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Combining Clean Energy Generation and Regenerative Agriculture to Drive Social and Economic Outcomes

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As utility-scale solar energy development expands, land-use competition between solar development and agriculture is a growing point of friction for many communities.

In 2018, Silicon Ranch introduced Regenerative Energy®, a holistic approach to solar design, construction and land management that normalizes regenerative agriculture practices on solar farms. It co-locates agriculture and energy generation in a way that delivers social and economic benefits beyond these that a solar facility alone can produce and helps improve quality of life for people residing in communities where solar development is occurring.

Two years later, Silicon Ranch has released both a standard to provide consistency and guidance for solar energy developers wishing to enable similarly enhanced benefits from solar energy project, and a methodology that monitors, measures and reports on these benefits. The company is also delivering Regenerative Energy on thousands of acres across multiple projects in several states, addressing soil

health, biodiversity, rural economic resilience and climate change.

Regenerative Energy

Silicon Ranch developed Regenerative Energy in recognition of both its responsibility to be a good land steward and its opportunity to address community concerns by keeping land in agricultural production, while achieving additional valuable social, environmental and economic outcomes and enabling the rest of the solar industry to do the same.

“We’re aiming for continuous improvement of solar industry best management practices for how a solar power plant interacts with the natural ecosystem and the local community,” said Michael Baute, Silicon Ranch’s director of regenerative energy. “Together with our industry colleagues, we have the opportunity to positively impact millions of acres of



land and countless communities across the U.S. and around the world as the solar land base grows.”

Producing Two Crops on One Piece of Land

Regenerative Energy projects produce two “crops” on one piece of land—clean energy and pasture-raised meats. Livestock and poultry graze the land under and around solar panels that would otherwise be unused.

“Through dual use of solar land, we’re boosting economic productivity per acre,” said Matt Beasley, Silicon Ranch’s chief commercial officer. “This thoughtful approach supports two kinds of direct, high-quality jobs for the life of each project—energy technicians and regenerative land managers—along with meaningful ongoing revenue streams for land managers.”

These projects also catalyze indirect regional service jobs. Together, new direct and indirect jobs spawn new wages in addition to direct, indirect and induced wage impacts to the regional economy and added often-critical continuing tax revenues for communities.

Partnering with Regenerative Land Stewards

Silicon Ranch teams up with experienced regenerative ranchers to manage solar land using both equipment and holistic practices such as planned grazing.

Image: Courtesy of Kathryn Crockett, White Oak Pastures

Silicon Ranch regenerative ranching partners from White Oak Pastures in Bluffton, Georgia, holistically manage up to 2,000 sheep at Bancroft Station Solar Farm to restore the land to a functioning grassland ecosystem.

Regenerative land managers are stewards of Silicon Ranch’s land, with specific goals of promoting photosynthesis and improving vegetation growth cycles to optimize carbon sequestration and other benefits that nature provides, while ensuring that neither vegetation nor erosion interfere with energy collection or equipment maintenance.

The Cabriejo Ranch family, led by accredited Savory Holistic Management Professionals Trent and Reuben Hendricks, holistically manage the land at Silicon Ranch’s Regenerative Energy projects in Tennessee and Mississippi.

“Having the opportunity to do more of the restorative work that we love to do ... that enables us to produce more high-quality, nutrient-dense, local food, on land that is also producing clean, renewable energy, is phenomenal,” said Trent Hendricks, Cabriejo Ranch regenerative rancher.

The White Oak Pastures team, headed up by Land Steward and Herdsman Will Harris, provides regenerative land management at Regenerative Energy projects in Georgia.

Regenerative Energy Center of Excellence: Bancroft Station Solar Farm

The 102.5 MWac Bancroft Station Solar Farm in Blakely, Georgia, is the first project that was designed and built

for Regenerative Energy and is the first Regenerative Energy-certified solar power plant. Silicon Ranch is the long-term owner and operator of the project and has a contract with Walton Electric Membership Corporation to purchase the plant's output on behalf of Facebook as part of the electric cooperative's agreement to supply 100% renewable energy for Facebook's state-of-the-art data center in Newton County, Georgia. The project was financed in part with renewable energy investment tax credits (ITCs).

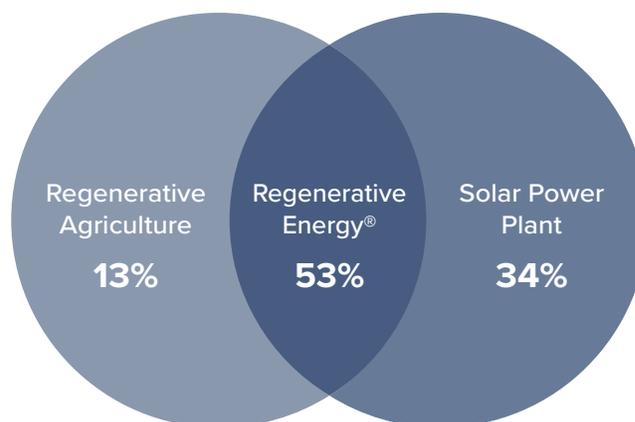
Bancroft Station serves as the Regenerative Energy Center of Excellence, where Silicon Ranch and White Oak Pastures are together developing best practices and conducting solar and agriculture co-location research for a variety of livestock species.

Regenerative Energy EcoMetrics at Bancroft Station Solar Farm

Bancroft Station is also the pilot laboratory for the implementation of Regenerative Energy EcoMetrics, a custom methodology developed in partnership with nonprofit Restore the Earth Foundation (restoretheearth.org) that measures, tracks, third-party verifies and reports on the outcomes of Regenerative Energy projects. The methodology is aligned with globally accepted protocols and standards for quantifying outcomes resulting from actions and projects that use natural solutions to address societal challenges and also provide a structured way to obtain stakeholder input, which is key to the methodology.

The Bancroft Station pilot generated the first Regenerative Energy EcoMetrics third-party verified social return on investment (SROI) report for Facebook. The report includes the project's projected measured outcomes and assigns a dollar value. SROI reports are produced to help support the corporate social responsibility and environmental, social, and governance goals of Regenerative Energy customers.

Source of Project Value by Project Component



Source: Silicon Ranch Corporation

Meaningful Community Engagement

To collect data for this report, Silicon Ranch convened a two-day workshop at White Oak Pastures, during which the team held focus groups, conducted surveys and recorded input from 22 local and regional stakeholders and documented input from experts in carbon planning and holistic land management. Following the workshop, Restore the Earth Foundation conducted dozens of additional one-on-one interviews.

Key Findings Projected by the Regenerative Energy EcoMetrics Analysis

The Bancroft Station Regenerative Energy EcoMetrics analysis highlights the additional value that Regenerative Energy and its integration of regenerative agriculture create over and above the value of a power plant alone.

Social and Environmental Benefits of Regenerative Agriculture Component

The project's regenerative agriculture component alone will generate significant social and environmental benefits, including carbon emission reductions and removal, improved soil formation and nutrient cycling, improved water quality, increased water treatment capacity, and increased biodiversity. The total value of these benefits was analyzed, and the report identified

that the greatest social and market value resulted from water quality improvements.

Economic Benefits of Regenerative Agriculture Component

The project's regenerative agriculture component will also generate significant economic benefits, the total value of which was analyzed and reported, including direct employment for managers and graziers needed to care for multiple species of livestock, direct employment for service industry workers at White Oak Pastures, direct employment at local stores, restaurants and lodging, and increased visitors to White Oak Pastures and its on-site store and restaurant.

Greatest Benefit at Nexus of Renewable Energy and Regenerative Agriculture

The project will generate the greatest benefit to community members and other stakeholders—more than 50%—at the nexus of renewable energy and regenerative agriculture. More than 30% of the project value is due to the solar power plant component alone and 13% of the value of the project is due solely to the regenerative agriculture component.

Social Benefits of Co-Locating Solar Power Plant and Regenerative Agriculture

The combining of the solar power plant and regenerative agriculture on one piece of land will generate significant social benefits, including increases in earning potential for the community, sense of community pride, reputation of the school district, educational opportunities, college attendance rates, and opportunities for the county to provide services for residents.

Financing Partnerships

The federal ITC was a central driver in the financing of the Bancroft Station Solar Farm, as it is to the growth of the solar industry in the United States generally.

U.S. Bank furnished the tax equity investment for this project and Fifth Third furnished the loan facility. Both financing parties have worked extensively with Silicon Ranch in the past.

The Bancroft Station Solar Farm was an attractive investment to Fifth Third for numerous reasons, including the enduring value and social and economic benefits it brings to a rural, distressed community.

“The bank is 100% powered by solar energy itself, and is supportive of the expansion of renewable energy,” said Eric Cohen, vice president and group head of renewable energy finance for Fifth Third. “The added benefits that Regenerative Energy brings to a solar farm, including additional long-term jobs and tax revenues and increased earning potential for the community, enhance the already significant appeal of investing in solar.”

The opportunity to facilitate projects that will both offset carbon dioxide emissions and sequester atmospheric carbon in the soil through the combination of solar and regenerative farming further enhances the attractiveness to Fifth Third of investing in solar.

Bancroft Station is the first of several Regenerative Energy projects that Facebook has enabled through its investments in renewable energy in Georgia and its commitment to improving the communities where it does business. Silicon Ranch is co-locating solar and regenerative agriculture and measuring outcomes at five additional projects in the state that serve Facebook as the end user. ❖

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Chris Ann Lunghino is the director of policy and communications for Silicon Ranch Corporation.

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