Assessing onshore wind applications

Guidance for local planning authorities in England

UK Government

Great British ENERGY

REGEN

Aim of this guidance

Planning plays a crucial role in delivering a clean, secure and affordable energy system, as well as in 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 support tool for local planning authority officers in England in assessing planning applications for onshore wind 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 onshore wind energy 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:

- Ground-mounted solar
- 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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The UK government's approach to onshore wind

UK government approach to onshore wind

The UK government is committed to delivering a clean, secure and affordable energy system by 2030. The Clean Power 2030 Action Plan, published in December 2024, set out a clear pathway to achieving this ambition. Delivering the Clean Power mission will help boost Britain's energy independence, protect bill-payers, support high-skilled jobs, and tackle the climate crisis.

Under the Clean Power 2030 Action Plan, the UK government identified onshore wind as a key technology that is mature, efficient, and cost-effective. Onshore wind has a vital role to play in decarbonising our electricity system, enhancing our energy security and supporting economic growth. Having more low-cost renewables like onshore wind on the system reduces Great Britain's exposure to volatile global fossil fuel prices, protecting consumer electricity bills against future price shocks.

To accelerate onshore wind deployment, the UK government published an Onshore Wind Taskforce Strategy in July 2025, which focused on actions for government and industry to remove barriers and help reach the Clean Power 2030 target. In the Strategy, government committed to providing training support to Local Planning Authorities (LPAs) and statutory consultees in assessing onshore wind applications. This guidance document aims to fulfil that commitment.

The previous 'de facto ban'

In July 2024, UK government removed the de facto ban on onshore wind in England. After the de facto ban took effect in 2015, the pipeline of projects shrank by over 90%, with less than 50 MW consented. Only five turbines were subsequently built and operationalised. These projects were predominantly single turbine schemes and mainly additions or extensions to existing projects. The de facto ban involved adding two footnotes (57 and 58) to the National Planning Policy Framework (NPPF) that applied only to onshore wind, requiring:

1. Sites to be allocated in a development plan or neighbourhood plan; and
2. Planning impacts identified by the affected local community to be fully addressed following consultation and the proposal to have community backing.

Lifting the ban enabled onshore wind to be deployed again.

Clean Power Action Plan

The Clean Power 2030 Action Plan set an ambition of 27-29 GW of onshore wind by 2030 in Great Britain, up from 15 GW in 2025. Of this, 8.6 GW is expected to be in England and Wales, up from 3.1 GW in England and 1.3 GW in Wales in 2025. Whilst the Clean Power Action Plan did not set an onshore wind target for England, it shows that a doubling of onshore wind capacity in England and Wales is required to meet the ambition.

Onshore Wind Taskforce Strategy

In the absence of any substantive onshore wind planning applications in England for over a decade, there is a gap in recent experience that could impact efficient determination of new onshore wind proposals. Therefore, Action 8 of the Onshore Wind Taskforce Strategy committed to providing training support to LPAs and statutory consultees in assessing onshore wind applications.

To ensure successful implementation of the Onshore Wind Taskforce Strategy, the Onshore Wind Council was established. The Council will influence future policy development, guidance and standards relating to onshore wind planning and delivery.

Technological evolution of onshore wind

Since the implementation of the de facto ban, onshore wind turbine technology has evolved. Since 2010, the rated capacity of contemporary turbines has approximately doubled, with greater tip heights, larger blades and swept areas:

- The average turbine approved in the UK in 2020 was around 4 MW, compared with around 2 MW in 2010
- Most new projects now propose turbines in the 5–7 MW range. Some of the very latest projects are proposing turbines capable of achieving over 7MW.[1]
- Smaller turbines (1–2 MW), once common, are no longer manufactured by the industry leading turbine manufacturers
- Modern turbines typically have blade tip heights of 150–200 metres or more, with rotor diameters increasing from around 120 metres in 2018 to over 170 metres today
- Turbine lifespans have increased from an assumed 20–25 years to 30–35 years or more.

As a result, guidance, thresholds, and local planning assumptions based on older turbine models may need to be updated to reflect contemporary technology.

The English planning context

Onshore wind planning in England operates within a distinctive landscape context, characterised by more populated and less expansive landscapes than those in Scotland. As a result, some degree of landscape and visual impact from turbines is often unavoidable.

The key planning consideration is whether these impacts, along with other impacts of a proposed development, are acceptable when balanced against the wider benefits of renewable energy generation. Paragraph 168(a) of the NPPF states that LPAs should give "significant weight to the benefits associated with renewable and low-carbon energy generation and the proposal's contribution to a net zero future".

Planning decisions must also be made in the context of the UK's legally binding commitment to achieve net zero greenhouse gas emissions by 2050. Onshore wind is one of the most mature and lowest-cost technologies available to reduce emissions and strengthen energy security, and these national considerations should be weighed alongside local impacts.

1. Based on analysis of the Renewable Energy Planning Database: Renewable Energy Planning Database: quarterly extract - GOV.UK

Great British Energy

Great British Energy (GBE) is the UK's publicly owned national energy company, launched in 2025 to accelerate the deployment of clean power, including onshore wind. GBE invests directly in renewable projects, supports community- and local-authority-led schemes through funding and expertise, and develops publicly owned renewable assets, often on public land.

For LPAs, GBE may act as a project developer, funding partner or joint venture partner in future onshore wind proposals.

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

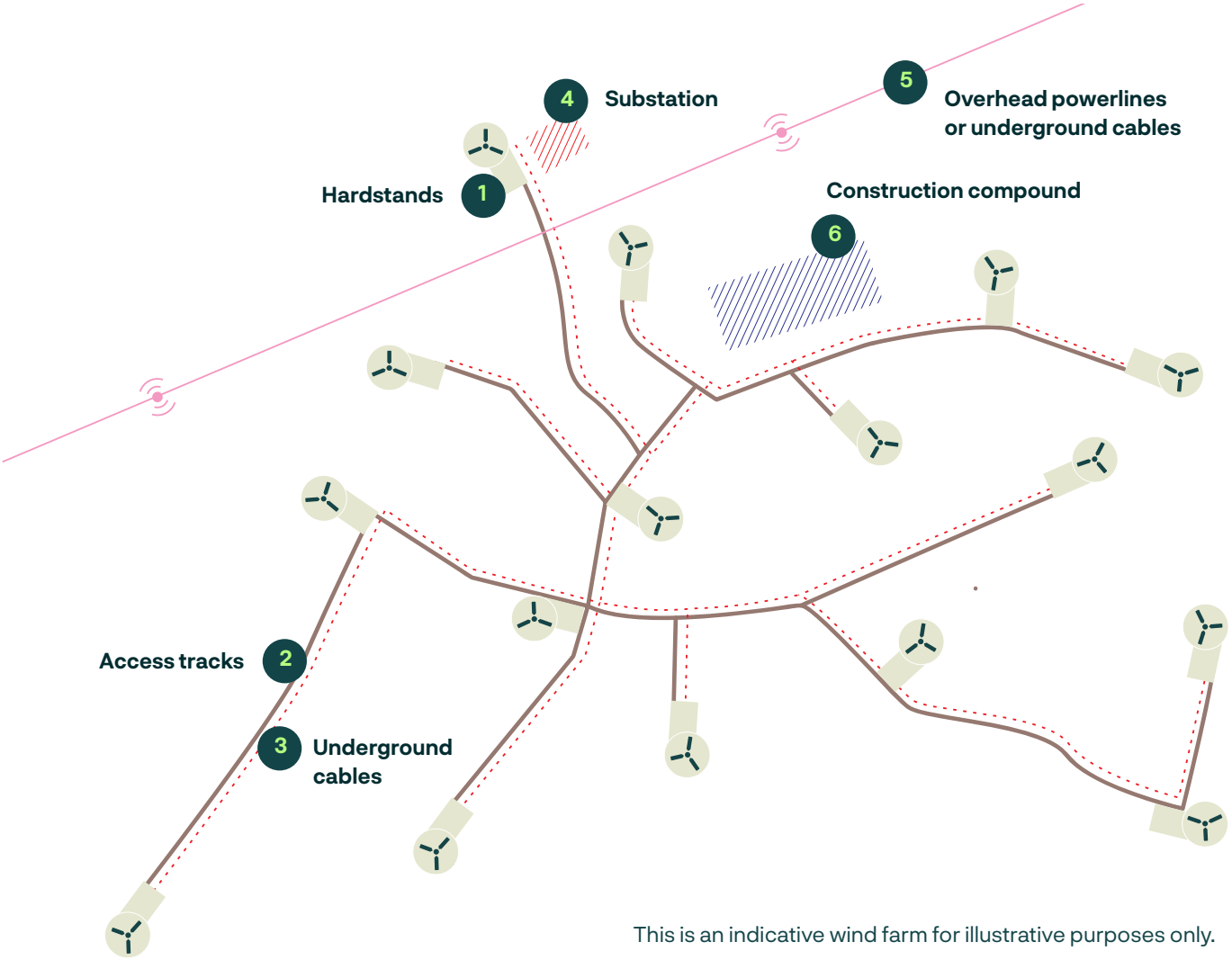
The SSEP will align with other strategic planning tools, including the Centralised Strategic Network Plan (CSNP) and Regional Energy Strategic Plans (RESPs). The overarching National Policy Statement (NPS) for Energy (EN-1) confirms that the SSEP should be considered by the Secretary of State when making 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 28. The SSEP is not currently integrated into the Town and Country Planning Act regime.

02

Overview of onshore wind

What does a typical onshore wind farm look like?

The following pages show diagrams of key components of a typical onshore wind farm and turbine. Site design and layout and turbine design will vary on a case-by-case basis.



This is an indicative wind farm for illustrative purposes only.

1. **Hardstands**
   Areas which support cranes and storage of turbine parts during construction, reduced in size during operation

2. **Access tracks**
   Enable vehicles to access turbines during construction and for ongoing maintenance once operational

3. **Underground cables**
   Transfer electricity from wind turbines to the substation

4. **Substation**
   Electricity from the wind farm is increased to a higher voltage using transformers, enabling it to travel more efficiently on the grid. A control building is often included alongside the substation.

5. **Overhead powerlines or underground cables**
   Electricity from the substation is fed into the grid and distributed to meet demand

6. **Construction compound**
   Temporary installation during construction for facilities and storage

What are the key components of a wind turbine?

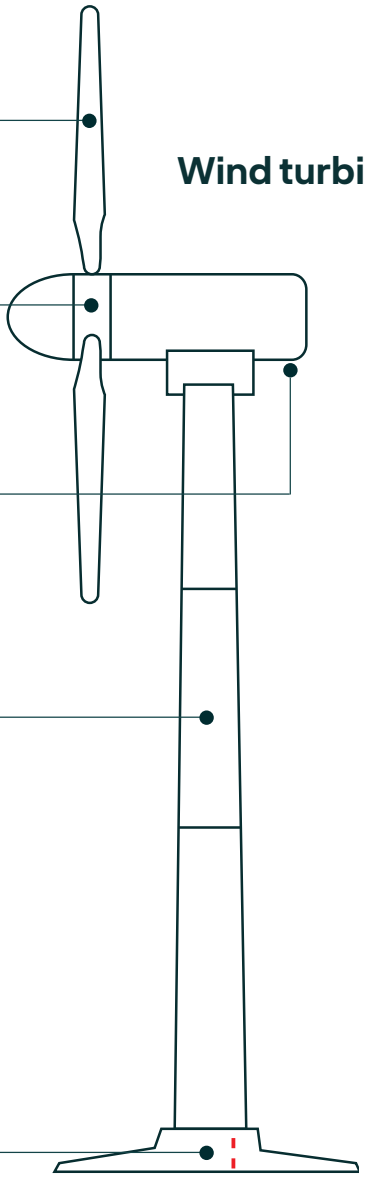
Blades – made from fibreglass or other composites

Rotor hub – connects the blades to the turbine, made from steel*

Nacelle– houses the 'drive train' components, made from steel, aluminium, iron, other metals and plastics (see below)

Tower
Assembled using sections, contains a ladder to access the nacelle for maintenance, made from steel

Foundations
Made from reinforced concrete, deep foundations and screws may be used in challenging soil conditions (see detail below)

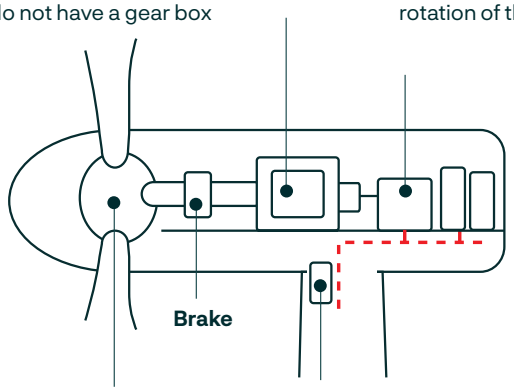


*Feathering is when the angle of the turbine blades is adjusted to slow or stop their rotation, protecting the turbine when wind speed exceeds safe operating levels

Nacelle

Gear box – increases rotational speed before feeding it to the generator, direct drive wind turbines do not have a gear box

Generator – generates electricity from the rotation of the shaft

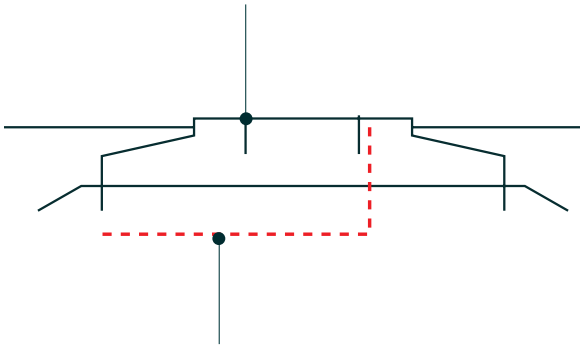


Pitch control – optimises the angle of the turbine blades for energy generation and safety.

Yaw drive – controls the direction the turbine blades are facing

Foundations

Embedded ring – only the point where the wind turbine tower connects to the foundations remains aboveground



Underground cables- pass through the foundations and connect the turbine to the substation

The life cycle of an onshore wind 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.

Onshore wind projects follow a predictable life cycle, but the points of interaction with LPAs vary across stages. These are outlined in the following table and further detail below. The following refers to LPA responsibilities for applications under the Town and Country Planning Act (TCPA) regime (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 an onshore wind farm under the TCPA regime**

Stage		LPA involvement
1.	Early feasibility and site identification	Potential for early discussions on site/ infrastructure identification. Engagement with developers to influence siting decisions, with reference to 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.	Temporary Meteorological (met) mast application[2]	Determination and conditions
5.	Planning application	Central role – assessment & decision Publicity and consultation (minimum of 21 days)
6.	Post-permission discharge of conditions and post-permission amendments	Condition discharge and determination of amendment application(s)
7.	Construction	Monitoring and enforcement of relevant planning conditions
8.	Operational life of the wind farm	Compliance/enforcement
9.	Repowering or life-extension (possibility)	For repowering, full determination of the new planning application. For life-extension, determine amendments
10.	Decommissioning	Condition enforcement and site restoration

2. A meteorological mast (met mast) is a freestanding tower used to attach instruments for recording weather parameters such as wind speed and direction, temperature and air pressure.

1. Early feasibility and site identification

Developer activities

Sites are selected based on technical, environmental and planning considerations. These include (but are not limited to): timing and capacity of local grid connection, predicted wind speed, site access – e.g. ability to transport large turbine components via existing roads and site tracks – land agreements, landscape character, aviation and radar, visual impacts, ecology, impacts on peat, impact on birds, hydrology, protected sites (habitats, landscapes and heritage) planning history of the site and heritage considerations.

- High-level desktop studies to explore site considerations. This will usually involve the use of GIS mapping to consider all factors and identify potential sites (for which more detailed on-the-ground studies are undertaken at a later stage).
- Landowner discussions and option agreements. A wind farm option agreement grants a developer exclusive rights, for a fixed period, to assess land and seek planning consent for a wind project, in exchange for option payments. The developer may, but is not required to, proceed to a lease if the project meets the agreed conditions.

Role of LPAs

- LPAs may consider allocating suitable areas for renewable and low-carbon energy sources in their local development plan. LPAs should assess the appropriateness of the site for energy generation, taking into account protected habitats and species, protected landscapes and other environmental features. They may also choose to invite information about potential land to identify in Local Plans through a call for sites. Developers may review Local Plans and Supplementary Planning Documents in the 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 onshore wind in a Local Plan, this is not wholly determinative of applications on other sites within the Local Plan area. Whilst an application for onshore wind 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 viable grid connection is a key decision-making factor for developers, impacting their site selection. In recent decades, investment in the grid has not kept pace with the build-out of new electricity generation projects. As a result, the availability of a viable grid connection is a key constraint for where onshore wind farms can be developed.

2. Early community engagement

Article 3 of The Town and Country Planning (Development Management Procedure) (England) Order 2015 currently requires that development involving the installation of two or more turbines, or where the with hub height of any turbine exceeds 15m, to carry out consultation with members of the community before a planning application is submitted to the LPA.

Early engagement though a wide range of techniques helps to ensure that feedback is captured in the design phase. See Community Engagement in section 3, page 20.

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 arrangements with local community members (not a planning requirement).

Role of LPAs

Non-statutory but valuable. LPAs may:

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

Planner tip

The UK Government has published best practice guidance on community engagement for onshore wind and developers are strongly encouraged to follow this.

3. Pre-application discussions

Developer activities

- Seek early advice on proposals from the LPA
- Discuss key project parameters including scale, turbine height, key constraints and expected supporting documents with the LPA
- Agree with the LPA the scope and type of environmental studies and assessments will be required, ensuring they are proportionate to the scale and potential impacts of the proposal
- Share draft layouts and environmental work with the LPA, including for Biodiversity Net Gain (BNG) and, if applicable, Environmental Impact Assessment (EIA) and Habitat Regulations Assessment (HRA). Not all onshore wind farms will require an EIA or HRA (see section Environmental Impact Assessment and Habitat Regulations Assessment for details), but where 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, 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 planning matters requiring consultee input (e.g. landscape, heritage, ecology, highways, noise) and how these might be addressed. This is important to ensure that the scheme is designed in a way that minimises any potential negative impacts. For more information, see the section: Role of statutory consultees, page 29.
- Promote pre-application opportunities with relevant consultees, especially where constraints have been identified
- Set out application requirements and likely timescales
- If required and/or requested, LPAs have a statutory function to issue EIA/HRA screening and/or scoping opinions, consulting with relevant statutory bodies to determine methodologies are appropriate for local sensitivities. See section 5, page 31, for more information.

Planner tips

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 onshore wind projects, page 21.

4. Temporary meteorological (met) mast application

Developer activities

- Submit a planning application to construct a met mast (usually temporary, 12–36 months) The application must be accompanied by the particulars required by Article 4 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 (DMPO) which relate to the pre-application consultation requirements.
- A meteorological (met) mast is a temporary freestanding tower, typically aluminium or steel, to which a range of instruments are attached, allowing developers to record weather-related parameters. Masts are typically a similar height to the proposed turbine hub height. This is important as reliable wind data influences turbine sizing and power predictions.

Role of LPAs

- Determine the outcome of the met mast application
- If planning permission is granted, it will be temporary, for a specified time period.

5. Planning application

Developer activities

- Submit the full planning application. This should be informed by pre-application engagement, survey work, BNG requirements and, where relevant, the EIA and HRA processes.
- Continue community dialogue
- Secure required consents not covered by the planning permission, e.g. species licenses or forestry consents, environmental permits, etc.

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).

Planner tip

See section 8 of this guidance for common planning conditions for onshore wind farms.

6. 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)
- 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.

7. Construction

Developer activities

Construction should be carried out in compliance with applicable planning conditions

- Construct access roads, foundations, cabling, substation and install turbines
- Maintain ongoing communication with communities.

Role of LPAs

- Monitor and enforce compliance with approved plans and conditions.

8. Operational life of the wind farm

Developer activities

- Operate turbines in line with consent, including conducting any monitoring required in compliance with relevant planning conditions (i.e. for bats or birds)
- Conduct maintenance
- Provide a community benefit fund, if agreed (currently voluntary).

LPA (enforcement role), including

- Monitor compliance with relevant planning conditions, e.g. noise.

9. Repowering or life-extension (possibility)

Developer activities

- Assess end-of-life options and submit a new planning application if repowering or a section 73 application if extending the life of existing turbines
- 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 (see section 7 on Decommissioning, repowering and end-of-life planning, page 53).

10. Decommissioning

Developer activities

- Remove turbines, transformers and above-ground structures
- Follow the decommissioning/restoration plans secured via planning conditions (including further habitat restoration and rehabilitation following removal of infrastructure)
- Recycle/re-use old turbine materials, where possible.

Role of LPAs

- Ensure compliance with decommissioning and restoration conditions.

Benefits of onshore wind

Onshore wind 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.

Planner tip
The NPPF Paragraph 168 states that when determining planning applications for renewables, local planning authorities should give significant weight to the benefits associated with renewable and low-carbon energy generation and the proposed development's contribution to a net zero future.

1. Climate change mitigation

Generating low-carbon electricity contributes to national net zero, climate change and carbon-reduction objectives. Paragraph 163 of the NPPF states that "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 impacts".

2. Energy security and system resilience

UK-based renewable generation reduces reliance on imported fossil fuels. This aligns with national policy aims for a secure, diverse and resilient energy mix and can be considered positively in the planning balance. Onshore wind is a mature, efficient and cost-effective form of renewable energy generation.

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 when properly evidenced. Economic benefits should be clearly demonstrated to carry weight in the planning process.

The DESNZ Renewable technologies: future job estimates report estimates that onshore wind could support up to 45,000 direct and indirect jobs for Great Britain by 2030. Direct jobs include construction of wind farms and manufacturing of turbines. Indirect employment is generated in industries that supply goods or services to the primary sector, and can refer to anything from the development of software and AI that supports wind modelling to the construction of transmission lines for connecting wind farms.

4. Peatland restoration and biodiversity enhancements

Habitat enhancement, peatland restoration, species protection and biodiversity improvements may be material considerations, as they relate directly to environmental outcomes. Onshore wind farms may contribute positively towards these outcomes through the delivery of biodiversity net gain and/or peatland management and restoration (where relevant) on or around sites. Historically, many of the UK's peatlands have been drained for agricultural

use, afforested to produce timber or extracted for use as a fertiliser. Peatland restoration can include re-wetting sites by filling in ditches or installing dams, removing trees, and protecting soils from erosion, helping to restore rare habitats, improve local water management and store additional carbon in the soil.

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. Planners should refer to the Planning Practice Guidance (PPG) on BNG.

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.

For more details on the environmental impacts of onshore wind farms, see the section: Key decision-making factors, page 34.

Example
Vattenfall's Pen y Cymoedd wind farm in Wales began operating in 2018 and features 76 turbines. It has a habitat management plan covering 1,500 ha and delivers peatland restoration across the site, working as part of a wider local project 'The Lost Peatlands of South Wales'.

5. Improved sites access and recreation provision

Many onshore wind farms provide improved access to a site, such as through the development of walking or cycling paths. This can often be considered as a benefit in the planning balance. However, increased access may also have negative consequences in terms of disturbance on sites and species and this will need to be balanced on a case-by-case basis.

Example
Whitelee wind farm near Glasgow features a visitor centre and over 130km of tracks across the site, supporting a range of outdoor pursuits including walking, running, cycling and horse riding.

6. Community benefit funds (not a planning consideration)

It is now common practice for all onshore wind farms to provide a community benefits, for example, through funds, local bill discounts or a shared ownership fund. There is well-established case law which confirms that community benefits of this nature are not a material planning consideration, and under government guidance, voluntary community benefits offered by developers must not influence the planning decision. 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.

Community engagement

Community engagement is a key part of an onshore wind farm development. Before submitting their planning application, most developers are currently required by law to undertake a pre-application consultation with the local community.[3] Developers should publicise the development in a way that brings it to the attention of the majority of people living in the vicinity of the proposed location. They should allow the local community to comment on the proposed development.

When finalising their application, developers should have regard to any responses to the consultation. When submitting their application, 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

- Developers should be encouraged to follow the UK government's guidance document: Community engagement from onshore wind developments: good practice guidance for England. This document outlines how developers should engage with communities during the stages of project scoping, development, planning permission, construction, operation and at the end of the project. Topic 4: Reaching the whole community discusses how some groups of people may be more forthcoming than others and easier to engage. For onshore wind projects, we often see coordinated opposition groups dominating the discussion, even though 73% of people in the UK support onshore wind,[4] and only 14% say they would be unhappy to have one built in their local area.[5]
- 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.
- Developers should be undertaking both pre-application consultation and consultation during the planning application.

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.

3. The government is currently consulting on whether to remove pre-application consultation requirements for onshore wind for projects seeking consent through the Town and Country Planning Act
4. DESNZ, July 2025. DESNZ Public Attitudes Tracker: Renewable energy, Spring 2025, UK
5. DESNZ, October 2025. DESNZ Public Attitudes Tracker: Renewable energy, Summer 2025, UK

03

Planning routes for onshore wind projects

In this section

Onshore wind projects vary significantly in terms of size, ownership model and planning route. The level of LPA input varies depending on the planning route taken, as set out below.

Small individual turbines

Typical characteristics

- Height often between 25–60m (though it can vary)
- Can be installed within domestic premises or used to power a farm or business
- Often not viable for commercial utility-scale developers due to lower economies of scale.

Role of LPAs

- Permitted development rights in England allow for the installation of a single turbine on domestic premises only, such as a detached house or as a standalone unit within the boundary of a home or block of flats. There are height restrictions of 11.1m for standalone turbines and 15m (including the building, hub and blade) for building-mounted turbines, as well as other restrictions based on swept area and the distance from the blade to the ground. Current permitted development rights do not extend to installing turbines on non-domestic premises.[6]

Projects up to 100 MW

As of 31 December 2025, following the Infrastructure Planning (Onshore Wind and Solar Generation) Order 2025, all applications for onshore wind 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.

Typical characteristics

- Projects range from a few turbines to larger multi-turbine arrays
- Common turbine heights are now often 150–200 m+ to the blade tip
- Applications can be complex, requiring input from multiple consultees and generating significant public interest
- Often require EIA and sometimes require HRA.

6. Class H and Class I of Part 14 of Schedule 2 of the Town and Country Planning (General Permitted Development) (England) Order 2015.

Role of LPAs

- Determine applications 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 HRAs, 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, 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, such as multi-turbine wind farms
- 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)
- For onshore wind schemes, a PPA helps 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

Onshore wind farms with a generating capacity above 100 MW are considered NSIPs and require a Development Consent Order (DCO). Under the NSIP regime, the decision does not lie with the local planning authority, but with the Secretary of State, following examination by the Planning Inspectorate. The National Policy Statements for energy (specifically EN-1 and EN-3) set out the relevant policy considerations.[7] However, the NPPF and relevant local development plan may also be relevant considerations.

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.

7. Overarching National Policy Statement for Energy (EN-1) – December 2025 and National Policy Statement for Renewable Energy Infrastructure (EN-3)

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 expected 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 local authority 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 of 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 DMPO 2015)
9. Prescribed by DMPO article 37(2)

04

Planning policy and legislative framework

In this section

This section sets out the relevant policy context for assessing onshore wind 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 TCPA 1990 and section 38(6) of the Planning and Compulsory Purchase Act 2004 require LPAs 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 Local Plan creation. 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 brining onshore wind projects within the NSIP regime is now 100MW, 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 previous section: Planning routes for onshore wind projects, page 21.

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])

National Planning Policy Framework

The NPPF is used for plan making and is a material consideration for making decisions on individual applications. For onshore wind, this includes applications for proposed developments with generating capacity of up to and including 100 MW.

The 2024 version of the NPPF removed the previous extra tests that applied only to onshore wind, namely the requirement that turbines must lie within specifically allocated sites and demonstrate clear community backing as a condition for acceptability. This restores equivalence between onshore wind and other forms of energy infrastructure.

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, local planning authorities 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 local 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 covers policies on renewable and low-carbon energy, as well as electricity network infrastructure. Once the revised NPPF is published, this guidance document will be updated to reflect any policy changes.

Planner tip
Treat onshore wind proposals as standard energy infrastructure rather than a special case subject to additional hurdles. In particular, avoid applying outdated expectations about community support.

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 onshore wind farms, covering land use, landscape and visual impacts, noise, shadow flicker, heritage, aviation safeguarding, EIA and evidence requirements.[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 decisions. PPG on wider topics, including the natural environment, should be considered alongside the renewable and low-carbon energy PPG.

National Policy Statements

The NPSs outline 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. NPS may be a material consideration in TCPA decision making; however, TCPA applications do not have to be determined in line with the NPS.

Within this suite, LPAs may consult EN-1 (the overarching NPS for energy) and EN-3 (the NPS for Renewable Energy Infrastructure) for national policy context and expectations when considering locally determined planning applications. The NPS may be a material consideration for assessing TCPA applications and LPAs may give weight to relevant NPS policies where they are pertinent to the proposal and planning balance, as recognised in paragraph 5 of the NPPF. Whether NPS policies are material and to what extent will be judged on a case-by-case basis by decision makers.

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, including Natural England, Historic England, Environment Agency, Civil Aviation Authority (CAA)/MOD (aviation) 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 impact, 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.

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.

Planner tip

Local planning authorities must consult bodies set out in Schedule 4 of the Town and Country Planning (Development Management Procedure) (England) Order 2015 and those organisations (such as the Civil Aviation Authority or MoD) in the Safeguarding Direction 2002 (safeguarded aerodromes, technical sites and military explosives storage areas).

Material considerations in deciding onshore wind farms

In England, decisions on planning applications at the TCPA level (including for onshore wind 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 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 considered material may 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 turbines “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 paragraph 201: “Planning decisions should assume that these regimes will operate effectively”).

05

Environmental Impact Assessment and Habitat Regulations Assessment

In this section

EIAs and HRAs are overarching processes that help identify, understand and manage the potential environmental effects of an onshore wind proposal. Where a full EIA or HRA is not required, the LPA may still request appraisals of specific impact areas (discussed in the following section).

When an EIA may be required

An EIA is required where the proposal is likely to have significant environmental effects. Natural England guidance indicates that an EIA will usually be necessary where a proposal:

- Includes more than five turbines
- Has a generating capacity above 5 MW
- Is located near a protected site or sensitive environmental receptor
- May require assessment under the habitat regulations.

An applicant may request a screening opinion from the local planning authority to confirm whether an EIA is required. Screening is also required when a proposal is listed in Schedule 2 and exceeds the relevant thresholds or is located in a sensitive area and is likely to have significant environmental effects. For more information, see PPG on EIA.

What an Environmental Statement should contain

Where an EIA is required, the applicant must submit an Environmental Statement with their planning application. This should describe the likely direct, indirect, cumulative, temporary and permanent environmental effects of the proposal. It should include proportionate assessments on relevant topics described in the following section, such as landscape and visual impact, noise, birds and bats, peat and soils, heritage, transport and others, depending on the site's characteristics.

The Environmental Statement should explain how the applicant has followed the mitigation hierarchy by seeking to avoid, reduce, remedy or compensate for environmental effects. The local planning authority must consider the findings of the Environmental Statement when reaching a decision.

When an HRA may be required

An HRA will be required where a proposal could affect a site that is protected under the Conservation of Habitats and Species Regulations 2017 (the Habitats Regulations) or protected in the same way by Government policy. These are:

- A Special Protection Area (SPA) or potential SPA
- A Special Area of Conservation (SAC) or proposed SAC
- A Ramsar site
- Areas secured as sites compensating for damage to a habitats site.

LPAs should consult Natural England at the pre-application stage to understand whether an HRA is needed.

What an HRA should contain

The first stage of an HRA is known as the 'screening stage'. Applicants must provide reasonable information that allows the competent authority to judge whether the proposal is likely to have a significant effect on a site. If a proposal may have a significant effect on a habitats site, either alone or in combination with other plans or projects, it must progress to the second stage of the HRA and undergo an 'appropriate assessment'.

At appropriate assessment, applicants should submit information that enables the competent authority to reach a conclusion about whether the proposal would adversely affect the integrity of the site, including setting out measures to avoid or reduce (mitigate) any potential adverse effect.

Where adverse effects on the integrity of a habitats site cannot be ruled out, it may be possible for plan or project to be approved if it meets the Imperative Reasons of Overriding Public Interest (IROPI) test. To meet the requirements, the applicant must demonstrate there are no feasible alternative solutions, demonstrate there are imperative reasons of overriding public interest and have secured compensatory measures that maintain the coherence of the protected site network.

For more information
Guidance on habitats regulations assessments and appropriate assessments.

06

Key decision-making factors

Image: Statkraft

In this section
This section highlights some planning considerations that may be relevant when determining onshore wind 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 submissions. 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.

Information on the interactions of wind turbines with radar will be added to this guidance when it is updated later in 2026. In the meantime, please see the Onshore Wind Taskforce Strategy Theme 4 - Aviation and Defence for information on this topic.

Landscape impact

Potential impacts of wind turbines

Onshore wind turbines can change how a landscape is experienced due to their height, moving blades and the introduction of large vertical structures. Turbines may affect landscape character by altering scale, pattern and sense of openness, particularly in simple or undeveloped landscapes.

Effects can extend beyond the immediate site, as turbines may be visible over a wide area and in combination with other wind energy developments. Where multiple turbines are present, this can result in cumulative impacts on the landscape.

When an assessment may be required

LPAs can ask for a Landscape and Visual Impact Assessment (LVIA) to be submitted with an application where planning applications raise concerns about the effects on the landscape/visual amenity. A landscape assessment will also be required where a proposal is subject to EIA, as part of the Environmental Statement.

This could be triggered when a proposal is visible from:

- Designated /protected landscapes, such as National Parks, the Broads or National Landscapes (also known as Areas of Outstanding Natural Beauty)
- Open or undeveloped landscapes such as uplands or moorlands where turbines will be more prominent due to their height and movement
- Areas with distinctive landform such as historic field patterns, or well-defined settlement structure where the turbines strongly contrast with the established landscape character
- Areas with other wind farms or large-scale infrastructure resulting in cumulative effects.

Cumulative impacts of onshore wind 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

The developer should carry out an LVIA. The Landscape Institute have published guidance on performing landscape and visual impact assessments. This typically includes: a) baseline landscape description and sensitivity, b) zones of theoretical visibility (ZTVs), c) photomontages or visualisations from agreed key viewpoints, d) assessment of impacts on local landscape character (using local Landsacpe Character Assessments (LCAs) where available), including cumulative effects and e) mitigation design measures. In many cases, the LPA will agree the scope and methodology for the LVIA with the developer during pre-application engagement.

A Cumulative Landscape and Visual Impact Assessment (cLVIA) should also be submitted where applicable to consider the interaction of the proposed onshore wind farm with existing, consented and pending onshore wind 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.

Standards and key considerations for decision making:

LPAs should refer to Guidelines for Landscape and Visual Impact Assessment (GLVIA) to inform the LVIA methodology. This largely includes defining the scope, establishing the baseline, describing the effects, assessing their significance, mitigation and reporting. Local LCAs can be used to inform baseline studies and local sensitivity and capacity studies for wind development, and they should normally be used by applicants to frame site-specific assessments. The Assessment of significance takes into account the magnitude and sensitivity of receptors. This is different to Landscape Sensitivity Assessments, which largely inform strategic spatial planning and land management.

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, that 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), and that local planning authorities 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 amends the duty of relevant authorities, including public bodies, to seek to further the statutory purposes of National Parks, the Norfolk and Suffolk Broads and National Landscapes. LPAs should follow Defra's guidance on implementing this duty.[12] 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 onshore wind farms.

12. 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

Landscape and visual impacts are also addressed in the NPS for Renewable Energy Infrastructure (EN-3), which states that applicants should carry out a landscape and visual assessment as part of Environmental Statements 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.

Planner tip

LPAs are encouraged to take a proportionate approach to assessing the significance of landscape impacts, recognising that given the scale and nature of the technology (tall, moving structures), some level of landscape impact is likely inevitable.

Further information

National Landscapes Association guidance for Local Planning Authorities and for relevant authorities on the Protected Landscapes duty.

Case studies

National Park

An appeal was dismissed in 2025 regarding the installation of six wind turbines in Wales, with maximum blade tip heights of 180 m.[13] The inspector found that the proposal would harm sensitive aspects of the landscape and detract from the special qualities of Bannau Brycheiniog National Park (BBNP), noting that "such harm would be significant and would extend well beyond the 3km area in which the LVIA acknowledges significant harm to the BBNP."

Life extension

In 2019 an appeal was granted for the lifetime extension of Kirby Moor wind farm in Westmoreland and Furness.[14] The original application had been refused for reasons including harm to the landscape, which consists of unenclosed moorland. The inspector concluded that "there would be some limited harm to the character and appearance of the area, but the landscape is more than capable of assimilating the windfarm for a further period without significant harm."

Visual impact

Potential impacts of wind turbines

Onshore wind turbines can result in visual impacts by introducing large, moving structures into views. Their height and rotating blades mean turbines can be visible over long distances and can draw the eye, particularly where they are seen against the skyline or in open landscapes.

Visual effects may arise for people using nearby properties, roads, public rights of way or recreational routes, and can occur both from close-range views and from more distant viewpoints. Where turbines are seen together with other wind energy developments or large-scale infrastructure, cumulative visual effects can occur, altering the overall composition of views.

13. [2025] EWHC 3073 (Admin)
14. Appeal Ref: APP/M0933/W/18/3204360

When an assessment may be required

A visual impact assessment may be required where a proposed onshore wind development is likely to result in noticeable changes to views experienced by people, including where they would affect important or sensitive views, including views from designated landscapes or their settings. A visual assessment may also be required where turbines would be seen in combination with other wind farms or large-scale infrastructure, giving rise to cumulative visual effects that change the composition or character of views. In such cases, the assessment helps to understand the extent of visibility, the nature of the visual change, and the significance of effects on visual amenity.

There is no guidance on the proximity of turbines to residential properties in England. The distances used in Scotland may not be suitable in an English context, where there are more properties closer to areas suitable for development. The Lavender test is often used to assess the impact of proposed onshore wind developments on the living conditions of nearby residential properties.
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, or a legal test, but the test is often used by planning inspectors when determining planning appeals, and has been referred to in case law in this context.
A development is generally considered to fail the Lavender test if the turbines represent an:

- Unpleasantly overwhelming presence
- Unavoidable presence in the main views from a house or garden
- Oppressive or overbearing presence, even if the property remains physically habitable.

The Lavender test is a planning principle applied at the discretion of inspectors and authorities. For proposals with the potential for significant effects which breach the Lavender test, a Residential Visual Amenity Assessment (RVAA) may be required.

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

The developer should carry out an LVIA as set out in the Landscape Impact section above. The LVIA focuses on public views and public visual amenity. An RVAA assesses impacts on private views and private visual amenity using a similar methodology to the LVIA: a) define the study area, b) evaluate the baseline visual amenity of properties, c) assess change to visual amenity of properties, d) forming the RVAA judgment and determining whether further assessment is required. This should be supported by 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.

Standards and key considerations for decision making

Visual impact assessment is a key part of the LVIA. Planners should consider turbine height, scale, form and visibility from key viewpoints, such as settlements, heritage assets, public rights of way and valued landscapes. Assessments should be based on established techniques and guidance such as GLVIA.

Planner tip
LPAs are encouraged to take a proportionate approach to assessing the significance of visual impacts, recognising that given the scale and nature of the technology (tall, moving structures), some level of visual impact is likely inevitable.

Case studies

Appeal dismissed
In 2016 an appeal was dismissed due in part to the proposed development's cumulative landscape and visual impacts.[15] The application was for the installation of two wind turbines with a hub height of 60 m and blade tip height of 86.45 m in Carlisle. While the inspector, the Council and the appellant all agreed that "in isolation the proposed turbines would not have significant effects", the inspector noted that 11 existing turbines were located within 5.4km of the appeal site and determined that the cumulative effect of the proposal would result in a significant adverse change in landscape character. Similarly, when assessing the visual impact of the proposal, the inspector concluded that "whilst the impact of the proposal, in its own right, would be less than significant, in combination with other turbines as a series of local turbine dominated views it would be visually disruptive."

Appeal granted
In 2025 an appeal in Scotland was granted for the installation of eight wind turbines with a maximum blade tip height of 149.9 m.[16] Landscape and visual effects were a key consideration. The inspector found that due to screening from topography and vegetation, the landscape and visual effects would be relatively localised. The EIA had considered cumulative effects of the proposal with both consented projects and proposals seeking planning permission and found that neither cumulative landscape nor visual effects would be significant. In the conclusion, the inspector stated that "the proposal would cause significant adverse landscape and visual effects. However, that is to be expected for a proposal of this kind."

Shadow flicker

Potential impacts of wind turbines

Under certain combinations of geographical position and time of day, the sun may pass behind the rotors of a wind turbine and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off which is known as 'shadow flicker'. It occurs only within buildings where the flicker appears through a narrow window opening.

While the flickering effect has the potential to induce seizures in patients with photosensitive epilepsy, the risk is incredibly low. The frequency at which photosensitive epilepsy might be triggered is between 3 and 30Hz (flashes per second). Large commercial turbines rotate at low speeds, resulting in less than 3 flashes per second and are therefore unlikely to cause epileptic seizures according to academic research, particularly where mitigation or design measures are applied.[17]

15. Appeal Ref: APP/E0915/W/16/314183
16. Case Reference: PPA-140-2104 (Planning Permission Appeal)
17. Harding, G. Harding P, and Wilkins, A. (2008) Wind turbines, flicker, and photosensitive epilepsy: Characterizing the flashing that may precipitate seizures and optimizing guidelines to prevent them.

When an assessment may be required

A shadow flicker assessment may be required for a proposed onshore wind turbine that could cause intermittent shadow effects at nearby residential properties or other sensitive receptors. Only properties within 130 degrees either side of north, relative to the turbines, can be affected as turbines do not cast long shadows on their southern side. However, as a general rule, there is unlikely to be a significant impact at distances greater than ten rotor diameters from a turbine. Where wind turbines have been proposed within ten rotor diameters of an existing occupied building, a shadow flicker assessment should be carried out by the applicant. An assessment may also be requested where existing screening is limited, or where concerns have been raised by local communities during consultation.

Process for assessing the factor and what to expect in applications

The NPS for Renewable Energy Infrastructure (EN-3) explains where shadow flicker is likely to have an impact and what an assessment should include. A shadow flicker assessment is used to predict the potential occurrence of shadow flicker at nearby occupied buildings. The assessment should identify the location of receptors, the maximum potential number of hours per year during which shadow flicker could occur at each property, and the specific times and dates when effects may arise. The assessment should quantify predicted effects using recognised industry methods, including calculation of the maximum theoretical duration of shadow flicker under worst case conditions.

Assessments are typically undertaken using computer based modelling software which calculates shadow flicker based on turbine dimensions, rotor speed, sun path, topography and the position of receptors. The outputs should enable consideration of the extent, frequency and duration of potential shadow flicker at individual properties and identify mitigation measures where necessary. This may include turbine control programming, where sensors are installed on wind turbines which determine when shadow flicker effects are occurring in practice and shut the turbine down.

Standards and key considerations for decision making

The NPS can be considered as a material consideration in TCPA applications and EN-3 contains guidance on shadow flicker for onshore wind. The NPPF does not cover shadow flicker, however it is covered in the PPG for Renewable and Low-Carbon Energy (currently paragraph 019).

Heritage and archaeology

Potential impacts of wind turbines

Wind turbines can affect heritage assets and archaeology, principally through physical effects and changes to their setting. Due to their height and movement, turbines may affect how historic buildings, monuments or archaeological landscapes are experienced, particularly when an asset's significance derives from its relationship with the surrounding landscape.

Potential effects may arise where turbines alter key views to or from designated heritage assets and disrupt historic landscape patterns. Groundworks associated with turbine foundations, access tracks and cabling may also directly affect below ground archaeological remains.

When an assessment may be required

An assessment of effects on heritage and archaeology may be required where a proposed onshore wind development would be visible in views to or from heritage assets such as listed buildings, scheduled monuments, conservation areas, or historic parks and gardens, and where this may contribute to changes in how the asset is understood or experienced. Assessments may also be required where turbines are proposed within the setting of heritage assets or where there is potential for cumulative effects with other wind energy developments or tall infrastructure.

An archaeological assessment may be required where turbine foundations, access tracks, cabling or other groundworks could affect known or potential below-ground archaeological remains. This is particularly relevant where sites are located in areas of archaeological interest identified through the Historic Environment Record, previous investigations, or desk-based evidence.

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

Assessment of heritage and archaeological impacts is guided by Historic England's Good Practice Advice. The application may include:

- A Heritage Statement or Cultural Heritage chapter, setting out the scope of assessment, relevant policy context, and methodology, with reference to Historic England guidance
- Identification of heritage assets and archaeological baseline, informed by the Historic Environment Record, historic mapping and previous investigations
- Assessment of the significance of the assets and the contribution made by the setting
- Assessment of impacts, explaining how the proposed turbines and associated infrastructure would affect the significance of heritage assets, including effects on setting and any direct impacts on archaeological remains
- Archaeological evaluation: where desk based evidence indicates potential archaeological impacts, further field evaluation may be required to inform the assessment, and a Written Scheme of Investigation may be required
- Mitigation and design measures, including layout refinement, micro-siting, or archaeological mitigation
- Cumulative effects assessment, where relevant, considering the combined impact of the proposal with other wind energy developments or tall structures.

Applications may be supported by visual materials such as photomontages, annotated photographs, wirelines or verified visualisations to support the heritage assessment.

Standards and key considerations for decision making

There are clear policies in relation to the protection of the historic environment in the NPPF, which sets out that heritage assets are irreplaceable resources and should be conserved in a manner appropriate to their significance. The NPPF provides guidance on decision making for development proposals that may affect heritage assets. This is set out in section 16 of the NPPF.

Planner tip

The level of assessment and investigation should be no more than is necessary to support informed decision making and proportionate to the significance of the assets affected and the scale of impact.

Operational noise

Potential impacts of wind turbines

Wind turbines can cause noise impacts through the operation of the turbine blades and associated mechanical components. The main source of noise is aerodynamic noise, generated as the blades pass through the air, which is typically experienced as a "swishing" sound. Mechanical noise from the nacelle and drivetrain can also occur, though this is generally reduced through modern turbine design and maintenance and only audible from the base of the turbine itself.

Noise effects are most likely to be experienced at nearby residential properties or other noise-sensitive receptors, particularly in rural areas with low background noise levels. The audibility of turbine noise can vary depending on wind speed and direction, distance from the turbines, local topography, and atmospheric conditions. In some circumstances, changes in background noise or specific weather conditions may make turbine noise more noticeable.

When an assessment may be required

A noise impact assessment is generally required for onshore wind turbines where operational noise may affect nearby noise-sensitive receptors, such as residential properties. There are no set minimum distances between wind turbines and residential properties where a noise assessment is required, however an assessment may be required.

Process for assessing the factor and what to expect in applications

Applicants should perform an assessment in accordance with UK methodology ETSU-R-97. The Noise Impact Assessment should set out the methodology, assumptions, results and conclusions.

The assessment should

a) Identify noise-sensitive receptors, typically residential dwellings which are selected to be representative of the most exposed properties rather than every dwelling in the area
b) Establish baseline background noise levels where measurements are taken over an extended period (often several weeks) to capture a range of wind conditions
c) Model the expected noise levels from the proposed turbines at each receptor taking into account turbine sound power data, turbine layout and hub height, distance to receptors and topography and ground absorption and any cumulative effects
d) Compare predicted noise with ETSU limits expressed in terms such as LA90
e) Where predicted levels are above ETSU limits, mitigation measures should be provided.

Standards and key considerations for decision making

The NPS reinforce the use of industry-good-practice methods to support noise assessments under ETSU-R-97. EN-1 (5.12.6) and EN-3 (2.12) discuss requirements to consider noise in planning decisions. The NPPF (sections 187.e. and 198.a.) also contains guidance on impacts of noise from onshore wind.[18]

Planner tip
Planning conditions should reflect these established methodologies and be clear and enforceable.

Peat

Potential impacts of wind turbines

Onshore wind farms can impact peatland through direct disturbance and changes to hydrology associated with turbine foundations, access tracks, drainage and cabling. Excavation or compression of peat can damage peat structure and lead to loss of stored carbon, while altered drainage can cause peat to dry out and degrade beyond the footprint of development. Peatland habitats may also be affected, particularly where deep or active peat is present, and cumulative disturbance can reduce peatland condition and resilience.

Peatlands are comprised of peat soils which are carbon-rich soils formed in waterlogged conditions. Peatlands are England's most carbon dense terrestrial habitat. They can extend to several meters in depth and, when disturbed, release stored carbon, potentially reducing the climate benefits of the proposed windfarm. It is therefore crucial to consider the impacts on peat and potential mitigation options.

When an assessment may be required

A peatland or peat assessment may be required where an onshore wind development is proposed on, or has the potential to affect, peat soils, particularly deep peat or areas of active or degraded peatland. The England Peat Map can be used to identify if a potential site is on peatland. However, this should be used alongside other assessments.

Assessments are commonly required where peat depth surveys indicate peat greater than 30cm, or where development could affect peatland hydrology beyond the immediate footprint of the works. A peat assessment may also be required where:

- Peatlands contribute to carbon storage, climate regulation or flood management functions
- The site supports peatland habitats, including blanket bog or raised bog
- The proposal involves cut-and-fill operations, drainage, or infrastructure that could lead to oxidation, drying or erosion of peat
- There is potential for cumulative effects on peatland condition from multiple developments within the same hydrological catchment.

18. Such as A good practice guide to the application of ETSU-R-97 for the assessment and rating of wind turbine noise by the Institute of Acoustics (2013) and Review of the Evidence on the Response to Amplitude Modulation from Wind Turbines published by HM Government (2016), as well as any updated, successor or supplementary guidance endorsed or published by the Government.

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

For developments proposed on areas where peat or carbon-rich soils occur, LPAs should expect detailed peat and soil surveys, showing peat depths and distribution, justification for why peat soils cannot be avoided, peat management plans that detail volumes excavated and plans for reuse of excavated peat and design measures to minimise soil disturbance. LPAs should expect a detailed peat survey and a peatland hydrological survey. Where appropriate, applicants should also conduct a geotechnical survey to assess landslide risk.

Where possible, management plans should consider long-term peatland management alongside mitigation measures during construction. Potential changes to local hydrology caused by turbine foundations and access tracks should be assessed, as these may affect peatlands beyond the site boundary that remain hydrologically connected. Management during the operational life of the wind farm should aim to keep soils waterlogged, supporting the storage of additional carbon and avoiding the emissions of dried-out, degraded peat. Micro-siting may allow developers to avoid areas of deep peat on the site.

Standards and key considerations for decision making

Peatlands are sensitive habitats that are important for many species of flora and fauna. 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.

Peat soils also deliver a number of water-related environmental benefits relating to drinking water supply, flood risk and aquatic habitats. Peat soils play important roles in storing and filtering water, benefitting local ecosystems, improving water quality and supporting climate adaptation by reducing flood risk in downstream areas. In some instances, soil disturbance, including compaction, removal, and alterations in the profile, may lead to changes in the local hydrological regime that can negatively affect biodiversity and generate impacts downstream.

The NPS (EN-3) states that applicants should avoid areas of deep peat and undertake detailed peat surveys where peatlands are present, demonstrating site selection and justification. However, we recommend checking for any national updates on this policy. Scottish renewables has published case studies of peatland management delivered by Scottish onshore wind farms.

Planner tip

NatureScot has published guidance for onshore wind farms on good practice approaches for peat management and minimising carbon losses. Not all standards included in this guidance may be relevant for developments in England and new guidance for England will be published by the UK government regarding wind farm construction on peatlands in due course. For example, NatureScot recommend a 1:10 ratio for the area of peat restoration required to compensate for any damage, but this ratio does not apply to developments in England.

Further information
Defra's 2021 Peat Action Plan

Case study

Whitelee Windfarm

Whitelee Windfarm near Glasgow provides a strong example of large-scale ecological restoration alongside development of one of the largest onshore wind farms in Europe. Whitelee is built on degraded peatland drained by past forestry and grazing and became a pilot site for large-scale habitat recovery. As part of its planning consent, ScottishPower Renewables (SPR) committed to restoring 1,000 ha of peatland, approximately ten times the area impacted by construction. This was guided by a multi-stakeholder Habitat Management Group and delivered one of the UK's most ambitious privately funded peatland-restoration efforts.

When the site was consented in 2007, there were no established methods for restoring peatland in this type of setting. Techniques such as ground smoothing (where furrows and ridges left by previous disturbance are flattened to minimise drainage) and wave damming (where diggers are used to compress peat on either side of a ditch to create an effective water-retaining battier) were developed and tested on the site, and these approaches have since been adopted more widely across the sector.

Over the last 15 years, SPR's ecology team, in collaboration with Strath Caulaidh Ltd, has restored 1,113 ha of peat bog at Whitelee, which has the potential to store the equivalent of 3.6 million tonnes of carbon dioxide. The restoration work has also improved the biodiversity of the site, supporting species such as wild cranberries along with a variety of bird species. The restored peatlands are thriving, boosting biodiversity, locking in carbon, improving water quality and reducing flood risk. Whitelee is now a living hub for ecological research, home to BIOSCAN invertebrate studies and bird monitoring, and a centre for public engagement led by full-time wildlife rangers. SPR's work earned them the RSPB's Sustainable Development Award and recognition from the International Union for Conservation of Nature.

Large-scale peatland restoration has been delivered at Whitelee Windfarm.

Image: ScottishPower Renewables

Birds

Potential impacts of wind turbines

Wind turbines are large moving objects that can pose risks to birds through collisions with turbine blades, habitat loss from wind farm construction and displacement through habitat disturbance.

When an assessment may be required

Impacts should be assessed for onshore wind developments close to habitats used by birds, with the level of assessment depending on the specifics of the site. When a site is located within or adjacent to SACs (including proposed SACs), SPAs (including potential SPAs) and Ramsar sites (wetlands of international importance), an assessment is likely to be required. SPA sites are designated to protect rare, vulnerable and migratory birds; rigorous surveying may be required to screen and, if necessary, deliver an HRA.

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

The assessment of the impact on birds should include a pre-survey to estimate bird populations and inform appropriate survey methods. Bird surveys should be appropriate to the site and could include distribution and abundance surveys and vantage-point surveys, which are usually conducted over two years to account for varying bird numbers. A collision risk model should be used to estimate bird collisions based on species-specific avoidance rates. Siting and construction of the wind farm should take into account bird breeding dates and disturbance distances. The application should also include plans to monitor impacts on birds from the wind farm for at least five years after the wind farm is built.

Standards and key considerations for decision making

Onshore wind applications should have particular regard to impacts on birds, including disturbance and displacement through habitat loss or damage, collisions with turbines or associated equipment (although these are usually rare with careful siting) and changes to air resistance around larger groups or rows of turbines. Natural England guidance on desk studies, proportionate surveys and monitoring for onshore wind farms should be followed. NatureScot provide guidance for assessing and mitigating impacts of onshore wind farms on birds.

Planner tip
A proportionate approach should be taken to decision making, considering the benefits of onshore wind farm developments.

Further information
Centre for Sustainable Energy's 2017 report, 'Common concerns about wind power'.

Bats

Potential impacts of wind turbines

Wind turbines are large moving objects that can pose risks to bats, primarily through collisions with turbine blades, habitat loss from wind farm construction and displacement through habitat disturbance.

Not all species of bat are equally affected. Risk varies depending on species and flight behaviour. For example, high flying, open air foragers such as noctules, including Leisler's bat, are generally at higher risk of interacting with turbines. Low-flying, clutter-adapted species such as horseshoe bats are more sensitive to habitat loss and the disruption of commuting routes.

When an assessment may be required

Natural England's guidance on bats includes criteria on when to ask for a survey. For onshore wind developments, a bat survey should be undertaken if a proposal is near a site designated for bat populations or within 50m of habitats such as wetlands, wet grasslands, trees, scrub, hedgerows, caves, buildings, or other features that provide commuting, foraging, or roosting opportunities for bats.

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

NatureScot produce useful guidance on surveys, assessments and mitigation for bats and onshore wind farms. The methodology includes a desk-based study to plan survey work and provide context for an assessment. This should review information available on bats relevant to the proposed site and consider factors that influence risk. This can include recent aerial photographs (and other photographs), maps and habitat survey maps of the proposed site to identify features of potential value to bats. The developer should collate relevant information on the species and roost records of bats within 10km of the proposed site and any cumulative impacts of other developments in the area.

Appropriate bat surveys should be conducted to understand the species assemblage, location of roosts and extent of commuting and foraging, and the spatial and temporal distribution of bats. Different types of bat surveys and methodologies can be found within the NatureScot Guidance. The developer should use the surveys and sources provided within the guidance to assess vulnerability to collision. Risk assessment and mitigation measures should be included for each stage of the development. In the UK, a buffer of 50m should be left between the turbine blade tip and the nearest woodland. Post-construction monitoring should continue for at least three years.

Standards and key considerations for decision making

Natural England has produced guidance for when bats are on or near a proposed development site. This should be taken into account when making planning decisions. This explains how bats are protected, when a survey should be requested for a development proposal, and how proposals can avoid or mitigate impacts. NatureScot Guidance provides more detailed information for developers on how to undertake various surveys and assessments.

Land use and agriculture

Potential impacts of wind turbines

Developing an onshore wind farm on agricultural land can result in both temporary and long term impacts on land use and farm operations, although these are often limited and localised. Potential impacts include the permanent loss of small areas of land for turbine foundations, access tracks, substations and compounds. Temporary impacts can include disrupting planting, harvesting or grazing cycles and disturbance to soils through compaction, excavation or mixing of topsoil and subsoil.

When an assessment may be required

An assessment of land use and agriculture for an onshore wind farm is triggered where the proposal would result in more than negligible or irreversible effects on agricultural land. In practice, this may arise where the development would involve:

- Permanent or long-term land take for turbine bases, access tracks, compounds or substations
- Temporary land take disrupting agricultural production over one or more seasons
- Affecting Best and Most Versatile (BMV) agricultural land (Grades 1, 2 or 3a of the Agricultural Land Classification (ALC) system)
- Construction or operation materially disrupting farm operations, soil resources or the viability of an agricultural holding.

Where land take is minimal, land quality is lower grade, and normal agricultural use can continue, a detailed assessment may not be necessary, although a proportionate screening statement should still be provided to justify this conclusion.

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

Natural England has guidance on assessing development proposals on agricultural land. A proportionate methodology for assessing land use and agricultural impacts of an onshore wind development should classify the site using the ALC system, explain the BMV land grade and assess the scale and permanence of any loss of agricultural land arising from turbine bases, tracks, substations and compounds. The assessment should focus on whether the proposal would lead to the irreversible loss of BMV land, whether impacts are temporary or reversible, and whether the remaining land can continue in agricultural use (e.g. grazing or arable cultivation between turbines).

In an onshore wind application, developers should provide existing ALC evidence (and, where necessary, site-specific surveys), a clear quantification of land take by ALC grade, justification for siting on any BMV land if unavoidable and measures to minimise land take and enable restoration following decommissioning, demonstrating that overall agricultural productivity and land use would be largely maintained over the lifetime of the scheme.

NPS (EN-3) encourages applicants to develop and implement a Soil Resources and Management Plan. Soil removed during the construction of turbine foundations, cable routes and access tracks should be managed sustainably. This may include storing topsoil and subsoil separately once removed and replacing them in the same order when re-burying foundations or cables to support soil health.

Standards and key considerations for decision making

Natural England advises LPAs to use the NPPF to make decisions about the natural and local environment to protect and enhance landscape, recognise soils as natural capital asset, prevent soil, air, water, or noise pollution, or land instability and consider the economic benefits of the BMV agricultural land. The NPPF states 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". Applicants should address these aspects in their planning statements and Environmental Statement chapters where relevant.

Onshore wind farms have a relatively small physical footprint, which means they can be easily integrated with continued agriculture or forestry across a site. On average, less than 1% of land in a wind farm is permanently occupied by infrastructure such as turbines, foundations and roads, leaving 99% of the land available for grazing or agriculture. There may be some disruption during construction, but once operational, it is likely that agricultural or forestry-related activities would be able to continue over the majority of the site. This supports effective land use, contributing to food and energy production on the same land.

Furthermore, lease payments to landowners can diversify farm income and support businesses. In some cases, access tracks can be beneficial for agricultural vehicles and landowners may choose to retain them when the site is decommissioned. These benefits align with paragraph 88b of the NPPF, which states planning decisions should enable "the development and diversification of agricultural and other land-based rural businesses".

Forest canopies affect wind flow dynamics, which may influence the energy generation potential of a nearby wind farm. Developers should take this into account when assessing the energy generation potential and optimal design of a site, but the presence of forests or wooded areas does not preclude the development of an onshore wind farm at a location. Newly planted trees may affect wind dynamics in future but will take time to become established.

Planner tip
Natural England have a guide to assessing development proposals on agricultural land.

Land contamination

Potential impacts of wind turbines

The piling required to construct wind turbine foundations can mobilise contaminants, potentially resulting in the pollution of groundwater and (via groundwater pathways) surface water bodies.

When an assessment may be required

The risks are greatest in source protection zones (SPZ) (especially SPZ1), aquifers (especially principal aquifers) and in drinking water protection zones. The need for assessment is also triggered where land is known or suspected to be contaminated, or where piling would penetrate low permeability layers that currently limit contaminant movement. In lower risk locations, a proportionate screening approach may be sufficient where risks can be clearly ruled out.

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

Applications should include a risk based assessment proportionate to the site's sensitivity and the scale of the proposed piling. This will typically involve a desk based review of ground conditions, hydrogeology and contamination risk, informed by site investigation where necessary. A piling risk assessment or method statement should be provided describing the piling technique, depth, and proposed mitigation measures, such as sealing methods, selection of low risk piling techniques, or avoidance of sensitive strata. Where risks are identified, engagement with the Environment Agency or relevant local authority specialists may be required.

Standards and key considerations for decision making

Supporting guidance (in Planning Practice Guidance) can help LPAs identify where proposals present this risk and how it can be mitigated. Refer to Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention.

Flooding and drainage

Potential impacts of wind turbines

Turbine foundations, access tracks and hardstanding can displace floodplain storage, meaning floodwater may spread more quickly or to greater depths elsewhere, while raised tracks or embankments could obstruct natural flood flows and redirect water toward receptors such as farmland, roads or properties. Construction activities may compact soils, increasing surface water runoff and erosion, and drainage works can alter existing watercourses or overload ditches, potentially worsening localised flooding. There is also a risk of infrastructure being damaged during flood events, leading to maintenance issues or the failure of drainage features if they are not designed for flood conditions.

When an assessment may be required

Paragraphs 170 to 182 of the NPPF set out national planning policy for flood risk. For proposals in a Flood Zone, a Flood Risk Assessment (FRA) and Sustainable Drainage Strategy should be included in 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.

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 it's 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.

Sustainable drainage solutions are required for required for all development proposals that could affect drainage on or around the site, and so may be required next to substations, hardstanding and turbine foundations. 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.

Transport impacts

Potential impacts of wind turbines

Transport impacts are often a key consideration for onshore wind farm developments, particularly during contruction. Construction can generate a temporary but significant increase in traffic, including HGV movements, abnormal indivisible loads and specialist plant deliveries. These activities can place pressure on rural roads, junctions, bridges and nearby communities if not properly managed.

When an assessment may be required

A transport assessment for an onshore wind application is likely to be be required where construction or operation would generate traffic movements, abnormal loads or highway works that could materially affect the safety, operation or amenity of the road network. This is particularly prominent where the site is accessed via narrow, constrained or unsuitable roads, including those with weight limits, tight bends, weak bridges or sensitive roadside receptors.

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

LPAs should expect planning applications to include proportionate transport information, such as a Transport Assessment or Transport Statement, which sets out predicted construction and operational traffic levels and identifies any potential impacts on the local highway network. Given the scale and nature of turbine components, applications should also demonstrate that abnormal load routes are feasible, safe and deliverable, with any required highway works clearly identified.

A Construction Traffic Management Plan is often essential and should explain how construction traffic will be routed, timed and controlled to minimise disruption and maintain highway safety.

Standards and key considerations for decision making

Decision-makers should be satisfied that an onshore wind development would not result in unacceptable impacts on highway safety, network operation or residential amenity, particularly during construction. Traffic and transport impacts, including those associated with abnormal load deliveries and construction traffic, should be assessed in a proportionate manner and shown to be capable of effective management.

Proposals should demonstrate that access routes are suitable and that any required mitigation, such as traffic management measures or limited highway works, can be secured where necessary. Temporary and construction-phase impacts should be clearly distinguished from operational effects. Where impacts are localised, time-limited and appropriately mitigated, they will be weighed accordingly in the overall planning balance.

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.

Transport impacts of onshore wind developments should be considered with regard to the NPPF, PPG on Travel Plans, Transport Assessments and Statements, NatureScot published guidance on Good Practice during Wind Farm Construction, ISEP (previously IEMA) published guidance on Environmental Assessment of Traffic and Movement for EIAs.

07

Decommissioning, repowering and lifetime extension

In this section

Across Great Britain, many operational onshore wind farms are reaching the end of their operational planning consent, which was typically granted for around 25 years. As these sites approach this milestone, developers must decide whether to decommission existing turbines, extend their life, or replace them with newer, more efficient technology – known as repowering.

Repowering offers a substantial opportunity. Upgrading existing wind farms can unlock significantly 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.

Duration of planning consent and decommissioning requirements

Historically, many onshore wind farms in the UK have been granted temporary planning consents, typically of around 25 years, with a condition that the turbines (and associated infrastructure) must be decommissioned and the land restored at the end of that period.

However, good maintenance and operational practices mean that many turbines are technically capable of operating beyond 25 years and life-extension applications have been used to increase the duration of these planning consents. Moreover, modern technology has also led to increased lifespans. The Onshore Wind Taskforce Strategy shows that contemporary turbines can generate electricity over lifetimes of 35+ years.

For new sites, it is becoming increasingly common to grant a longer duration of planning consent, such as 35-40 years, to reflect the longer operating lifespans of modern turbines.

Decommissioning and restoration remain a key component. Planning conditions should ensure that at the expiry of the consent, the turbines, hardstanding, cables etc, are removed and that the land is restored to its previous condition.

Life extension

What is life extension of a wind farm?

Maintaining the existing infrastructure in place while extending the duration of the time-limited planning consent. This may involve replacing parts (often small components such as generators) on a like-for-like basis. However, all parameters will remain the same as in the original consent, so the project is materially unchanged. 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 s.73 to vary the condition on the consent (e.g. extend the operational life from 25 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.
  See: Flexible options for planning permission / gov.uk
- The assessment will still require consideration of key planning matters, e.g. whether the turbine technology remains safe/suitable, whether monitoring and maintenance regimes are robust, whether there are changed circumstances (land use change, new environmental designations, changed local context) that require fresh assessment of landscape/ecology/heritage/noise or other environmental impacts
- The NPPF (Paragraph 168(c)) states that "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

What is repowering?

Existing turbines are decommissioned and removed, and new turbines are constructed on the same site. The new turbines will typically be of a different height and number and, therefore, the overall layout of the site is likely to be different. The site's overall MW output may increase, particularly for the oldest wind farms.

Under current policy, a repowering application will be considered as a new project, potentially requiring an EIA, and the baseline for assessments will be the site following decommissioning and/or restoration (depending on the original site's planning conditions).

Planning policy for repowering

The NPPF (Paragraph 168(c)) states that
"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 turbine size, height, or layout, whether repowering gives rise to additional impacts (landscape, ecology, heritage, noise, etc.) and whether the proposal includes decommissioning and/or clearance of the older turbines.
See Regen's report A Second Wind: Unleashing the potential of repowering.

Case study

Hagshaw Hill
Hagshaw Hill wind farm in South Lanarkshire was originally granted planning permission in 1995 and consisted of 26 wind turbines with a blade tip height of 55m and total capacity of 15.6 MW. In 2020, Scottish Ministers granted planning permission to repower this site, including the removal of the 26 existing turbines and installation of seven new turbines on the existing site and seven new turbines on land to the south of the existing site. The new turbines will have a blade tip height of up to 200m and a total capacity of 84 MW, and the site is currently under construction.

08

Typical planning conditions for onshore wind farms

Image: CleanEarth Energy

In this section
Below, we set out a range of topics that are commonly addressed through planning conditions for onshore wind developments. 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 can be tailored the specific site, the proposed turbine technology, local environmental sensitivities and the nature of any potential impacts.

Table 2: **Typical planning conditions for onshore wind**

Topic	Typical content of planning conditions
Design parameters	Fixes turbine height, layout and appearance so the built scheme matches the assessed design.
Micro-siting parameters	Formalises the 'Rochdale envelope', where parameter ranges are used at the application stage. Conditions ensure the final built infrastructure falls within the assessed limits. Parameter plans define permissible ranges (e.g. turbine locations/rotor diameters) within which minor adjustments (micro-siting) can occur after consent without further applications, provided environmental limits are respected. LPAs should ensure that any micro-siting allowances are justified in the application – and the Environmental Statement, if applicable – and that they respect the agreed assessment envelopes for noise, landscape, ecology and heritage. Parameters must be clear and enforceable. Applicants should provide parameter plans and explain the rationale for any micro-siting, including environmental constraints and how the ranges were derived based on assessment results.
Landscape and visual mitigation	Secures agreed visual mitigation (e.g. planting, track treatment).

Construction Environmental Management Plan (CEMP)	Controls construction impacts, including noise, dust, runoff, pollution risk and ecological protection.
Construction traffic management	Manages HGV routing, road safety and temporary traffic measures. It may consider abnormal loads.
Ecology and biodiversity	Implements species protection, habitat creation/ restoration and ecological mitigation.
Shadow flicker	Requires monitoring/mitigation (e.g. programmed turbine shutdown) where receptors may be affected.
Operational noise limits	Sets ETSU-R-97 compliant noise limits and requires monitoring to ensure ongoing compliance.
Construction noise management	Controls construction hours and high-noise activities to protect local amenity.
Heritage and archaeology	Requires investigation and protection measures for archaeological remains; manages effects on the setting.
Peat/soil management	Minimises disturbance of peat or carbon-rich soils and secures reuse/restoration measures.
Water and drainage	Protects watercourses, secures sustainable drainage features and prevents pollution.
Aviation & radar safeguarding	Implements mitigation agreed with CAA/MOD/NATS, including lighting or radar solutions.
Telecommunications interference	Ensures investigation and remediation in the event of signal interference.
Grid infrastructure and substation design	Controls the design, materials, and lighting of substations and cables to reduce visual impact.
Lighting (construction and operational)	Limits construction and operational lighting to reduce visual and ecological effects.
Decommissioning and site restoration	Requires removal of turbines and reinstatement at end-of-life or prolonged non-operation.
Public access management	Manages temporary closures and diversions, ensuring their reinstatement.

Assessing onshore wind 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.

Date:
March 2026

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