

REAP Success Stories

Advancing Economic Development, Farm Income, and the Environment through the Rural Energy for America Program



**ENVIRONMENTAL LAW
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Energy efficient fridges at Fiesta Foods rural grocery store, South Dakota



The Rural Energy for America Program

The Rural Energy for America Program (REAP) brings energy efficiency and renewable energy opportunities to farms, ranches, and rural small businesses across the country. The program has been around for 20 years as part of the Farm Bill's Energy Title. In that time, it has sparked investment in over 22,000 renewable energy and energy efficiency projects, and it is ready to do more.

REAP supports a wide range of technologies, and this flexibility makes it valuable to rural small businesses and every type of agricultural producer. Everyone who uses energy can benefit from energy efficiency upgrades to cut waste, and renewable energy offers further opportunities for cost savings and pollution reductions – whether solar, wind, geothermal, or other technologies.

A Bright Future for Farm Energy

REAP helps ensure that rural America is part of the clean energy economy while also playing a critical role in cutting energy costs for farmers and rural small businesses. REAP helps America rebuild rural economies and confront, and adapt to, climate change.

Because of its well-recognized successes, REAP was included in the Inflation Reduction Act (IRA) with nearly \$2 billion over the next 10 years. On an annual basis, this level of investment is four times the \$50 million per year that REAP is authorized to receive in the 2018 Farm Bill. Even as the US Department of Agriculture works to implement the REAP program funded through the IRA and the 2018 Farm Bill, Congress is now starting to work on the next Farm Bill.

Who Benefits?

The goals for REAP have always been to serve the entire country by helping to conserve energy and to grow renewable energy capacity while sparking rural economic development. At root, REAP is a cost saving program designed to assist farmers and rural small businesses in saving on energy costs. But it is also a job creation program, an effective climate action program, a technology deployment program, and, in the end, a critical driver to bring the clean energy economy to rural America. The whole United States benefits from reduced pollution, stronger rural economies, and increased farm incomes.

The farmers, ranchers, and rural small business owners featured in this report provide a glimpse of who is using REAP and how they are using it. Here are their stories.



Solar Installation at Wildtype Native Plant Nursery, Michigan

Success Stories

White Oak Pastures farm

Bluffton, Georgia

Technology: Solar & Energy Efficiency

In the small town of Bluffton, Georgia, sixth-generation farmer Will Harris has embraced regenerative agriculture while expanding the family business. Thanks to a REAP grant, energy efficiency is part of his broader approach to successful sustainability.

“First comes the land,” he says, “the land is the canvas, and the animals are the paint.” Harris began shifting to regenerative agriculture about 20 years ago, after finding less enjoyment from his work and learning more about the harms of industrial agriculture, which he says, “breaks the cycle of nature.” Since then, the organic matter content in White Oak soil has increased tenfold, and a recent life cycle assessment found that 3.5 pounds of carbon are sequestered for every pound of grass-fed beef. Allowing animals to roam and graze has contributed to greater soil health, better rain retention, and cleaner water too.

When it came to rethinking energy on the farm, Harris used REAP to install a small solar array in 2010. Then in 2019, he installed energy efficient freezer doors in the farm’s shop with a \$19,250 grant. White Oak now saves energy and money and can do more business. Customers are able to pick up orders for 10-12 hours per day (up from 8). Harris hopes to use REAP to install additional solar panels in the future.

Harris is expanding sheep grazing onto 3,800 acres of local solar farms, which provides co-benefits for agriculture and renewable energy on the same land. White Oak also helps younger farmers get started on solar grazing operations, so they can build their own operations from the grazing profits and acquire land

over time. This approach to business development is important given that the farm population is aging and the biggest barrier for underserved and young farmers is access to affordable land.

White Oak Pastures has grown into the largest private employer in Clay County, once one of the poorest counties in America. The farm has increased from 3 to 180 employees, paying over \$100,000 weekly into the economy. Employees are paid twice the county average and are given a place to live and call home. Harris notes that Bluffton was once a town where buying a stamp was a struggle and there were too few children for a football team. Today, there is an event center, RV park, stores, and restaurants – and strong sports teams. Harris says that “REAP creates a lot of winners,” and the people of Bluffton are certainly among them.



Energy efficient freezer doors in White Oak Pastures farm shop

Smiley Farms

Greensburg, Indiana
Technology: Energy Efficiency

Gordon and Jeff Smiley carry on their father's legacy, running 1,100 acres of farmland in southeast Indiana. They raise corn, soybeans, and barley, in addition to contract finishing hogs. After a recent fire, the brothers seized the opportunity to rebuild and deploy new technologies. They heard about REAP from a neighbor and applied for energy efficiency funds. In 2018, they secured a \$16,250 REAP grant, covering about 25% of the cost for 46 variable frequency drives (VFDs) installed throughout the business.

VFDs give the option to run motors at a slower speeds and more efficiently, to reduce waste and match the output needed for the job while saving money on energy usage and demand charges. They smooth out electrical noise coming in the line, while reducing wear and extending the life of each motor. For example, in grain bin aeration, the Smileys can run fans at slower rpms when the bins are not full and they don't need max air cfm, thus saving energy. A VFD on the water well slowed the motor down to half speed so it can keep a constant pressure and save money on energy needed to operate the water pump.

The Smileys expect to realize \$6,500 per year in savings by reducing 66,612 kWh (52%) per year, enough electricity to power 6 homes. Their payback period was roughly 5-7 years. "We knew the energy bills weren't going to get any cheaper," noted Gordon. "So, we thought, let's be proactive."

They are impressed by the flexibility and control offered by this new technology and encourage others to explore energy efficiency opportunities too. "It was fun to be able to work with people a lot smarter than us: electricians that understand it," said Gordon. The VFDs have "just been pretty darn trouble free... It's probably not one of those things that you read in the magazine and understand you get this much more efficiency. You got to see it to believe it sometimes."



Variable Frequency Drive (VFD) system improves energy efficiency in Smiley farm operations



Control panel for Smiley Farms' VFD system

Wildtype Native Plant Nursery

Mason, Michigan
Technology: Solar Energy

At Wildtype Native Plant Nursery near Lansing, Michigan, Bill Schneider has spent 26 years developing horticulture, specializing in native Michigan flora, promoting genetic diversity, and providing abundant wild seed stock. The nursery supports 5 full time employees and another 15 seasonal staff. He secured a REAP grant for a 35kW solar array, as part of a “challenge to live up to [his] own environmental standards.” Taking advantage of and benefiting from REAP was “low-hanging fruit and a large step in the right direction,” he said.

Although Schneider had heard of the REAP program before, he was initially skeptical. But hearing other farmer’s experiences encouraged him to consider it. REAP exceeded all expectations he held regarding the program’s efficiency and effective use of funds. He says that REAP simply made sense - it was easy to qualify, and the value that the program brought to his business far surpassed whatever costs the government incurred in maintaining the program.

The REAP grant covered a significant portion of Schneider’s total project cost, prompting him to call it a “dealmaker” - without which he wouldn’t have pursued the project. “The carbon equation made more sense after installation.” By tapping the free fuel of the sun, his rural small business saw their utility bills decline from \$550 to \$100 per month. He felt he accomplished something significant, even employing 6-7 contractors for the installation. “All you have to do is get out a pencil and the back of an envelope,” he said. The economic incentives are there for others – along with environmental benefits.

REAP provided a short 7-year payback period for solar panels that will last for 30 years and continue delivering savings and stable energy costs. Agriculture has an energy crisis, Schneider says, and there is plenty of unutilized rooftop and uncultivated space that could be producing energy and decarbonizing the grid. Using the REAP program to fill these gaps is one solution to surmount climate and energy problems.



Rooftop solar panel installation at Wildtype Nursery



A Wildtype employee waters plants in front of the solar array



Wildtype’s shop dog Theo keeps watch over the plants

Thomas Wind

Hadley, Minnesota
Technology: Wind Energy

Christopher Thomas got his start as a wind technician in 1990. He moved to the Midwest from California in 2005 to manage projects, and now writes work instructions to repair turbines and assets in southern Minnesota. He secured a \$16,000 REAP grant in 2019 to install his own 120kW turbine and now makes about \$8,000-10,000 a year, offsetting the cost of his electricity needs and increasing his income.

Thomas heard other people used REAP for energy efficiency projects, but he was excited about wind because “what I do for a living is what I love to do. And then as energy costs went up, obviously it became more of a need to generate revenue.” He says the REAP grant “helped a lot.” “I was tenacious about making sure I had everything done,” he says. “As someone who had never applied for a grant before, it wasn’t too onerous. I was able to navigate it.”

Even a single turbine like this helps support jobs in the community, including four workers from the local crane company, three who helped move the turbine, and quite a few to help build the foundation. Thomas says his favorite part of the project was “rebuilding the turbine... it’s a lot of fun working on it.”

Thomas hopes to see more distributed wind energy in the future. “I’m all for it,” he says. “I would love to see these up and on all the farms. There’s no reason why they couldn’t... These are good turbines! ... we could make small scale projects out of them... they just have to make it equitable.”

He says that stronger net metering rates or more funds from programs like REAP could make wind energy more financially viable for more people. He reflects on “the amount of CO₂ that I’ve keep out of the atmosphere. You know, the tons of CO₂! The assets are there, the wind resource is there, let’s use it.”



Christopher Thomas stands in front of his refurbished wind turbine



Christopher Thomas' wind turbine during installation

Bowman & Landes Turkey Farm

New Carlisle, Ohio
Technology: Solar Energy

Drew Bowman is a third-generation owner of Bowman & Landes, a family-owned turkey farm near Dayton, Ohio, dating back to 1948. Bowman emphasizes sustainability, treating the environment as well as they can, and keeping their carbon footprint low. They won numerous environmental accolades, such as the Miami County Soil & Water Cooperator of the Year Award and the Ohio Environmental Stewardship Award for Poultry.

The farm has completed several energy efficiency and renewable energy projects, installing LED lighting throughout their buildings and converting some of their equipment to electric power. A \$59,900 REAP award in 2020 allowed the farm to install a new 220 kW solar array in addition to their two previous solar installations.

Their experience with REAP was overwhelmingly positive, Bowman said, mentioning that the farm was grateful to get this assistance. He described their project as a “win-win, it’s both good for the environment and also good for the business.”

Altogether, these arrays provide 50% of the farm’s yearly operating needs for their turkey harvesting facility and meat processing facility. These savings amount to \$25,000 per year, and an additional agreement with the local utility company allows the farm to sell excess energy to the grid at market price.

With Bowman & Landes specializing in free range turkeys, they have also investigated “agrivoltaics” - opportunities for solar grazing where the solar arrays and grazing fields are co-located - providing both energy for the farm and shade for the animals.

Strong believers in solar, Bowman and Landes plan to continue more renewable energy projects, especially as Ohio expands its utility scale solar capacity. “Renewable energy is the future,” says Bowman, “the efficiencies and economies of scale on panels are really bringing the cost down to where they’re very competitive to other forms of energy.”



Solar array on a Bowman & Landes turkey barn



Solar panels on Bowman & Landes turkey barn, from above

Fiesta Foods grocery store

Beresford, South Dakota
Technology: Energy Efficiency

Brian and Rhonda Peterson have run the Fiesta Foods grocery store in the small town of Beresford, South Dakota for over 26 years. In 2019, they secured a REAP grant to install energy-efficient refrigeration units with doors to replace their old open-front cases. It's been good for business and for the surrounding rural community.

Fiesta Foods is the only full-service grocery store in town, a critical resource for a community where about half of the students are on free or reduced lunch. The store provides fresh deli and dairy produce for an area otherwise reliant on pre-packaged convenience store goods or long drives to other towns.

The REAP grant covered 25% of the total project cost, allowing them to overhaul much more of the store than they would have otherwise been able to do - sparing them the future mess and hassle of multiple renovations. The new equipment has saved them \$1,200-1,300 per month in energy, while reducing repair and food costs. They no longer have to individually wrap produce, as it's behind closed doors, reducing shrinkage and extending the shelf life of their food. The new units are easier to clean, keep the food cleaner and free of dust, and offer a more comfortable shopping experience.

Fiesta Foods has gained sales every year since this project was finished, which is difficult for small retailers to do. "People love when you improve your store," Mr. Peterson says, "and some of these guys are sitting on the fence, trying to decide if they're going to replace equipment or not. And it seems like those are the stores that are kind of stagnant in business too." The Petersons have welcomed several newcomers from surrounding towns whose last remaining grocery stores have closed.

The Petersons appreciate that the REAP program can ensure that fewer rural communities lose their livelihoods. "It's a must to keep this program going for these small-town retailers and farmers because

once you start losing your small business in these small towns, you don't have a lot of town left," Mr. Peterson said. Mrs. Peterson encouraged others to apply for REAP funding: "was it some work? Yes. But was it difficult? No. And was it worth it? Absolutely. I would recommend anyone to go through the process and do it."



Rhonda and Brian Peterson in front of their new energy efficient refrigerators at Fiesta Foods rural grocery store



Energy efficient refrigerators improved the shopping experience at Fiesta Foods

MC6 Hydroelectric

Kuna, Idaho

Technology: Hydroelectric Energy

As a civil engineer and project developer/owner, Ted Sorenson has specialized in small hydropower for nearly 40 years. He has focused specifically on the types of hydropower projects located on existing water infrastructure, which have the twin benefits of very low environmental impact and providing economic value to canal companies/water districts and local communities. The MC6 (Main Canal Drop Number 6) Project outside of Boise, Idaho is the latest such example. Sorenson's team built the MC6 project out of a 120-year-old irrigation system and now sells the energy to the local utility, Idaho Power Company. Because the river was already diverted long ago, the new hydroelectric infrastructure could take advantage of the existing canal drop in elevation, making the environmental impact nearly negligible.

Sorenson says that without federal grants, they could not have completed the MC6 Project. He received a Water Smart grant from the Bureau of Reclamation and a REAP grant of \$116,000. The combined grants covered 30% of total costs which "pushed us over the edge, it was key," he says, in making MC6 a "go" instead of a "no-go." The completed project generates 6,800 megawatt-hours of electricity annually. Sorenson says that's enough to power over 700 homes and helps replace the energy from two coal plants scheduled for closure.

Sorenson appreciates the REAP program. The program's approach to reimbursing projects after completion, "lends toward credibility." He even applied for energy efficiency funds for his own farm a few years ago. "[REAP is] a good bang for the buck, because it leverages other funds into rural areas, and particularly into energy efficiency. Leverage is needed to conserve energy, which lowers your operating costs and [allows us to] be more efficient, which I think is great."

Work on the MC6 Project began during the Covid-19 pandemic when jobs were scarce. The project employed 30-40 individuals for 2 years, injecting over \$5 million into the local economy towards machine shops, building equipment, concrete suppliers,

concrete laborers, etc. Hydropower projects such as the MC6 Project become large property taxpayers in the county, which "continues to give back to the community," says Sorenson. "It's good. It's infrastructure, but it's an infrastructure that pays taxes instead of collects taxes."



Construction workers on the MC6 hydroelectric project install the bypass intake concrete and siphon



Tailrace powerhouse grubbing & clearing at the MC6 hydroelectric construction site

Recommendations

The Rural Energy for America Program has been a bipartisan success story for over two decades, helping thousands of people like those featured in this report. But the story is not over! ELPC will continue to strongly support REAP in the Farm Bill and advocate for changes we believe will strengthen the program and set it up for even greater success. Our main recommendations for updating REAP are:



Modernize: In the 2023 Farm Bill, REAP should be aligned with provisions adopted in the Inflation Reduction Act to simplify the program and to improve service. This includes explicitly making REAP a climate program, raising the cost-share cap to 50%, and improving technical assistance authority.



Increase Equity in REAP awards: REAP should include specific direction to USDA to substantially increase outreach, including education to socially and historically disadvantaged, beginning, and veteran farmers and ranchers to improve equity in the program. In addition, the federal cost share for these applicants should be increased up to 75% cost-share.



Create a stronger pipeline for projects: The REAP program includes the Energy Audit and Renewable Energy Development Assistance program (EA/REDA) which provides grants to institutions such as universities, states, rural electric cooperatives to provide these services. To operate on the scale needed for effective climate action, Congress should raise the current funding cap of \$100,000 and make program funds available year-round. Further, applications addressing both energy efficiency and renewable energy should be eligible together.



Create a REAP Rebate-style program: REAP will reach more producers if USDA continues to simplify the application process. A streamlined rebate option consisting of a few pages of qualifying questions would aid far more smaller operators and demonstrate the clean energy possibilities. Only pre-approved technologies with wide application would qualify for the REAP rebate, such as energy efficiency and smaller scale renewables.



Create Farm Energy Star: A “Farm Energy Star” program based on the EPA’s Energy Star would provide better information on energy use to farmers purchasing agricultural equipment. To begin, the Farm Bill should require independent studies on energy efficiency of various equipment supported by REAP. Ultimately, the program would provide performance data and standards: baseline energy use by sector, by technology, product, etc. This should help to drive technology efficiency improvements by product manufacturers.

To overcome the climate crisis, we need to adopt clean power generation and convert fossil energy uses to electric. Electrification means, for example, replacing diesel motors with electric pumps, or replacing furnaces and boilers with energy efficiency and heat pumps. REAP supports a wide range of electrification technologies, and the USDA should prioritize these with funding from the Inflation Reduction Act.

The REAP program provides America a system to beneficially include agriculture in the transition to clean energy and reduce climate risks for all. The task before us is big but we have the capacity to rise to the climate challenge and overcome it to leave a safer world for generations to follow.



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