

Solar Roofing Shingles

Integrating photovoltaics into roofing shingles produces clean solar power

Thin-film photovoltaic (PV) cells are now doubling as rooftop shingles. U.S. Department of Energy (DOE) research on thin-film PV and a growing interest in integrating PV into buildings has resulted in this new building material that generates electricity using sunlight.

The new PV shingles are being manufactured by a U.S. company, United Solar Systems Corporation, which has already achieved quarterly sales of \$1 million. The company employs 90 people in Troy, Michigan, and San Diego, California. By 2001, the company expects to achieve annual domestic sales of 3 megawatts (MW) and equal or greater international export sales.

The energy generated from a building's PV rooftop shingles can provide power both to the building and to the utility's power grid.

Several demonstration projects, including a solar rooftop system showcased at the Southface Energy and Environmental Resource Center in Atlanta, Georgia, have proven that these innovative shingles can provide clean electricity.

PV shingles offer many advantages:

- Provide the same protection, durability, and flexibility as ordinary asphalt shingles
- Aesthetically appealing, blending with standard roofs and normal home construction
- Replaces roofing material—additional shingles underneath are unnecessary
- Low installation costs
- Lightweight.

The Office of Power Technologies is part of the Office of Energy Efficiency and Renewable Energy

Highlights

- ***Two-thirds of the electricity generated in the United States is now used in buildings.***
- ***Electricity generated by photovoltaic (PV) shingles on buildings supplies power to the building and to the utility grid.***
- ***PV shingles provide environmentally safe, clean energy to help meet future electrical needs.***
- ***Quarterly sales of PV shingles have hit \$1 million.***
- ***DOE research and development progress on thin-film PV contributed to a manufacturer's decision to open the first large-scale production plant in the world.***



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The PV shingles shown here on a house in Atlanta, Georgia, won Popular Science magazine's grand award for "What's New in Environmental Technology." The PV shingles cover the inner portion of the lower roof section.