

# Sunshine on My Solar Arrays Makes Me Happy

Breckenridge Golf Course maintenance participates in the largest solar array in Summit County, Colorado.

BY DERF SOLLER



(Above left) Completed and operational 55 kW solar array at the Breckenridge Golf Club maintenance complex.

(Above right) Three of the eight panels that make up the 40 kW solar array installed on the roof of one of the Breckenridge Golf Club maintenance equipment storage buildings.

Located high in the Rocky Mountains of Colorado, Breckenridge Golf Club, owned and operated by the Town of Breckenridge, is participating in a unique program to help collect solar energy and add it to the electrical grid. Best known for its world-famous ski area and abundant snow, this high-altitude Rocky Mountain area also has something else in abundance — sunshine. What better location than this to take advantage of solar power as a renewable energy source?

With over 300 days of sunshine reported annually, these solar collection arrays are extremely efficient. Solar arrays are a group of photovoltaic solar panels. These panels convert sunlight into electrical current, thereby adding to the electrical grid during sunny periods. The high elevations, thin air, and sunny, cold temperatures found in Breckenridge (elevation 9600 ft.) allow these arrays to run at peak efficiency.

## PUBLIC AND PRIVATE SECTORS WORKING TOGETHER

The golf course and other Town of Breckenridge city buildings are participating in a unique program called a Power Purchase Agreement (PPA). The PPA is a cooperative effort in which public sector entities are able to partner with private sector entities (in this case, the Renewable Social Benefit Fund, or RSBF) to install and maintain solar energy collection and distribution assets. Focusing on making solar power available to hospitals, schools, housing projects, and other developmental and tax-exempt entities is what this alternative energy company supports ([www.rsbfunds.com](http://www.rsbfunds.com)).

The Town of Breckenridge did not have to pay any up-front cost for the installation or any ongoing maintenance costs of the panels during the term of the PPA. Since the Town is a tax-exempt entity, it cannot enjoy private

sector income tax credits for solar assets. The term of the current PPA is for 20 years, with a purchase option by the Town of Breckenridge for the solar arrays becoming an option in year six. The Town is not required to purchase at this time. The Town and RSBF have come to an agreement and installed seven total arrays throughout town, producing a total of approximately 650,000 kilowatt hours (kWH) during the first full year of operation. That is the equivalent of the energy needs of 80 households.

Two of these seven arrays are found at the golf course. Current energy company regulations require that the collection panels must be located adjacent to the facility where the energy generated is consumed. In the case of the golf course, the larger of the two arrays, built standing on the ground, is located near the irrigation system pump station for the 27-hole golf course. This

is a 55 kW array. A second solar array (40 kW) is located on top of one of the golf course maintenance storage buildings. It is mounted flat on the roof because of excellent southeast exposure. The two solar arrays at the golf course maintenance complex generate a total of 95 kW. The other five solar arrays in the town are located on the roofs of the Rec Center (100kW) and the Ice Rink (100kW), on the ground at Fleet Maintenance (100 kW), and the roofs of the Police Facility (55kW) and the

Riverwalk Center (9 kW). Energy produced and associated calculated offsets for each of the solar arrays can be viewed in live time at: [http://live.deckmonitoring.com/?id=town\\_of\\_breckenridge](http://live.deckmonitoring.com/?id=town_of_breckenridge)

This PPA is not unique to just the Town of Breckenridge. Other Colorado government agencies currently utilizing PPAs include Jefferson County, Denver International Airport, Douglas County, and Boulder County. According to Brian Waldes, Town Financial Services Manager ([brianw@townofbreckenridge.com](mailto:brianw@townofbreckenridge.com)), the PPA creates a win/win situation for both the private and public sectors. The private sector entity (here, the RSBF) is able to receive income tax credits for the purchase of the solar assets. These income tax credits allow the private sector partner to get 30 percent of its expense for the hardware refunded immediately upon operation of the panels.

The Town does not pay anything for installation or maintenance during the 20-year term of the PPA. The Town, as



*The 55kW solar array is visible from the course but not in play. The closest green is No. 8 of the Bear nine holes seen here. The white areas in the foreground are turf covers being used to help recovery of winter damage areas of the putting green.*

a tax-exempt entity, is not eligible for the above-mentioned income tax credits. The arrangement with the energy provider, Xcel Energy, along with other rebates and energy credits, allows the Town to also be charged a lower rate for the purchase of power. Xcel Energy provides power to Colorado, North and South Dakota, Texas, New Mexico, Michigan, Minnesota, and Wisconsin. The construction and maintenance of all seven of the solar arrays was provided by RSBF and Colorado Business Bank. Martifer Solar and Innovative Energy built and maintain the arrays for the Town.

### WHAT ARE THE BENEFITS OF A PROJECT LIKE THIS?

Certainly, the front end is the financial savings. Estimates for the 20-year PPA contract are that approximately \$900,000 will be saved. This will also offset 18,000 tons of carbon emission statements. That's an approximate savings of \$45,000 per year in energy cost. It should also be mentioned that

the 650,000 kilowatt hours produced in the first year of operation are carbon-free electricity. It doesn't get much better than that!

In addition to the environmental benefits, social benefits are a part of this success story. The community knows it's doing what it can to help reduce the Town's consumption of fossil fuel to generate electricity. There was very good public support for the arrays being installed at the current seven locations. There was some

opposition when it came to two other planned locations, and they were not included in the implementation at the outset. One of the locations was at the clubhouse for the golf course. However, after a few years of seeing the proven positives for investing in the arrays, the sentiments of the community may soften. Someday, it may be possible to install solar array panels on the roof of the clubhouse to help offset the energy used to charge electric golf carts.

Singer John Denver felt the value of Colorado sunshine years ago with the song "Sunshine on My Shoulders." He would likely be pleasantly surprised to see that same sunshine is going to good use for the benefit of communities throughout the region.

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