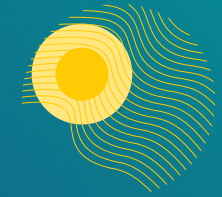


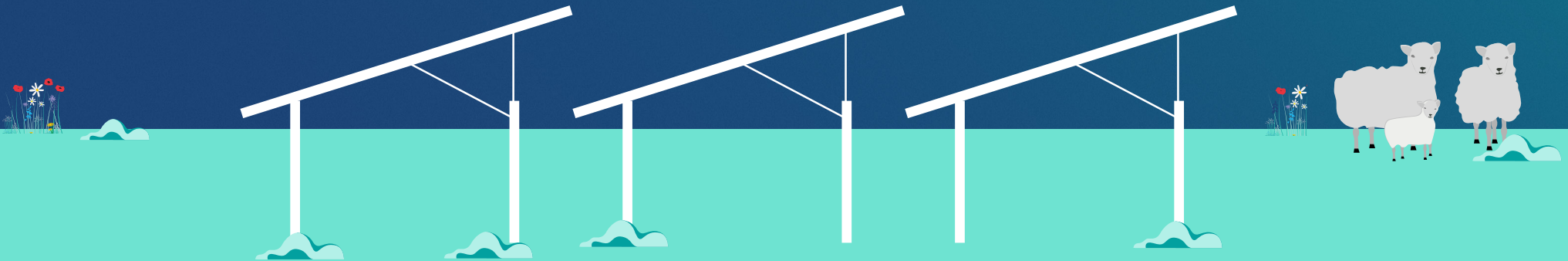
RWE



Harvesting the Sun

The contribution of solar farms to
the UK's clean energy future

By Adam Swarbrick, Head of Solar and Storage UK



RWE Reflections



Adam Swarbrick, Head of Solar and Storage UK

In this think piece, we explore the crucial role that ground-mounted solar farms play in the UK's journey toward net zero. With ambitious government targets to triple solar power by 2030, the pressure is on to accelerate solar deployment.

We'll look at how solar farms can provide clean, affordable energy, support British farming, and help tackle the cost-of-living crisis, all while delivering significant biodiversity benefits. We'll explore the steps that RWE is taking to be a leading solar developer, working in partnership with local communities and landowners.



Ground-mounted solar farms present an incredible opportunity to deliver for climate, consumers and communities; aligning across a number of the government's top priorities.

Not only are they core to achieving the government's target of clean power by 2030, they also directly support British farming at a time when farm incomes are falling and climate change is impacting crop yields. They can also deliver significant biodiversity benefits, well above the statutory requirement of 10% net gain. And, as ground-mounted solar is one of the cheapest forms of electricity, they help tackle the cost-of-living crisis while increasing the UK's energy security with clean, affordable, home-grown electricity.

Accelerating the construction of well-considered solar farms is essential to achieve the government's target to triple solar power by 2030. RWE is working closely with a range of stakeholders, including local communities, businesses, and farmers to ensure that the green energy transition prioritises biodiversity, supports the rural economy, and empowers communities.

¹ Biodiversity net gain (BNG) is a way of creating and improving natural habitats. BNG makes sure development has a measurably positive impact (net gain) on biodiversity, compared to what was there before development.

Ground-mounted solar is important



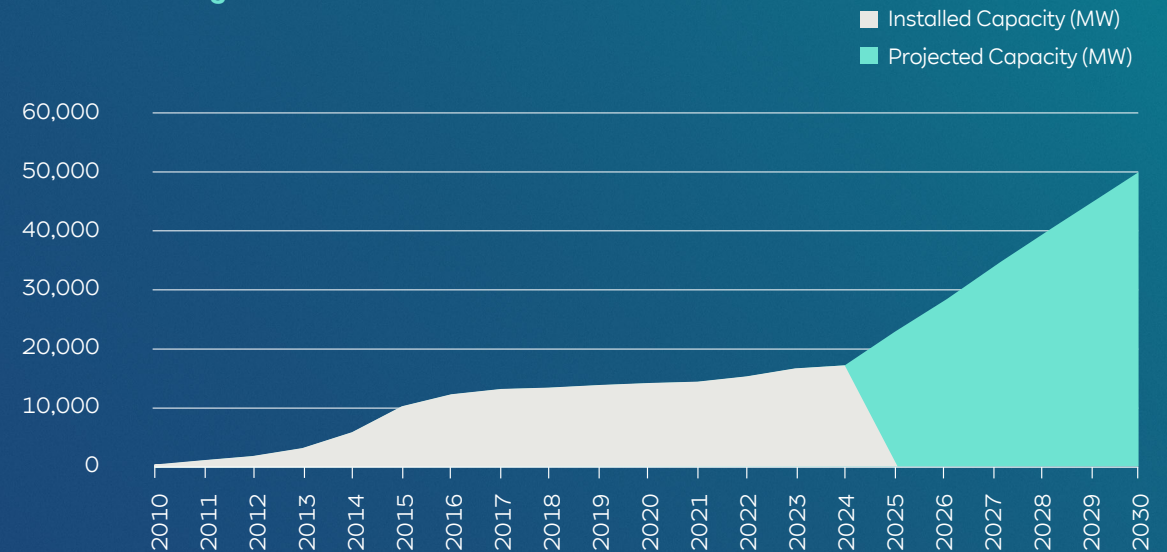
A critical role for solar farms in the UK's energy mix

The government has pledged to triple solar power by 2030 – based on installed solar capacity this would imply around 50 GW by 2030. This is broadly in line with the Electricity System Operator's (ESO's) central projections for the total amount of solar needed by 2050 to achieve net zero (between 85-90 GW).²

Today, the UK has 16.9 GW of solar installed, meaning we will need to build more than 5 GW of new solar every year between now and 2030 to meet the government's target.³ This is more solar than the UK has ever built in a year. It will not be possible to hit these rates of deployment with rooftop solar alone;⁴ industry trade body Solar Energy UK estimates at least 3.3 GW of new ground-mounted solar farms will be required every year, in addition to around 1.7 GW of rooftop.⁵

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2030 Solar Target



² National Grid ESO, Future Energy Scenarios: ESO Pathways to Net Zero, July 2024

³ Department for Energy Security and Net Zero: Solar Photovoltaics Deployment, July 2024

⁴ Solar Power Portal, UK on track to add 1.7 GWp-dc of solar PV in 2023, October 31 2023

⁵ Solar Energy UK, Solar achieves unprecedented capacity in CfD auction, September 2024





Solar farms are fast to build and provide clean, reliable electricity

Given the rapidly approaching deadline for clean power, large-scale (i.e. typically above 20MW) ground-mounted solar farms become even more attractive as a solution. Solar is a proven technology, one of the fastest renewable energy sources to build. Once construction begins, a typical solar farm can be operational within 9-12 months.

Solar farms are key to not only tackling the climate crisis, but also the cost of living and energy security crises. **The government's own analysis shows that large-scale solar is now one of the cheapest sources of electricity vs gas-fired generation.**⁶ Because solar farms provide home grown electricity, they are also helping to insulate the UK economy and bill payers from the uncertainty and dramatic price fluctuations we have seen in global energy markets since the invasion of Ukraine.

The addition of co-located batteries alongside solar, not only enhances utilisation of scarce grid resources, but also supports the balancing of supply so that solar generation can be stored and the energy can be used when it's needed most.

⁵ Department for Energy Security and Net Zero, Electricity Generation Costs 2023, November 2023
⁶ Carbon Brief, Factcheck: Is solar power a 'threat' to UK farmland?, August 2022

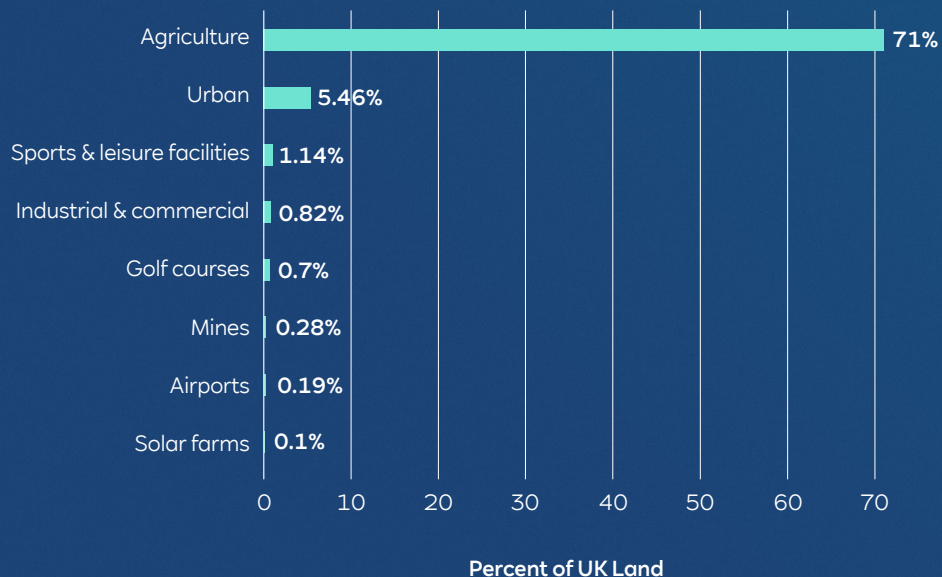


Solar farms currently occupy 0.1% of UK land and, at most, 0.5% of the UK would be needed for solar to reach net zero.

Solar supports British farming

Increasing electricity from solar farms and ensuring food security are not mutually exclusive endeavours. Solar farms currently occupy 0.1% of UK land and, at most, 0.5% of the UK would be needed for solar to reach net zero. By comparison, 0.7% of the UK is currently used for golf courses.⁷ Climate change, on the other hand, threatens the loss of up to 70% of the Best and Most Versatile farmland in the UK, according to the government's own research.⁸

UK Land Use by Category



The previous government formally acknowledged that solar farms and food production are not in conflict in the revised National Policy Statement for Renewable Energy, stating that 'solar and farming can be complementary, supporting each other financially, environmentally and through shared use of land'.⁹

The current government have taken this further, and at the time of writing is consulting on proposed changes to the National Planning Policy Framework¹⁰ to remove remaining ambiguity in planning guidance around the siting of renewable energy generation on agricultural land, requiring local planning authorities to give 'significant weight' to low carbon energy generation, and removing additional barriers to siting renewable energy projects on previously undeveloped land.

Solar farms also present an important revenue diversification opportunity for farmers, something the new NFU President, Tom Bradshaw, has publicly endorsed.¹¹ RWE alone is already directing £2 million every year into farm businesses through land rent payments, and this is only going to grow. This provides a vital source of income, and allows British farmers to continue farming on their most productive fields, at a time when income uncertainty and climate change are already impacting the viability of their businesses.

⁸ Defra: United Kingdom Food Security Report 2021

⁹ Department for Energy Security and Net Zero, National Policy Statement for Renewable Energy Infrastructure (EN-3), November 2023

¹⁰ Proposed reforms to the National Planning Policy Framework and other changes to the planning system July 2024.

¹¹ City A.M., Leading farming union defends solar panels from Tory attacks, August 2022



The reality is without this diversification
our business cannot survive



Case Study

Solar supports British farming

Byers Gill Solar Farm

Here's what Clare Wise, an award-winning cattle, sheep and arable farmer in County Durham, and RWE partner, had to say when we asked why she decided to set aside part of her farm for solar:

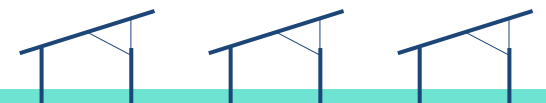
“

This isn't about us becoming rich. This is impossible with the economic conditions we're facing. Currently, farm incomes are barely minimum wage and are falling. Much is made of food production versus solar, but the reality is without this diversification our business cannot survive. As subsidies have been removed, input costs have skyrocketed, and climate impacts worsen, we've no option but to look to diversification. This really is an issue of survival for a mid-sized family farm like ours.

The solar project would only take up around 15% of my farm. That leaves the other 85% of the best and most productive land being used for food production. Plus, as we plan to use the land beneath the solar for grazing an extensive low input sheep flock, we are actually looking to increase livestock numbers and boost our food production even with putting solar on a portion of our land.”

Clare's situation is not unique. As developers, we hear this time and time again from the farmers we work with. Solar farms are not only making energy more affordable for everyone, they are keeping Great British produce on the shelves and providing UK farmers with more options to ensure the continued viability of their businesses.

A more detailed case study is available [here](#).





RWE is developing solar responsibly

At RWE, we own and operate every solar project we build. That's just one of many reasons why we're committed to responsibly developing projects that benefit the local community, the natural environment and that respect local heritage and the landscape: because we're in it for the long-haul.

We stand firmly behind the '11 Commitments' set out by Solar Energy UK¹², and we have gone even further with the publication of our Solar Developer's Charter which outlines 15 commitments for how we approach developing our solar farms across 4 key areas:



Good land management



Meaningful community engagement & benefits



Respect for local heritage & the environment



Responsible sourcing, respect for human rights & the environment

¹² Solar Energy UK, [11 Commitments on Solar Farms](#), 2022



RWE UK Solar Developer's Charter

Our 15 Commitments



Good land management

1. We will design all our projects to maximise biodiversity. We commit to delivering on average 50% habitat Biodiversity Net Gain across our solar farms.
2. We will seek to protect best and most versatile agricultural land wherever possible.
3. We will seek to ensure efficient use of available land and grid infrastructure by co-locating solar and battery storage wherever possible.
4. We will promote measures to improve soil quality across all our projects.
5. At the end of a project's life, we will responsibly decommission the project, ensuring the site's greenfield status is protected and can be returned to its original use.



Meaningful community engagement & benefits

6. We commit to regular and meaningful engagement with the local community throughout the development process.
7. We will provide a community benefit fund for the local community to support local initiatives that will make a lasting difference for residents.
8. We will support community health and wellbeing through the creation of new green spaces and green infrastructure such as permissive paths and picnic areas.
9. We will prioritise the use of local labour and contractors during the construction and operation of our sites.



Respect for local heritage & the rural environment

10. We will enhance and improve opportunities for public use and enjoyment of existing public rights of ways and create new permissive paths.
11. We will minimise the impact of traffic on the local community throughout the construction and operation of our projects.
12. We will minimise any potential impacts on local heritage assets and sites of archaeological significance.



Responsible sourcing, respect for human rights & the environment

13. We will ensure sustainable waste management and recycling practices throughout the construction, operation, and decommissioning of our projects.
14. We commit to upholding human rights and labour rights in accordance with national and international law. We take ethical business practice very seriously and have a zero tolerance policy to human rights violations.
15. We will work to drive forward the highest traceability and environmental sustainability standards across all our supply chains.

The Charter is available to read in full [here](#).



Case Study

Good Land Management

Raspberry Solar Farm

Situated to the west of Iwade, Kent, this solar farm has the capacity to produce sufficient renewable energy to fulfil the energy needs of more than 23,000 homes. Our planned environmental improvements include:



40 acres of wildflower meadows

New species-rich grassland, newt-friendly tussocky grassland around old drainage/attenuation ponds linked to the quarry, extensive wildflower meadows across the site and re-wilding.



Habitats

Management to ensure long-term botanical value, including the creation of native shrill carder bee habitat.



7km hedgerow and tree planting

Specific green corridors and new hedgerow and tree planting, promoting nesting and foraging for wildlife.



30+ bird nesting boxes

Bird nesting boxes and skylark enhancement areas.



Over 50 acres of enhanced wintering bird habitat

To support local populations of curlews, lapwings and golden plovers.



Animal access

Badger and small mammal friendly access gates built into the deer fence.



Grazing

Low intensity pastoral grazing to be used to manage grassland meadows in a natural and sustainable way.

Further environmental case studies from RWE solar farms is available [here](#).



Case Study

Community Benefits

Layne's Wood Solar Farm

Funding from the Layne's Wood Solar Farm Community Fund has allowed an array of exciting local projects to take shape. Projects that have been supported include:



Funding a new playground for the local primary school.



Supporting the local village hall with a grant for rooftop solar and energy efficiency improvements.



Providing grants for rooftop solar installation at a number of schools in the parish.



Funding the 'Bluebell Walk', a new footpath running through the parish.

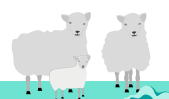


Supporting the local church to improve its accessibility for parishioners by installing facilities for those with disabilities.



Supporting the parish council in setting up a grant system to support local residents with improving the energy efficiency of their homes.

Our holistic, community-centred approach to community benefits meant that all of these important, locally developed projects could be realised and deliver lasting benefits for residents.





A blueprint for UK solar success

As a responsible developer, we are doing our part to deliver the government's net zero ambitions as sustainably as possible. However, success requires industry and government to work in partnership, and we are looking to government to work with us to deliver the reforms needed to further accelerate the deployment of solar farms.



Continued government backing for solar farms

Over the past year, the solar industry has continued to go from strength to strength, breaking installation records and delivering the fifth consecutive year of growth since the end of government subsidy support. However, we'll need to go further and faster if we're to meet the government's ambitious targets.

We have already seen decisive action from government to unlock additional solar deployment. For example, in July 2024 they increased the budget for the 6th Allocation Round of the Contracts for Difference (CFD) scheme, which led to a record of 93 contracts being awarded to solar farms, with a combined capacity of almost 3.3 GW, including 3 RWE solar farms totalling 110 MW.

The Solar Taskforce was also recently relaunched to strengthen the commitments in the forthcoming Solar Roadmap, which will set out important commitments from industry, government, and regulators to accelerate deployment.

In order to build on this, we would urge the government to publish a strengthened Solar Roadmap as soon as possible, setting out a clear pathway to achieving the 2030 targets, and to continue to publicly champion the mutual benefits solar farms can deliver for energy security, food security, and nature recovery. Such a Roadmap is essential for investors and companies like RWE to have the certainty they need to deliver capacity at pace.



Tackling grid delays

Lack of grid infrastructure remains the single biggest blocker to deployment of new low carbon power within the decade. There's not enough grid where it's needed¹³ and many projects are prevented from exporting power at certain times – even when it's sunny. Upcoming strategic planning of grid build out to 2030 and beyond by the National Energy System Operator (NESO) is therefore welcome to ensure enough grid is being delivered to connect renewables in line with 2030 targets.

There are also welcome additional initiatives by NESO to reduce the grid connection queue, which should ensure that projects which are both ready to connect and needed to hit 2030 targets are progressed in a timely manner.



A planning system that works for net zero

The planning system is second only to lack of grid infrastructure in slowing down the delivery of clean energy.

Local Planning Authorities have long been under resourced. All across the country, local authorities have faced real-terms funding cuts of almost 30% since 2010.¹⁴ This has led to a dramatic increase in the length of time it takes for renewable energy projects to receive planning consent.

The statutory timeline for major development applications is 91 days - however, only one in five applications are decided within this time¹⁵. When looking at solar farms, the waiting times are even longer: across the industry, projects are spending well over a year in planning, over 500% longer than the statutory timeline.

Solar farms are also being incorrectly refused planning permission much more often than other types of major development.

The average success rate of planning appeals nationally is around 30%, however for solar farms this rises to 80%. On average, appealing a planning decision often takes a year or more, adding further costs which ultimately increases the cost of electricity to the consumer.

We therefore urge decisive action to streamline the process for projects gaining approval through the Nationally Significant Infrastructure Planning (NSIP) process, and we welcome the government's first steps to do this in a recent consultation¹⁶. Above all, we would urge the government to ensure the Planning Inspectorate, local planning authorities, and statutory consultees are properly resourced to deliver planning decisions within statutory timelines. To this end, stronger financial incentives are essential to enable these institutions to attract and retain the experienced officers and inspectors they need.

¹³ Solar Energy UK, MPs to be told grid delays are descending into farce, February 2024

¹⁴ Local Government Association, Save local services: Council pressures explained, 2023

¹⁵ <https://www.gov.uk/government/consultations/an-accelerated-planning-system-consultation/an-accelerated-planning-system#accelerated-planning-service>

¹⁶ 'Proposed reforms to the National Planning Policy Framework and other changes to the planning system' July 2024.

Discover how RWE is delivering solar across the UK



uk.rwe.com/solar

