It's A Great Time To Start Farming The Sun

By Jim Ruen, Contributing Editor

Dennis Hamm has been farming the sun for about 6 months. In another 5 years, his solar "harvester" will be paid for, and every kW of energy produced will be free.

"I had been interested in solar for a long time," says Hamm. "Interest rates were low. With a 25 percent federal grant from USDA, a 30 percent federal tax credit and accelerated depreciation, the time was right."

Hamm installed 150 solar panels on the roof of a 66 by 120-ft. pole shed. Full installation cost for the 39 kW system was $100,000. During the winter, the farm uses most of the energy produced, but come summer, he expects to sell excess to his local electric co-op.

The installation was done by a local Minnesota company, Solar Connections. They were able to size a system that fit Hamm's needs and what he was willing to invest. They also were able to project the likely energy produced. In the first 2 months, the solar array generated 4,591 kWh of electricity.

"That was a little ahead of what they projected," says Hamm. "Production has continued higher than they expected because of recent, sunny weather."

After talking to the company, Hamm went to his agricultural loan officer, insurance agent and tax accountant. They reviewed the proposal and all gave him the green light.

"My loan officer thought it looked so good, he put one up on his place," says Hamm.

Curt Shellum, Solar Connections, notes that farmers have the most advantages when it comes to installing alternative energy. That's because of the 25 percent REAP (Rural Energy for America Program) program only farmers can apply for. He points out that farming operations also are often best able to take advantage of the rapid depreciation.

"Everyone qualifies for the 30 percent tax credit," says Shellum. "Minnesota doesn't have a state incentive. Other states do, and some utilities do as well. It's not an instant payback, but it's a good long-term investment."

Add a state incentive, and payback can be practically immediate. "We have installed systems for farmers who got all their money back in the first tax cycle," says Mark Olinyk, Harvest Energy Solutions in Michigan. "One farmer invested $40,000. He got the 30 percent tax credit, the 25 percent REAP grant, and a $15,000 renewable energy grant from Kentucky."

Olinyk's company markets solar panels in 10 Midwestern states. He notes that the average payback runs about 5 years. Non-farmer payback with only the 30 percent tax credit can run as high as 8 to 10 years.

Roger Hobbs farms in western Kentucky. He installed a 49kW system in 2012. After seeing how well it worked, he added a 10 kW system in 2013. Both systems are on the ground.

"When I first met with the Harvest Energy Solutions sales representative, he put together a proposal of costs and incentives," says Hobbs. "I showed it to my tax accountant, and she said it was a no-brainer. I wrote off the entire cost that year, and the 10kW will be written off against the 2013 tax year."

Olinyk says Hobbs is not alone. His company installed their first solar panels in western Kentucky 3 years ago. They've installed more than 50 since.

"On average we get one additional sale from a neighbor every time we put a system in," says Olinyk. "In some areas it grows like wildfire."

In Hobbs' case, his utility pays him for excess electricity. However, he notes that other utilities have different rules. His co-op recently changed its rules, limiting the size of a unit that can be installed.

Checking with the local co-op, tax accountants and lenders is good advice, agree Shellum and Olinyk. Both also warn against "fly by night" solar installers.

"Ask them how long they've been in business and how many installs they've done," says Olinyk. "Ask for testimonials and if they carry insurance. Watch out for those who sell a system and then broker out installation. If there is a problem, who do you call?"

"Watch out for deals that are made to look better than they really are," warns Shellum. "I've heard of companies who advertise they will charge more for the system, but offer to buy back your renewable tax credits. They really have no value. It only looks like a good deal."

Dennis Hamm installed 150 solar panels on the roof of this 66 by 120-ft. pole shed (above). He also has a big stand-alone solar installation.

Both stress the importance of feeling comfortable and having confidence in the company you deal with. Shellum suggests getting a second quote, especially on a larger installation.

"If you get multiple bids, be sure they are apples and apples, that the terms are really all the same," he says. "Are the panels and components made in the U.S. or in China? What is the warranty?"

Olinyk stresses considering customer service. "We help our customers line up all incentives and work with utilities and grant writers to put together packages," he says. "We have our own installation crews, and they are certified."

Shellum and Olinyk also agree that the price is right for investments now. Solar panel prices dropped by 60 percent from 2011 to 2013, points out Shellum.

"Prices seem to have plateaued," he says. "The technology may continue to improve, and prices may continue to go down, but likely more slowly."

The big unknown ahead is whether or not the tax credits and other incentives will continue. Hobbs points out that while the 30 percent credit looks good, as does the depreciation, how good it is depends on your taxable income.

"The more I read about the cost of power going up and some of the things with coal burning plants, it seemed like the right time to do this," says Hamm. "Every year they seem to get more and more efficient, but at some point you just have to act. I don't care for the frac sand trucks going down the road or for windmills. With solar, I can help myself and reduce energy dependence."

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Easy-To-Install Solar "Pods"

The "Solar Pod" system is designed to make the use of solar power easy. Completely self-contained multiple pods can be set up in series to produce as much energy as desired. Just plug them into each other. Designer and manufacturer Mouli Vaidyanathan says the units cost 30 to 70 percent less than comparable output panels.

"Standard solar arrays cost more because they are individually designed and installed," he says. "Our system comes complete with panels, inverters, a wiring harness and a custom mounting rack. It also performs 15 to 20 percent better than other systems."

The 4-panel Solar Pod systems require a 14 by 6-ft. ground space. They also can be mounted to a roof with a new mounting system for gabled roofs that hangs over the roof peak. "Our new design will reduce roof penetrations by 80 to 90 percent and, in some cases, eliminate them completely."

Solar Pod systems are available for direct connection to the electrical grid or for off-grid installation. Although units are relatively simple to assemble, Vaidyanathan says an electrician may be required to connect the socket and wiring to the home's circuit box. If a 240/20A outlet is available, installation is even easier. The local power company needs to provide a 2-way meter if excess power is to be sold back to the company.

Solar Pods for grid connection are priced at about $3,300 each. Off grid, stand-alone systems with batteries are priced at $5,000. Each 4-panel unit can generate from 1,200 kWh to 2,000 kWh a year depending on available sun.

"A Solar Pod in Minnesota can produce around 1,300 kWh a year, while one in Arizona will produce around 2,000 kWh," he says. "Depending on the cost of local electricity, you can save $200 to $300 each year for a payback of 8 to 10 years."

Vaidyanathan points out that solar tax credits reduce the cost by 30 percent. Farms and other businesses can claim additional credits that reduce payback even more.

Vaidyanathan suggests visiting his website or calling him to discuss installation needs. He offers a 25-year warranty and suggests maintenance is very limited.

"I've had mine installed for 4 years, and the only maintenance has been looking at it," says Vaidyanathan.

Self-contained "Solar Pods" simply plug together in series to produce as much energy as needed, or to expand the system later.

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