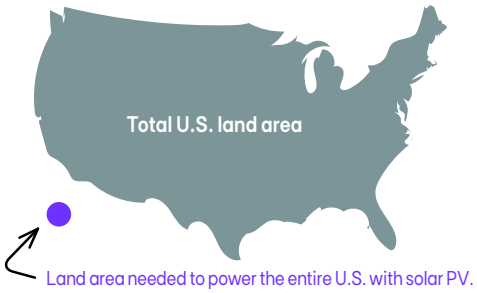
Solar parks & land use

When landowners choose to lease a part of their land to a solar park, they receive **stable, reliable revenue** throughout the project's multi-decade life and give their land time to naturally rest. At the end of the solar park's life, the equipment is removed and the land can return to its original use, including farming and ranching.

Land use

According to the U.S. Department of Energy, to achieve the necessary greatest amount of decarbonization by 2050, solar will need to grow from three percent of the U.S. electric supply today to **40 percent by 2035** and **45 percent by 2050**.[1]

In 2050, it is estimated that ground-based solar technologies would require a maximum land area equivalent to **0.5 percent of the contiguous U.S. surface area.**



Land area needed to power the entire U.S. with solar PV.

The entire United States could be powered by solar energy with just **0.5 percent** of the nation's land.[2]

Ecological land benefits

EDPR NA is responsible for providing vegetation management throughout each solar project's operational life. We use seed mixes suitable and non-invasive to the area, often getting recommendationes from local experts.

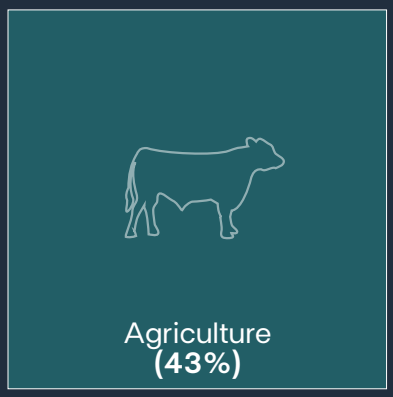
Research from the Argonne National Laboratory has found that cultivating native vegetation at solar parks provides positive ecosystem services to the land, contributing to its long-term health and sustainability.[3]

Diverse vegetation can have many potential ecological benefits,including: [3]

- **3x increase** Pollinator Supply
- **65% increase** Carbon Storage Potential
- **95% increase** Soil/Sediment Retention
- **19% increase** Water Retention

When pollinator habitats are colocated at solar parks, their benefits can include reduced erosion, improved water quality, and support nearby agriculture reliant upon pollinators.[4]

Land Use Comparison[1]
(continguous U.S. surface area)



Urban areas and paved roadways **(5%)**

Surface area of Great Lakes **(3%)**

Surface area required for solar development by 2050 (0.5%)

- Yellowstone National Park **(0.1%)**
- Golf Courses **(0.1%)**
- Retail Space **(0.001%)**

> "Land availability does not constrain solar deployment. In 2050, ground-based solar technologies will require a maximum land area equivalent to 0.5% of the contiguous U.S. surface area." [1]
>
> – U.S. Department of Energy

Solar parks are highly compatible with a wide range of land uses. During the project's lifespan, the park can double as green space capable of hosting local vegetation and pollinator habitats.

Room to grow

A solar park is comprised of inverters, piles, access roads, a substation, and rows of solar panels.

With approximately 10–15 feet of spacing between the solar panel rows, the actual infrastructure of a solar park can take up **less than 40 percent** of all the land needed for the project.

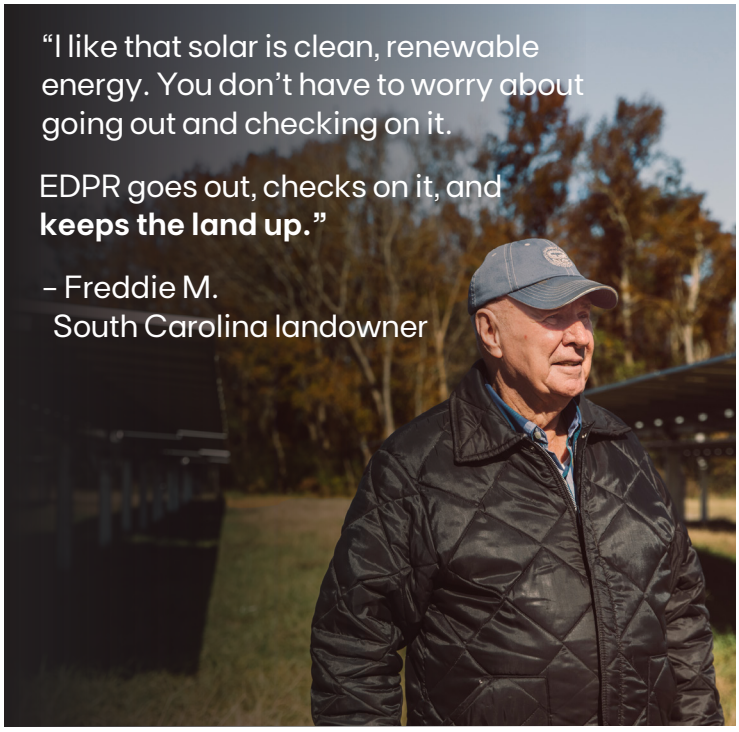
The great thing about solar panels is that they leave ample room for vegetation to grow beneath and between them. If the panel area is discounted, **less than 10 percent of the total project area is occupied by infrastructure that can't also grow vegetation.**

A study by the Great Plains Institute on solar energy's impact on land use found:

- Current and proposed solar sites land uses are a minimal percentage of total county land use when compared to other land uses, typically less than 0.5 percent of most county's land footprint across the US.[5]
- The proportion of solar land use is rarely larger than one percent in any given county, which demonstrates a low development risk to local productive agricultural capacity.[5]
- A conservative estimate of the impact of solar development is that it utilizes **10 acres to generate one megawatt (MW)** of electricity.[7]

Solar panel safety

Modern commercial solar panels do not contain materials that would pose a threat to the environment or human health. Solar panels are designed and manufactured to withstand harsh environmental conditions and extreme weather events. There are no liquids in the panels.[5]



On average, a **single MW of solar capacity** can power over **200 homes.**[8]

[1] U.S. Department of Energy, Solar Features Study Fact Sheet, 2021.
[2] George Washington University Solar Institute. "How much land would it take to power the U.S. with solar?" September 2008.
[3] Walston et. Al. 2021. "Modeling the Ecosystem Services of Native Vegetation Management Practices at Solar Energy Facilities in the Midwestern United States"
[4] "Buzzing around Solar: Pollinator Habitat under Solar Arrays." Energy.Gov, June 2022, www.energy.gov/eere/solar/articles/buzzing-around-solar-pollinator-habitat-under-solar-arrays.
[5] American Clean Power Association, Solar Community Fact Sheet, 2022.
[6] Great Plains Institute for Sustainable Development, The True Land Footprint of Solar Energy, 2021.
[7] "Land Use & Solar Development." Solar Energy Industries Association, www.seia.org/initiatives/land-use-solar-development, 2021.
[8] American Clean Power Association, Annual Market Report, 2022

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