

Revolutionary New Home Generator Might Unhook Us From Power Lines

A new farm-size mini power plant has the potential to revolutionize the way the world generates electricity, say backers of Capstone Turbine Corporation's new "MicroTurbine".

Investors in the new company include the world's richest man, Microsoft's Bill Gates, and Microsoft co-founder Paul Allen. In the 1980's, these men said every home would have a computer but no one believed them. Now they're saying the same thing about Capstone's new do-it-yourself generator and no one's sure quite what to think.

People who have seen it say that Capstone's MicroTurbine is an engineering marvel.

The compact, drum-shaped unit weighs 870 lbs. and measures 45-in. long, 26-in. wide and 84-in. high. It has just one moving part - a shaft that spins on a cushion of air at 96,000 rpm's. What makes it unique is that virtually no lubrication or regular maintenance is required.

The unit can be turned on or off without

fear of overheating or wear and tear.

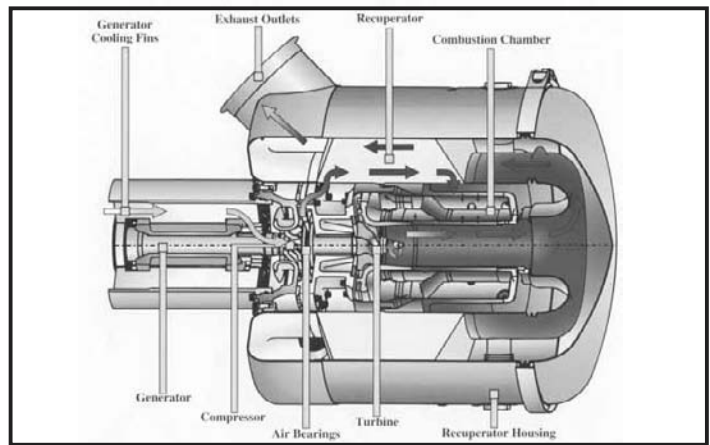
The first units built are sized to power a farm or small factory, or a number of average-sized houses. It can be fueled by gasoline, diesel, or natural gas. Up to 80 percent of the fuel is turned into electricity.

Research on prototypes over the last three years suggests that the unit produces power at 4 1/2 to 5 cents per kW hour, compared with an average cost of 7 cents for commercially-produced power in the U.S., the company says.

Besides generating electricity for homes and shops, microturbines can also be used to power vehicles. One unit is already being tested in a hybrid electric bus.

Commercial availability of the microturbine is expected late this year. Different-sized units will be available and price will depend on configuration and application.

Industry watchers have suggested that while the mini-generators may produce cheaper electricity at first, if they catch on



Compact, drum-shaped unit produces power for 4 1/2 to 5 cents per kW hour, compared with the average cost of 7 cents for commercially-produced U.S. power.

they will force power companies to lower their rates, which would eliminate the price advantage of the home generators. Of course, their price may drop, too, as demand increases.

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Car Axle Used To Convert Belt-Driven Auger To Pto Drive

Norman Smith, Walsh, Ill., converted his belt-driven, 45-ft. auger to pto drive by mounting an old car axle on the side of the auger and connecting a pto shaft to the differential. A steel shaft runs from the upper wheel hub up to the top of the auger where it chain-drives the auger shaft.

The rear axle is from a small Austin-Healey car. To mount the axle on the auger, Smith made brackets to go around the auger tube and bolted and welded them on. The pto is from an old Allis-Chalmers pull-type combine. To connect the pto to the axle he removed the four bolts that originally held the U-joint on, then stuck new bolts in and

welded the pto shaft to them.

The long shaft is actually a series of several 10-ft. long steel pipes joined together by steel bolts and is held in place by a series of wooden blocks attached at intervals to the auger tube. To mount the shaft he simply drilled a hole through each of the blocks and squirted oil into the holes to provide lubrication. He locked the lower wheel hub in place by drilling a hole through the brake drum and inserting a bolt.

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Rear axle is from an Austin-Healey car and the pto is from a pull-type combine.

Livestock Ideas From A Hutterite Colony

When a Hutterite colony near Lethbridge, Alberta, put up several new dairy barns recently, they installed an innovative gutter system on the buildings that's designed to keep rain water away from pens around the buildings. An extensive series of pipes and downspouts carry all the rainwater to one place so it can be channeled away.

Joel Waldner, a member of the colony, recently sent FARM SHOW several photos of the setup.

Both the drain pipes and the eave troughs are screwed to the walls of the buildings. A series of 1-in. wide, 8-in. long tin plates were



first screwed to the metal walls. The tin plates are then wrapped around the drain pipes and screwed together.

"We first set up this drainage system on a 300-ft. long open-sided shelter that's divided into six 50-ft. pens. Each pen houses a different group of cattle. Pens are divided by a 4-ft. high concrete wall, with 8-ft. tall wind

break planking on top of the wall. The gutter system helps keep our 250 to 300 heifers, steers, and milk cows dry. We have set up the same gutter system on our three hog barns."

The colony uses highway guard rails and oil field drill stem pipe to make inexpensive



cattle pens, crowding gates, and loading chutes. "It makes a strong, durable fence that'll never wear out and is maintenance free," he says.

They also used steel cable and 3-in. dia.



drill stem pipe to make fences. The pipes are anchored in cement about 2 ft. underground

and spaced 10 ft. apart. They weld U-shaped steel brackets about 1 ft. apart onto the pipes to feed the cable through, from one end of the fence to the other. Each fence has four cables. A turnbuckle at the end of each cable can be used to tighten the cables if they ever get too loose. "These fences are very sturdy and will never go down," says Waldner.



Feed bunks along the outside of their steer pens also are built using cable and drill stem pipe. Two cables mount above a 1-ft. high concrete wall at the edge of a 20-ft. wide concrete lane. Feed is dumped on the lane and pushed in against the wall by a skid steer loader.

"The cables keep animals from wasting feed and are much less expensive than commercial head locks," says Waldner. "If any feed gets spoiled we just use a loader to push the spoiled feed to one end of the bunk. It eliminates the need to shovel feed out of a trough or use a scraper."

The colony's calf barn is equipped with collapsible pens formed by hinged gates that can be swung out of the way, allowing a skid steer loader to be used to clean out manure. The entire pen area uses a series of 5-ft. long hinged gates that form two rows of pens. The gates lock together at the partition between the two rows of pens. To clean out manure the gates unlock and swing 90 degrees out of the way, leaving the pen completely open. The hinge is formed by a



steel rod on one end of the gate that fits into a length of round tubing on another gate along the building's wall or along a walkway at the center of the building. "The gates were made by making a frame out of sq. tubing 5 ft. long and 3 ft. high," says Waldner. "Then we bought sheet webbing in 4 by 8-ft. sheets, cut it to the size of the gate frame, and welded it on."

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