



FROM TRIAL SIZE TO SUPERSIZED: SOLAR SURGES IN RURAL COMMUNITIES

Five years ago, many people in the electric industry viewed solar energy as a kind of “boutique” resource—more an energy accessory than a real power supply option. But in the last half-decade, as the costs to install solar went down and electric utilities gained experience with this unique energy resource, there has been a dramatic transformation, and solar energy has made the jump to the big leagues.

At local electric cooperatives, consumer-members were asking questions about whether this new technology would be suitable either for their own home or for the cooperative.

Given the high cost to install solar, electric co-ops had questions about the economic feasibility of solar and its effect on the electric system. Even with federal tax incentives, the cost of solar was not competitive with other resources such as wind and natural gas.

Engineers also had questions. What happens to the system when the sun doesn't shine? Or even more tricky: What happens on those days when multiple clouds sail by, making a strobe light out of the sun?

To answer these questions, co-ops started installing small arrays, analyzing costs and efficiency. Five years ago, compared to other resources, many concluded solar was still simply too expensive.

The cost of panels and equipment was not the only reason solar was expensive. There were also soft costs, like training, business processes, and software. There was little standardization among solar projects—every project was unique. Engineers and resource planners, unfamiliar with this technology, needed training and technical assistance. Financial partners still needed convincing when it came to investing in large-scale solar projects.

As the solar industry started growing, thanks in part to tax credits and other policy incentives, the cost of solar panels and other equipment started declining; the economics started changing.

In 2014, 17 electric co-ops joined with their national trade organization, the National Rural Electric Cooperative Association (NRECA), to collaborate on solar installations in 10 states whose combined solar capacity would be 23 megawatts. The goal of the project was to make solar more affordable for electric co-ops by driving down the soft costs.

The project, which received funding from the Department of Energy, aimed to create a network of experts within the cooperative community. By sharing information and expertise, co-op experts could make solar installations easier and less financially risky for other co-ops to follow suit.

Over the course of this project, the cost of solar fell

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THE FEDERAL GOVERNMENT MUST INVEST IN RURAL AMERICA

Here's a simple fact that we at Richland Electric Cooperative know all too well: The 21st century economy runs the risk of leaving much of rural America behind. It's a concern shared by electric co-ops all across the country, because their strong community ties give them a bird's-eye view of the quality of life of the members they serve.

Rural America grows most of the food, generates much of the power, and manufactures many of the goods that are used throughout the country. When the modern economy threatens to leave much of the country on the wrong side of the ledger,

that's bad news regardless of where you live and work.

Today, fewer than 15 percent of U.S. businesses are located in rural areas and small towns. Bank loans for amounts less than \$1 million, primarily to family-owned small businesses and farms, have dropped by nearly half since 2005. These are warning signs for the basic building blocks of the economy that serve as the foundation of America's economic stability. The solution isn't simple, but it's within reach. It will take a concerted, long-term commitment from Congress and the administration to reverse this trend.

The Trump administration and Congress already have taken significant steps to jump start programs that bolster the rural economy. That's helping turn the tide in many communities. But reversing this trend requires a sustained focus across the executive branch and Capitol Hill.

The omnibus budget bill that Congress approved earlier this year is providing key resources and tools to foster development of energy, telecommunications, and other essential ser-

One way Richland Electric Cooperative fosters member engagement in the political arena is by sponsoring students to attend the national Electric Youth Tour in Washington, D.C., where they participate in leadership training with other young co-op members from across the country, visit historic sites and monuments in the nation's Capitol, and engage in discussion with their elected representatives. Here, Wisconsin's delegation of students meets with Rep. Sean Duffy (top left), Sen. Tammy Baldwin (bottom left), and Rep. Ron Kind (bottom right).



ices in rural America, including \$600 million for high-speed internet access in underserved regions.

Other sections of the omnibus bill fully fund low-interest government loans or enhance the efficiency of permitting for rural electric programs to improve grid reliability.

These are positive steps. But there's more work to do.

As local businesses built by the consumers we serve, electric cooperatives have meaningful ties to America's rural communities. And they are making strategic infrastructure investments to give communities the flexibility to adapt to tomorrow's energy needs, investing \$12 billion annually in the areas that they serve.

That's why co-ops have launched community microgrids, lead the nation in the deployment of community solar facilities, and have invested in new XPRIZE carbon capture research. But it takes more than smart energy infrastructure to rejuvenate rural communities. Co-ops also leverage public-private partnerships to enhance the quality of life.

Over the last two decades, co-ops have partnered with community stakeholders through the U.S. Department of Agriculture's rural economic development programs on hundreds of projects to construct essential infrastructure, renovate hospitals, build libraries, and



Richland Electric Cooperative recently hosted a listening session with State Sen. Howard Marklein (far left), where directors and employees of Richland Electric as well as neighboring electric co-ops had the opportunity to discuss issues of importance to rural Wisconsin.

expand businesses. Co-ops also use the Rural Energy Savings Program to work with consumers on energy efficiency solutions to their homes to save money on their energy bills.

There's a major piece of legislation moving in Congress that offers an opportunity to bolster these important public-private programs while giving rural America an additional boost: the Farm Bill.

As Congress continues discussing the Farm Bill, it should support a stronger rural America and enhance key rural development programs by including:

- Additional funding for rural broad-

band grants and loans. A reliable, modern grid and vibrant rural communities depend on a robust communications infrastructure.

- Ample support for proven rural economic development programs.
- A focus on accelerating energy innovation to build new renewable energy resources and modernize the electric grid.
- Continued funding for rural electrification programs.

The need to invest in rural America is real for all of us. So too are the opportunities for our leaders to make a meaningful difference in its trajectory.

Solar Surges

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dramatically. For example, one co-op that built a solar installation at the beginning of the project and another one two years later, found the cost was half what it had been two years earlier. In 2013, the cost was \$4.50 per watt of installed solar, and in 2016, the cost was \$1.74 per watt.

As more electric co-ops gained experience and shared information about what worked and what didn't, the risks that come with innovation and change also went down. Solar became more doable for cooperatives large and small.

With the decline in costs and the increase in knowledge and understanding, solar has taken off in rural communities. The proof is in the numbers. Today, America's electric co-ops own or purchase more than nine times as much photovoltaic solar power as they did in 2013. And by the end of 2019, the combined solar capacity of America's electric cooperatives is expected to surpass a gigawatt.



The Transition Energy Solar Project in Richland Electric Cooperative's service territory has 396 photovoltaic tracker panels.



MAKING HAY

Making hay on the home farm when I was a kid generally

began in early-June and continued well into July. When Pa declared the hay crop ready for harvesting, he would hitch the team to the McCormick five-foot sickle bar mower and head out to the hayfield. Fresh hay—clover, timothy, and alfalfa, sometimes stood three feet tall in the hollows and maybe six inches tall on the gravelly hilltops. With the mower's passing the hay toppled to the ground to dry in the sun.

If the day was warm, with bright sunshine and a southerly breeze, and the crop was not too tall and rank, the hay would be ready for raking and bunching by late afternoon. With the hay sufficiently dry, Pa hitched the team to the high-wheeled dump rake with half-moon iron tines about four feet high. Compared to the sickle bar mower, it pulled easy. The team walked briskly around the field, raking the loose, drying hay into long rows. While Pa drove the team in the hayfield, my brothers and I hoed potatoes, green beans, or cucumbers. Bunching hay was not quite as boring as hoeing. Start at the end of a raked row, use your three-tine fork to push the hay into a round, neat pile—it had better be neat because if it tipped, Pa would let you know about it—top it off with a sizable forkful of hay and move on to making the next bunch. One bunch after the other until dozens of them lay behind you, dozens and dozens.

After Pa finished raking, he tied up the team and helped us. Pa made bunching hay look easy. He had a rhythm, a free-flowing and easy style. He could make two bunches for each one I made, and he seemed to enjoy every minute of the process. Many farm tasks had rhythm to them, and once you

learned the rhythm you did not have to give much thought to what you were doing. You could work and think about such things as cute girls, and the ice cream cone you could enjoy on Saturday night when the family went to town.

When bunching hay, every bit of the effort, or lack of effort, was visible. The best part was looking out over a field of hay bunches. It was a sight to behold and an accomplishment to be rightly proud of. At day's end, the four of us stood at the end of the field leaning on our forks. Pa didn't say much. I believe he wanted us to appreciate the joy of a job well done and to see the results stretching before us in long, straight rows. Pa wanted my brothers and me to not only appreciate the hard work that we had done, but also to appreciate the beauty of what we had created. A field of sweet smelling hay bunches was truly rural beauty at its finest.—*Excerpted from Simple Things: Lessons From the Family Farm (Wisconsin Historical Society Press, 2018)*



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