



Cooperating on Solar Power Projects
in Garfield County, Colorado

BY LISA DAWSON

Innovative public-private partnerships are putting Garfield County on the forefront of clean energy development in the State of Colorado. Natural gas production is the economic driver in Garfield, and careful fiscal management has made it one of the wealthiest counties in the state. With the boom and bust nature of the industry and the downturn of the national economy, however, Garfield County has endeavored to diversify its economic base.

Natural gas production is the economic driver in Garfield County, but with the boom and bust nature of the industry and the downturn of the national economy, the county has endeavored to diversify its economic base.

Garfield County is involved with a number of projects including supporting local economic development councils, attending trade shows to attract new business, networking with local businesses to help them grow, and pursuing alternative energy development. The latter has led to two innovative public-private partnerships involving solar power.

THE RIDING ARENA

The riding arena at the Garfield County Fairgrounds is one of the county’s largest users of energy, so mounting solar panels on its roof was an easy choice. The building has a huge span of roof facing directly south, with no trees or building shading its all-day access to the sun. Not only is it ideally suited for solar, but its high visibility provides a good educational opportunity for the public.

A rectangular arrangement of 440 solar panels created an array 37 feet wide and 217 feet long, all mounted on the south-facing half of the riding arena roof. The modules were installed on the roof of the indoor arena to power lights and office, professional kitchen, and mechanical equipment. The solar system produces 101.2 kilowatts under full sunshine. Over a full year, it is expected to produce 144,617 kilowatt-hours of electricity, which would offset 57 percent of the riding arena’s annual electricity demand.

The project is funded through an \$82,500 grant the Garfield New Energy Communities Initiative (GNECI), a community clean energy project funded by the Department of Local Affairs (DOLA), awarded to Garfield County to develop a renewable energy demonstration project. (Later, there

will be an online educational monitoring component to present how much power is being generated.) The county entered into a power purchase agreement (PPA) with a third-party entity, which received state and federal grants to install the \$385,000 system. Garfield County offered the roof space and agreed to buy power from the system for 20 years. The contract with its third-party providers — the company that installed the array and the finance company that owns the array — stipulates that Garfield County will have

no out-of-pocket costs for the panels or installation after the DOLA grant is applied. The financial company pays for the system, and the county will have the right to purchase it at fair market value after seven years. In exchange, the financial company will get valuable tax credits of its own.

The project will result in a 53 percent reduction in utility costs for the riding arena in the first year. Each kilowatt hour used will cost 2.25 cents, compared with the current 4.8 cents; which is expected to bring down the cost of power to

Exhibit 1: Immediate Cost Savings on Clean Energy

Expected First-Year Production from the Riding Arena Solar Array	144,617 kWh
Upfront Cost of Installation	\$ 0
Standard Price for 144,617 kWh @ 5.3 cents	\$ 7,664
PPA Price for 144,617 kWh @ 2.25 cents	\$ 3,253
Savings for Clean Power	\$ 4,411/year
Renewable Energy Credits (REC)	\$ 7,954/year
Clean Power Savings + REC	\$ 12,365/year
20-year Savings for Garfield County	\$247,300

The impact is greater than just utility savings. Factoring in the \$7,944 REC payment to Garfield County, the combined net income and savings is \$11,641 for the first year. And if market costs for electricity increase, the savings will increase each year. The county could easily save \$306,881 over 20 years if costs of electricity escalate by 5 percent a year.



the arena by close to \$7,000 per year, initially. (See Exhibit 1.) In addition, Garfield County will receive nearly \$8,000 in renewable energy credits per year for the term of the contract, through the utility company's solar renewable energy credit payments. At the same time, the solar system helps the utility toward its goal of generating 30 percent of its electricity from renewable sources by 2020.

THE AIRPORT PROJECT

The county is working on another kind of public-private partnership for clean energy at the Garfield County Regional Airport. This project — a large, community-owned solar array — helps make renewable energy more available to the general public.

The Clean Energy Collective (CEC) — a member-owned cooperative that builds and operates clean energy facilities — is developing the project in two phases on about five acres of land the county leased to the Garfield County Airport Solar Array (G-CASA), a subsidiary of the CEC and the formal entity in control of the solar facility. Phase one contains 3,600 panels with a capacity of 858 kilowatts, which will produce more than 1,500 megawatt-hours of electricity a year. The \$5.1 million array was built by a third-party company that specializes in alternative energy installations. The size of the second phase will not be determined until after the first array has been sold out.

The deal between Garfield County and the CEC means that customers of the area's power company will be able to sign up for power from the panels by paying G-CASA approximately \$750 per solar panel (depending on what rebates apply) —



effectively buying a panel, or several panels, although actual ownership stays with the CEC. The power generated by a customer's panel, or panels, is shipped to the energy company, which then applies the actual power production from the solar panels against that customer's electric demand, reducing the customer's monthly bill.

Homeowners and small business owners might want to support renewable energy but not have the right location to install photovoltaic panels. Or they may not have \$10,000 to \$15,000 for an individual system, which will last about 25 years. Completely powering a typical home in this region with solar energy requires approximately two dozen panels, so the up-front cost puts off many homeowners and renters who might otherwise be interested in getting some of their energy from alternative sources. This model allows consumers or businesses to "buy" one panel or several to reduce (or even eliminate) their monthly electric bills. For the average customer of this power company, it takes about 13 years for monthly utility savings to match the cost of buying the panels. Since the system has a 50-year warranty, the power from the panels would then be essentially free for the remaining 37 years or so.

CONCLUSIONS

Garfield County's PPA agreement for the riding area is a good deal making the most of the county's grant money, allowing it to pay less for electricity and to get a larger solar system than it could otherwise afford, while the PPA provider — which owns the array — covers the upfront costs. The airport project also takes advantage of an opportunity to develop clean energy sources, in this case allowing individuals and businesses to make affordable investments in solar



energy. Residents can be proud that Garfield County has become a hotbed for clean energy development. ■

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PPA Financing

The power purchase agreement (PPA) financing allows Garfield County to build a much larger system than it otherwise could. In a PPA, a third-party developer owns, operates, and maintains the photovoltaic (PV) system, and the host customer agrees to put the system on its property and purchase the system's electric output from the provider for a predetermined period. This financial arrangement allows the host customer to avoid price spikes and, sometimes, pay less for energy, while the solar services provider or another party acquires valuable financial benefits such as tax credits and income generated from the sale of electricity to the host customer.

Since the host customer buys the services produced by the PV system rather than buying the PV system itself, it can bypass many of the traditional barriers to adopting a solar system: high up-front capital costs, system performance risk, and complex design and permitting processes. In addition, the customer can see savings from the day the system is commissioned.

The PPA approach does add complexity, so to make sure it got the best deal possible, the county formed a partnership with local green energy experts to help with project development, bidding, and proposal analysis.

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