

Co-op's Parking Lot Solar Reduces Energy Costs and Impacts

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The use of energy-efficient, environmentally sensitive design has been a part of BriarPatch Co-op's store on Sierra College Drive since its construction in 2006, when the co-op stepped up and built a LEED-certified "green" building. Located in Grass Valley, Calif., the co-op's operations are humming, with a staff of 210 and a facility of 8,856 retail square feet supporting sales of \$29.4 million in 2015.

Food markets invariably consume a large amount of energy because of the continuous operation of refrigeration systems. Plans to expand the co-op's parking lot presented a perfect opportunity to construct a large overhead structure for solar panels, which will dramatically reduce our utility costs and carbon footprint.

The BriarPatch Co-op's 16,000-square-foot array with 680 solar panels will span almost the entire 300-foot length of the co-op's westerly parking lot and will have a 5-degree tilt for ideal southern exposure. Construction of the array began in May 2016 and is scheduled for completion in October of this year.

BriarPatch Co-op is teaming with a local firm, California Solar Electric Company, to install the array. A 30-percent federal tax credit will defray the overall initial cost. The system will reduce the co-op's annual electrical bill by \$75,000—saving us \$3 million over the guaranteed 25-year life of the panels. This solar system will be the largest parking-lot photovoltaic array in our area, and the first commercial solar project constructed over a parking lot in Nevada County.

California Solar owner Lars Ortegren says, "We are excited to partner with BriarPatch in realizing a significant investment in renewable energy while also improving a core part of our community—our local food co-op."

BriarPatch Co-op's new solar system will utilize industry-leading technology. The SunPower E20 solar panels offer high efficiency with a minimal footprint, producing 70 percent more electricity than conventional panels. Each panel has 128 cells and produces 435 watts; this results in an array wattage rating of 295,800 watts (DC). In terms of carbon dioxide (CO₂) emissions, the new system will generate enough power to equal the CO₂ offset of 61,926 trees over the 25-year lifespan of the system, or the equivalent of CO₂ emissions from 800 barrels of oil consumed.

The new solar array will also allow for future renewable energy expansions, starting with the addition of vehicle-charging stations. These stations will make the choice of an electric vehicle a bit more attractive by making it possible to conveniently charge it at our local food market.

There's a real possibility that, in the future, BriarPatch Co-op could add more solar panels—on the building roof, and/or over other portions of the parking area—and consequently be able to generate much more of its electricity from its own system.

This project is a great example of how renewable energy can keep our community strong by providing local businesses with multi-use design solutions that maximize long-term savings while reducing environmental impacts. □

