

The logo for Solar Energy UK, consisting of the text "Solar Energy UK" in a bold, sans-serif font, stacked vertically, and enclosed within a bright yellow circle. The background of the entire page is a photograph of a solar farm with rows of blue solar panels on a sloped roof, with trees and a cloudy sky in the background.

**Solar  
Energy  
UK**

**SOLAR ENERGY UK BRIEFING**

# **Solar farms and food security: the facts**

Sept 2022

## Overview

Claims that solar farms jeopardise the UK's food security are false. The opposite is true, and this briefing explains the role of solar farms in supporting the UK's food supply. It is intended to help members of the public, MPs, planning officials and others with an interest in countryside management to understand how solar energy fits into the UK's land use needs. Solar Energy UK is available to discuss the topics in this briefing.

## Summary

- **Solar helps address climate change, which is the single biggest threat to UK food security.** This is according to the Department for Environment, Food and Rural Affairs, which says that climate change could reduce the UK's stock of high-grade agricultural land by nearly three-quarters by 2050. Because solar farms generate near zero-carbon electricity, they help address climate change. This means they are helping to improve the UK's food security.
- **Solar cuts costs, which helps keep UK farmers in business.** Solar provides some of the cheapest electricity in history. Without solar, energy prices would be even higher. This is important, because costs are increasing for agricultural businesses, just like everyone else. Solar can also provide a direct and long-term revenue stream for farmers who choose to host a project on their land. By helping to keep UK farming profitable, solar is also helping to secure the UK's domestic food supply.
- **Solar preserves agricultural land.** Planning permission for a solar farm is time limited, and installations can be completely dismantled at the end of their operation. Solar does not take agricultural land, it borrows it, and because agricultural land under a solar farm is in effect left fallow, soil health can recover. [i] Solar farms themselves occupy a minuscule area, and even with five times as many solar farms deployed around the UK, they would still occupy less land than the amount currently occupied by golf courses.

## How does solar support food security?

**1. Tackling climate change.** The UK Government Food Security Report, published in December 2021, is explicit: “The biggest medium to long term risk to the UK’s domestic production comes from climate change and other environmental pressures like soil degradation, water quality and biodiversity.” [ii]

The report quantifies this risk, noting that under a medium emissions scenario, climate change could reduce the proportion of ‘Best and Most Versatile’ agricultural land from a baseline of 38.1% to 11.4% by 2050. This would mean a reduction in the UK’s prime agricultural land of almost three quarters. The evidence is already available: for example, the drought of 2022 literally caused the potato crop to shrink.[iii] Climate change causes crop failure, and solar farms help address climate change. This means they are helping to defend UK and global food supply. [iv]

There are numerous additional ways in which solar farms help improve natural capital and biodiversity, and hence alleviate other pressures. Indeed, improving biodiversity, such as by increasing the number of pollinators, is critical in itself for agriculture.

These benefits are extensively documented in Solar Energy UK’s industry-leading Natural Capital Best Practice Guidance. This was developed with experts from organisations including Lancaster University, the National Farmers Union, and the Bumblebee Trust, and was endorsed by Natural England, the government’s advisor for the natural environment in England. [v] A diverse range of wildlife and environmental organisations have in addition signed Solar Energy UK’s open letter on the topic of solar farms and the environment. [vi]

**2. Addressing the energy crisis.** The energy crisis enveloping the country is a problem for farming and agricultural businesses as well as domestic consumers. British businesses could see their bills increase by 500% in 2022. [vii] This could be a catastrophe for farmers, who are already facing major economic uncertainty. [viii]

Solar farms can address this problem in two key ways.

First, they produce some of the cheapest electricity in history. The UK’s 2022 renewable energy auction saw solar farms successfully bid to generate power at prices four times cheaper than gas.[ix] Without solar, energy prices would be even higher. This is important, because costs are increasing for the agricultural sector, just like everyone else. [x]

---

Second, farmers can receive direct rental and other income if they choose to host a solar farm on part of their land. [x] This is long term, stable revenue, in an uncertain world. By providing financial security, solar is helping to keep UK farming profitable, and keeping farmers in business means securing the UK's food supply. [xii] The National Farmers' Union has been explicit on the point, and farmers around the UK are embracing solar for exactly this reason. [xiii]

**3. Safeguarding the UK's land.** Planning permission for a solar farm is temporary, reversible and can support continued agricultural production – for example, by grazing sheep. Solar farms can be completely dismantled at the end of their life. Furthermore, the extended fallow period enables the recovery of soil health, addressing the degradation of many years of ploughing arable land. Solar farms can also make use of livestock to help graze the grass around the panels itself, demonstrating that functioning, productive soil remains in place. [xiv]

In support of these and their other benefits, solar farm developers, builders and tenants who are members of Solar Energy UK also agree to comply with the industry's 11 commitments, to ensure projects are developed responsibly. [xv] Following on from this work, and the industry's leadership on managing natural capital, Solar Energy UK is now also developing best practice guidance on solar farm planning and community engagement. This is because the solar industry is committed to supporting rural communities, as well as being a responsible steward of the countryside.

It should also be noted that solar farms, which are wildly popular across all demographics, occupy a minuscule proportion of UK land. [xvi] Even with a five-fold increase in deployment – in line with the Government's energy strategy – solar farms would occupy 0.29% of the UK's total land area. [xvii] This is less than the amount currently occupied by golf courses, and an absurdly small area to help improve our energy security. [xviii] More solar means more home-grown energy, and that means less dependence on Russia and the Middle East.

This is patently in the UK's strategic interest, although it is just one of the many benefits of solar technology. Solar farms reduce the UK's carbon footprint, displace extortionate fossil fuels, cut bills, create jobs, benefit nature, and bolster the nation's energy security. [xix]

- [i] Defra R&D project SP08016, Best Practice for Managing Soil Organic Matter in Agriculture. See <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=2&ProjectID=15536>
- [ii] <https://www.gov.uk/government/statistics/united-kingdom-food-security-report-2021/united-kingdom-food-security-report-2021-theme-2-uk-food-supply-sources#united-kingdom-food-security-report-2021-theme2-indicator-2-1-1>.
- [iii] See eg <https://www.ft.com/content/2ed52263-9269-40ee-853b-11dd54d043a6> and [https://www.theguardian.com/environment/2022/aug/12/mass-crop-failures-expected-in-england-as-farmers-demand-hosepipe-bans?CMP=Share\\_AndroidApp\\_Other](https://www.theguardian.com/environment/2022/aug/12/mass-crop-failures-expected-in-england-as-farmers-demand-hosepipe-bans?CMP=Share_AndroidApp_Other).
- [iv] Solar farms produce near zero-carbon electricity. See <https://www.carbonbrief.org/solar-wind-nuclear-amazingly-low-carbon-footprints>
- [v] <https://solarenergyuk.org/wp-content/uploads/2022/05/NCBPG-Solar-Energy-UK-Report-web.pdf>
- [vi] <https://solarenergyuk.org/wp-content/uploads/2022/09/28.09.2022-SEUK-Joint-Letter-on-Land-Use.pdf>
- [vii] <https://www.cornwall-insight.com/press/businesses-could-see-energy-bills-increase-fivefold-in-october/>
- [viii] The situation is so serious that in 2022 the government had to bring forward the cash payments it provides as part of the Basic Payments Scheme: <https://www.gov.uk/government/news/payments-brought-forward-to-help-farmers-with-cashflow>. See also the 2022 Farmers Weekly state-of-the-industry survey, which reported that seven out of eight farmers “had no clear idea” how their business would survive without the BPS: <https://www.fwi.co.uk/business/business-management/agricultural-transition/survey-farms-hampered-by-uncertainty-over-future-income>.
- [ix] See [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1088875/contracts-for-difference-allocation-round-4-results.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1088875/contracts-for-difference-allocation-round-4-results.pdf) and <https://www.carbonbrief.org/analysis-record-low-price-for-uk-offshore-wind-is-four-times-cheaper-than-gas>
- [x] It should be noted that an additional economic challenge for UK agriculture, and something which is causing food insecurity, is the labour crisis in the sector. Parliament’s Environment, Food and Rural Affairs Committee said in March 2022 that it had found “clear evidence that labour shortages have badly affected the food and farming industry - threatening food security [...and...] causing crops to go unharvested and left to rot in fields.” See <https://committees.parliament.uk/publications/9580/documents/162177/default/>.
- [xi] For an example of a landowner FAQ from a solar developer, see <https://jbm-solar.com/faqs/>
- [xii] Many farming businesses also choose to install rooftop solar panels, which Solar Energy UK strongly supports. See, for example, <https://www.bbc.co.uk/news/uk-england-gloucestershire-62437048>.
- [xiii] <https://www.cityam.com/leading-farming-union-defends-solar-panels-from-tory-attacks/>. For examples of solar supporting income diversification, see <https://www.thescottishfarmer.co.uk/diversification/20071963.energy-costs-soar---even-scotland-comes-sun/>, <https://www.walesfarmer.co.uk/news/20297233.pembrokeshire-farmer-wins-woman-farmer-year-title/> and <https://www.nfuonline.com/updates-and-information/solar-farms-and-the-british-landscape/> A guide to commercial rooftop solar is available at [https://solarenergyuk.org/wp-content/uploads/2022/06/CBGuide\\_June2022.pdf](https://solarenergyuk.org/wp-content/uploads/2022/06/CBGuide_June2022.pdf).
- [xiv] <https://www.bbc.co.uk/news/uk-england-humber-62352061>.
- [xv] <https://solarenergyuk.org/resource/solar-farms-10-committments/>.
- [xvi] There is extensive and up to date industry, government and private sector polling which demonstrate solar’s enormous popularity, including solar farms. See, for example, [https://solarenergyuk.org/wp-content/uploads/2022/01/Copper-Consultancy\\_Solar-Energy-UK\\_Public-attitudes-to-solar\\_January-2022.pdf](https://solarenergyuk.org/wp-content/uploads/2022/01/Copper-Consultancy_Solar-Energy-UK_Public-attitudes-to-solar_January-2022.pdf), [https://solarenergyuk.org/wp-content/uploads/2022/01/Copper-Consultancy\\_Solar-Energy-UK\\_Public-attitudes-to-solar\\_January-2022.pdf](https://solarenergyuk.org/wp-content/uploads/2022/01/Copper-Consultancy_Solar-Energy-UK_Public-attitudes-to-solar_January-2022.pdf), and <https://www.businessgreen.com/news-analysis/4053952/tory-members-stronger-green-energy-policies-sunak-cools-heat-pumps>.
- [xvii] Based on an assumed 48 GW of ground-mounted solar, with 9.6GW of existing solar farms occupying an average of 6 acres / MW (figure via Solar Energy UK members), and 38.2GW of new solar farms occupying an average of 3 acres / MW (figure via BEIS: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1015236/en-3-draft-for-consultation.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015236/en-3-draft-for-consultation.pdf)). The UK’s total land area is 24.2 million hectares (see [https://www.savills.co.uk/research\\_articles/229130/274017-0](https://www.savills.co.uk/research_articles/229130/274017-0)). As solar technology improves, the land area required for a given generation capacity continues to decrease.
- [xviii] Based on golf courses occupying 1,256 square kilometres. See <https://www.bbc.co.uk/news/uk-41901297>.
- [xix] The UK solar industry is, in general, a job-creation machine. Solar Energy UK analysis shows the UK solar industry could support 60,000 jobs by 2035, with corroborating evidence from, for example, the UK Energy Research Centre, and Green Alliance. See [https://ukerc.rl.ac.uk/UCAT/PUBLICATIONS/UKERC\\_Green-job-creation-quality-and-skills\\_A-review-of-the-evidence\\_Final.pdf](https://ukerc.rl.ac.uk/UCAT/PUBLICATIONS/UKERC_Green-job-creation-quality-and-skills_A-review-of-the-evidence_Final.pdf) and <https://green-alliance.org.uk/wp-content/uploads/2022/07/Powering-the-labour-market.pdf> respectively.



Published in the United Kingdom by Solar Trade Association  
Chapter House, 22 Chapter St, London, SW1P 4NP  
© Solar Trade Association 2022