Solar Energy: been there, done that, still doing more

When Janet and Joseph Morgan decided two years ago to add solar panels to the roof of the Arkansas House restaurant in Jasper, they knew energy production would exceed expectations. After all, their family farm has used solar panels since 1977. And after 35 years, they still produce power.

Arkansas House on Highway 7 is a restaurant, inn and hair salon with an additional cabin on the Little Buffalo River. The native stone building has a stone roof with a map of Arkansas with all counties represented. The building has served as a landmark since 1934 in the middle of the protected Buffalo River National Park and also the Ozark National Forest with wild hogs and wild elk.

The complex has something else, too -- a south-facing roof with 13 solar panels feeding power into the electrical grid. The Morgan's have plans to add more.

"We keep adding solar panels in stages, and we keep subtracting from our energy bills," Joseph Morgan said. "We are fortunate to be living now – when capturing the sun's energy is a possibility. It is amazing. Our heavenly father gave us free energy from the sun. I am a spiritual person, and this is a spiritual thing."

The 13 panels have the capacity to produce about 2,500 watts of AC electricity at any time on a cloudless day. The average production is about 12 kWh per day, but has produced over 20 kWh per day – feeding power into the electrical grid and reducing the electricity bill for the Morgan's.

"We have plans to add more – in stages of 13 panels at a time," Morgan said. "Eventually we will have 39 panels with a DC rating of 8,970 watts."

The Morgan's took advantage of state and federal rebate programs – incentives that helped pay for about 70% of the cost for panels and installation. They save about $40 on each month's electricity bill, and Morgan says the panels will have paid for themselves in about 12 years. After that, the energy savings will continue.

Rocky Grove Sun Company (near Kingston) installed the system at Arkansas House, which has been documented by PBS. You can't miss Arkansas House with the big water wheel out front. That was the original power source for Arkansas House, and Morgan plans to restore the water wheel for power generation again.

"We have never cleaned or repaired the solar panels," Morgan said. "There are no moving parts, so there is nothing to maintain. Sometimes they get dusted with pollen, but a rain shower takes care of that."

What's up with those 35-year-old panels out at the farm? The only damage ever sustained was by a wild boar running under the panels on a tracker and got tangled up in wires. (Panels on trackers follow the sun during daylight hours for maximum production.) The panels at the farm were recently tested by a professional from NASA

who showed up with meters and gadgets to make sure claims of 35 years of energy production were true – not just some big fish story.

Back at the restaurant, a wireless remote tells customers the amount of production at any given time. Customers range from poor Arkansas farmers to wealthy chain store owners and high-profile elected officials. They all like to take a look at the remote and ask questions.

The menu includes elk, buffalo and wild hog. The Morgan's also raise grass-fed cattle in a free-range pasture. The restaurant is certified organic.

"The neighbors like the solar panels," Morgan said. "They see mine working and saving me money, and they are inspired to go solar too.

"We are at the highest point between the Rockies and the Smokey's," Morgan said. "We live in a pure environment. Eighty percent of our area is surrounded by a national park, a national forest and wilderness. We have a responsibility to preserve it without burning fossil fuels.

"We are living the lifestyle of the future," according to Morgan. "Anybody with a south-facing roof can do it."

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Back-up battery at farm, but not at restaurant
Solar panels power the restaurant and hair salon now
Hybrid inverter used on farm, micro inverters used at restaurant
Highest production in July and August – 600 to 700 kWh in sunny months with long days
Motivation: high bills because of refrigeration at restaurant, wanted to be economical
Has had no energy audit
They have made no upgrades to appliances. Morgan said they were already energy efficient.
He uses LED lights almost exclusively and prohibits almost any other lighting.