



# Sunshine Grows Here!



The 39, 240-watt solar panels on the alpaca barn roof (next page) provide about 60 percent of the farm's electrical use. The wool for sale in the shop is specific to each alpaca.



Bill Nye might be *The Science Guy*, but local farmer Dave Nye is holding his own, science-wise. In the rolling hills of Parkton on York Road, Dave and Ruth Nye's Bell House Alpaca farm sports the latest in environmental technology: a solar array on their barn roof that can actually make money for their farm. Yep, they're growing energy.

Being a money guy during his professional career didn't hurt in figuring out how to do it. Nye spent 35 years as the corporate payroll manager for Bethlehem Steel. Retirement brought Dave and Ruth a lifetime dream: an old farmhouse and the chance to grow organic vegetables. Nye was so passionate about introducing people to the great taste of organic that he sold vegetables below market prices from their produce stand.

Bethlehem Steel's bankruptcy brought an unwelcome surprise: retirement was over! The Nyes considered their options, and decided to raise

alpacas. A growing market for alpaca fiber, which is softer and gentler than wool, justified the investment of their remaining retirement fund into the purchase of four alpacas. Those original four have grown to a herd of 30 pedigreed animals, with four new babies expected soon.

With a passion for protecting a healthy environment, and with some high-energy requirements for alpaca care, Nye was already thinking solar. An alpaca's native habitat is in South America, high in dry mountains at 13-14,000 feet, where it is below freezing over 300 nights each year and averages 60-65 degrees daily.

Here, winter in an alpaca barn means bucket heaters to keep drinking water from freezing. In summer, Maryland's heat and humidity present a tough challenge in keeping these fuzzy creatures cool: several large fans must run 24 hours a day, seven days a week in each barn.



What if the sunshine on their barn roof could be captured to run the stall fans in the summer? What if those south-facing shingles could generate winter energy, too? What if they created enough electricity to run some of the farm's other energy needs as well? A natural marriage of Nye's environmental stewardship plus state and federal energy incentives provided the stimulus to get their project going.

Maryland has mandated that 10 percent of our energy must be produced by green or renewable resources such as solar and wind. Individual producers are the answer to a flexible solution that large utilities would need years to implement.

Small solar grids and wind turbines can help supply that clean energy to the state. To encourage people to use their sunny rooftops, money is available to businesses and tax credits to individuals. Thirty percent of the cost of the Nyes' system was supported by federal payments, while the state underwrote 13 percent. With the money they save on electric bills, their solar system will pay for itself in four short years. After 25 years, the return on their investment will be 344 percent. That means over \$77,000 in today's dollars and cents saved – not counting rising energy costs or excess electricity sold back to the grid!

Net-metered accounts are also eligible for solar energy tax credits as well. These credits are based on kilowatts produced. In the Nyes' case, the credits add up to \$3,000 for seven years ... a nice addition to their tax forms.

Farming sunshine can not only offset costs, but also it can also generate income during a summer when other crops struggle with too much sun and not enough rain. In a grid-tied system such as this one, extra energy can be sold to local utilities. In Nye's case,

the alpaca's energy needs are covered first, along with other farm and house demands for electric power, but any extra electricity generated can be sold back to the utility company, thanks to a "smart" electric meter that runs backward when electricity is supplied to the power grid.

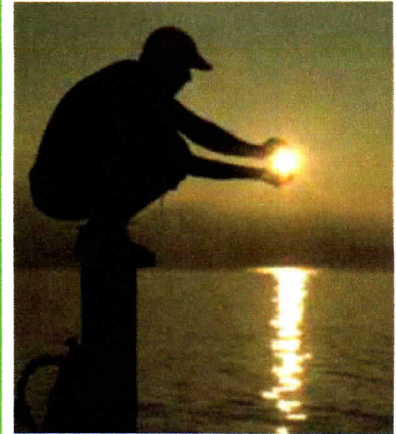
Nye contracted with 21<sup>st</sup> Century Power Solutions based in Catonsville to install his system. For a fun graph, log onto their Website at [21cps.com](http://21cps.com) and click on the *view live monitoring* link. A real family's system shows what can happen on sunny days – and cloudy ones!

On the Nyes' farm, the electric company typically supplies power in the morning when the sun is low. By mid-morning, the solar panels are supplying the farm's needs, and as the sun continues to track across the sky, the netmeter runs the *other way*: power is being fed to the electric company from the barn roof. As the sun sets, the Nyes again become consumers instead of suppliers. At the end of the month, their statement shows how much electricity they bought, how much they supplied and the net balance.

All those numbers and graphs add up to one big number: 217, the number of tons of carbon that the system represents. Picture a shed 10 feet tall, and nearly 30 feet wide and 30 feet long. Picture it filled to the brim with solid black coal. That's how much carbon Nye's system will keep out of the air by generating clean energy made from sunshine for the next quarter century. To wrap an image around the amount of energy Nye has generated since July, it could power 8,021 light bulbs or 2,647 computers for one day. The carbon offset is equivalent to 53 trees planted or 234 gallons of gas.

So, the next time you flick on a light, the electricity may come from BG&E ... but the source may be what we call NyeShine! ✨

*To see the system or visit the Nyes' shop, please stop at the farm and visit their farm store. The Bell House Farm Store, [bellhousealpacas.com](http://bellhousealpacas.com), 18119 York Road, is open Oct. 1-March 31, Thursday to Saturday from 10-4. (They are also open Sundays in December for holiday shopping, as well as by chance or appointment.)*



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