

Solar Powered Crop Rotation:

How solar can benefit agriculture and the community

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I had the pleasure of attending the ribbon cutting ceremony for **Pine Gate Renewables (PGR) 57-MW Peony Solar Project** in Orangeburg County, South Carolina. PGR is a solar development company that is enriching the lives of the landowners and communities where they are developing projects.

PGR has developed a program they call **SolarCulture** to improve environmental stewardship and agriculture. One way they do this is by seeding native plants in the soils around the solar project. While the solar project produces renewable energy, the native plants stabilize the soils and reinvigorate the natural nutrient cycle that has been disrupted by continuous agricultural use.

Below are details on how it works:

- The typical life-cycle of a solar project is 30 years, at which time the solar project could be decommissioned and returned to agricultural production.
- During these 30 years, the native vegetation planted by PGR naturally enriches the soils with carbon and nitrogen to create habitat for a diverse ecosystem of microbes and insects. This leaves the landowner with soils that are more enriched and ready for better crop yields after the solar project has been removed.
- The above-ground habitat within a solar site is limited, but it can provide grassland habitat for birds, bugs, and small mammals. This habitat can have a positive benefit on native bees that have become imperiled due to pesticides, diseases,

and loss of habitat.

- Many native bees require healthy soils for nesting and rearing young. Since soil disturbance is minimized throughout the 30-year life cycle of a solar project, they can also provide beneficial habitat for native bees. These native bees will disperse for up to 3 miles from the solar project to forage and pollinate the surrounding landscape, including agricultural fields.
- Pollination is critically important because one-third of the food that humans consume are reliant upon pollination. In this way, the solar project has a beneficial impact on the surrounding active agriculture and enhances the community.





While at the ribbon cutting ceremony, I spoke with Claudia Weeks from PGR about the challenges they face to implement a **SolarCulture** project. She stated that while this program is often more expensive to implement and maintain for solar developers than traditional soil stabilization methods, she feels the *long-term benefits often outweigh the increased initial cost*.



The traditional stabilization method includes planting a fast growing, aggressive, and often non-native species of grass that can quickly take over and stabilize the soil. This traditional method does not provide the habitat diversity necessary to replenish the soils with a diverse mix of biotic activity or create habitat for pollinating insects.

The struggle is that solar development is a competitive market and many solar developers do not have the same long-term values of PGR. In fact, PGR did not use a native seed mix at the Peony project because stakeholders such as the regulators, neighbors, power purchaser, or landowner did not require it for approval. If these stakeholders do not understand the ecosystem value of a diversity of native plants, then the traditional soil stabilization methods will continue to be used and society will lose the full potential value from the 30-year life of the solar project.

There are several ways each of us can promote a **SolarCulture** program:

1. Power customers can demand it from their electric utilities;
2. Local land planners can require it through the project development regulations;
3. Power purchasers can demand it from the solar developers;
4. Solar developers can educate their staff and promote it within their organizations by implementing where it is feasible and demonstrate the success, and
5. Spread the word with your community.

