SOLAR & AGRICULTURAL LAND USE

Farmers Are Choosing Solar & Agriculture Together

As solar energy expands across both rural and urban communities, questions about land use naturally arise. It's important to recognize that when developed intentionally, **solar is not a threat to agriculture**, but rather a **complementary opportunity** that can strengthen farming operations and preserve land for future generations.

Preserving Agricultural Land

Solar projects contribute minimally to farmland loss. Additionally, many farmers integrate grazing or other agricultural operations with solar, and most sites can be restored to full agricultural production once the solar panels are removed.

Stabilizing Farm Income

Hosting solar provides farmers with a dependable, long-term revenue stream that can help buffer the ups and downs of grain, livestock, and produce markets.

Supporting Soil & Land Health

Pairing solar with native grasses, pollinator habitats, or cover crops allows land to rest, rebuild nutrients, and remain viable for future farming.

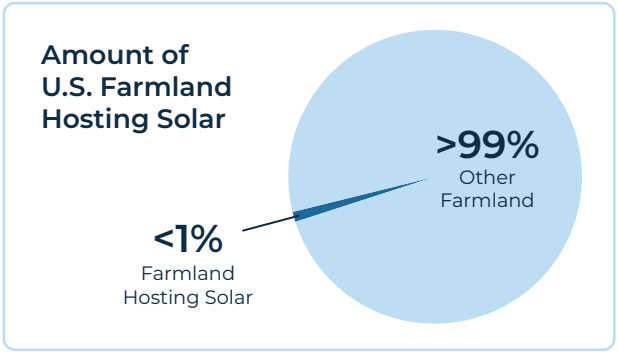
PRESERVING AGRICULTURAL LAND

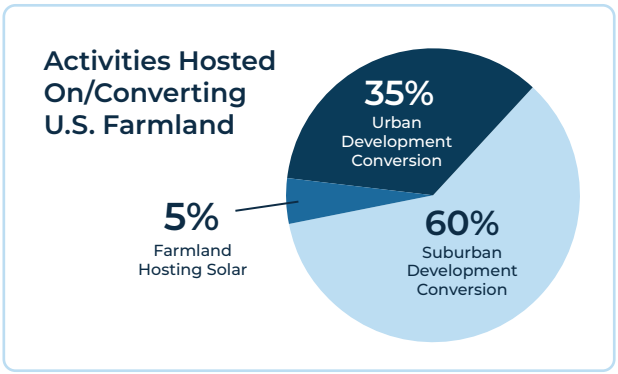
Agricultural Land Stewardship

As solar opportunities grow, more farmers, ranchers, and rural landowners are choosing to host solar energy on their land. Importantly, this growth has a **minimal impact on U.S. farmland** compared to other forms of development. Recent reports show that less than 0.1% of American farmland hosts solar energy.[1] Moreover, 85% of farmland with solar installations remains in or eventually returns to agricultural use.[2]

In contrast, urban expansion and residential development have been the primary drivers of farmland loss. Between 2001 and 2016, the U.S. converted 7 million acres of farmland to low-density residential development and an additional 4 million acres to urban uses.[3]

When compared to other energy sources, solar is relatively land-efficient. DOE estimates that a high-solar, decarbonized grid would require about 0.5% of contiguous U.S. land area, roughly equivalent to the area currently used for surface coal mining, but with a far better environmental impact.[4]





STABILIZING FARM INCOME

Farmers Choose Solar

Surveys show that rural landowners share one clear priority: the freedom to decide what's best for their property.[5]

Across the country, farm bankruptcies are spiking as farmers navigate mounting challenges: falling crop prices, rising operating costs, and increasingly unpredictable weather.[6] To manage these risks, many are turning to solar as a **reliable, drought-proof source of income**.

Solar not only helps cut electricity costs for on-farm operations such as irrigation, but it also provides stable, long-term revenue streams that can buffer against volatile markets and ensure farms can be passed down to the next generation of farmers. Beyond the farm gate, solar projects contribute to rural economic growth through local tax revenues, construction jobs, and ongoing operations and maintenance work.

For many farmers, choosing solar is little different than crops: the land becomes tied to a source of both revenue and vital resources. In fact, over 70% of farmers report being open to solar farming opportunities.[7]

Federal policies should respect this choice. Farmers know their land best, and they should have the freedom to decide whether solar is the right path without unnecessary restrictions or prohibitions.

SUPPORTING SOIL & LAND HEALTH

Solar Allows Land to Recover

Many landowners choose to lease underperforming or low-productivity acreage, land that may no longer be well suited for crops, for solar projects.[8] In doing so, solar provides an opportunity to **rest and restore soils** that would otherwise remain stressed or degraded.

In addition to a solar site's inherent ecosystem services, during solar installation developers often choose to plant native grasses and pollinator-friendly vegetation beneath and around panels. These deep-rooted plants improve soil health, reduce erosion, and hold more water than turf grass or gravel during both storms and droughts. They also help rebuild topsoil and provide critical habitat for bees, butterflies, and other pollinators. Even in brownfield sites with polluted soils, vegetation planted with solar can support gradual ecological recovery.[9]

At the end of a project's life, solar arrays can be removed and the land returned to farming, often in better condition than before. This outcome stands in sharp contrast to urban or residential development, which usually leaves land permanently lost to agriculture.

SOLAR & AGRICULTURE: WORKING TOGETHER

Agrivoltaics

Agrivoltaics, the combination of agriculture and solar energy on a single plot of land, is one of the **fastest-growing applications** of solar today. The American Farm Bureau recently endorsed agrivoltaics for its potential to support livestock, crop production, and pollinator habitats while protecting farms and diversifying farmer income.[10]

Livestock

Solar grazing uses livestock, most often sheep, to manage vegetation under and around solar panels. This practice can reduce the need for mowing and other traditional vegetation management tools which lowers maintenance costs for solar. Livestock benefit from the shade and shelter provided by solar panels, and farmers gain new revenue streams while enhancing regional markets for milk, meat, and wool.

Solar grazing is expanding rapidly: more than 129,000 acres of solar sites are now managed by 113,000+ sheep across 500 projects in 33 states.[11] Interest is also quickly growing in "cattle-voltaics," where cattle graze alongside solar arrays, creating another pathway for dual land use.[12]

Crops

Farmers are also pairing solar with crops, using the shade of solar panels to **improve yields and conserve water**. Panels help protect plants from extreme heat, reduce evaporation, and create more resilient growing conditions.[13]

High-value crops like leafy greens, broccoli, peppers, strawberries, and blueberries thrive in reduced light conditions. In one study, cherry tomato yields doubled under solar panels, while water efficiency improved by 65%.[14]

Early experience with agrivoltaics has shown that there is no one-size-fits-all approach to dual-use solar projects. Flexibility is essential for both developers and landowners to design projects that meet the landowner's needs while addressing constraints on the developer, including higher costs and operational challenges inherent in dual-use systems. Additionally, successful agrivoltaics projects must consider regional differences and the unique characteristics of individual farming operations.

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