

Assessing ground-mounted solar applications



Guidance for local planning authorities in England



Aim of this guidance

Planning plays a crucial role in delivering a clean, secure and affordable energy system, as well as unlocking the wider benefits of energy projects, such as job creation and economic growth. It enables projects to move from proposal to reality while ensuring that potential negative impacts are minimised or mitigated against and benefits are maximised for communities and the environment.

However, local planning authority officers are under increasing pressure, with resourcing challenges intensifying the difficulty of assessing the growing number of applications for clean energy projects.

This guide is intended as a practical tool to support local planning authority officers in England in assessing planning applications for ground-mounted solar farms. It is also relevant to planning committee members, statutory bodies, consultants, developers and individuals wanting to understand the process, and it touches on the role of local planning authorities in the Nationally Significant Infrastructure Project regime for projects with a generating capacity over 100 MW.

It is not a formal planning policy or statutory guidance and does not replace the National Planning Policy Framework, Planning Practice Guidance, local development plans or National Policy Statements. Instead, it provides an overview of the key considerations specific to solar developments and sets out the factors that typically arise, to help support consistent, evidence-based decisions that draw on professional judgement and reflect local context.

How to use this document

- Use alongside the published [National Planning Policy Framework](#)¹ and [Planning Practice Guidance](#)
- Use as a reference during pre-application discussions with developers to identify potential issues and solutions early
- Consult when reviewing planning applications to ensure all relevant factors – policy, technical, environmental, social and economic – are considered.

Other resources in the series

Similar guidance is available for assessing:

- Onshore wind farms
- Battery energy storage systems
- Electricity network infrastructure.

1. References to the NPPF in this guidance refer to the December 2024 version of the NPPF, available [here](#). A draft updated NPPF was published for consultation in December 2025, and once published, this guidance documented will be updated to reflect any policy changes.

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01

The UK government's approach to solar

UK government approach to solar

The UK government strongly supports ground-mounted solar farms as a key part of decarbonising the country's energy sector. [The Clean Power Action Plan](#), published in 2024, calls for the rapid acceleration of solar deployment to 45-47 GW by 2030, with scope to exceed this, subject to system need, noting the potential of rooftop solar to boost deployment. As of December 2025, the UK had 21.5 GW² of solar generation capacity installed, meaning significant deployment of new solar will be required to meet this target.

Beyond 2030, ground-mounted solar farms will continue to be developed, helping to meet the UK's legally binding commitment to achieve net zero greenhouse gas emissions by 2050,³ as well as supporting a cheaper, more secure supply of energy for UK consumers. Planning decisions must recognise this context and weigh local impacts alongside these national considerations.

Technological changes

Technological improvements in recent years have driven an increase in solar panel conversion efficiency (the amount of light converted into electricity) from 15% to over 24%, meaning that newer solar farms can generate more electricity within the same area. Improvements in efficiency are likely to continue as technology evolves. In addition, the use of rotating or tracking mounts (both single axis and double axis) on solar farms can increase annual electricity generation by approximately 10% to 25% compared to fixed-tilt systems.

Ground-mounted and rooftop solar PV

As well as ground-mounted solar farms feeding electricity into the grid, the UK has significant levels of rooftop solar generation supplying households and businesses directly, with excess electricity stored onsite or exported to the local grid. While this can reduce household and business bills and use space efficiently, ground-mounted solar farms can generate electricity at a much larger scale. Although they only make up 0.03% of the 1.8 million solar installations in GB (total, including rooftop), ground-mounted solar farms over 5 MW account for 41% of all [installed solar capacity](#). Alongside onshore wind, this is one of the cheapest forms of electricity generation to build and operate at scale, with costs having [fallen by 50% since 2016](#).

The deployment of both ground-mounted and rooftop solar PV will be important for meeting the UK's targets for a clean, affordable and secure energy system.

UK Solar Taskforce

The UK Solar Taskforce was reestablished in 2024, bringing together government, industry and regulators to drive development in rooftop and ground-mounted solar. In 2025, its recommendations were published as the UK [Solar Roadmap](#), setting out actions to grow these sectors, support new skills and jobs, and strengthen UK supply chains. These actions included updating planning policy in England to support the rapid increases in deployment needed to meet our ambitions, and improving resourcing for local planning authorities through increased funding and training.

2. DESNZ, 2025. [Solar photovoltaics deployment](#), this includes both rooftop and ground-mounted solar

3. [Climate Change Act 2008](#)

Great British Energy

Great British Energy (GBE) is the UK's publicly owned national energy company, launched in May 2025 to accelerate deployment of clean power, including solar PV. It invests directly in renewable projects, supports community and local-authority-led schemes through funding and expertise, and develops new publicly owned onshore renewable assets, often on public land. In 2025, Great British Energy rolled out funding for rooftop solar panels on around 250 schools, 260 NHS sites and 15 military sites. For local planning authorities (LPAs), this means GBE may appear as an applicant, partner or funder for future projects.

The Strategic Spatial Energy Plan

The [Strategic Spatial Energy Plan](#) (SSEP) is Great Britain's first long-term, whole-system blueprint for future energy infrastructure. It will identify the optimal mix, scale and broad geographic distribution (not site-specific locations) of electricity generation, storage and hydrogen infrastructure required to meet future demand and net-zero targets.

The SSEP is being developed by the National Energy System Operator (NESO) on behalf of the UK, Scottish and Welsh governments.

Current indicative timescales are:

- Summer 2026: Pathway options submitted to ministers
- Early 2027: Public consultation on draft plan
- Autumn 2027 (subject to change): Final plan publication.

The SSEP will align with other strategic planning tools, including the [Centralised Strategic Network Plan \(CSNP\)](#) and [Regional Energy Strategic Plans \(RESPs\)](#). The overarching National Policy Statement (NPS) for Energy (EN-1) confirms that the SSEP should be considered by the Secretary of State when making decisions on Nationally Significant Infrastructure Project (NSIP) applications, once endorsed by all relevant governments. The NPS will also endorse the needs case for strategic parameters of transmission infrastructure recommendations in the CSNP, so the Secretary of State will take the need case for these projects as established when making decisions on NSIPs. For more information on the NPS, see the section: National Policy Statements, [page 29](#). The SSEP is not currently integrated into the Town and Country Planning Act regime.

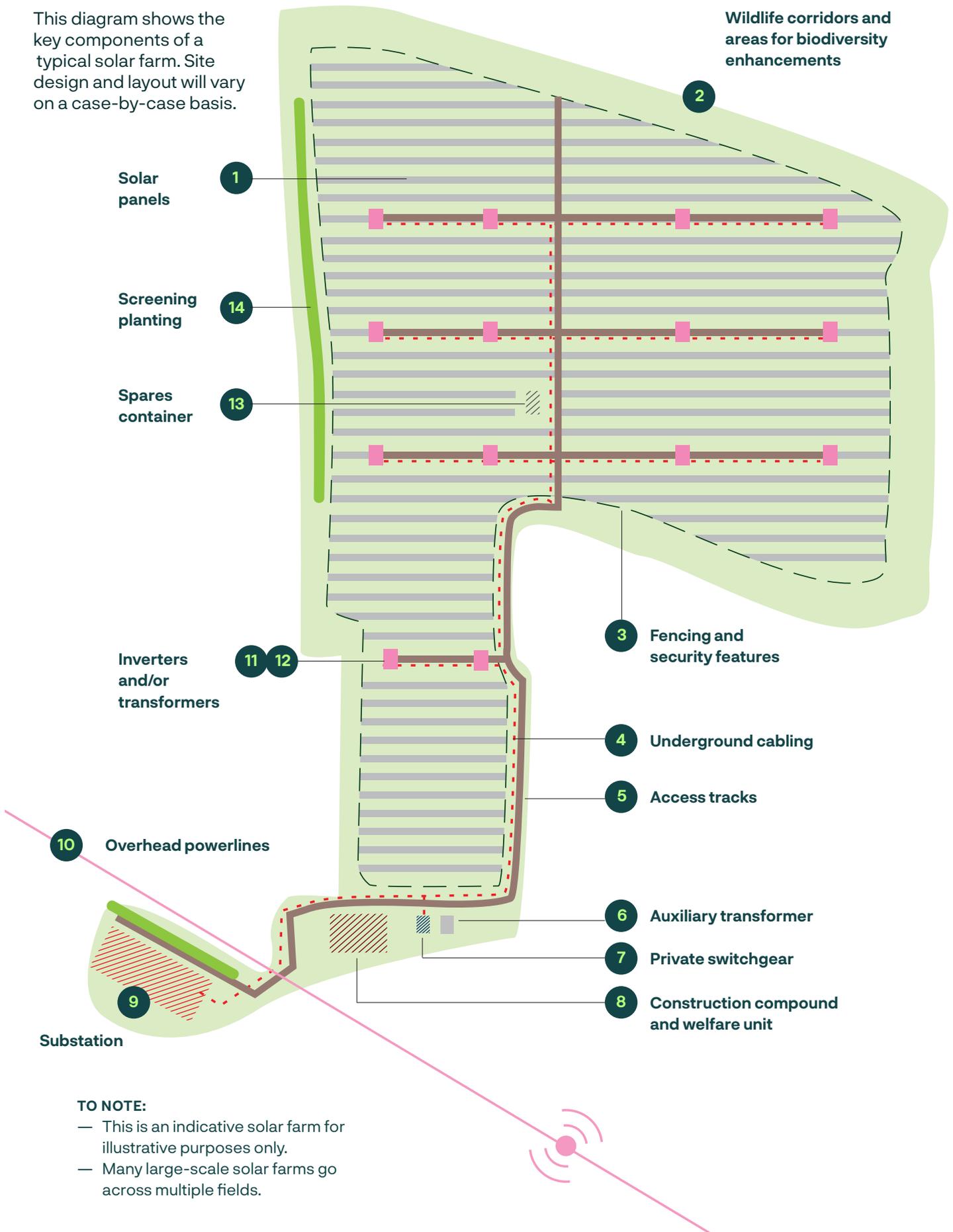
02

Overview of solar farms



What does a typical solar farm look like?

This diagram shows the key components of a typical solar farm. Site design and layout will vary on a case-by-case basis.



TO NOTE:

- This is an indicative solar farm for illustrative purposes only.
- Many large-scale solar farms go across multiple fields.

Key

- 1. Solar panels**

Panels are laid out in rows with gaps between them to prevent shading and allow access for maintenance and continued agricultural use of the land. They are typically 1.5–3m tall and are dark in colour to absorb sunlight, rather than reflect it. Panels may be single- or double-axis trackers, which move throughout the day to maximise generation, or fixed tilt.
- 2. Wildlife corridors and areas for biodiversity enhancements**

Many solar farms include areas to deliver biodiversity net gain and wider environmental benefits. These areas do not need to be limited to the periphery of the site and can also be incorporated within the site layout, including between and underneath rows of solar panels, where appropriate.
- 3. Fencing and security features**

Protect the solar panels, may include security cameras and lighting. Deer fences may be used to enclose panels, while palisade fencing may be used around substations and any co-located battery infrastructure.
- 4. Underground cabling**

Transports electricity from inverters to the substation.
- 5. Access tracks**

Allow construction and maintenance vehicles to access the site, generally permeable.
- 6. Auxiliary transformer**

An ancillary power supply that powers the substation lights and essential supplies including CCTV, operational technology and comms so the site can still be remotely controlled if the power is lost. May be sited in a substation compound.
- 7. Private switchgear**

Connects the DNO substation to the site. The main cables from all of the solar arrays run into this building, then there is one singular cable between the private switchgear and the DNO substation. This allows developers to control the site, including switching power on or off, and reducing or increasing the output as required. May be sited in a substation compound.
- 8. Construction compound and welfare unit**

Temporary, during construction only.
- 9. Substation**

Electricity from the solar farm is increased to a higher voltage using a transformer, enabling it to travel more efficiently on the grid. Transformers may also be located alongside panels and inverters. The substation also contains safety and metering equipment to monitor energy generation from the site. A substation compound is only required for higher voltage connections (i.e. 132 kV upwards); lower-voltage connections may use a smaller substation building within the site's fence.
- 10. Overhead powerlines/grid connection**
- 11. Inverters**

Convert the electricity generated by solar panels from DC to AC, the electrical current used on the grid. Solar farms may use string inverters, which are small boxes located at the end of every few rows of solar panels, or centralised inverters, which are housed in larger freestanding cabinets on concrete pads at several points across the site.
- 12. Transformers**

These are located in the same standalone boxes as centralised inverters, regardless of which type of inverter has been used. If string inverters are used, the standalone boxes are still present on site, but only contain transformers.
- 13. Spares container**

A shipping container or cabinet housing spare parts, spare solar panels and tools for maintenance.
- 14. Screening planting**

Native trees and hedges may be planted to screen the site from landscape and visual impact where existing vegetation is not sufficient and/or for biodiversity enhancements or ecosystem services provision.

Further technical information

The amount of energy a solar farm generates depends on several factors. Different types of solar panel may vary in size and efficiency, and bifacial panels have cells on both sides, which can increase generation. The design of the frames used to mount panels can also vary. The optimum angle for a solar panel to generate electricity changes with the position of the sun on a daily and seasonal basis. While some frames keep panels fixed at an angle designed to optimise energy generation over the whole year, others can be adjusted seasonally to increase electricity generation in different periods.

Solar tracking frames can be used to adjust the position of panels throughout the day, keeping them aligned with the sun. Single-axis tracking or rotating frames are used to adjust the angle of the panel either horizontally or vertically, while double-axis frames are used to adjust both angles, allowing even greater optimisation. These frames can increase electricity generation and reduce land requirements but involve additional costs and maintenance.

Battery Energy Storage Systems (BESS) may be co-located with ground-mounted solar farms. This can allow excess electricity generated during the middle of the day to be stored and exported onto the grid at times of lower generation but higher demand, such as in the evening. This can increase revenues for the owner of the solar farm while also helping to balance the supply of renewable electricity with demand on the network.

For applications requiring consent under the Town and Country Planning Act (TCPA) regime, the responsibility for connecting new ground-mounted solar farms to the grid rests with the network companies rather than developers. Network operators have a statutory duty to ensure supply, determine what infrastructure is required and secure any necessary consents before constructing the required infrastructure. Sometimes underground cable routing requires planning permission through the TCPA or NSIP regime, sometimes it falls within Permitted Development Rights, and sometimes it can be consented under the Electricity Act 1989.

Fact check



To maintain energy generation, solar panels may need to be cleaned periodically, usually biannually or annually. Some objections to solar farms suggest that harmful cleaning chemicals risk damaging the environment. However, most of the time cleaning can be done using only water, as part of manual, mechanical or automated maintenance. If lichen or other tough debris becomes established, chemicals may be needed, although regular cleaning can help prevent this. If chemicals are required, operatives require specialist training and care must be taken to ensure chemicals do not invalidate panel warranties. It's important that chemicals are biodegradable or are managed to avoid harmful environmental impacts. This issue can be addressed using planning conditions. For more information on solar farm operation and maintenance, see [Solar Power Europe's Operation & Maintenance: Best Practice Guidelines](#).

The life cycle of a solar farm



Role of LPAs

Throughout this guidance, the role of local planning authorities in different stages of the planning process will appear in boxes like this one. Planning officers may be familiar with this information, but it is included to provide useful context for wider audiences.

Ground-mounted solar farms follow a predictable life cycle, but the points of interaction with LPAs vary across stages. These are outlined in the following table, with further detail below. The following refers to LPA responsibilities for applications under the TCPA (these are projects with a generating capacity of up to 100 MW, although a project below this threshold may also be directed into the NSIP regime under section 35 of the Planning Act 2008). Requirements for engagement may differ for larger projects. Information is also provided below on developer activities, which sets out likely tasks developers may undertake to progress their project at each stage.

Table 1: **LPA involvement in the life cycle of a solar farm under the Town and Country Planning Act regime**

Stage	LPA involvement
1. Early feasibility and site identification	Potential early discussions on site/ infrastructure identification. Engagement with developers to influence siting decision by reference to any areas identified in the Local Development Plan.
2. Early community engagement	Encouraged, advisory only in England
3. Pre-application discussions	Potential major advisory role (pre-app consultation)
4. Planning application	Central role – assessment & decision Publicity and consultation (minimum of 21 days)
5. Post-permission discharge of conditions and post-permission amendments	Condition discharge and determination of amendment application(s)
6. Construction	Monitoring and enforcement of relevant planning conditions
7. Operational life of the solar farm	Compliance/enforcement
8. Repowering or life-extension (possibility)	For repowering, full determination of the new planning application. For life-extension, determine amendments.
9. Decommissioning	Condition enforcement and site restoration

1. Early feasibility and site identification

Developer activities

- Site selection is guided by policy and physical constraints, including technical, financial, environmental and planning considerations. These include (but are not limited to) timing and capacity of local grid connection (which is very constrained across the UK), irradiance levels, land availability, topography, agricultural impacts and construction site accessibility e.g. for deliveries of solar panels and access of construction vehicles. See [Solar Energy UK's factsheet on site selection](#) for further information.
- High-level desktop studies to explore site considerations
- Conduct discussions with landowner and agree an option agreement: a contract between the landowner and developer which reserves the land for an agreed period of time or is subject to conditions, allowing the developer to conduct further feasibility assessments and enter into a lease once planning permission has been granted.

Role of LPAs

- LPAs may consider allocating suitable areas for renewable and low-carbon energy sources in their local development plan. In doing so, LPAs should consider the appropriateness of the site for energy generation considering a range of factors such as protected habitats and species, protected landscapes and other environmental features. They may also choose to invite developers and other interested parties to submit information about potential land to identify in Local Plans through a call for sites. Developers may review Local Plans and Supplementary Planning Documents in their site selection process.
- Understand the range of factors that developers take into consideration when choosing a site. This will help planners assess whether proposals are appropriately sited and justified.



Planner tips

1. Where sites have been allocated as suitable for solar farms in a Local Plan, this is not wholly determinative of applications on other sites within the Local Plan area. While an application for a solar farm on a site that has not been allocated for this purpose may amount to a conflict with the relevant section(s) of the Local Plan's spatial strategy, this conflict may be outweighed by other material considerations such as the significant weight to be given to the benefits associated with renewable and low-carbon energy generation and the proposal's contribution to a net zero future.
2. The availability of a grid connection is often the leading decision-making factor for developers when determining project locations. Siting projects close to points of connection is essential to reduce electrical losses and make projects financially viable. In recent decades, investment in the grid has not kept pace with the build-out of new electricity generation projects. This means that a viable grid connection is a key constraint for where solar farms can be developed.



2. Early community engagement

Developer activities

- Share initial ideas with local stakeholders, including local residents
- Host information events, potentially through attending existing community events
- Begin conversations about potential community benefit fund arrangements with local community members. Planners should note that community benefit funds are not a planning consideration and are often delivered on a voluntary basis, secured by a legal agreement outside of the planning process.

Role of LPAs

Non-statutory but valuable. LPAs may:

- Encourage developers to undertake early engagement with relevant stakeholders as good practice
- Provide developers with high-level guidance on local policy expectations
- Signpost community groups or parish councils for developers to engage with.

For more information, see the section: Community engagement, [page 21](#).

3. Pre-application discussions

Developer activities

- Seek early advice on proposals from the LPA and relevant statutory consultees
- Establish potential concerns/policy conflicts and work with LPA to identify suitable mitigation
- Discuss key project parameters including scale, principle of development, key constraints and list of expected supporting documents with the LPA in line with validation requirements
- Agree with the LPA the scope and type of environmental studies and assessments that will be required, ensuring they are proportionate to the scale and potential impacts of the proposal
- Share draft layouts and initial environmental survey results with the LPA, including for Biodiversity Net Gain (BNG) and, if applicable, Environmental Impact Assessment (EIA) and Habitat Regulations Assessment (HRA). Not all solar farms will require an EIA or HRA. Where they are relevant, developers may request a screening and/or scoping opinion.
- Share any feedback from community engagement.

Role of LPAs

- Provide developers with pre-application advice on planning policies, acceptability of principle of development in chosen location, expectations and local sensitivities
- Agree with the developer the scope and type of environmental studies and assessments that will be required, ensuring they are proportionate to the scale and potential impacts of the proposal, noting that additional studies may be requested later as evidence emerges.
- Identify key consultees (e.g. landscape, heritage, ecology, highways, noise, trees and woodland) and facilitate engagement with these consultees where appropriate. For more details see the section: Role of statutory consultees, [page 30](#).
- Set out application requirements, in line with validation requirements, and likely timescales
- Potentially attend site visit

- If requested, statutory function to issue EIA/HRA screening and/or scoping opinions within statutory timeframes, consulting with relevant statutory bodies and internal experts to determine what topics and information should or should not be included. For planning applications under the TCPA regime, the Environmental Impact Assessment (EIA) process is governed by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Proposals that constitute EIA Development, defined in the 2017 Regulations as Schedule 1 development; or Schedule 2 development likely to have significant effects on the environment by virtue of factors such as its nature, size or location, will not be granted planning permission unless an EIA has been carried out in respect of that development. Many solar farm planning applications do not require EIAs. [PPG on Environmental Impact Assessment](#) provides more information.
- If the proposal is considered likely, individually or in combination with other plans or projects, to have a significant effect on a site protected under the Conservations of Habitats and Species Regulations 2017 (as amended) or 'habitats regulations', an appropriate assessment of the implications for the site, in view of the site's conservation objectives, must be undertaken. These sites include Special Areas of Conservation (SACs) (including proposed SACs), Special Protection Areas (SPAs) (including potential SPAs) and Ramsar sites (wetlands of international importance). For further details, refer to government guidance on [Habitats regulations assessments: protecting a European site](#).
- If an EIA is required, developers must submit an environmental statement alongside their planning application, setting out the likely environmental impacts of their proposed development. They must also propose measures to address these impacts in accordance with the mitigation hierarchy, which prioritises avoiding, minimising, mitigating and compensating for harm, in that order. If an HRA is required, developers will submit information to support the LPA in producing the HRA.

Planner tips

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1. Early engagement with developers is important in setting expectations for requirements, avoiding an ongoing back and forth and preventing delays.
 2. At this stage, it is useful to consider entering into a [Planning Performance Agreement \(PPA\)](#), particularly for large or complex schemes. For more information on PPAs, see the section: Planning routes for ground-mounted solar farms, [page 22](#).

4. Planning application

Developer activities

- Submit the full planning application with an appropriate suite of supporting documents and plans to support the LPA with determination
- Continue community dialogue
- Engage with the LPA and its consultees to respond to queries/address issues raised.



Role of LPAs

- The LPA will carry out its statutory responsibilities, including validating the application, undertaking consultation, assessing compliance with policy and legislation, and determining the application (with any necessary conditions or legal agreements).

For more details on planning conditions, see the section: Typical planning conditions for solar farms, [page 52](#).

5. Post-permission discharge of conditions and post-permission amendments

Condition discharge can occur in multiple stages and may continue into the construction phase. There may be post-decision amendments (Non Material Amendments and s73 applications).

Developer activities

- Submit details to discharge conditions (e.g. submission of final site layout plans as well as any required environmental and/or construction traffic management details)
- Obtain additional licences and permits if required (e.g. protected species licences and S278 highways agreements)
- Any required trial trenching (this should be proportionate and can sometimes occur pre-determination, for more details see the section: Heritage and archaeology, [page 46](#))
- Submit any post decision amendment application(s) to regularise differences between approved plans and construction plans or to amend the wording of conditions.



Role of LPAs

- Post-decision processes which may include determining condition discharge submissions.

6. Construction

Developer activities

Construction should be carried out in compliance with applicable planning conditions. The process includes the following stages:

- Manage deliveries of track material, panels and associated infrastructure
- Install temporary construction compound and welfare unit (usually permitted development under Class A of Part 4 of Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order 2015), access tracks and fencing
- Grid connection works start; often before 'main' construction phase especially for higher voltage connections where a substation compound is required rather than a smaller standalone building
- Pour foundations, undertake required groundworks and install cable trenches
- Implement appropriate soil management practices to protect soil structure, quality and long term agricultural productivity
- Undertake piling for frames, install panel frames, solar panels, inverters, substation and security features such as cameras and lighting
- Work with the Distribution or Transmission Network Operator to energise the solar park
- Ensure protection of retained trees and hedgerows throughout construction, including adherence to agreed tree protection zones and buffers in line with relevant standards
- Install landscaping features. Landscape planting should be undertaken at an appropriate time (usually by the end of the first planting season following the commencement of construction/energisation, but this will be site specific).
- Demobilise site, whilst maintaining ongoing communication with communities.



Role of LPAs

- Monitor and enforce compliance with approved plans and conditions.

7. Operational life of the solar farm

Developer activities

- Comply with compliance conditions, i.e. landscape management, access arrangements, lighting restrictions and noise limits, etc
- Maintaining equipment, including cleaning inverter and combiner boxes and solar panels. Panel cleaning undertaken as required to prevent dust, pollen or other debris reducing energy generation.
- Monitoring inverters and panels to identify faults and making repairs or replacing components when necessary. The large number of components at a solar farm means some faults are likely, even when components are of a high standard. Spare parts may be stored onsite. While modern solar panels have a commercial life of up to 30 years with an acceptable level of output degradation, the life of inverters is shorter, often around 15 years. It is normal for all inverters to be replaced at least once in the lifetime of a solar farm.
- Provide a community benefit fund if agreed (currently voluntary)
- Continue to engage with the local community where appropriate.



Role of LPAs

- Monitoring and enforcement of planning conditions.

8. Repowering or life- extension (possibility)

Developer activities

- Assess end-of-life options and submit a new planning application if repowering or extending the life of existing panels
- Repowering is treated as a completely new application and therefore steps 1-8 would be repeated. Any ongoing commitments for managing Biodiversity Net Gain should be considered.



Role of LPAs

- Determine repowering or life-extension application, with significant weight given to the benefits of utilising an established site as per the NPPF (for further details see the section: Decommissioning, repowering and lifetime extension, [page 49](#).)

9. Decommissioning

Decommissioning of projects is typically a planning condition outlined when a project is granted planning consent. This will require the developer to create a decommissioning plan prior to decommissioning taking place.

Developer activities

- Remove above ground infrastructure including panels, frames, inverters and fencing. Underground infrastructure, including cabling and foundations, may be removed or left in-situ, depending on planning conditions and agreements with landowners. Access roads and landscaping may be removed or left in-situ, depending on agreements with landowners and planning status. Site restoration conditions, protection of any ongoing Biodiversity Net Gain management and soil management should be considered.
- Follow the decommissioning/restoration plans secured via planning conditions (including further habitat restoration and rehabilitation following removal of infrastructure)
- Reuse or recycle inverters and panels in line with relevant regulations and ideally following the waste hierarchy. Panels have worthwhile quantities of silver and aluminium that can be recycled at a suitable facility, the rest is mainly silicon and silicon oxide that is crushed and used in aggregates.



Role of LPAs

- Ensure compliance with decommissioning and restoration conditions.

Benefits of solar farms

Solar farms can bring a range of environmental, social and economic benefits. Aside from community benefit funds, most other benefits should be considered as part of the planning balance.

1. Climate change mitigation

Generating low-carbon electricity contributes to national net zero, climate change and carbon-reduction objectives. Paragraph 161 of the NPPF states that “the planning system should support the transition to net zero by 2050” and “should help to... support renewable and low-carbon energy and associated infrastructure”.

2. Energy security and system resilience

Renewable generation reduces reliance on imported fossil fuels. This aligns with UK government aims for a secure, diverse and resilient energy mix and can be considered positively in the planning balance. Paragraph 001 of [Planning Practice Guidance \(PPG\)](#) for renewable and low-carbon energy states that “increasing the amount of energy from renewable and low-carbon technologies will help to make sure the UK has a secure energy supply”. Ground-mounted solar is one of the cheapest and fastest forms of renewable energy to deploy at scale, with costs having fallen by around 50% since 2016 and some large-scale projects taking as little as [one year to install](#).

Fact check



Although solar generates more energy in spring and summer than autumn and winter, it doesn't require direct sunlight to function and continues to produce energy all year round, including on cloudy days with panels working more efficiently at cooler temperatures. In 2025, solar PV generated 6.3% of GB's energy, meeting a record [43% of demand](#) at 12.30pm on 8 July. Battery energy storage systems can be co-located with solar sites and used to store energy generated during the day for use on the grid at times of peak demand, including in the evening. They can also provide stability services to the electricity grid through the ancillary electricity markets, reducing electricity network costs for consumers and increasing energy security.

3. Local economic benefits through employment

Direct socio-economic benefits arising from a proposed development – such as jobs created during construction and operation, skills development and local supply chain activity – are distinct from community benefit funds. These direct, tangible benefits, linked specifically to the physical development itself, can be considered material planning considerations. Economic benefits should be clearly demonstrated to carry weight in the planning balance.

The UK Solar Roadmap estimates that solar deployment could support up to 35,000 jobs in GB, directly and indirectly, by 2030, up from c.17,000 in 2025.⁴

4. DESNZ, 2025. [UK Solar Roadmap](#), page 19, refers to jobs across the whole solar sector, including rooftop solar as well as ground-mounted solar

4. Ecological enhancements and biodiversity net gain

Habitat enhancement, species protection, and biodiversity improvements may be material considerations, as they relate directly to environmental outcomes. Research has shown that during their operation, solar farms can have significant positive environmental impacts, a benefit recognised in paragraph 2.10.81 of EN-3. As only a small proportion of land at a solar site is disturbed by infrastructure, remaining land can support plant growth and habitats for pollinators, birds and other wildlife. However, these impacts on biodiversity and wildlife will depend on baseline land use, site design and management and integration with the wider landscape and ecological networks. Ecological enhancements and biodiversity benefits are not automatic when developing a solar farm and should be assessed and designed on a site-by-site basis.

A 2025 study by [the RSPB and University of Cambridge](#) found that solar farms in East Anglia supported a higher number of birds and bird species than surrounding arable farmland. [Solar Energy UK reports](#) annually on ecological monitoring of botany, invertebrates, birds, mammals and soils across a range of solar farms in the UK, providing evidence that solar farms can support biodiversity.

Both reports have found that site design and management regimes affect the level of biodiversity at sites, and environmental enhancements will vary on a case-by-case basis. To maximise the positive impacts of solar farms on biodiversity, developers may wish to follow [best practice guidance](#) from Solar Energy UK throughout the lifecycle of the project. Good ecological practices for site design include identifying and protecting existing areas of high biodiversity on the site, including gaps in fencing to allow small and medium mammals to access the site and creating areas for habitat enhancement.

Many solar sites implement a biodiversity management plan to support ecological enhancement and biodiversity net gain, especially since the introduction of mandatory Biodiversity Net Gain (BNG). Although solar farms applying for planning permission through the TCPA regime are required to achieve at least 10% BNG, many solar farms deliver significantly higher gains, providing a significant benefit from the development. For more information, see the section: Wildlife and biodiversity impacts, [page 37](#).

5. Improved site access and recreation provisions

Solar farms may improve access to a site through the development or enhancement of permissive routes and public rights of way. This can weigh in favour of the scheme, although impacts on site access and recreation can be negative as well as positive and should be considered on a case-by-case basis.

6. Community benefit funds and educational opportunities (not a planning consideration)

It is now common for solar farms to provide community benefits, for example through funds, local bill discounts or shared ownership. There is well-established case law which confirms that community benefits of this nature are not a material consideration and under government guidance, voluntary community benefits offered by developers must not influence the planning decision. The Newbury criteria, set through case law,⁵ determine if a planning condition could be lawfully attached to a planning permission and taken into account as a material consideration. Under these tests a planning condition must be reasonable, imposed for a planning purpose, and relate to the development. Community benefits do not fall within this well-established definition and therefore cannot be a material consideration.

Community benefit arrangements can proceed in parallel to the planning application and development of the site, but they do not form part of the material planning considerations. Such offers tend to be made to the local parish council(s) and are offered irrespective of their support or otherwise for the application.

In addition to community benefit funds, developers may provide other types of community benefits. For example, solar farms may also install information boards or collaborate with schools or other social groups to provide [educational opportunities](#).

Examples

The approved planning application for Doverdale solar farm included a proposed outdoor classroom to support local school children in learning about sustainability. In July 2025, Cleve Hill Solar Park [hosted a visit](#) from a local primary school to teach children about solar energy and the wildlife that uses the site, including badgers, water voles, frogs and eels.

5. Newbury District Council v Secretary of State for the Environment [1981] AC 578; R (on the application of Wright) v Resilient Energy Severndale Ltd and Forest of Dean District Council [2019] UKSC 53

Community engagement

Community engagement is a key part of the planning process. Before submitting their planning application for a ground-mounted solar farm, developers are encouraged to undertake a pre-application consultation with the local community. Developers should publicise the development in a way that will bring it to the attention of the majority of people who live in the vicinity of the proposed location and should allow the local community to comment on the proposed development.

When finalising their application, developers should have regard to any responses to their consultation. When submitting, they should explain how they consulted with the local community, what comments they received and how they took these into account.

What to look out for

- We recommend developers to review Solar Energy UK's guidance document: [Community Engagement Good Practice Guidance](#). This document outlines how developers can engage with communities during the stages of pre-application consultation, construction, operation and at the end of the project.
- We also recommend reviewing Regen's [guidance on best practices for community engagement](#), which emphasises the importance of engaging proactively, including with opposition groups, and encouraging the 'silent majority' to show support. For ground-mounted solar farms, coordinated opposition groups often dominate the discussion, even though solar is the most popular form of renewable energy; 86% of people in the UK support solar energy⁶ and only 14% say they would be unhappy to have a solar farm built in their local area.⁷ Early, transparent and factual communication can help address common concerns early in the process.

Role of LPAs

- Responsible for carrying out statutory consultation and publicity in line with legal requirements, ensuring that public comments are properly recorded and considered in the decision-making process. It is also good practice to review the developer's consultation report to understand the approach taken and whether it aligns with recognised best practice. Where engagement appears limited, further clarification or evidence may be sought.
- Early dialogue between the LPA and the developer on engagement expectations can help improve the quality of consultation and address potential issues before an application is submitted. LPAs may also wish to share local insights, such as community organisations, parish councils, and hard-to-reach groups, to support inclusive engagement.

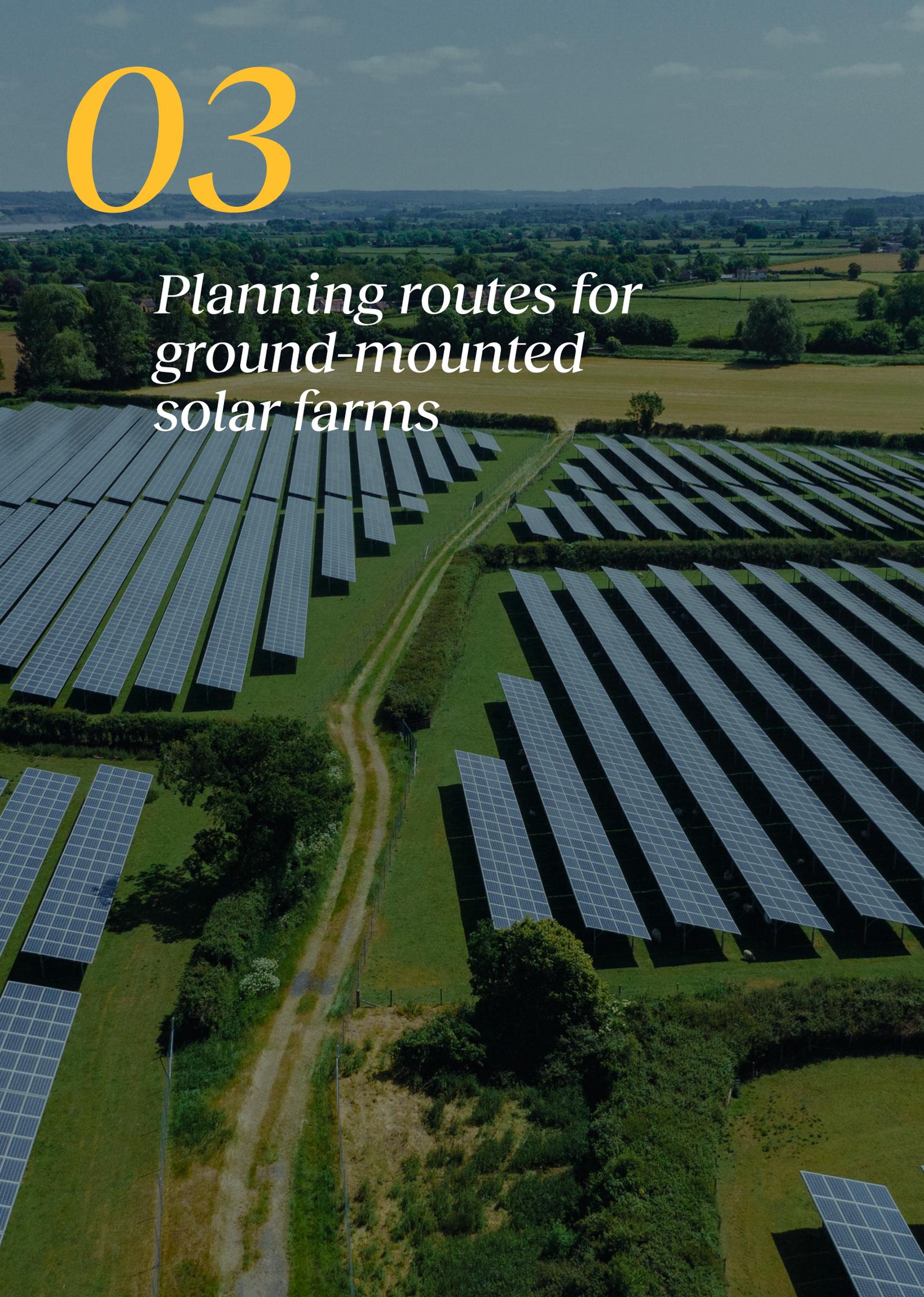


6. DESNZ, July 2025. [DESNZ Public Attitudes Tracker: Renewable energy, spring 2025, UK](#)

7. DESNZ, October 2025. [DESNZ Public Attitudes Tracker: Renewable energy, summer 2025, UK](#)

03

Planning routes for ground-mounted solar farms



In this section

Ground-mounted solar farms vary widely in size, ownership model and planning route. The level of LPA input varies depending on the planning route taken, as set out below.



Planner tip

Solar panels generate electricity as Direct Current. This is later converted to Alternating Current by an inverter for use on the grid. Export capacity refers to the maximum amount of electricity that can be exported from the inverters to the grid from a site at any given time. Installed capacity refers to the total capacity of the installed solar panels and is sometimes referred to in Megawatt Peak (MWp). If, as is likely, the installed capacity is greater than the export capacity, this is referred to as 'overplanting'. For details on how this is considered in the planning system, see

Small-scale solar farms

Typical characteristics

- Capacity is less than 5 MW
- Could be used to power a farm or business
- Could be a community energy project, with energy and/or revenues being supplied to local people and community projects.



Role of LPAs

- Some local policies include specific support for small-scale or community owned energy projects.

Projects up to 100 MW

As of 31 December 2025, following the Infrastructure Planning (Onshore Wind and Solar Generation) Order 2025, all applications for solar PV projects in England with a capacity of up to and including 100 MW are determined via the Town and Country Planning Act 1990 regime, which is normally determined by the local planning authority, unless there is a direction into the NSIP regime under [section 35 of the Planning Act 2008](#). Before this update, projects with a capacity of 50 MW or greater were classed as NSIPs and required a Development Consent Order. This change means that local authorities will now have responsibility for assessing applications for larger capacity solar farms than previously, although improvements in technology means these sites may not necessarily have larger footprints.

Typical characteristics

- Sites typically span multiple fields or parcels of land
- Many ground-mounted solar farms may not require EIA. Some applications may be more complex, such as larger sites or sites in or near environmentally sensitive areas. These may require input from multiple consultees and may generate significant public interest. In some cases, they may require EIA or HRA (for further information on whether either of these are required, see section: Pre-application discussions, [page 13](#)).



Role of LPAs

- Applications are determined by the LPA under the TCPA (unless directed into the NSIP regime under section 35 of the Planning Act 2008 or [called in by the Secretary of State](#) for Housing, Communities and Local Government under section 77 of the TCPA)
- Managing statutory processes such as consultation and publicity, considering the balance of benefits and impacts, and making a decision in accordance with policy and legislation. Where required, this may involve screening and scoping for EIA and reviewing the Environmental Statement as part of the application process. For HRA, the LPA must consider whether an assessment is necessary and undertake it if required before granting permission.
- LPAs will consider applications for non-material amendments under s.96A TCPA and applications to amend or vary conditions under s.73 TCPA once planning permission is granted.

The use of Planning Performance Agreements (PPA)

- A PPA is a voluntary, bespoke agreement between the applicant and the LPA which sets out a clear framework for managing the planning process, defining milestones, responsibilities, resources and timescales, and ensuring that dedicated LPA officer capacity (and where needed, specialist consultant input) is allocated to the application
- Many local authorities consider a PPA especially appropriate for large-scale and complex applications
- PPAs are best entered into at the pre-application stage, and can cover the lifetime of the application itself and even post-decision if necessary (e.g. where there are multiple phases of discharge of conditions, or associated infrastructure)
- A PPA can help ensure that all consultees are identified early, timescales are agreed and resourced, communication between developer, LPA and consultees remains clear, and that the process remains transparent and predictable.

Projects over 100 MW

Solar farms with a capacity of 100 MW or more are considered NSIPs and require a Development Consent Order (DCO). Under the NSIP regime, the consenting decision does not lie with the LPA, but with the relevant Secretary of State, following examination and recommendation by the Planning Inspectorate.

The new Planning and Infrastructure Act 2025 includes powers which will enable developers to request a direction out of the NSIP regime where a project which would usually be categorised as an NSIP can be consented under a suitable alternative consenting regime, meaning that some larger cases may be determined by LPAs.

Typical characteristics

- As of January 2026, the only operational solar farm above 100 MW in the UK is Cleve Hill solar park, a 373 MW site in Kent. This project covers 890 acres, including 138 acres of dedicated habitat management. Other proposed solar farms with capacities of 100 MW or more have been approved in England and are awaiting construction.
- The characteristics of NSIP-scale solar farms are the same as other solar farms, delivered at a larger scale. In many cases, NSIPs will connect to the higher voltage transmission network rather than the distribution network.



Role of LPAs

- The importance of engagement and input from host (and neighbouring) LPAs is recognised during the pre-application stage and examination stage and will be encouraged through new government guidance. Engaging early with LPAs is encouraged during the pre-application, alongside the requirement on applicants to notify the host Local Authority and Planning Inspectorate of a proposed application.
- Local authorities are invited to prepare a Local Impact Report, outlining how the proposed development would affect their area. This report is considered during the examination and informs the Secretary of State's decision.
- If a DCO is granted, the LPA is likely to be responsible for discharging requirements attached to the DCO (e.g. detailed environmental, mitigation or monitoring measures) and monitoring compliance during construction and operation.

This guidance covers the TCPA regime only. For further information on the NSIP system please see [MHCLG guidance](#).

Planning appeals

If a planning application submitted to an LPA is refused, or if the LPA does not make a decision within the statutory determination period,⁸ the applicant has a right to appeal to the Ministry of Housing, Communities and Local Government Secretary of State, through the Planning Inspectorate, within 12 weeks from the date of notice of the refusal.⁹

Appeals can proceed by way of written representations, a hearing, or an inquiry.

Find more information here

Guide to taking part in planning and listed building consent appeals:

- [Proceeding by written representations – England - GOV.UK](#)
- [Proceeding by a hearing](#)
- [Proceeding by an inquiry](#)



Role of LPAs

- When an appeal is made, the LPA must prepare and submit a statement of case, possibly preparing additional evidence and attending hearings or inquiries if required, as directed by the planning inspector appointed on behalf of the Secretary of State. Refer to the [Planning Appeals: Procedural Guide](#).

8. Prescribed by Article 34 of The Town and Country Planning (Development Management Procedure) (England) Order ('DMPO') 2015

9. Prescribed by Article 27(2) of the DMPO 2015

04

Planning policy and legislative framework



In this section

This section sets out the relevant policy context for assessing ground-mounted solar farm applications. It also covers the role of statutory consultees and material considerations. Planning decisions for renewable energy proposals should be made on a case-by-case basis, with due regard for their individual merits and material considerations.

[Section 70\(2\)](#) of the TCPA 1990 and [section 38\(6\) of the Planning and Compulsory Purchase Act 2004](#) require local planning authorities to determine applications for planning permission in accordance with the development plan for the area unless material considerations indicate otherwise.

The policies within the NPPF set out planning policies for England and how they should be applied. They are a material consideration in planning decisions and provide a framework for the consistent creation of Local Plans. [A draft updated NPPF](#) was published for consultation in December 2025, and once published, this guidance will be updated to reflect any policy changes. PPG complements the NPPF and PPG complements the NPPF and provides guidance on its application. The weight to be given to each is a matter for the decision maker.¹⁰

The procedures for planning applications are set out in secondary legislation. The Town and Country Planning (Development Management Procedure) (England) Order 2015 sets the procedure for determining planning applications. Pre-application requirements, including for consultation, are set out in sections 61W to 61Y of the TCPA and Articles 3 and 4 of the TCPA Development Management Procedure Order.

[Biodiversity Net Gain \(BNG\)](#) is required under Schedule 7A of the TCPA and every grant of planning permission through the TCPA, subject to some exemptions, is deemed to have been granted subject to the condition that the biodiversity gain objective must be met. This is a pre-commencement condition and, once planning permission has been granted, a Biodiversity Gain Plan must be submitted and approved by the LPA before commencement of the development.

The threshold for bringing ground-mounted solar projects within the NSIP regime is now 100 MW, which means anything at or below this threshold is decided by LPAs, unless there is a direction into the NSIP regime under section 35 of the Planning Act 2008. For more details, see the section: Planning routes for ground-mounted solar farms, [page 22](#).

10. As set out by Sir Keith Lindblom (Senior President of Tribunals) in *Mead Realisation Ltd v Secretary of State for Housing Communities and Local Government* [2025] EWCA Civ 32 at [33]-[38])

The National Planning Policy Framework

The NPPF contains a presumption in favour of sustainable development.

Paragraph 11 states:

“Plans and decisions should apply a presumption in favour of sustainable development.” It then includes further specific detail about what this means for plan-making and decision-taking.

However, paragraph 12 of the NPPF states:

“The presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making. Where a planning application conflicts with an up-to-date development plan (including any neighbourhood plans that form part of the development plan), permission should not usually be granted. Local planning authorities may take decisions that depart from an up-to-date development plan, but only if material considerations in a particular case indicate that the plan should not be followed.”

Paragraph 168 of the NPPF gives significant weight to the benefits associated with renewable and low-carbon energy generation, as set out below:

Paragraph 168

When determining planning applications for all forms of renewable and low-carbon energy developments and their associated infrastructure, LPAs should:

- a) Not require applicants to demonstrate the overall need for renewable or low-carbon energy, and give significant weight to the benefits associated with renewable and low-carbon energy generation and the proposal’s contribution to a net zero future
- b) Recognise that small-scale and community-led projects provide a valuable contribution to cutting greenhouse gas emissions
- c) In the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site.

It is also important to consider Paragraph 163:

“The need to mitigate and adapt to climate change should also be considered in preparing and assessing planning applications, taking into account the full range of potential climate change impact.”

The government has recently [consulted on a revised NPPF](#) that includes clearer, ‘rules based’ policies for decision making and plan making, designed to make planning policy easier to use and underpin the delivery of faster and simpler Local Plans. The consultation includes policies on renewable and low-carbon energy and electricity network infrastructure. Once the revised NPPF is published, this guidance document will be updated to reflect any policy changes.

Planning practice guidance

PPG is the government's national guidance for planning practice. It complements the NPPF and provides practical guidance to explain, clarify and elucidate the policies in the NPPF to which it relates.

The [PPG for renewable and low-carbon energy](#) contains a section on specific planning considerations for solar farms, covering land use, landscape and visual impacts, heritage impacts, security measures, site duration, cumulative impacts and energy-generating potential.¹¹

Local planning officers should refer to PPG before advising applicants or making decisions, and use PPG advice to structure requests for additional information, assess impacts and justify planning decisions. PPG on wider topics, including [the natural environment](#), should be considered alongside the renewable and low-carbon energy PPG.

National Policy Statements

The NPS set out the UK government's policy for the NSIP regime. They define the need for specific types of infrastructure, establish assessment principles and provide detailed guidance on how applications should be examined and decided by the relevant Secretary of State. The NPS may be a material consideration for assessing TCPA applications and LPAs can give weight to relevant NPS policies where they are pertinent to the proposal and planning balance. Whether NPS policies are material and to what extent will be judged on a case-by-case basis by decision makers.

EN-3, the NPS for Renewable Energy Infrastructure, which was updated in 2025 and came into force on 6 January 2026, provides guidance on how impacts of large-scale solar farms can be assessed. It discusses similar considerations as the PPG, but also covers public rights of way, 'overplanting', elements of site design which may not have been finalised at the point of application, traffic, agricultural land use and peat. For more information on these topics, see the section: Key decision-making factors, [page 32](#).

11. The Renewable and Local Carbon Energy PPG has not been updated since 2015 and is likely to contain outdated technical information or references to planning policy that are no longer applied. The government has committed to update the PPG to ensure LPAs have access to the most up to date information. Updates will be made to this document to reflect changes once the new PPG is published.

Role of statutory consultees

Statutory consultees are bodies with legal responsibilities to advise on specific matters, and include Natural England, Historic England, the Environment Agency and National Highways, among others. Which statutory bodies are relevant will vary based on site characteristics, and their role is to provide specialist advice where their statutory remit applies (e.g. Sites of Special Scientific Interest (SSSI), archaeological sites, heritage assets, protected species).

Standing advice

Local planning officers should use standing advice or guidance tools, such as the following examples, to screen impacts and determine whether specific consultation is required:

- [Protected species and development](#): advice for local planning authorities (Natural England)
- [Ancient woodland, ancient trees and veteran trees](#): advice for making planning decisions (Natural England and Forestry Commission)
- [Air pollution and development](#): advice for local authorities (Natural England)
- [Heritage impacts planning advice](#) (Historic England)
- [SSSI Impact Risk Zones tool](#): to help LPAs determine whether a proposal may impact an SSSI, in which case they should consult Natural England
- [National flood risk](#): standing advice for local planning authorities (Environment Agency).

LPAs should identify which bodies need to be consulted early and throughout the application process by considering the specifics of the project, its location and its impacts. There may be certain bodies which must be consulted in accordance with Article 18 and [Schedule 4 of the DMPO](#).

LPAs should ensure that the advice provided by statutory consultees is carefully considered and addressed in the assessment of the application. Where a statutory consultee raises concerns or recommends conditions, these should be clearly reflected in the officer's report, with reasons given for accepting or departing from their advice. Statutory consultee comments are an important consideration and should be treated with due regard to their expertise and statutory responsibilities.

Material considerations in deciding solar farm applications

In England, decisions on TCPA planning applications (including for solar farms) must be taken in accordance with the development plan unless material planning considerations indicate otherwise.

It is for the decision maker to determine what constitutes a material consideration and the weight to give it, on a case-by-case basis.

Policies in the NPPF are considered material considerations. Other matters may also be considered material, such as NPSs, emerging plans and matters raised in statutory consultee comments, and the weight attached to these is a matter for the decision maker based on the circumstances of the case.

Not material considerations

Only matters which are related to land use planning are generally considered to be material considerations. Examples of matters not usually considered material include:

- Community benefit funds or voluntary financial offers. Community benefits (e.g. annual payments, shared ownership offers or local energy discounts) are voluntary commercial arrangements between the developer and the community.
- Impact on property value or private views
- Personal motives or identity of the applicant
- Competition between operators or local dislike of solar panels 'in principle'
- Moral, political or ideological objections unrelated to land use
- Private legal matters, e.g. ownership disputes, covenants or rights of access
- Issues controlled by other regulatory regimes, e.g. grid regulation (See NPPF 201: "Planning decisions should assume that these regimes will operate effectively").

05

Key decision-making factors



In this section

This section highlights some planning considerations that may be relevant when determining solar farm applications. It explains what planners need to know, where relevant policy can be found and what information LPAs should expect to be provided as part of applications. Each application is judged on its own individual merit and the weight given to these considerations is a matter for the LPA, as the decision maker in the first instance.

Land use and agriculture

Potential impacts of ground-mounted solar

[68% of England's land](#) is utilised for agriculture, and the locational requirements for solar farms – relatively flat, open areas of land with suitable irradiation levels near a viable point of connection to the grid – often correspond with areas used for farming. Where a solar farm is developed on agricultural land, there may be a decrease in food production from that site during the solar farm's lifetime.

Although solar farms are temporary installations, concerns are commonly raised that they will damage agricultural land. While they do cover large areas, solar farms only disturb a small proportion of soil once operational, with industry analysis suggesting this is [typically less than 2%](#) of the site area. The main disturbance to soil is caused during the construction of cable routes, access tracks required for inverters and substations, and small foundations required for those buildings. The piles that support the panel frames have very limited impact. If peat soils are present at a proposed solar farm site, they could be impacted by soil disturbance. These are carbon-rich soils formed in waterlogged conditions and when disturbed they release stored carbon, potentially reducing the climate benefits of a proposed solar farm.

Solar farms also have a small impact on land use at a national scale, as they occupy only a small fraction of total land use in the UK. The Solar Roadmap published by DESNZ in 2025 estimated that, if all new solar was ground-mounted, meeting the UK's 2030 targets for 45-47 GW of solar deployment would [require up to 0.4%](#) of total land in the UK and [only around 0.6%](#) of the UK's agricultural land.

Agricultural use can continue on some solar sites. Paragraph 013 of the [renewable and low-carbon energy](#) PPG sets out that proposals should allow for continued agricultural use and/or biodiversity improvements around solar arrays where applicable. In England, many solar farms already graze livestock around the panels as a way of managing vegetation and maintaining agricultural outputs.

Solar panels can provide shade for both livestock and crops, increasing resilience to high temperatures and droughts. However, solar farms can reduce land available for open arable cultivation for the lifetime of the solar farm, which may have an impact on local food production.

Sheep can be grazed on solar farms to maintain agricultural production.



In cases where solar developers are leasing land from farmers, large-scale solar farms can also provide income diversification for the agricultural sector, making businesses more resilient to impacts on agricultural yields, such as flooding and droughts. This is in line with Paragraph 88 of the NPPF, which says decisions should enable the development and diversification of agricultural and other land-based rural businesses. However, if the site is being farmed by tenant farmers, these benefits are likely to be received by the landowner. [The Solar Roadmap recognises concerns](#) around potential impacts of ground-mounted solar farms on tenant farmers and states that the government wants to ensure that compensation is adequate and fair, signposting the Agricultural Holdings Act 1986 which contains provisions to compensate tenants for loss of land from their holding resulting for a change of use that has received planning permission.

Finally, the [United Kingdom Food Security Report 2024](#) states that climate change poses a significant risk to global food production, and extreme weather events are continuing to have a significant effect on domestic food production in the UK. By generating low-carbon energy, solar farms can help decarbonise the energy system and support climate change mitigation.

When an assessment may be required

The grade of agricultural land refers to the Agricultural Land Classification (ALC). ALC grade 1, 2 and 3a land is classified as Best and Most Versatile (BMV) land. National ALC classification is undertaken at a high level and does not account for inter-field variations in quality or distinguish between grade 3a and 3b land, meaning that developers may need to undertake field surveys to supplement ALC data at the site level.

Where a ground-mounted solar development is proposed on, or may affect, peat soils, consideration of potential impacts on peat may be required as part of the environmental assessment process. [The England Peat Map](#) can be used as an initial screening tool to identify whether a site may be located on peatland, alongside site-specific surveys. Where peat soils are identified, a more detailed peat survey may be undertaken to assess peat depth, extent and distribution. Lowland fens, blanket bogs, and other peatlands, which would be technically very difficult (or take a very significant time) to restore, recreate or replace once destroyed, are considered [irreplaceable habitats](#) in planning policy. The NPPF provides that development that would result in the loss or deterioration of irreplaceable habitats should be refused unless there are wholly exceptional reasons and a suitable compensation strategy is in place.

Process for assessing the factor and what to expect in an application

Developers should provide information on ALC across the site, using published data and, if necessary, site-specific survey data. Applications should include measures taken to minimise and mitigate impacts on agricultural land. When considering any impact on grades 1,2 and 3a the amount of remaining high grade agricultural land in the region could also be considered based on existing research (gaining access to extensive areas of third-party land to undertake surveys would be disproportionate). Other mitigation measures, including dual use of land for agricultural purposes (such as grazing) as well as solar generation, should also be included in applications.

Where soil is removed during construction, topsoil and sub soil should be stored appropriately and used to restore the site post construction. Soil handling and storage should be managed to mitigate harm, including the loss of soil organic matter and damage to soil structure. Where access tracks and foundations or compounds are installed, the use of heavy machinery may cause soil compaction, with implications for drainage. This should also be managed to mitigate harmful impacts, potentially through limits on machinery movements or seasonal controls.

If peat soils are present at a proposed site, the site layout should be designed to avoid and minimise their disturbance, including from construction of access tracks, cabling and foundations. Mitigation may also include raised water table management.

During the lifetime of an operational solar farm, typically 40 years or more, there are low levels of soil disturbance. This can allow soil health to be restored, supporting higher productivity once the site is returned to sole agricultural use. Soil management can be secured through an appropriate planning condition (for details see section: Typical planning conditions for solar farms, [page 52](#)).

Piles used to mount solar panels have very limited impacts on soil.



Image: Starlight Energy, a NextEnergy group member

Standards and key considerations for decision making

The NPPF safeguards BMV agricultural land and states in footnote 65 that where significant development of agricultural land is demonstrated to be necessary, areas of poorer-quality land should be preferred to those of a higher quality. [Natural England guidance](#) sets out how planning can take account of the quality of agricultural land, referencing the Agricultural Land Classification (ALC) and its five grades of agricultural land. It also advises on the circumstances in which an LPA must consult Natural England before granting planning permission for large-scale non-agricultural development on BMV land that is not in accordance with the development plan.

EN-3 paragraphs 2.10.20- 2.10.26 provide further detail on this process and how it applies to solar farms, noting that “land type should not be a predominating factor in determining the suitability of the site location”, providing that impacts are addressed, the preference system for lower grade land is followed and the site selection explained.



Planner tip

In some cases where a proposal involves higher-grade BMV land, a proportionate alternative site assessment may be appropriate. Consideration of alternative site locations should be for sites of the same generating capacity – i.e. an alternative nearby site with lower-quality agricultural land that would only support a lower-capacity solar farm is not considered as a valid alternative to a proposed project.

Existing land contamination

Existing land contamination should be considered when assessing solar farm applications in line with paragraphs 196-201 of the NPPF. Solar farms can require piling activity, which can [mobilise any contaminants present](#), potentially resulting in pollution of groundwater and (via groundwater pathways) surface water bodies. Such risks are greatest in Source Protection Zones (SPZ), especially SPZ1, aquifers (especially principal aquifers) and in drinking water protection zones. LPAs should refer to [PPG on land affected by contamination](#) to identify whether proposals present this risk and how they can be mitigated.

Case studies

BMV agricultural land

In March 2025, Burcot solar farm successfully appealed a planning decision originally rejected based on impacts on agricultural land.¹² Although the proposed site was 100% BMV land, of grades 2 and 3a, the inspector ruled that the proposal would not result in the loss of, or have an unacceptable impact on, BMV land, as it would continue to be used for grazing during the project’s lifetime, and could return fully to agricultural use after it had been decommissioned.



Improvements to soil health

An appeal was approved for a solar farm on land to the west of Berrington Shrewsbury.¹³ The inspector’s conclusion attributed moderate weight to the prospect of improved soil condition at the solar site during its lifetime. In paragraph 45 of the appeal decision, the planning inspector stated: “I conclude that there is no alternative to the use of the BMV land for the proposed development, and that in any event, with the safeguard of a condition concerning a soil management plan, the status of the site as BMV agricultural land would be safeguarded. However, the land would not be used to its maximum potential as BMV land for the duration of the development, leading to a conflict with Policy CS6 of the Core Strategy, a circumstance to which I give moderate weight. On the other hand, the prospect of improved soil condition due to the break from arable crop production would be a benefit which merits countervailing moderate weight.”

More information

See [Solar Energy UK’s factsheet](#) on agricultural land.

12. [Appeal Ref: APP/Q3115/W/24/3350890](#)

13. [Appeal Ref: L3245/W/23/3332543](#)

Wildlife and biodiversity impacts

Potential impacts of ground-mounted solar

Species and habitats at a proposed solar site may be impacted by soil disturbance and use of vehicles during construction. Once sites are operational, security fencing used to enclose solar panels may affect habitat connectivity and the movement of wildlife through the wider landscape, depending on its type, height and design. While fencing can be designed to be wildlife permeable, it must also meet security requirements.

When an assessment may be required

Developers should identify and assess any potential ecological impacts associated with the proposed site, especially during construction. This may include undertaking desk research to identify relevant protected sites or species in the area and carrying out ecological surveys, especially on breeding, foraging and roosting birds which may be affected by habitat loss or disturbance at the site and, in some circumstances, neighbouring sites.

Process for assessing the factor and what to expect in an application

Areas to assess (where relevant to the site) include impacts on habitats and all species protected under the Wildlife and Countryside Act 1981 or the Conservation of Habitats and Species Regulations 2017 (as amended). Proposals that may have a significant effect on the conservation objectives of a Special Protection Area or Special Area of Conservation must undergo appropriate assessment, unless they are screened out (for more information, see PPG on [appropriate assessment](#)).

Standards and key considerations for decision making

Chapter 15 of the NPPF sets out policies for conserving and enhancing the natural environment, and paragraphs 193-195 address Habitats and Biodiversity considerations relevant to determining planning applications. PPG on [the natural environment](#) provides further advice for LPAs on implementing these policies.

It is also important to consider impacts on trees and woodland. Paragraph 193c of the NPPF is clear that development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and ancient or veteran trees, should only be permitted if there are wholly exceptional reasons and a suitable compensation strategy exists. LPAs should ensure appropriate mitigation is secured where impacts on woodland habitat connectivity and/or protection are likely and follow standing advice from Natural England and the Forestry Commission on [ancient woodland, ancient trees and veteran trees](#). This advice includes recommended buffer zones between ancient woodlands and ancient or veteran trees and development.

Biodiversity Net Gain

Under the statutory framework for Biodiversity Net Gain (BNG), subject to some exceptions, every grant of planning permission under the TCPA is deemed to have been granted subject to the condition that the biodiversity gain objective must be met. This objective is for development to deliver at least a 10% increase in biodiversity value relative to the pre-development biodiversity value of the onsite habitat. The biodiversity gain condition is a pre-commencement condition: once planning permission has been granted, a Biodiversity Gain Plan must be submitted and approved by the LPA before commencement of the development.

The government has announced that, as part of [the BNG reforms](#), smaller developments on sites below 0.2 hectares will be exempted from BNG requirements. Until changes are officially implemented later in 2026, BNG continues to apply in its current form and developers should continue to follow existing guidance and legislation when delivering BNG.

Most ground-mounted solar farms can deliver BNG through onsite habitat enhancements (for more information see the section: Benefits of solar farms, [page 18](#)). BNG requires developers to secure a minimum 10% net gain in biodiversity for 30 years. Planners should refer to the [PPG on BNG](#).

Case studies

Protected areas

In 2025 [an appeal was rejected](#) for a 49.99 MW solar farm proposed in Thrapston outside a Special Protection Area (SPA). The inspector accepted evidence that the proposed site was functionally linked to the SPA¹⁴ as a foraging habitat for birds and rejected proposed mitigation which involved alternative land, which was not functionally linked to the SPA.

BNG

In 2024 planning permission was issued for the 49.99 MW [Knowl Green solar farm](#) in Braintree, Essex.¹⁵ The site spans approximately 55 ha and is currently awaiting construction, with plans to deliver 67.11% net gain in habitat units and 57.95% net gain in hedgerow units across the site. The BNG management plan stated that the final site layout was designed to retain and protect existing ponds and boundary woodland and hedgerows at the site. The project will also plant new species-rich native hedgerows and trees to deliver biodiversity improvements and mitigate landscape impacts and incorporate grazing meadow and species rich grassland across the site to support foraging invertebrates, bats, birds, amphibians and small mammals.

More information

- PPG on [BNG](#)
- Government [guidance](#) on habitats regulations assessments
- PPG on [appropriate assessments](#)
- Government guidance on protected sites and areas
- NatureScot's [pre-application guidance](#) for solar farms.

If designed and managed appropriately, solar farms can deliver benefits for biodiversity.



14. [Appeal Ref: APP/M2840/W/24/3354297](#)

15. [Planning application reference: 23/01413/FUL](#)

Landscape impact

Potential impacts of ground-mounted solar

The temporary nature of solar farms mean that they will not have a permanent impact on the landscape, especially as planning conditions often require sites to return to their original use once decommissioned – although landscape impacts may still be significant for the duration of a project’s lifetime. Paragraph 013 of [the renewable and low-carbon energy PPG](#) states:

“The deployment of large-scale solar farms can have a negative impact on the rural environment, particular in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.”

When an assessment may be required

While mitigation can be effective, the landscape impacts of a solar farm should still be assessed on a case-by-case basis as they will depend on site-specific factors, including landscape character, scale, layout, topography, visibility, proximity to designated landscapes and sensitive receptors, and cumulative impacts.

Cumulative impacts of solar farms on landscapes are especially important to consider and include those that affect the landscape’s fabric, character and quality (as set out in paragraph 022 of the renewable and low-carbon energy PPG). Applicants and planners should consider whether the proposed development will become a significant or defining characteristic of the landscape.

Process for assessing the factor and what to expect in an application

Where applicable, LPAs can ask for a Landscape and Visual Impact Assessment (LVIA) to be submitted with applications that includes a) baseline landscape description and sensitivity, b) zones of theoretical visibility (ZTVs), c) photomontages or visualisations from agreed key viewpoints in summer and winter, d) assessment of impacts on local landscape character (using local LCA where available), and e) mitigation design measures.

A Cumulative Landscape and Visual Impact Assessment (cLVIA) should also be submitted where applicable to consider the interaction of the proposed solar farm with existing, consented and pending solar farms and other relevant developments within a defined search area. This should be supported by zone of theoretical visibility (ZTV) maps, photomontages from agreed-upon viewpoints, and a narrative that explains the significance and mitigation of the visual impact. Pre-application consultation on viewpoints and visualisation standards with the LPA and relevant consultees (e.g. landscape specialists) is good practice.

A landscape masterplan can effectively demonstrate the existing and proposed landscape features on and around the site, and a condition requiring a detailed landscaping plan can build on the principles established by the landscape masterplan.

Standards and key considerations for decision making

Paragraph 187 of the NPPF provides that decisions should contribute to and enhance the natural and local environment.

Although the NPPF does not contain detailed sector-specific landscape criteria, it states that:

- Planning policies and decisions should protect and enhance valued landscapes and recognise the intrinsic character and beauty of the countryside
- Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and National Landscapes (collectively referred to as Protected Landscapes)
- LPAs should plan positively to enhance the beneficial use of Green Belts by retaining and enhancing their landscapes and visual amenity.

Section 245 (Protected Landscapes) of the Levelling-up and regeneration Act 2023 (LURA) amends the duty of relevant authorities, including public bodies, to seek to further the statutory purposes of protected landscapes, referred to as the Protected Landscapes duty.¹⁶ Early engagement with National Park and National Landscape teams, together with referring to [government guidance](#), will support LPAs in considering how the duty can be met when assessing planning applications for solar farms.

LPAs should also refer to [Guidelines for Landscape and Visual Impact Assessment \(GLVIA\)](#) to inform assessment methodology. Local Landscape Character Assessments (LCAs) often include important evidence of local sensitivity and capacity for ground-mounted solar farms, and they should normally be used by applicants to frame site-specific assessments (although older LCAs may not reflect modern ground-mounted solar farms, especially in terms of scale – i.e. anything over 1 MW is often considered ‘large scale’).

Landscape and visual impacts are also addressed in EN3 paragraphs 2.10.85 to 2.10.93, which state that applicants should carry out a landscape and visual assessment (as part of Environmental Statements if applicable) and demonstrate effects using maps of zones of visual influence and photomontages. This assessment should include an evaluation of the landscape character, sensitivity and potential impacts on designated landscapes. The NPS may be a material consideration for assessing TCPA applications and LPAs can give weight to relevant NPS policies where they are pertinent to the proposal and planning balance.

16. Changes to the Protected Landscapes Duty have recently been announced by the Government in its response to the Fingleton review. For further details see [Building our nuclear nation: Government response to the Nuclear Regulatory Review 2025](#)

Visual impact

Potential impacts of ground-mounted solar

Through effective screening and appropriate land topography, the zone of visual influence of a ground-mounted solar farm can be appropriately minimised, as recognised in paragraph 013 of the PPG on renewable and low-carbon energy. This is because the low height of panels makes them easy to screen by designing site layout to work with the local topography, and by enhancing existing and planting new native hedgerows and trees around the site. If the zone of visual influence extends beyond the site, it tends to reduce quickly with distance from the site. At a distance, even from sensitive receptors, the visual impact of a solar farm is likely to be low due to the low-level nature of proposals, which also fit into the existing field pattern.

When an assessment may be required

To properly assess and mitigate visual impacts from solar farms, applicants should consider glint and glare, the effect of security measures such as fencing, lighting and cameras, and impacts on specific views, including cumulative impacts on different views.

Glint and glare

Solar panels are designed to absorb light, not reflect it. NPS EN3 recognises that most panels use anti-reflective glass or an anti-reflective coating, make them equally or less hazardous than other objects common in outdoor areas, such as windows, glass buildings or bodies of water. Despite this, it is still important to assess the potential impacts of glint – a momentary flash of light reflected off panels – and glare – a continuous source of excessive brightness reflected off panels and experienced by a stationary observer. Impacts on aircraft are unlikely to be significant, and many airports include solar panel installations near runways.

Security measures

Solar farms typically include fencing around the panels. This can be designed to minimise visual impact, for example by keeping it at an appropriate height and using mesh or wire fences and metal or wooden posts (deer fences) which are suitable for a rural environment. Palisade fences may be required for additional security around the substation and any co-located battery infrastructure.

Security cameras and lighting may also be included on the site. These should be sited to minimise impacts on the surrounding area. Lighting should only be turned on at night when necessary for site access and is generally restricted to the substation building(s)/compound.

Cumulative impacts

Cumulative visual impacts of solar farms are important to consider (as set out in paragraph 022 of the renewable and low-carbon energy PPG). Applicants and planners should consider whether two or more ground-mounted solar farms will be visible from the same point or shortly after each other along the same journey.

Process for assessing the factor and what to expect in an application

A glint and glare assessment may be submitted as part of the application, often as part of the LVIA (or ES if applicable). Screening proposed as mitigation may take time to become established, meaning that visual and landscape impacts may be reduced over the lifetime of the site.

A Residential Visual Amenity Assessment may be required if there is the potential for significant effects that would fail the 'Lavender' test. The Lavender test takes its name from inspector Lavender who dealt with the issue of visual amenity in a series of wind farm appeals in the late 2000s. It is not an approach mandated by legislation or national policy, but the test is often used to assess the impact of proposed renewable energy developments on the living conditions of nearby residential properties.

A development is generally considered to fail the Lavender test if the energy infrastructure represents:

- An unpleasantly overwhelming presence
- An unavoidable presence in the main views from a house or garden
- An oppressive or overbearing presence, even if the property remains physically inhabitable.

Standards and key considerations for decision making:

Visual impact assessment is a key part of the LVIA described in the previous section: Landscape impact, [page 39](#). Planners should consider the visibility of the solar farm from key viewpoints, such as settlements, heritage assets, public rights of way and valued landscapes. Assessments should be based on established techniques and guidance, including visualisations and photomontages produced to an agreed specification and follow guidance such as GLVIA.

This green corridor was added to Hatherden solar farm to mitigate landscape and visual impacts and enable access for horse riders and other users.



Image: Starlight Energy, a NextEnergy group member.

Case studies

Inappropriate mitigation



In 2022 an appeal was rejected for a 49.9 MW solar project in Alfreton on the basis of impacts to landscape and visual amenity, as well as the setting of heritage assets (for more information on this topic, see the section: Heritage and archaeology, [page 46](#)).¹⁷ The proposal was on sloping land within a non-designated historic parkland site and would have had a zone of visual influence extending for several kilometres. The planning inspector concluded that the development would cause harm to the surrounding landscape character and visual amenity, including for users of existing footpaths crossing the site. Proposed mitigation was found to be out of keeping with the surrounding landscape, as existing boundary hedges were much lower than the screening hedging proposed by the appellant.

Early engagement and flexible design

In 2020 delegated approval was granted for Hatherden solar farm, a 60 MW solar farm in Test Valley.¹⁸ During pre-application consultation with the LPA and community, local stakeholders identified several issues with the proposal, including extensive loss of views and open areas. In response, the applicant altered the site design to reduce the site size, include wider buffers around public rights of way and added a green corridor suitable for horse riders and other users. The changes protected the setting of nearby villages and views towards the North Wessex Downs National Landscape from a long-distance footpath, and led to the LPA approving the proposal.

Flooding and drainage

Potential impacts of ground-mounted solar

Solar farms are unlikely to increase the flood risk of the site or surrounding areas, as only a very small amount of land is disturbed and/or made impermeable. Access tracks are usually permeable, and as most frames used to support solar panels are pile-driven, they do not affect the drainage of the site. Run-off from solar panels drains through the vegetation beneath and around them in the same way as when there were no panels installed. For sites on arable land, a change from open soil to grass under a solar farm may reduce run-off rates and improve water quality in and around the site, including for nearby watercourses.

Concrete bases are required to support substations, centralised inverters and transformers, and any co-located battery storage. These impermeable areas should be considered in the flood risk assessment and drainage strategy.

When an assessment may be required

For proposals in a Flood Zone, a Flood Risk Assessment and Sustainable Drainage Strategy should be included within the proposal, in line with the NPPF and PPG. Paragraph 181 of the NPPF sets out when a site-specific FRA is required, and paragraph 020 of the [PPG on flood risk and coastal change](#) sets out what a site-specific FRA is. Paragraphs 170 to 182 of the NPPF set out national planning policy for flood risk.

17. [Appeal Ref: APP/M1005/W/22/3299953](#)

18. Planning reference: 19/03043/FULLN. Although the site has an installed capacity of 60 MW, the export capacity is less than 50 MW. This is why this project was assessed under the TCPA regime by the LPA, despite the threshold for solar farms to be classified as NSIPs being 50 MW when the application was submitted. For more information on installed and export capacity, see the section: Overplanting, [page 45](#).

Process for assessing the factor and what to expect in an application

The NPPF sets out tests to protect people and property from flooding, which all local planning authorities are expected to follow. This includes the sequential and exceptions tests, which are designed to ensure that if there are lower-risk sites available, or a proposed development cannot be made safe throughout its lifetime without increasing flood risk elsewhere, it should not be permitted. Measures to avoid, control, manage and mitigate flood risk should also not increase flood risk elsewhere. The tests are set out in full in the NPPF, with paragraphs 023-037 of the PPG providing supporting information on how these should be undertaken and applied.

Essential utility infrastructure, including infrastructure for electricity supply (generation, storage and distribution systems), is classified as essential infrastructure in the NPPF Annex 3: Flood risk vulnerability classification, and so regard should also be had to the requirements set out in table 2 of the PPG and its accompanying notes. Where relevant, proposals should be accompanied by a site specific FRA demonstrating how flood risk will be managed over the development's lifetime. This should also include evidence for the LPA to apply the sequential test if necessary, and should demonstrate that the development will pass the exception test if applicable. Paragraphs 020-022 of the PPG provide further advice on the preparation of site-specific FRAs.

A proportionate buffer should be maintained between any watercourses flowing through the site and infrastructure such as panels and inverters. Sustainable drainage solutions are required for all development proposals that could affect drainage on or around the site, and so may be required next to substations, centralised inverters and transformers and any co-located battery storage. These should be proportionate to the nature and scale of the proposal. Trees and woodland contribute significantly to water interception, infiltration, storage and evapotranspiration, making them valuable components of a wider sustainable drainage strategy.

Standards and key considerations for decision making

LPAs should refer to paragraphs 170-182 of the NPPF for policies relating to flood risk and flood risk assessments. PPG on [flood risk and coastal change](#) provides advice on accounting for and addressing the risks associated with flooding and coastal change in the planning process. LPAs should ensure that all relevant tests set out in the NPPF and PPG are met and be satisfied that appropriate mitigation and resilience measures are incorporated into the design, without increasing flood risk elsewhere.

Panel frames being installed at a solar farm. Grass remains able to absorb rainwater run-off between and beneath panels.



Image: Starlight Energy, a NextEnergy group member.

Overplanting

Potential impacts of ground-mounted solar

Where a proposed ground-mounted solar farm features overplanting, it may involve installing a greater number of solar panels across a larger area of land than other solar proposals with the same export capacity.

When an assessment may be required

Overplanting refers to a solar farm where the installed capacity of solar panels is greater than the export capacity (the amount of electricity which can be exported from the inverters to the electricity network from a solar farm at any given time). Although the export capacity limits the amount of electricity which can be exported from the site to the electricity network, most of the time the solar farm will not be generating at 100% of its theoretical installed capacity, due to changes in the sun's position and local weather conditions. By having an installed capacity greater than the inverter capacity, the level of electricity generated can stay closer to the export capacity level at times when the panels are operating at less than 100% efficiency, increasing the utilisation rate of inverters.

Like many technologies, solar panels become less efficient over their lifetime, meaning a solar farm may generate lower levels of electricity as it ages. Overplanting can help maintain higher levels of electricity generation from a site as it ages. Alternatively, solar panels may be replaced during the lifetime of the site to maintain levels of electricity generation.

Process for assessing the factor and what to expect in an application

Planners should consider whether the application proposes overplanting, although this will also depend on the grid connection, which may not be finalised at the time of the application.

Standards and key considerations for decision making

Although the NPPF and PPG do not contain advice on overplanting, paragraph 210.47 and footnote 98 of EN-3 contain a definition. Footnote 98 refers to the following legal case as an example of how the acceptability of overplanting should be assessed.

Case study

Ross v Secretary of State for Housing, Communities and Local Government and Renewable Energy Systems Ltd [2025] EWHC 1183 (Admin).



In October 2024, [Longhedge solar farm](#) was granted planning permission on appeal. The proposal had set out that, although the export capacity from the inverters would be limited to 49.9 MW, the total installed capacity of the solar panels would be 78.54 MW. At the time, the NSIP threshold for energy generation projects was 50 MW. The proposal was determined at the TCPA level by an inspector at appeal. The decision to grant the appeal was unsuccessfully challenged, with the court concluding that [the approach to overplanting](#) was consistent with NPS EN-3 as the export capacity from the inverters was less than 50 MW and the scheme and the total installed capacity of the solar panels had been assessed in the application.

Heritage and archaeology

Heritage

Chapter 16 of the NPPF sets out policies for conserving and enhancing the historic environment and paragraph 013 of the PPG on renewable and low-carbon energy provides guidance on assessing the impacts of solar farms on heritage assets. Whether a solar farm will affect a heritage asset or its setting depends on the type, significance and sensitivity of the heritage asset, the character and context of the site, and the visibility, scale, design, duration and reversibility of the solar farm development. Planners should follow [PPG on the historic environment](#).

Archaeology

Only a small area of ground is disturbed during the construction of a solar farm, reducing the potential for impacts on buried archaeological assets and allowing these to be minimised at the design stage. In areas with buried archaeological assets are located, concrete bases can be used to secure panel frames instead of piles. PPG does not provide specific guidance on the impact of solar farms on buried archaeological assets, but paragraph 2.10.102 of EN3 recognises that solar farms can have a positive impact on buried archaeological objects within the site by protecting them from ploughing or other land uses.

For further information

- See Historic England's [advice on renewable energy](#)
- Solar Energy UK's factsheet on [solar farms and the assessment of buried archaeological remains](#)
- A collaboratively prepared [industry good practice guidance for archaeology and solar farms](#) for England, Northern Ireland, and Wales, is now available, published by the Chartered Institute for Archaeologists and Historic England of behalf of archaeology and solar sector bodies.

Green Belt and grey belt land

Solar farms may be proposed on Green Belt land and/or grey belt land.

Paragraph 160 of the NPPF states that

“When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.”

PPG on the role of [the Green Belt in the planning system](#) should be followed by LPAs when assessing applications. This guidance includes advice on identifying grey belt land and assessing proposals on grey belt land.

If a solar farm is installed on Green Belt land, it does not affect the designation of the land and the site remains Green Belt land (and remains greenfield land – i.e. it does not become brownfield land once a solar farm is built on it). Solar farms may also be proposed on grey belt land.

Case study



Burcot solar farm is the first to have been granted planning permission on grey belt land.¹⁹ When the application was originally refused in February 2024, the impact on Green Belt land was one of the reasons for refusal. When the case was reviewed at appeal, however, the definition of grey belt land had been introduced to the NPPF in December 2024, and the site was agreed to be grey belt land by both the appellant and LPA. The appeal decision found that this change in classification meant the proposal was no longer inappropriate development.

19. Appeal Ref: APP/Q3115/W/24/3350890

Transport impacts (temporary)

Potential impacts of ground-mounted solar

Construction of a solar farm can generate a temporary increase in traffic while heavy goods vehicles (HGVs) deliver components, and construction vehicles and workers access the site. Sites which are already accessed by large agricultural vehicles are likely to be accessible to construction vehicles and where possible existing access routes should be used. Standard HGVs are used to deliver components and abnormal load deliveries are unlikely to be required. Operational traffic should be minimal, with small maintenance vehicles accessing the site periodically.

What to expect in applications

Chapter nine of the NPPF sets out policies on transport, and paragraph 116 of the NPPF provides that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.

As set out in PPG on [Travel Plans, Transport Assessments and Statements](#), LPAs should ensure that the impact of construction traffic is properly considered. Applications should include proportionate transport information, such as a construction traffic management plan that should explain how construction traffic will be routed, timed and controlled to minimise disruption and maintain highway safety. Applicants should ensure that vehicular access to the site has appropriate dimensions and visibility to accommodate the necessary HGV movements. If further detail is required, a Transport Assessment or Transport Statement may be submitted, setting out predicted construction levels and identifying any potential impacts on the local highway network. Where impacts are localised, time-limited and appropriately mitigated, they will be weighed accordingly in the overall planning balance.

Case study



In 2025 [an appeal was rejected](#) for a 10.7 MW solar farm near Epping Forest due to potential impacts from construction traffic emissions on a nearby Special Area of Conservation (SAC).²⁰ The proposal was originally rejected on the basis of being inappropriate development in the Green Belt and adversely affecting the integrity of Epping Forest SAC. While the planning inspector concluded that the proposal was located on grey belt land and was not inappropriate development, they found that because the appellant had not provided an agreed mitigation strategy to mitigate potential air pollution from nitrogen oxides during the 8 to 12-week construction period, there was no certainty that the proposal would not adversely affect the integrity of the designated nature conservation site. Natural England suggested that suitable mitigation measures could have included the use of a Section 106 obligation to ensure that all construction traffic was powered by electric vehicles.

20. Appeal Ref: APP/J1535/W/25/3364619

06

*Decommissioning,
repowering and
lifetime extension*



In this section

As operational solar farms across England reach the end of their operational planning consent, developers must decide whether to decommission the site, extend its life or replace existing panels with newer, more efficient technology, known as repowering.

Repowering offers a substantial opportunity. Upgrading existing solar farms can unlock higher generation from locations that already benefit from established infrastructure and community familiarity. However, not every site will be suitable for repowering and realising this opportunity requires careful consideration of environmental, social and economic impacts.

Life extensions allow existing solar farms to continue generating electricity beyond their original consent period, helping to maintain established renewable capacity on sites that already host solar panels.

Duration of planning consent and decommissioning requirements

Solar farms in the UK are typically granted temporary planning consents of up to 40 years or more (based on the design life of the panels), with a condition that the panels and associated infrastructure must be decommissioned and the land restored to its original use at the end of that period.

Planning permissions often include the requirement for a decommissioning plan to be agreed prior to the start of decommissioning. This will set out what components will be left in-situ, if any access tracks may be retained for agricultural access and whether some underground components such as cabling may be left to reduce disturbance, if deemed safe. Solar panels are included under the Waste Electrical and Electronic Equipment regulations in the UK and must be recycled. Most components of a solar farm can be recycled and panels which are still functional can be reused, on domestic rooftops for example.

Life extension

Life extension involves maintaining the existing infrastructure while extending the duration of time-limited planning consent. This may involve replacing some solar farm components on a like-for-like basis; however, all parameters will remain the same as those in the original consent. It is effectively a variation to the existing planning consent rather than a new application.

How is assessing a life extension application different?

- A life extension can be [an application under section 73](#) of the TCPA to vary the condition on the consent (e.g. extend the operational life from 30 to 40 years). If approved, permission [granted under section 73](#) takes effect as a new, independent permission to carry out the same development as previously permitted subject to the new or amended conditions.
- The assessment will still require consideration of key planning matters – e.g. whether the solar farm remains in line with policy, whether monitoring and maintenance regimes remain robust, and whether there are changed circumstances (land use change, new environmental designations, changed local context) that may require updated assessment of landscape/ecology/heritage/noise. Site management may have resulted in changes to ALC which should be considered.
- The NPPF (Paragraph 186(c)) states that local authorities should “in the case of applications for the repowering and life extension of existing renewable sites, give significant weight to the benefits of utilising an established site”.

Repowering

Repowering involves decommissioning and removing existing solar panels and installing new solar panels on the same site. The new panels may be more efficient or use different technology, such as tracking or bifacial panels, and can either be installed in the same numbers and increase the electricity generating capacity of the site or be installed in fewer numbers to maintain the same installed capacity across a smaller area of the site. If the latter option is used, land freed up from panels may support alternative uses, such as agriculture or nature restoration. Repowering is treated as a new planning application.

The NPPF (Paragraph 186(c)) states that local authorities should “in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site”.

Planner tip



Planning officers should check what foundations and infrastructure remain, what changes are proposed to panel design, numbers and layout, whether repowering constitutes development and gives rise to additional impacts (landscape, ecology, heritage, noise, etc) and whether the proposal includes decommissioning and/or clearance of the older panels.

07

*Typical planning
conditions for
solar farms*



In this section

Below, we set out a range of topics that are commonly addressed through planning conditions for ground-mounted solar farms. These reflect standard approaches used by LPAs in England to ensure that construction, operation and eventual decommissioning are properly managed.

Planning conditions must meet the tests set out in paragraph 57 of the NPPF, namely that they are:

- Necessary
- Relevant to planning
- Relevant to the development to be permitted
- Enforceable
- Precise
- Reasonable in all other respects.

LPAs should also consider the PPG '[use of planning conditions](#)', which provides guidance on how conditions attached to a planning permission should be used and discharged effectively.

The table of typical planning conditions below is provided by way of example and may not be relevant for all applications. Conditions should always be tailored to the specific site, the proposed technology, local environmental sensitivities and the nature of any potential impacts.

Table 2: **Typical planning conditions for ground-mounted solar farms**

Topic	Typical content of planning conditions
Commencement of development	<p>Typically, a condition will state that development should commence within three years of planning consent. See PPG on planning conditions relating to time limits and where a different period (longer or shorter) might be imposed. If no condition is provided, development is subject to the conditions in section 92 of the TCPA.</p> <p>Planners should take into account that grid delays have led to slower project development. In some cases, this may lead to projects requiring a longer period for commencement.</p>
Approved plans and documents	<p>The implementation of approved plans and documents submitted as part of the application can be secured via a planning condition to ensure implementation. This should be proportionate and only include appropriate plans and documents. Examples may include a location plan, planning layout or access details.</p>
Duration of site	<p>Most solar farms receive temporary planning permission, meaning a condition is needed to specify the duration of the planning permission, which can be up to 40 years or more.</p>

Return to previous use once decommissioned	Conditions may be included to require that solar panels be removed and land returned to its original use, often agricultural, post decommissioning.
A construction environmental management plan	A condition may require developers to submit and gain approval for further management plans, setting out detailed mitigation for environmental impacts of construction. This may include details of the construction compound, vehicle access and types of vehicles to be used, management of construction traffic, use of artificial lighting, noise, air quality and dust control, storage of materials and control of surface water during construction prior to the formation of the approved sustainable drainage solutions.
Soil management plan	A condition may require the submission of further details for the sustainable management of soil during and after construction.
Surface water drainage detail	A condition may require the submission of a detailed drainage strategy or Construction Surface Water Management Plan.
Archaeological	A condition requiring proportionate archaeological investigation and agreement of a mitigation scheme prior to construction can address archaeological impacts, while avoiding unnecessary or excessive trial trenching across a site at the pre-determination stage.
Landscape and Environmental Management Plan (LEMP)	A condition may require developers to submit and gain approval for an LEMP to secure agreed necessary visual mitigation and set out the full details of species for planting, maintenance and monitoring prescriptions, and timeframes for reviewing the LEMP. A high-level LEMP/landscape plan may have been submitted at the application stage with this level of full detail to follow.



Assessing ground-mounted solar applications

**Guidance for local planning
authorities in England**

Produced by Regen in partnership with the UK Government and GB Energy. This guidance benefited greatly from the support of industry members and local authority planners, and we would like to express our sincere appreciation to all who contributed.

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