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Here Comes the Sun
by Donna Campbell Smith

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With global warming on everyone's mind, and the rising cost of oil hitting everyone's wallets, many businesses are looking at solar power. Is it worth considering for your barn?

Using solar power is not a modern idea. Some type of solar power has been in use since ancient times. In the 15th century, Leonardo Da Vinci used solar concentrators to weld copper. In 1861, Augusta Mouchout invented the first totally solar-powered mechanical device, a steam engine. But his steam engine did not catch on; it was costly, and coal was cheap. Today we see history repeating itself: many find the cost of using solar power too costly when compared to energy derived from fossil fuels.

Why...or why not?

Still, the idea is worth considering. For example, farms in remote areas, and areas that experience frequent power outages, can benefit from going solar. Besides, some people feel that the cost of energy derived from fossil fuels will only increase, and that is reason enough to invest in solar power for electricity.

Solar installations are not cheap. Without subsidies, it is estimated that it will take anywhere from 10 to 30 years for the system to pay for itself. The good news is there are state and federal grants and tax rebates to help offset the cost of changing to renewable energy sources.

How Does It Work?

There are two ways to implement solar power. One is the off-the-grid system, which generates power from the sun independent of the utility company. Those who want complete independence, or live in a very remote area where utility companies do not provide service, prefer off-the-grid systems.

The grid-tied system does just as the name implies; it ties in with the utility company. In this system, solar power mixes with the utility company power. In case the solar system

fails or does not provide all the power needed, the utility provides backup. On the flipside, the utility company also buys excess solar power from the owner—the meter runs backward if more solar power is being produced than is being used.

Solar Technology

A photovoltaic cell is the device that converts sunlight into electricity. A solar system is made up of collection panels that contain these cells. Batteries store the energy, and inverters convert the DC power to AC. Professional installers will be needed to build the system, since not all electricians are trained to deal with the technology. This is one reason for the high cost of going solar.

If you're looking at going solar, plan carefully. Make a complete list of all the appliances that will be used in the facility. Think ahead of what you might add later. Maybe you don't need a clothes washer and dryer in the barn today, but will that change later? Will your boarders want a television in the tack room? Conservation measures should also be considered to avoid putting a burden on the system. A professional installer will help calculate your needs and advise on what size system will be required.

SOLAR IN ACTION

Meadow Springs Farms in Pleasant Plains, Ohio, is one stable that has made the switch. This Thoroughbred farm, owned by Raymond Buse, Jr., has an 11-stall training barn, a 19-stall mare barn, a covered hot walker and various other buildings which all require electrical power to pump water and for lights, refrigerator, water heaters and miscellaneous electrical appliances.
Buse explored several different energy sources before choosing solar. He contracted with Dovetail Solar and Wind to install an 11.6-kilowatt solar photovoltaic system. The 56 units of 208-watt photovoltaic modules were installed on the south-facing roof of the barn that houses the broodmares. Any excess power generated by the solar system on sunny days is sent automatically to the electric utility power grid, lowering Meadow Springs' electric bill. It also saves about 22,000 pounds of fossil fuel use at the electric power plant.

Dovetail Solar and Wind was established in 1997. Vice president Alan R. Frasz says Dovetail has several other proposals outstanding for solar systems for horse farms that are waiting on grant or owner approvals.

In an article in the Cincinnati Enquirer, Buse is quoted as saying that the investment is already paying off. The initial cost of the solar panels and other equipment was about $100,000. That cost was reduced by a $40,000 state grant and $20,000 federal tax write-off. Buse believes he is saving about $350 to $400 per month in energy costs, which will amount to a five percent annual savings.

Fence Chargers

Many small horse businesses obviously do not have the tens of thousands of dollars it takes to convert to solar power, but can still use solar energy in smaller ways.

The most common use of solar power on farms is electric fence chargers. Often it is for a matter of convenience when pastures are a long distance from traditional power sources, but owners also see a savings on their electric bills. A 12-volt charger can power up to 30 miles of fence, and it will operate up to 14 days without sunlight. A smaller six-volt model operates 21 days without sunlight, charging up to 25 miles of fence. Solar fence chargers are readily available at most farm supply stores. Prices range from about $180 to $280.

Water Trough Heaters

Horse farms located in cold climates will find that another use of solar power is the solar-heated water trough. Pine Ranch Products markets Sun Tanks in a 42-gallon model for larger herds and a 25-gallon model for smaller needs. The solar panel is shatterproof and the tank, which is guaranteed not to freeze at -50° F. (-20° F. for the 25-gallon model), is also rust-proof. The cost is about $500, which may be less expensive than having power brought into a remote location by a utility company.

Hot water heaters

Hot water heaters have become standard in most barns today. But, they are a large energy user, depending on the size and type of the horse operation. Going solar can save as much as 50 to 80 percent on the cost of heating water. The basic parts needed are the solar collectors and a storage tank for the hot water. A search on the Internet will pull up plans for homemade hot water heaters for the person handy with tools. A factory made model will cost about $900.

Solar lights

Again, solar is not only an energy saver, but also convenient for remote areas or as backup lighting during a power outage.

The Solar Sensorlight, for example, has two parts, the sensor and the light, a 20-watt halogen lamp, both united by a 14-inch cord. The sensor can be placed in a sunny location and the fixture placed as needed. The Sensorlight can operate up to ten days without sunshine: cost is $100.

Global Merchants sells a 150-watt solar floodlight they claim to be the brightest solar light of its kind. It will provide 12 hours of light, powered by six to eight hours of sunlight. The cost is $495. Global Merchants carries a wide variety of solar gadgets and lights for home, garden and farm.

In the end, whether the barn owner goes for total solar power or partial, initial cost can be high, but the long range benefits are a good investment in money, convenience, and a better tomorrow for everyone. And as energy demand increases, that initial outlay will become more affordable.

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