

## Revolutionary Process Makes Solar Power Cheap

Forget about high priced solar cells, elaborate panels and delicate systems. If a California company's claims prove out, solar power just got cheap, flexible and easy to install.

But don't start asking for it at the hardware store just yet. The company just opened a \$100 million plant and has already sold out its first year's production. Initial products consist of panels designed for utility-sized power plants and SolarPly lightweight solar electric cell foil. Unfortunately, no stock is available either, as the company is privately financed with no plans to go public.

Nanosolar, based in San Diego, has found a way to print solar cells, which might end up almost like printing money. The "print-

ing" process literally lays down the semiconductor layer of a high performance solar cell on a low-cost foil backing. The key ingredients are a nanoparticle ink of copper, indium, gallium and diselenide (CGIS) and a metal foil with 20 times the conductivity of stainless steel.

CGIS is normally precisely positioned on a glass plate under a vacuum. Nanosolar prints it on the foil in rolls, potentially meters wide and miles long, that can be exposed to the open air.

The result is a solar cell film that can be produced cheaply, cut to fit and has a life expectancy of up to 25 years. Because of the metal foil background, hooking it up doesn't even require soldering connections. Indi-

vidual cells created by the printing process are also independent of another, so if one is damaged it has no effect on energy production of the surrounding cells.

Best of all is the cost. Nanosolar executives claim they'll be able to sell solar panels at a price of only 99¢/watt. According to solar industry sources, that is one fourth the cost of systems now on the market. Nanosolar projects an energy payback of less than one month, compared to three years on traditional wafer cells and 1.7 years for glass-backed thin film systems.

Contact: FARM SHOW Followup, Nanosolar, Inc., 5521 Hellyer Ave., San Jose, Calif. 95138 (fax 408 365.5965; info@nanosolar.com; www.nanosolar.com).



Nanosolar film is a high performance solar cell film on a low-cost metal foil backing. It can be cut to fit and has a life expectancy of up to 25 years.

## PVC "Porcupine" Attracts Fish

You can create your own "hot spots" with Bill Dance's Porcupine Fish Attractor. The odd-looking plastic sphere with spikes made from lengths of pvc pipe starts attracting fish in minutes and will continue to do so for years to come, says inventor Larry Harper.

"One outdoor writer dropped one in a lake and said he caught a 1 1/2-lb. bass at the spot 30 minutes later," reports Harper.

Harper notes that kids get bored when they don't catch fish, and dads get tired of retying line and hooks. With his pvc fish structures, kids catch fish. Once they've been in place for a few weeks, algae and plankton begin to grow on them, attracting small bait fish and then larger fish. The structures appear to improve spawning habitat. They don't deteriorate over time, and they don't catch hooks.

"Drop a line with bait down through the PVC pipe, and it bounces as it slides past the pipes. Fish come and get it," he says. "Pull the line back out, and it slides off the pipes instead of getting caught."

He made his first model with a ball of putty

and toothpicks and then made a full-size prototype from wood and got the idea patented.

With the help of investors, he had a plastic injection mold made and started calling on retailers. He has since sold thousands, thanks in part to Bill Dance, the cable TV fishing celebrity. Dance saw it at a sporting goods store, tried a couple out and was so impressed that he called Harper up and offered to help promote the device for free.

"Bill said it was the best thing to happen to fishing in many, many a year," says Harper.

Harper says he has put out more than 800 on one lake in Kentucky. He has the GPS coordinates on each one, allowing him to go out on the lake and drop a line right to a spot where there will be fish.

"They'll work great for ice fishing too," he explains. "Drop them in the summer, and record the GPS coordinates. Come back after the lake has ice over, and drill a hole right over the spot."

Harper sells the plastic sphere by itself (without pvc pipes) for \$11.65 or in a 3-pack



Sphere has spikes made from lengths of pvc pipe. Once they have been in place for a few weeks, algae and plankton begin to grow on them, attracting fish.

for \$34.95. Spheres are also available with pre-cut pvc pipes in three different lengths for three different depth ranges. Prices vary based on pipe length and unit quantity ordered.

Contact: FARM SHOW Followup, Bill

Dance's Porcupine Fish Attractor, 1199 Industrial Park Rd., P.O. Box 5287, South Fulton, Tenn. 38257 (ph 270 254-0150; fax 270 653-4233; lharper@fishattractor.net; www.porcupinefishattractor.com).

Kit uses ATV's original seat and steering wheel as well as the headlights and tail lights. All kit components are painted Army green but can be custom painted.



## Kit Turns ATV Into Jeep

You can turn a used ATV into a 4-WD "Willys Jeep" with this kit from Tippmann Design, Fort Wayne, Ind.

The kit includes a fiberglass body and hood with a big star decal on top and numbering on the sides. It also includes the dash, a cowl that goes between the hood and dashboard, front bumper, fold-down windshield, rollbar, a rear dump bed with air-assisted springs, and a rear mount gas tank much like the "gerry cans" found on back of the Jeep. The kit uses the ATV's original seat and steering wheel and also makes use of the ATV's original headlights and tail lights, which are removed and inserted into brackets. The ATV's headlights are relocated onto the kit's rollbar.

All kit components are painted Army green but can be custom painted.

"I came up with the idea because the Willys

Jeep is an icon of American troops and a real collector's vehicle. It was designed to go everywhere, just like today's ATV's are," says inventor Brad Tippmann. "The body mounts using pre-existing holes in the ATV, with no drilling or tapping required. If you want, I can supply 14-in. tires with rims painted to match your ATV's color."

So far the kit is available only for Yamaha Rhino ATV's, but it will soon be available for other ATV models including the Kawasaki 610, Polaris Ranger, and Arctic Cat Prowler.

Sells for \$3,499 plus shipping. Contact: FARM SHOW Followup, Brad Tippmann, Tippmann Design, 3518 Adams Center Rd., Fort Wayne, Ind. 46806 (ph 866 286-8046 or 260 469-3273; brad@tippmannsdesign.com; www.tippmannsdesign.com).



Hydraulic hitch is made of 4-in. sq. tubing bolted onto original transport hitch and harvester's blower housing. Hydraulic cylinder can move up to 30 in. back and forth.

## Hydraulic Hitch Moves Forage Wagon Into Transport Position

Custom cutting up to 2,500 acres of silage a year is a little easier since Terry Cofer came up with a hydraulic hitch for his Deere pull-type forage harvester.

"It pushes the wagon from transport position to cutting position," Cofer says, saving time and effort. It comes in handy for Cofer and his crew, because they cut for many small operations and move from field to field - often through narrow gates. It's also handy to move the wagon into transport position to make room to fill a dump truck on the side."

Cofer's brothers, including one who was a former Deere engineer, worked with Cofer on the design. The hydraulic hitch is made of 4-in. sq. tubing bolted to the original transport hitch and the harvester's blower hous-

ing. On top of that, scrap 3-in. channel iron holds a hydraulic cylinder which moves back and forth 30 in.

"Our chopper has electric solenoid valves, and we added another valve to connect the hydraulic line," Cofer says, noting that the hydraulics could also be run off the tractor.

He's been using his \$200 hitch for three seasons and recently built another hitch for his other harvester.

"It worked the way we expected it to," Cofer says, "with no problems."

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