-based technology for sealing air leaks in HVAC ducts was developed by LBNL scientist Mark Modera. In typical homes, sealing these leaks can reduce heating and cooling energy costs from 15 to 30 percent. According to a 1991 study, sealing these leaks could save some one quadrillion BTU's per year in this country for an annual energy savings of approximately \$7 billion. Using Modera's system, grilles are temporarily sealed, aerosolized adhesive particles are blown into the duct system and flow to the leakage sites, creating a sealant. The research to develop aerosol sealing was supported as well by the California Institute for Energy Efficiency, the U.S. Environmental Protection Agency, and the Electric Power Research Institute.

Each year, the editors of *Popular Science* magazine review thousands of new products, technology developments, and scientific achievements to select 100 for distinction as the "Best of What's New." This year's winners were announced at an awards event last week in New York City. A 24-page special editorial section highlighting the award winners is the cover story for the December 1996 issue of *Popular Science*. This year the "Best of What's New" will also extend to millions of computer users on the Internet's World Wide Web. These viewers will choose from the 100 winners for the Reader's Choice Award, to be announced on January 3, 1997.

EPA RECEIVES VICE-PRESIDENTIAL "HAMMER" AWARD

From Environmental Protection Agency

■(WASHINGTON) On Nov. 18, the Environmental Protection Agency received a Vice-Presidential "Hammer" Award which recognizes teams or individuals for contributions to building a government that works better and costs less.

The Hammer went to EPA's Use and Exposure Team in the Office of Prevention, Pesticides and Toxic Substances, for establishing a partnership with the chemical industry in which up-to-date chemical data are provided to EPA voluntarily, eliminating the need for information collection regulations and improving EPA's ability to assess and act on potential chemical risks to human health and the environment. Over 100 companies have provided new data on 40 chemicals of concern. The award ceremony was hosted by Eastman Chemical Co., Kingsport, Tenn.

