

He Built His Own On-Farm Power Generating Plant

Lucien Gunderman figures he's doing his part to improve the country's electrical generation and distribution system. After 20 years of work he and his mother, Juliette, now run a hydroelectric plant on their McMinnville, Oregon, farm.

Gunderman says the first 18 years were spent thinking about how it could be built and spinning his wheels trying to convince his local utility company that a generator at his farm would be in their best interests. The utility had been buying power from the grid, under the assumption it was less expensive than owning and operating a generating plant.

Because he had what he considered an ideal location for a small hydroelectric plant, Gunderman refused to let the idea die. And when electricity demand outran supply on the West Coast three years ago, the utility finally saw the wisdom in having a local power source.

Once the utility agreed to allow a hydroelectric plant on Crown Hill Farm into the power grid, it took Gunderman just two years to get it built and into operation. "It was a feat to get licensed as there were 15 state and federal agencies that overlook this type of project," he notes. "There were many hurdles along the way from several of the agencies involved."

They first hired a hydrologist to determine that there would be adequate water to operate a generator.

The farm had two lakes, one of which provided water for irrigation. After determining

where the plant should be located, they decided the second smaller lake could be used to collect water. They built a new third reservoir to collect more water and regulate its flow to the plant.

The project required considerable earthwork, installing additional small collection ponds and more than a mile of waterways to channel both artesian and runoff water into the new reservoir. Most of the earthwork was done by Gunderman and a friend who works in the excavation business.

Gunderman chose a system that can use water from one lake or the other, or from both at once. He installed two Pelton wheel turbines—one larger and one smaller—synchronized by a belt drive, so they can operate in unison to turn the generator using available water. At the low end, the generator puts out 500 Watts with a flow rate of 65 gallons per minute. At the high end, a flow rate of 1,850 gallons per minute will turn out 30 kilowatts per hour. The system can produce an estimated 96,000 kW hours per year, or about enough for eight typical households.

"We have not come close to that as yet, since we are in a three year dry spell, with lower than normal rainfall," he says. "Actual output the first season was approximately 30,000 kW hours."

State law and his agreement with the utility prevent him from putting more than 25 kW into the grid at any time. In reality, they hope to produce all the electricity Crown Hill Farm can use, plus about 25 percent more,



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which is what will actually be sold to the utility.

The plant incorporates the latest technology in controls and monitors and everything about the entire project was designed to protect the environment and wildlife, including fish in the creek that receives the tailwater from the turbines. Because Gunderman was able to do some of the design and construction work himself, his total out of pocket costs

for the project were under \$110,000. He worked with Canyon Hydro to finalize his design (Canyon Hydro, Deming, Wash.; www.canyonindustries inc.com; ph 360 592-5552).

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Power Rake Keeps Stalls Fresh

When a local dairy farmer became sick and tired of raking sand in his barn's free-stalls, he approached Superior Attachments owner Richard Linsmeier of Menominee, Mich. looking for an easier solution.

Linsmeier went to the dairy and spent some time raking sand which inspired him to create "The Sandman," a skid steer attachment that rakes sand in stalls, aerating and sloping it for cow comfort and cleanliness.

Linsmeier says cows naturally like to lay uphill and when they do so, they're more comfortable. They also stay cleaner, which means fewer health problems and infections.

The Sandman consists of a hydraulically driven rotary "propeller style" rake at the end

of a boom that reaches into stalls. It will work under the stall loop so you don't have to lift The Sandman up after aerating each stall. The rotary arm rotates at about 40 rpms and won't throw sand out of the stall, says Linsmeier.

You can move through the barn at walking speed. He recommends using it at least once a day. It rests on its own stand when not in use.

The Sandman sells for \$6,795. The Sandman's standard arm is 53 in. but also comes in 50 in. and 43 in.

Contact: FARM SHOW Followup, Richard Linsmeier, Superior Attachments Inc. N3522 U.S. Hwy. 41, Menominee, Mich. 49858. (ph 800 450-7292 or 906 864-1708).



Sandman works under stall loops so you don't have to raise it up after aerating each stall. You can move through barn at walking speed.



Receiver Hitch Fits Plow Mount

If you use a snowplow on front of your pickup during the winter, you'll be interested in this new 2-in. receiver hitch that's designed to quick-tach to the snowplow's mounting bracket.

"It lets you move trailers and wagons around in the spring and summer without having to remove the snowplow mounting bracket, which is a big job," says inventor Lee Nemec. "You can also use it for any standard 2-in. hitch accessories such as winches. When winter comes the receiver hitch can be quickly removed by pulling two bolts and then stored until spring."

The receiver hitch consists of a metal bracket that simply bolts onto the same bolt holes on the bracket that supports the snowplow. Some models have a single receiver in the middle; others have two receivers with one on each side. All models are powder coated textured black.

Models are available for Western UniMount, Western UltraMount, Meyer EZ-Mount, and BOSS SmartHitch2 snowplow mounts.



"It lets you move trailers and wagons around in the spring and summer without having to remove the snowplow mounting bracket, which is a big job," says Lee Nemec.

The UniMount, EZ-Mount, and SmartHitch2 front receiver hitches sell for \$139.95 plus S&H. UltraMount front receiver hitches sell for \$74.95 plus \$12.50 S&H.

Contact: FARM SHOW Followup, LEED Engineering, LLC, 420 14th Ave. West, Ashland, Wis. 54806 (ph 715 682-8330; fax 715 682-8331; email: info@leedengineering.com; website: www.leedengineering.com).

A Gift For Guy Who Has "Everything"

Every year brings about the same problem: What do you get the guy who has "everything"?

While browsing through a small electronics catalog recently, we spotted something that might solve the problem: a Duct Tape Wallet. The Ducti bi-fold wallet has all the features of a standard wallet, including slots for credit cards, pictures and cash. It even has a metal grommet for hooking to a chain. It sells for \$14.95.

Another company that sells wallets and other things made out of duct tape can be found at www.ducttapesfashion.com.

Contact: FARM SHOW Followup, Ducti, 3250 Quentin St., Suite 132, Aurora, Colo. 80011 (ph 866 438-3828 or 303 309-6720; website: www.ducti.com).



Ducti bi-fold wallet is made from Super Duct Tape that won't lift, peel or get sticky.

