

Renewable Energy in Rural America: Frequently Asked Questions

Introduction

The U.S. Department of Agriculture (USDA) and U.S. Department of Energy (DOE) are hosting “American Farms, Rural Benefits” listening sessions in January 2024. We want to hear about ways to promote renewable energy development in your rural communities and understand how we can better support your efforts. This companion fact sheet is meant to provide background information to support these listening sessions. You’ll find additional information and references at this link: tinyurl.com/farmland-energy.

How much land and farmland will be needed for renewable energy installation?

Estimates indicate that solar and wind installations could require up to 0.5 percent of all U.S. land by 2035, including up to 1 percent of U.S. cropland. This is comparable to U.S. land currently used for coal mining and is less than the acreage used today for railroads or ethanol production. Most solar arrays cover fewer than 20 acres, but the largest solar arrays are increasing in size and can encompass thousands of acres. Although about half of all renewable energy development occurs on cultivated cropland, in 95 percent of the counties that host solar arrays, these installations take up less than one quarter of one percent (0.25 percent) of the land.

Does renewable energy cause farmland losses and drive higher rental rates?

Roughly 11 million acres of U.S. farmland was converted out of agricultural production between 2001 and 2016. Less than 1 percent of the loss was due to solar development: the remainder is driven mostly by urban and suburban expansion. Nearly 40 percent of U.S. farmland is rented, and rental rates are rising – mostly due to suburban expansion. Rental cost increases generally are not driven by renewable energy development, though higher farmland rental costs do heighten concerns about land-use decisions in farming communities, and large, individual projects could impact the market in some areas.

Are federal funds contributing to the conversion of farmland to renewable energy?

All federally funded projects – including wind and solar projects – must be evaluated for significant impact on farmland. By law, to minimize the use of federal funds contributing to the unnecessary conversion of farmland to nonagricultural uses, alternative sites must be considered. This falls under the Farmland Protection Policy Act and is guided by USDA’s Natural Resource Conservation Service as part of the environmental review process.

In 2022, 32 federal agencies evaluated projects that – combined – could potentially reach roughly one hundredth of one percent (0.014 percent) of farmland, and approximately three thousandths of one percent (0.003 percent) of prime or unique farmland. That annual scale is comparable to findings from the last 15 years.

Is it realistic to combine farming with renewable energy on the same farm?

Yes. There are many ways to integrate farming and renewable energy on the same property. Marginal farmland can be used for solar panels. Agricultural producers can almost always co-locate their operations with wind generation. They also can often co-locate crops or grazing with solar generation (a practice called “agrivoltaics”). While agrivoltaics does not currently work for all farm operations, there are more than 150 agrivoltaics projects across the country, and research and interest is growing rapidly. For example, USDA and DOE are currently conducting research and development in agrivoltaics. More information about dual use and connecting with collaborators can be found at the DOE-supported AgriSolar Clearinghouse: www.agrisolarclearinghouse.org

How can farmers and rural America benefit from renewable energy?

- Renewable energy is now the least-cost source of new electricity in the U.S.
- Farmers and rural businesses that install on-site renewable energy as participants in USDA’s Rural Energy for America Program saved an average of \$15,400 in annual electricity costs.
- Farmers who lease sections of land for renewable energy are seeing long-term, stable revenue streams. A recent survey of farmers who lease land for wind installations found the average payment is \$8,300 a year.
- Increasingly, community benefit agreements are being incorporated into renewable energy projects. These can be used to support community infrastructure needs such as schools and hospitals, or to develop local agricultural assets such as grain silos or processing plants.
- Approximately 90 percent of renewable energy siting is projected to occur in rural communities by 2050. This could result in up to 1.5 million well-paying solar jobs by 2035 and up to 600,000 wind jobs by 2050.

Are there health risks associated with renewable energy?

Health and safety risks of renewable energy to host communities are minimal and can generally be addressed with appropriate permitting, zoning guidelines, and project design. Concerns about health risks are often covered on social media, which can create a false perception of risk; however, the scientific evidence is clear that renewable energy is safe for host communities and reduces pollution. Renewables like solar and wind technologies dramatically reduce greenhouse gas emissions, air pollutant emissions, and water pollution. Less pollution means healthier communities and fewer chronic deadly diseases for children.