Renewable and Low Carbon Energy Planning Guidance Consultation Draft 2025

PKC LOCAL DEVELOPMENT PLAN

PERTH & KINROSS COUNCIL

Contents

1. Introduction

1.1 Background

This document sets out the key considerations in the Development Plan for renewable energy applications. The Development Plan includes National Planning Framework (NPF4) and Perth & Kinross Local Development Plan 2019 (LDP2). All policies in NPF4 apply. Policies in LDP2 apply where they are not incompatible with NPF4. This includes parts of Policy 33: Renewable and Low Carbon Energy as set out in Appendix 1.

NPF4 Policy 11: Energy is strongly supportive of renewable and low carbon energy technologies, recognising – alongside other key NPF4 policies – the need to address the climate crisis through supporting the move to net zero. Significant upscaling in renewable energy technologies and infrastructure is needed to meet renewable energy generation and greenhouse gas emissions reduction targets.

Guidance is provided here on policy interpretation, how impacts are expected to be avoided and minimised, and the information that is to be submitted with planning applications. The Guidance will be a material consideration in the determination of planning applications and will help inform any Perth & Kinross Council (PKC) consultations on Energy Consent Unit (ECU) applications.

1.2 Addressing NPF4 and LDP2 Policy Criteria

The Guidance provides information in relation to each of the criteria in NPF4 Policy 11. Relevant additional criteria contained in LDP Policy 33 are also included for consideration and are set out in Appendix 1. Other relevant NPF4 and LDP2 policies and associated guidance are referenced and should be addressed in submissions as relevant.

Each policy section in this guidance contains:

- information relevant to all technologies
- additional advice specific to each technology.

Applicants should apply both the general and technology specific advice. Proposals must address NPF4 and LDP2 as a whole and all relevant policies. The applicability of policies and guidance will be relative to the scale, location and nature of the proposal.

Spatial Guidance

NPF4 Policy 11(b) reaffirms that wind farms will not be acceptable in National Parks and National Scenic Areas. LDP2 Policy 33D: Spatial Framework for Wind and the associated map no longer apply.

1.3 Preparing Submissions

Applicants should refer to the Council's website for information on the application process, fees and submission requirements including application checklists. A pre-application enquiry is strongly advised to help ensure appropriate and proportionate information.

Information on existing renewable installations is available on the Renewable energy proposals map

Small scale renewable energy generation technology

Small scale renewable generation can provide clean energy for individual homes, businesses, and community-scale projects. Examples include ground and air source heat pumps, roof-mounted solar, domestic/small scale wind. Small scale schemes should consider key impacts on amenity, air quality, landscape and visual impact, and if there are any particular sensitivities or designations within the site/surrounding area including birds, protected species, protected areas, and heritage interests.

Micro-renewables with an output less than 50kW electricity or 45kW thermal within the curtilage of a dwelling may be covered by **permitted development rights** (with limits and conditions), but proposals in a conservation area or where heritage assets are affected will need planning permission and/or listed building consent.

- Circular 1/2024 (Domestic)
- Circular 2/2024 (Non Domestic)
- Renewable | Scottish Environment Protection Agency (SEPA)
- Micro-renewables | NatureScot
- Managing Change in the Historic Environment: Micro-renewables | HES
- What work needs a building warrant? | PKC

Major Applications

Major developments are subject to additional requirements including Pre-Application Consultation with relevant communities and affected parties. Major applications include all developments in Schedule 1 of the EIA (Scotland) Regulations 2017, and all electricity generating developments over 20MW, or extensions resulting in a development over 20MW.

- Major Planning Applications (PKC)

EIA Developments

Environmental Impact Assessment (EIA) is a process which identifies and helps address significant environmental effects. Applicants are strongly encouraged to request a screening opinion at an early stage to ascertain if an EIA will be required.

- EIA Guidance (PKC)
- EIA Guidance (Scottish Government)
- Circular 1/2017 EIA Regulations (Scottish Government)
- EIA Guidance | NatureScot
- EIA Guidance | Historic Environment Scotland

National Development

Strategic Renewable Electricity Generation and Transmission Infrastructure is identified as National Development. This includes:

- Electricity generation and storage from renewables exceeding 50MW capacity
- Electricity transmission lines, cables and interconnectors of 132kv or more
- Infrastructure supporting high voltage lines, cables and interconnectors including substations

Pumped storage hydro infrastructure that would otherwise be a major application is identified as National Development.

Applications for national developments and network projects are made to the Scottish Government Energy Consents Unit. This guidance is relevant as Perth & Kinross Council is a statutory consultee for Energy Consent applications within Perth & Kinross.

- Energy Infrastructure |Scottish Government
- Energy Consents Guidance | Scottish Government
- Energy Consents Unit Website | Scottish Government
- Applications to the Scottish Ministers under s37 of the Electricity Act 1989 without an EIA Report
- Standard Onshore Wind Conditions (S36) | Scottish Government

Applicants to the ECU are encouraged to engage with PKC as consultee at an early stage. Where necessary PKC will submit a tracked changes version of the standard conditions for Wind to Scottish Ministers with recommended and justified amended or additional conditions to ensure proposals accord with the Development Plan. New requirements for consultation may be introduced during the lifetime of this guidance.

Additional Requirements

Further permissions including building warrants, listed building consents or environmental licences are additional to planning permissions. Information to inform a Habitat Regulations Appraisal may be required for any application that may affect a European Site.

1.4 Submitting Applications

Submissions should address:

- The written advice in this Guidance
- The policies in NPF4
- The policies in LDP2 and associated guidance where relevant.
- The additional relevant assessments and surveys indicated throughout the Guidance.
- Relevant information from assessments or licence applications required by external bodies

All submissions should provide:

- Capacity of renewable energy in kW / MW for all generation, transmission, distribution and storage proposals
- Number, design, specifications and description of renewable energy technology and expected operational lifespan
- Site photos and/or visual representation of the installation
- Red line of the site including all areas of the development

Submissions for applications except micro-renewables should provide a plan of the site, and surrounding area showing where relevant:

- Proposed permanent and temporary infrastructure including all plant and buildings, cable and pipeline routes, tracks, compounds, excavations and abstractions.
- Grid connection location and route; or route of heat network
- Nearest receptors including buildings, dwellings, roads, and recreation areas and routes
- Onsite, adjacent and connected environmental sensitivities including: watercourses; waterbodies; water supplies and abstractions; peatland, carbon rich soils, habitats; trees, woodlands and natural heritage designations; and historic environment assets.

2 Renewable, Low Carbon and Zero Emissions Technologies

2.1 Wind

Wind plays a significant role in the renewable energy mix with potential contributions to producing clean energy through the siting of the right turbines in the right place including new sites, and repowering/extending existing sites. Height of turbines is measured by height to blade tip (hbt) or to hub.

An EIA may be required for any turbine over 15m (hub height), more than two turbines of any height, or in a sensitive area.

There are a range of different wind power proposals in terms of scale:

- Fixed micro turbines: fixed on buildings. These are building-level solutions and may not be efficient, or suitable, in all locations. Limited permitted development available for detached dwellinghouses.
- Free standing micro turbines: up to 15m hbt and <50kW are suitable for rural domestic/agricultural use and are potentially covered by permitted development rights (PDR) for domestic use. PDR is limited and subject to prior notification and approval.
- Small turbines: 15m-30m hbt will require planning permission if over 50kW or not covered by PDR. Foundations and underground cabling may be required.
- Medium turbines: 30m-50m hbt can have significant impacts if poorly sited and will require planning permission.
- Large turbines: >50m hbt. Large turbines require deep foundations, turbine delivery, crane pad construction and electricity infrastructure including transformers. Individual turbines can be sized 200+m in height with larger blades and a greater energy generation capability and will require planning permission
- Wind farms: 3 or more turbines over 30m. Greater land take and infrastructure including substations and grid connections. Wind farms can vary in scale from a small number of turbines to proposals for a large array and will require planning permission.

- Renewable | Scottish Environment Protection Agency (SEPA)
- Onshore wind energy | NatureScot
- Historic Environment Policy for Scotland | Historic Environment Scotland
- Circular 1/2024 Permitted Development Rights (Domestic)
- Circular 2/2024 Permitted Development Rights (Non Domestic)
- Standard Onshore Wind Conditions (S36) | Scottish Government

2.2 Hydropower

Hydropower has a high level of efficiency and predictability and even small-scale hydropower can provide a reliable source of electricity to support rural communities and business.

All Hydropower installations require planning permission and include:

- Impoundment: a dam holding back a large head of water allowing water flow, and energy production, to be regulated. Impoundment with capacity >25000m^3 will need to be registered with SEPA as a reservoir.[1]
- Pumped Storage Hydroelectric (PSH): where water can be pumped back up to an impoundment dam for energy storage. These can be on an open waterbody or in closed artificial storage ponds.
- Run of River: a proportion of water flow is diverted via a weir to pass through a penstock to a powerhouse and discharged back into the watercourse. The components of an installation will vary depending on location and vertical drop (head) and may require penstocks, lades, weirs, and water drawn from multiple sources.

Note that proposals for PSH dams or associated infrastructure that would otherwise be considered major applications are national development.

[1] Reservoir (Scotland) Act 2011 reduced this to 10,000m^3 but is not yet in force

An EIA may be required depending on the scale/location of the proposal, including in sensitive areas. All National Development applications will require an EIA (see Section 1.3 Preparing Submissions).

A water use (CAR) licence under the Water Environment (Controlled Activities) Regulations 2011 will be required for all applications. This may include impoundment and abstraction licences. Engineering works including where penstock routes or tracks cross water courses will also require SEPA authorisation. Applicants should contact SEPA at an early stage to discuss requirements, check whether the scheme is licensable, and progress both applications concurrently. Proposals will need to meet SEPA criteria to be provisionally acceptable to SEPA.

- Hydropower | SEPA
- Hydroelectric power | NatureScot
- Historic Environment Policy for Scotland | Historic Environment Scotland

2.3 Enabling works including grid infrastructure

To facilitate new or extended generation capacity enabling works may also be required. This includes grid infrastructure such as transmission and/or distribution network upgrades. For the Perth and Kinross Council area, SSEN are both the transmission and distribution network operators.

PKC will be consulted or notified on new transmission or distribution infrastructure and ECU applications are expected to demonstrate compliance with NPF4 and LDP2 policies and this guidance document.

Grid infrastructure works may involve new and/or upgraded infrastructure including overhead and underground cables, overhead lines on wooden poles or steel towers, and electricity substations. There are currently several SSEN transmission upgrade 'pathway to 2030' projects within the PKC area.

Connections to the grid may have adverse impacts such as habitat loss and fragmentation, impacts on the water environment, bird collision risk and significant visual impacts. NPF4 Policy 11e highlights that in the case of proposals for grid infrastructure, consideration should be given to underground connections where possible. This is subject to consideration of impacts on archaeology and the natural environment.

NPF Policy 11(e) states that grid capacity will not constrain applications for renewable energy, however applicants connecting to the grid should discuss connection with the relevant network operator at an early stage.

To enable the full implications of applications to be understood applicants should indicate the route and location of infrastructure to be used to connect to the grid within the site, including transformers, substations and associated fencing and access. The Council will need to agree the connection point and method of connecting to the grid before commencement. For section 37 applications provision of the above information will inform the Council's consultation response.

2.4 Energy storage

Energy storage enables energy generated from renewable sources to be stored and released when most needed. Energy storage can maximise efficiency of intermittent technologies such as wind and solar. Examples can include battery storage, pumped storage hydro and hydrogen generation from renewable energy.

Large-scale battery energy storage systems (BESS) are being used to balance energy demand and supply across the UK energy network either as stand alone or in association with solar or wind installations. For the purposes of National Planning Policy, battery storage is considered to be generation. Battery Storage guidance is in preparation by Scottish Government.

Storage proposals co-located with other renewable technologies are supported as they improve efficiency and reduce energy loss.

Battery Energy Storage Systems | SEPA

2.5 Solar Arrays

Electricity from solar photovoltaic panels (Solar PV) or hot water from solar heat collectors (Solar Thermal) provide or supplement energy needs with

low visual and environmental impacts and can utilise unused or underused roof-space or land.

Solar Thermal: usually roof mounted, utilises heat from the sun through a heat exchanger to supplement hot water or central heating.

Solar PV: produces electricity from photovoltaic panels and is useful for supporting domestic use, supporting or supplementing other low carbon technologies such heat pumps, and providing energy to the grid. Forms include:

- Roof mounted PV: solar panels, PV roof tiles, flexible panels, and wall mounted PV. Permitted development rights exist for domestic and non-domestic microgeneration
- Ground mounted PV: range from domestic scale to large solar farms and involve PV panels, mounting structures, fencing, lighting and CCTV, inverters, cabling, and transformers, and can take up a large amount of land.
    - Microgeneration <50kW arrays are useful for domestic or agricultural use with limited infrastructure. Limited PDR are possible for these schemes.
    - Solar Farms >50kW will require planning permission and can have a greater impact from land take and use of infrastructure including transformers, inverters and fencing.
    - Large scale solar farms over 0.5ha or in a sensitive area may require an EIA.

Key information for solar arrays:

- Renewable | Scottish Environment Protection Agency (SEPA)
- Solar energy | NatureScot
- Managing Change in the Historic Environment: Micro-renewables | HES

2.6 Bioenergy

Bioenergy refers to the burning of organic matter (biomass) or breakdown of organic matter (anaerobic digestion - AD) to produce heat and energy. The most efficient use of bioenergy is to provide combined heat and power (CHP) for industrial or heat network use. AD can also produce synthetic gas for use in CHP or transport. Where demonstrated to be low carbon or zero emission or bioenergy "associated with negative emissions technology" (BECCS) such proposals are supported by NPF4 Policy 11. Bioenergy proposals must therefore comply with strict land and greenhouse gas criteria to be considered low carbon including harvesting, processing, storage and transport emissions of feedstock and the use of carbon capture technology where possible.

To protect soils and woodland and to maximise GHG savings, bioenergy proposals must source UK feedstocks only from:

- Primary waste sources such as brash, manure
- FSC sustainable certified products
- Short rotation coppice or energy crops on:
    - class 4.1 – 6.01 land on the land capability for agriculture 1:50,000 maps
    - Class 0 mineral soils on the Carbon and Peatland Map; or
- Short rotation forestry in accordance with the Forest & Woodland Strategy

- Bioenergy Policy Statement (draft) | Scottish Government

2.7 Negative emissions technologies and carbon capture

NPF4 defines negative emissions technologies (NETs) as "an emerging field of technologies that remove greenhouse gases from the atmosphere and utilising carbon capture and storage sequester them permanently." Examples of technologies include:

- Carbon capture, utilisation and storage (CCUS) which captures carbon dioxide generated by large-scale energy intensive processes, and transports it for permanent storage underground
- Forms of Direct Air Capture with Carbon Storage (DACCS),
- Bioenergy with Carbon Capture and Storage (BECCS), or
- Other more experimental means such as enhanced weathering or biochar.

2.8 Co-location

Co-location of more than one renewable technology can provide benefits such as using energy storage to deliver energy to the grid when needed, and potentially reduce land-take and environmental impacts. Co-location is supported subject to policy considerations including landscape and land use compatibility.

LDP2 Policy 33(i) requires all proposals to consider whether onsite energy storage is suitable for their site.

All major and EIA proposals should set out the energy storage opportunities that have been explored and reasons for decisions taken on co-locating energy storage.

3 Planning Considerations

The following considerations and guidance follow the requirements set out in NPF4 Policy 11 with additional considerations in LDP2 Policy 33. The list of considerations and their source are contained in Appendix 4.1.

3.1 Socio-Economic Impacts

Key Policies:

- NPF4 Policy 11(c)
- NPF4 Policy 25: Community Wealth Building

Key Guidance:

- Big Place Conversation 2023 Results
- Local Place Plan Register
- Community Benefits Toolkit | Local Energy Scotland
- Good practice principles for Community Benefits from Onshore Renewable Energy Developments (2019) | Scottish Government
- Shared Ownership | Local Energy Scotland
- Community Funds for Transmission Infrastructure | UK Government
- Community Energy Generation Growth Fund | Local Energy Scotland

All proposals

> “Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.” NPF4 Policy 11(c)

All local proposals should demonstrate a commitment to maximising the net economic impact addressing the elements in Policy 11(c).

All major and EIA proposals must provide a statement setting out measures taken or committed to, which maximise net economic benefit including local benefits and to the wider Perth and Kinross economy. Scottish Government guidance is expected to be released during lifetime of this guidance which should be adhered to.

NPF4 Policy 25: Community wealth building sets out the positive socio-economic impacts of proposals that will be supported. Discussions with community bodies and reference to local place plans and/or community action plans will help inform the development of socio-economic statements. NPF4 Policy 25 also states that development proposals linked to community ownership and management of land will be supported.

All large wind and wind farm applications and all hydropower applications should consider their land use impacts on other commercial users. For example, wind farms can disrupt airflow on neighbouring wind farms, and hydropower developments may affect flows for other hydropower, agricultural or recreational business uses.

Community Ownership and Community Benefits

Community benefits are voluntary monetary or other benefits unrelated to the impacts of the project, provided by the developer. These offer opportunities to support community action plans such as through discounted supply of free electricity for local use, or share of ownership.

However, monetary benefits are not material to planning and will not be taken into account in decisions on planning applications nor will community ownership justify environmentally damaging proposals.

3.2 International and National Designations

International and National designations relate to National Parks, landscape, biodiversity and geodiversity designations. National Parks and landscape issues are addressed in chapter 3.4 on Landscape and Visual Impacts and biodiversity and geodiversity in chapter 3.11 on Biodiversity

3.3 Impacts on Communities and Individual Dwellings

Key Policies:

- NPF4 Policy 11(e)(i): Energy
- NPF4 Policy 23(d): Health & Safety
- LDP2 Policy 33: Renewable and Low Carbon Energy
- LDP Policy 55: Nuisance from Artificial Light and Light Pollution
- LDP Policy 56: Noise Pollution
- LDP2 Policy 57: Air Quality

Key Guidance

- Guidance Biomass | SEPA
- Supplementary Guidance Air Quality | PKC
- Local air quality management policy guidance | Scottish Government
- Wind Turbine Noise | Institute of Acoustics

All proposals

NPF4 11(e)(i) requires proposals to demonstrate through project design and mitigation how impacts on communities and individuals are considered including residential amenity, visual impact, noise, shadow flicker. LDP2 Policy 33 also requires air quality to be addressed.

The operation and construction of most proposals can impact on amenity through dust, odour, lighting, and vibration, and should be addressed in addition to the main issues below. All Technologies should address the impacts of noise generating equipment early during site selection and siting, design and technical controls. Construction should be time-controlled to limit impacts.

Noise assessments should address sensitive receptors and demonstrate that nearby residents' enjoyment of their dwellings or gardens is not adversely affected. Receptors in a rural environment may be more sensitive to noise impacts. Cumulative assessments will be required where equipment including substations, storage and transformers are located in close proximity including from existing installations. All noise generated from equipment should be acoustically insulated where possible and where there is potential for a significant impact on receptors including priority species.

Where construction or security lighting is required, sensitive siting, shielding and passive infrared technology should be used to minimise impacts on residents.

Measures should be taken to reduce air borne emissions in construction, transport and operation including abatement, utilising methane, reducing

transport distances, dust mitigation, using sustainable fuel sources and adhering to the waste hierarchy.

Wind

Shadow flicker and strobe effects from moving blades can create distraction and have potential health effects on some individuals. Shadow flicker occurs when blades rotate and cast a shadow over neighbouring properties at certain times of day and year. Impacts should be avoided primarily through site selection, siting and separation distances, and design, with residual impacts mitigated through technical controls.

Applicants for large turbines and wind farms should identify dwellings that may be significantly affected. This includes dwellings within 10 rotor diameters distance and within 130 degrees either side of North taking into account turbine height, topography and latitude. Impacts on affected dwellings should be for no more than 30minutes per day or 30 hours per year at any dwelling.

Noise impact will depend on distance, turbine design, topography, prevailing wind direction and speed, and siting. Turbines may also have temporary impacts from amplitude modulation: a 'thump' caused by the movement of the blades through the air.

Assessments should also be carried out for construction noise including blasting for foundations and borrow pits where relevant.

A Noise Impact Assessment (NIA) for receptors within a 35db contour of turbines may be required and should be updated following any material change in the proposed design. The Environmental Health team will help identify requirements and the appropriate receptors and should be engaged early in preparing submissions. Submissions for medium turbines and above should show that noise will not exceed 35dB at noise sensitive premises (LA90, 10min of 35dB, <=10m/s wind speed, at 10m height) – with a 5dB penalty for any tonal noise generated. Assessments should be undertaken in accordance with standard ETSU-R-97[2] and guidance.

Large wind farms and complex cumulative impacts will be considered by the Council. A cumulative assessment should demonstrate increases in noise levels are acceptable. These will be required for large turbines, wind farms, and for small turbines where there are other wind installations within 2km.

Hydro

Noise may be an issue from powerhouses. Providing the powerhouse location and manufacturer's data will allow the Environmental Health team to advise potential impacts, noise limits and any Noise Impact Assessment (NIA) requirements.

Vibration from powerhouse operation may also affect nearby dwellings. The design, construction and maintenance of powerhouses should ensure standards are not exceeded (see Table 1 of BS 6472-1:2008).

Solar

Noise may arise from poorly maintained tracking mechanisms and construction particularly from pile driven foundations, and potential operational noise from inverters and transformers. Proposals should ensure nearby dwellings are not adversely affected. An assessment and mitigation, such as limiting construction times, acoustic housing of transformers and maintenance plans may be required.

Glint and Glare is a limited issue with modern PV panels, but submissions for solar farms should show no adverse impacts on sensitive receptors including residential dwellings and roads taking into account tracking movements and seasonal adjustments. Glint and Glare assessments will be required where properties within 1km to the east and west of the development have line of sight of the solar panels. Glint and glare can be mitigated through siting, screening and limiting the angle of panels.

The visual impact of security lighting should also be minimised through sensitive siting, passive infra-red technology and shielding.

[2] ETSU R 97 is due to be updated during 2025.

Energy Storage

Noise impact from the operation of battery units including cooling systems, inverters and transformers will need to be considered, particularly where these are proposed close to residential properties. Providing the location of associated infrastructure and manufacturer's data will allow the Environmental Health team to advise on potential impacts, noise limits and any Noise Impact Assessment (NIA) requirements. This will include cumulative assessments of sites situated near substations, solar farms or other energy storage sites. A condition to control noise will be applied.

Sites should avoid impacts on sensitive receptors in the first instance. Acoustic fencing or bunding will be required to address residual impacts.

Bioenergy

Biomass installations can increase local concentrations of particulate matter (PM) and Nitrogen Dioxide (NO_2). For applications over 50kW an Air Quality Assessment (AQA) may be required, and will be required within the Perth Air Quality Area. SEPA guidance should be referred to for installations over 20MW. All biomass applications should include:

- boiler size (kW)
- manufacturer's brochure.
- Stack height above ground level
- Stack internal diameter
- Height of nearby buildings within 5 times the stack height including the boiler building
- Maximum emission rates for NO_2 and PM10 in g/s

When choosing a location for Biomass neighbouring properties, relative heights, window locations, topography and dispersion effects should be taken into account. Dispersion modelling may need to be mapped for large installations. Manufacturer's recommendations must be adhered to with regards the fuel type and moisture content and covered fuel storage.

Gases produced from anaerobic digestion and associated CHP can impact on air quality. Most proposals will need an AQA and to demonstrate exhaust emissions and flare operations adhere to SEPA Waste Guidance. AD plants should re-use their own low grade waste heat where possible

3.4 Landscape and Visual Impacts

Key Policies:

- NPF4 Policy 11: Energy
- NPF4 Policy 4: Natural Places
- NPF4 Policy 7: Historic Assets and Places
- NPF4: Policy 8: Greenbelt
- LDP2 Policy 39: Landscape

Key Guidance:

- Planning and development: landscapes | NatureScot
- Planning and development: renewable energy | NatureScot
- Wind farm impacts on landscape | NatureScot
- PKC Supplementary Guidance - Landscape
- Guidance on Aviation Lighting Impact Assessment | NatureScot

Landscape Policies

- LDP2 Policy 39 sets out locally important impacts to address in submissions including factors such as local distinctiveness and the experience of the night sky.
- NPF4 Policy 4(a) states that unacceptable impacts on the natural environment will not be supported. This includes landscape impacts.
- NPF4 Policy 11(b) bars wind farms from National Parks and National Scenic Areas. The relevant National Park should be referred to for guidance on other renewable development.
- NPF4 Policy 11(d) refers applicants to Policy 4 for impacts on international and national designations, this includes landscape designations.
- NPF4 Policy 11(e)(ii) states significant landscape and visual impacts from all forms of renewable energy proposals must be addressed.
- NPF4 Policy 4(c) sets out requirements in relation to impacts on National Parks and National Scenic Areas
- NPF4 Policy 4(d) addresses local landscape areas.
- NPF4 Policy 4(g) addresses Wild Land Areas and wild land impact assessments.
- NPF4 Policy 7 includes landscape protections of historic features

- NPF4 Policy 8 addresses applications in the Greenbelt

Interpretation of Policy 11(e)(ii)

> “Significant impacts… are to be expected from some forms of renewable energy. Where such impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable„ NPF4 Policy 11(e)(ii)

Some forms of renewable energy: refers to wind installations only.

Localised: refers to the immediate neighbouring location only.

Appropriate design mitigation: requires that all reasonable mitigation has been applied to reduce significant impacts taking into account the factors in LDP2 Policy 39 including the local importance and use of the landscape, and the qualities of landscape character types and designated landscapes.

Generally be considered acceptable. Acceptability is subject to the tests in NPF4 Policy 4 including Policy 4(a) and consideration of matters addressed in other policies including greenbelt, heritage, and quality of place.

Interpretation of Greenbelt Policy

NPF4 Policy 8 Greenbelt sets out requirements to be met for proposals in the greenbelt informed by LDP2 Policy 43. These are additional to NPF4 Policy 11 and include the following:

> “reasons are provided as to why a green belt location is essential and why it cannot be located on an alternative site outwith the green belt;„

LDP2 requires a statement setting out reasons why a green belt location is essential and must identify the search area and the site options assessed

“the purpose of the green belt at that location is not undermined; „

The purpose of the greenbelt in LDP2 is to protect and enhance the character, landscape setting and identity of settlements

“the proposal is compatible with the surrounding established countryside and landscape character;

the proposal has been designed to ensure it is of an appropriate scale, massing and external appearance, and uses materials that minimise visual impact on the green belt as far as possible; and

there will be no significant long-term impacts on the environmental quality of the green belt„

Long-term impacts are less than permanent and those beyond short-term changes such as construction or as planted screening develops. This is regardless of whether the impacts are theoretically reversible. Wind proposals are assumed to be a permanent change.

All Proposals

Renewable energy installations can impact on the character of the landscape as a result of the design, size, and layout of the installation, and associated infrastructure against the landscape.

Visual impacts also arise from people’s perception of installations as seen from homes and public locations (receptors).

All submissions should consider whether the proposal will affect:

- The landscape character taking into account scenic value, and areas sensitive due to historic and cultural or recreational value.
- Impacts on the landscape of, and views from and to Local Landscape Areas, National Parks, National Scenic Areas, Wild Land Areas
- Impacts on the setting of, and views to and from, scheduled monuments, historic battlefields and Gardens and Designed Landscapes
- Views to iconic and locally important landmarks including the Highland Boundary Fault and iconic viewpoints
- Views from important viewpoints including Munros, and viewpoints indicated on OS maps.
- Views from neighbouring receptors including dwellings, core paths and other popular recreation routes, Principal Tourist and Amenity Routes and recreation areas
- Landscape character of the greenbelt

Submissions should also address any cumulative impact on the issues above. See section 3.20

Landscape and Visual Impact Assessments (LVIA)

The assessment required of the landscape and visual impact of the proposal will be proportional to the scale and nature of the development and the sensitivity of the location ranging from simple site photographs and design drawings, through Landscape and Visual Appraisals (LVA) and Landscape and Visual Impact Assessments (LVIA). The Planning Authority will help identify the extent of assessment required, the zone of theoretical visibility (ZTV) and relevant viewpoints and receptors.

All appraisals and assessments must follow:

- Guidelines for Landscape and Visual Impact Assessment (3rd ed) | The Landscape Institute

Small and medium wind turbines submissions will be assessed in accordance with:

- Assessment of The Impact of Small Scale Wind Energy Proposals on the Natural Heritage | NatureScot

Large Turbines and Wind Farm submissions must adhere to:

- Visual Representation of Wind Farms | NatureScot
- Siting and designing wind farms in the landscape | NatureScot

The Landscape character of Perth and Kinross is described in:

- Landscape Study to Inform Planning for Wind Energy| DTA
- Landscape Character Type Descriptions | NatureScot.

All assessments should take into account any changes in landscape capacity since the publication of these studies using professional judgement

Assessment information required	
All proposals	Site photographs, design details and technology specifications
	All photographs and visualisations should clearly demarcate the site boundary including access tracks.
Micro wind	Basic ZTV and photomontages in sensitive locations.
Small & Medium turbines	Detailed design and location information and visualisations. A 15km ZTV and LVA with visualisations from key viewpoints
Large turbines & wind farms	LVIA with a ZTV to a minimum of 20km. Visualisations from key viewpoints in proportion to proposal. Cumulative map of proposals within 20km
Hydro	Site photographs of watercourses and affected construction areas. LVA for local applications, LVIA for major, EIA or where sensitive landscape affected
Solar Farms & Energy Storage	Visualisations. LVA if affecting heritage or landscape designation; LVIA for major, EIA and cumulative assessment of both solar and energy proposals
Enabling Infrastructure	Visualisations. LVA if affecting a heritage interest or landscape. LVIA for major, EIA

All proposals should demonstrate how landscape and visual impacts have been mitigated through:

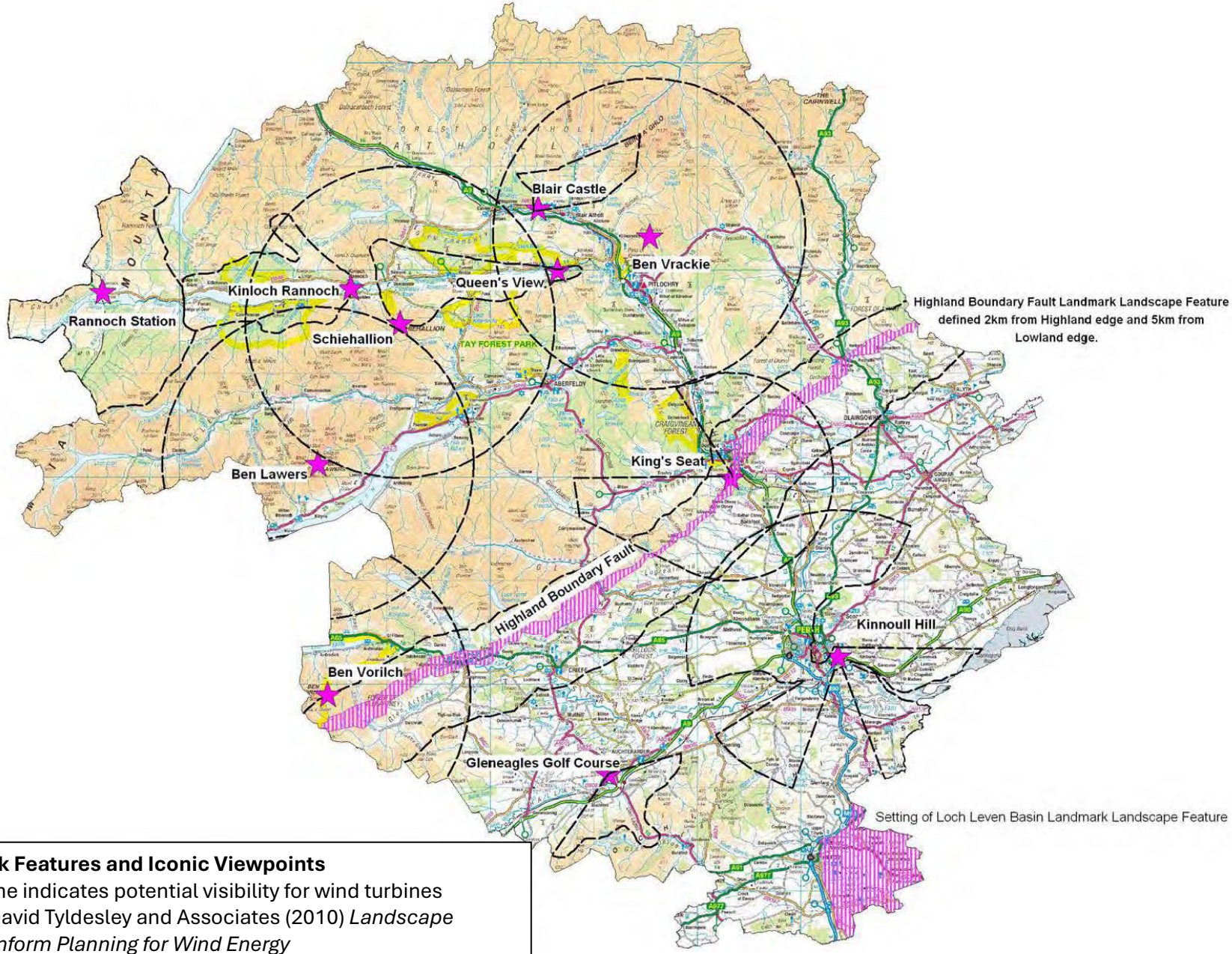
- Careful selection of site and route of tracks at design stage
- Considering the siting and design of infrastructure at an early stage in consultation with communities and stakeholders
- Using design, materials, and colour that best fit with the built, historic and natural environments
- Using scale appropriate to nearby buildings, trees, pylons and landforms
- Siting infrastructure near existing structures

- Siting all turbines and large installations to avoid significant adverse visual and landscape impacts as seen from Principal Tourist and Amenity Routes
- Using existing topography, landscaping and natural screening to minimise impacts
- Undergrounding of pipework, penstock and cabling where possible; and the use of landscaping and natural screening where undergrounding is not possible
- Timely restoration of tracks, trenches, construction compounds, laydown areas and borrow pits to match the surrounding environment
- Demonstration of effective mitigation through a Habitat Management Plan or Landscape Management Strategy.
- Planted screening should be multilayered, and of sufficient height to screen impacts through all seasons.

Iconic Viewpoints and the Highland Boundary Fault

Major and EIA proposals including grid infrastructure visible from important viewpoints including Munros and iconic viewpoints should assess impacts on those views and provide visualisations

The Highland Boundary Fault is a distinctive, topographical, cultural and geological feature running through Perth and Kinross which is sensitive to wind turbines on its top or, as seen from the Lowlands side, in front of or on the fault slope itself. Visual impact assessments will be required for large turbines and wind farm proposals within 2km of the northern edge, and 5km of the southern edge of this feature to demonstrate that views of the skyline or natural beauty of this feature are not significantly adversely affected.



Landmark Features and Iconic Viewpoints
Dotted Line indicates potential visibility for wind turbines
Source: David Tyldesley and Associates (2010) *Landscape Study to Inform Planning for Wind Energy*

National Scenic Areas and National Parks

Under NPF4 Policy 11b wind farms proposed in National Scenic Areas (NSAs) and National Parks will not be supported.

Any turbine >12 m in an NSA needs planning permission and consultation with NatureScot. Most turbines, hydro installations and hill tracks, and other large installations can have adverse landscape and visual impacts at a distance including across boundaries to both NSAs and National Parks. Where in or visible from NSAs and National Parks submissions should show they do not have a significant adverse impact on the special landscape qualities of the designation or their gateways with reference to the relevant guidance. Proposals will specifically be assessed in relation to NPF4 Policy 4c.

See Guidance:

- The Special Landscape Qualities of LL&TNP (NatureScot, 2010)
- The Special Landscape Qualities of Cairngorms National Park (NatureScot, 2010)
- The Special Qualities of National Scenic Areas (NatureScot, 2010)

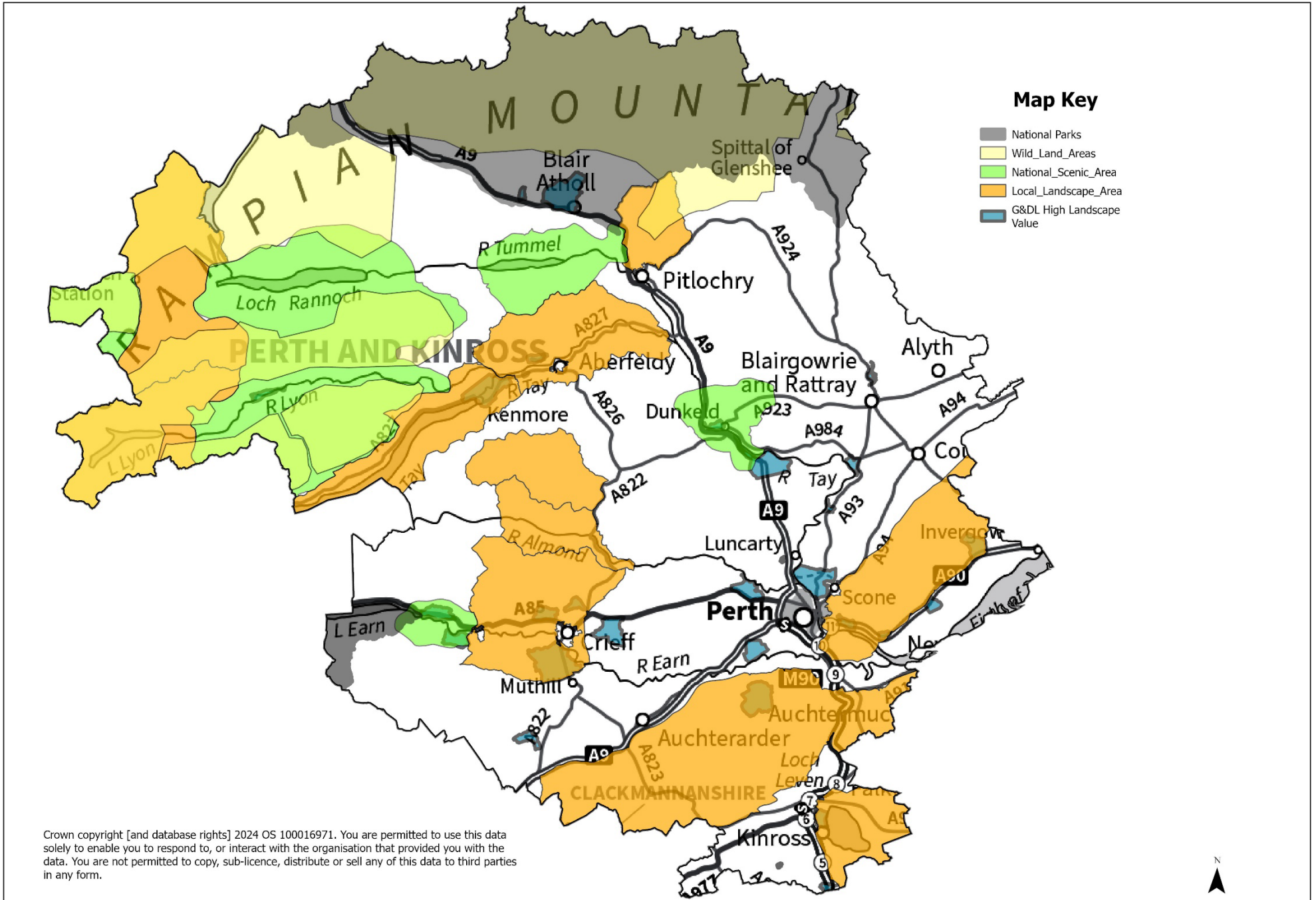
Wild Land Areas

NPF4 Policy 4(g) sets out the requirements for assessment in relation to Wild Land Areas and the requirement for a Wild Land Impact Assessment to demonstrate minimisation of significant impacts. Policy 4(g) is subject to the qualification in policy 4(a).

- Wild Land Area descriptions and assessment guidance | NatureScot.

Local Landscape Areas

Local Landscape Areas (LLAs) in Perth & Kinross and neighbouring authorities should be considered of regional importance in LVIA. Views both to and from these landscapes should be addressed. Significant impacts on these areas must be localised or appropriately mitigated with reference to Policy 4(a), 4(d) and PKC Supplementary Guidance on Landscape.


Map Key
National Parks
Wild_Land_Areas
National_Scenic_Area
Local_Landscape_Area
G&DL High Landscape Value
Blair Atholl
Spittal of Glenshee
Pitlochry
Loch Rannoch
R Tummel
PERTH AND KINROSS
Aberfeldy
Kenmore
Dunkeld
Blairgowrie and Rattray
Alyth
Luncarty
Perth
Scone
Crieff
Muthill
Auchterarder
CLACKMANNANSHIRE
Kinross
R Tay
R Almond
R Earn
R Lyon
L Earn
L Lyon
A9
A822
A826
A827
A923
A924
A984
A94
A93
A85
A823
M90
Crown copyright [and database rights] 2024 OS 100016971. You are permitted to use this data solely to enable you to respond to, or interact with the organisation that provided you with the data. You are not permitted to copy, sub-licence, distribute or sell any of this data to third parties in any form.

Wind

For the siting and design of all wind turbines above 15m in height and associated infrastructure, applicants will be assessed against:

- Siting & Designing Wind Farms in the Landscape | NatureScot
- Guidance on Aviation Lighting Impact Assessment | NatureScot

This will help submissions to address:

- The fit of turbines within the landscape depending on the number, scale, pattern and colour of turbines against the scale, form, complexity and cover of the landscape
- The prominence of turbines including on ridge lines, on loch and river shores and in areas of wildness, remoteness or tranquillity
- The siting of turbines on the site in relation to each other, other structures and site topography, as viewed from different receptors
- The location and fit within the pattern of existing turbine(s)
- The relation of turbine(s) in size, character and location in the context of nearby dwellings and other buildings, monuments, conservation interests and locally important natural features
- The cumulative impact of all sizes of turbines with existing and proposed turbines and other infrastructure including pylons
- The landscape and visual impact of foundations, transformers, cranes, crane pads, tracks, construction compounds, borrow pits, and grid connection infrastructure
- The impacts of aviation lighting on the night sky.

Cumulative impacts from new turbines that risk coalescence between existing wind farms or turbine clusters leading to a wind farm landscape should be avoided. Repowering applications may provide an opportunity to reduce existing cumulative impacts by removing or redesigning elements in the landscape.

A Cumulative Landscape and Visual Impact Assessment (CLVIA) will be required for large turbines and wind farms where there are existing, or proposed turbines within a cumulative zone agreed with the Planning Authority. CLVIAs should adhere to NatureScot guidance Assessing the Cumulative Impact of Onshore Wind Energy Developments (2021) and should address:

- All existing, consented or submitted wind applications
- Other large or tall industrial features including pylons
- Structures outside the Council area, including for sequential impacts
- Effects on landscape character; and the qualities of landscape designations including Local Landscape Areas and Wild Land
- Combined and successive cumulative impacts
- Sequential impacts on amenity, tourist and recreational routes
- Impacts of infrastructure such as tracks, crane pads and borrow pits.

Proposals for small and medium turbines should consider other existing turbines within 1km. Siting and design choice will help avoid creating confusion or clutter through different designs or heights.

The siting and design of micro wind turbines should use scale, design, materials and colour that best fit with the surrounding environment and any other turbines. Micro wind is best sited in association with existing buildings or structures and can be located carefully or screened to avoid visual impacts.

Hydro

Impacts from hydro schemes will depend on the sensitivity of the location and the extent of infrastructure. National Parks, NSAs, LLAs, and WLAs should be avoided if impacts cannot be sufficiently mitigated.

The contrast of hill tracks and penstock routes with the existing landscape during and post construction should be minimised through siting, such as using natural features like narrow valleys to reduce the extent of construction required and using existing tracks or alternative delivery methods.

Impacts of artificial materials in semi-natural and rural environments should be minimised by:

- ensuring a low profile of in-river structures
- choosing appropriate materials and finishes of buildings, railings, fencing and pipework
- reusing or restoring historic weirs.

Any visible pipework including pressure release valves can be aligned with land use patterns and vegetation, and transformers and associated fencing can be screened. Powerhouses should be placed underground, in existing buildings, or in new buildings in keeping with local character.

Cumulative impact assessments may be required where the proposal is affecting a landscape designation, and/or other hydro installations or proposals are in the ZTV.

- Hydro Schemes and Natural Heritage | NatureScot
- Guide to Hydro Construction Good Practice | NatureScot

Solar

Micro-generation solar installations will have minimal impacts but should demonstrate they do not have a detrimental impact on heritage features.

Solar farm impacts may include the visual impacts of the panels and frames themselves although due to the sunlight absorbing nature of panels and their low profile, from a distance they can seem like water or a ploughed field.

The size and layout of the solar farm should be commensurate with the surrounding landscape to reduce significant effects. Contours and enclosure patterns of the landscape created by topography, field patterns, paths, woodland, walls and hedges should be reflected and reinforced through layout and landscaping.

Local impacts including that of inverters and transformers, other electricity infrastructure, and security fencing can be softened by use of topography or planting as screening.

Proposals must be set back from recreational routes and intervening native vegetation introduced to ensure the experience of the wider countryside is maintained. Screening landscaping should be selected and maintained to ensure views on wider landscapes are not blocked. Any security lighting must be on an infrared trigger only.

Except on brownfield land, hardstanding should be avoided wherever possible.

- General pre-application and scoping advice for solar farms | NatureScot

Cumulative impact assessments are required where there are other existing or proposed solar or energy storage installations within the agreed ZTV. This must also address sequential impacts along recreational or tourist routes.

Energy Storage

Proposals should address landscape and visual impacts arising from the battery storage/container units, transformers, inverters, switchrooms, welfare units, fencing, substations, access tracks, water towers, and security fencing.

Due to the industrialised nature of battery storage proposals are best sited immediately next to substations or associated renewable energy developments.

Industrial sites in the countryside and greenbelt risk having an unacceptable landscape and visual impact. Impacts on the setting of landscape and historic designations, recreational routes and settlement character must be addressed.

Local impacts can be softened by use of topography, bunds or planting as screening but may need to be well set back from roads or recreation routes in countryside settings. The existence of vertical infrastructure such as pylons in the landscape do not necessarily result in a lesser impact of an installation on the horizontal character of a setting or landscape, particularly where situated at a distance.

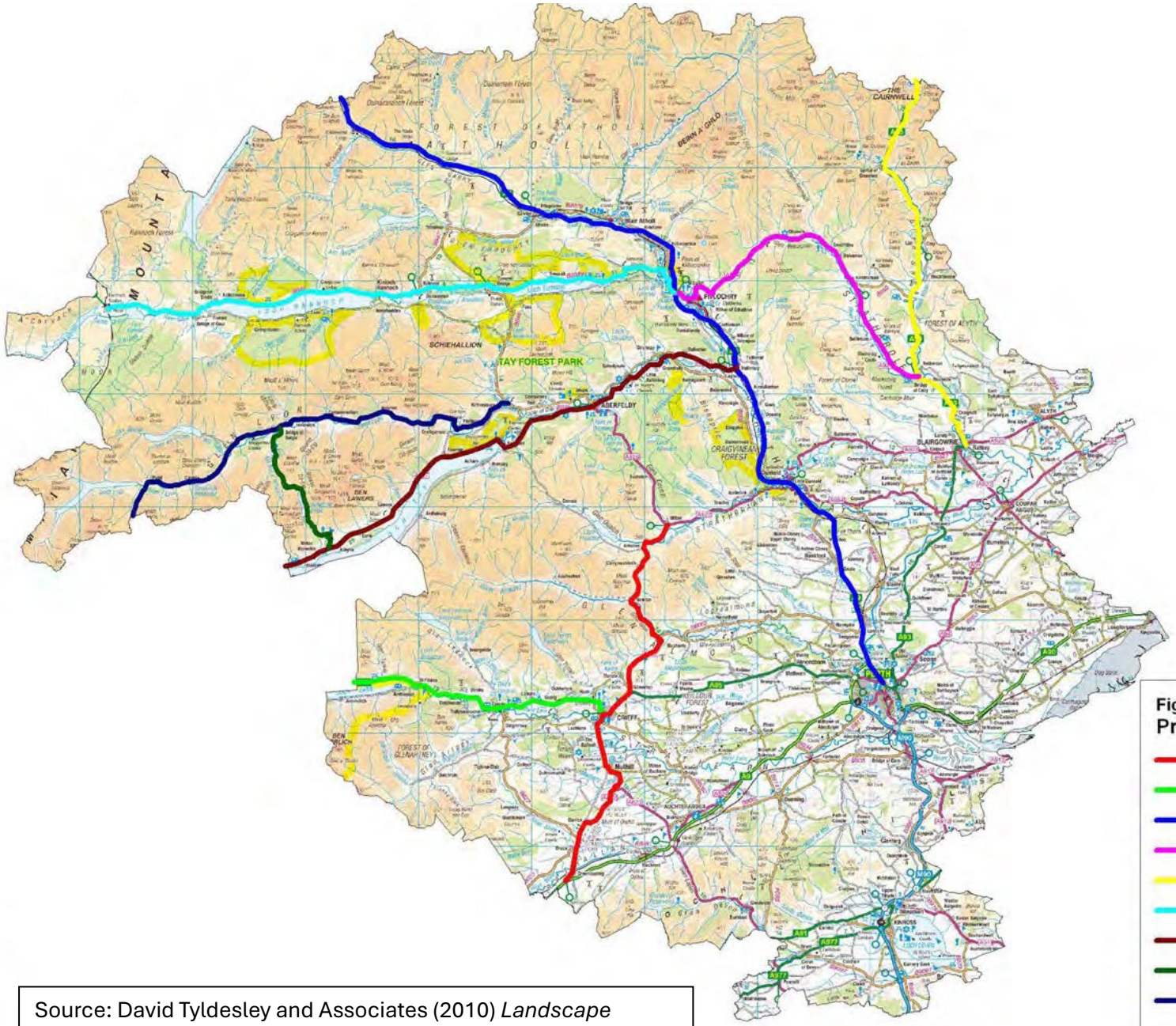
Proposals must be set back from recreational routes and intervening native vegetation introduced to ensure the experience of the wider countryside is maintained. Screening landscaping should be selected and maintained to ensure views on wider landscapes are not blocked.

Cumulative impact assessments are required where there are other existing or proposed solar or energy storage installations within the agreed ZTV. This must also address sequential impacts along recreational or tourist routes.

Enabling Infrastructure

Proposals for substations should be associated with other industrial infrastructure as far as possible, and screened with materials and landscaping appropriate to the location. Refer to energy storage above.

Routing options of new/extended/upgraded transmission or connection lines should address impacts on landscape character types, local landscape areas, settlement visibility and recreational and tourist routes. Early engagement with PKC and NatureScot is essential.



Source: David Tyldesley and Associates (2010) *Landscape Study to Inform Planning for Wind Energy*

3.5 Public Access, Recreation and Scenic Routes

Key Policies:

- NPF4 Policy 11e (iii)
- LDP2 Policy 14: Open Space Retention and Provision
- LDP2 Policy 15: Public Access
- LDP2 Policy 33: Renewable and Low Carbon Energy
- LDP2 Policy 40: Green Infrastructure

Key Guidance

- Green & Blue Infrastructure Guidance | PKC
- Core Paths Plan | PKC

All Proposals

Large scale applications can impact on recreation through land take and applicants should engage with recreational organisations to help identify users and evaluate recreational value. LDP2 Policy 14A: Existing Areas requires protection of areas of land with value to the community including for recreational or amenity purposes including outside settlement boundaries subject to limited exceptions.

LDP2 Policy 15: protects all designated and well-used routes. Recreational routes or access to recreational activities should be identified and adverse impacts addressed including through provision of alternative routes. An access management plan will help ensure safety.

Infrastructure should be sited and designed to minimise impacts on views from key locations for public access and recreation, as well as scenic routes. Enhancement to recreational access or facilities should be considered. See Section 3.4 on Landscape and Visual Impact for more information.

Wind

Wind farms can have substantial visual impacts on recreational and tourism use. Proposals should avoid having significant visual impacts on views from the A9 corridor and iconic viewpoints. Submissions should address impacts on views to National Park gateways, the Highland Boundary Fault and local landmarks.

Hydro

Hydropower can impact through visual impacts and access restrictions during construction. Weirs should be designed and sited to address impacts on, or enhance, recreational experience and consider enhancements such as public access across weirs. Changes in water flow may also affect water-based tourism and recreation. Submissions should provide a notification plan for water releases affecting users.

Solar

Large solar farms may impact recreation through land take and disruption to recreation routes. In addition to access considerations, submissions should address views of and from local tourist landmarks and principal tourist routes.

Energy Storage, Bioenergy and Enabling Infrastructure

In addition to any access considerations, submissions should address views of and from local tourist landmarks and principal tourist routes.

3.6 Aviation and Defence Interests

Key Policies:

- NPF4 Policy 11(e)(iv)
- LDP2 Policy 61: Airfield Safeguarding

Key Guidance

- Airfield Safeguarding Guidance | PKC

All Proposals

All tall structures, including construction cranes, turbines, flues and flarestacks, can present a hazard to air navigation. Consultation is required for applications within the safeguarding zone of Perth, Fife and Dundee airports, or any Perth and Kinross airfield as shown on the Aviation and Defence Safeguarding Map. Any proposed technical mitigation measures will need to be agreed by the relevant authorities.

Wind

Wind turbines can disrupt communication and navigation, and along with cranes and anemometers can interfere directly with aviation. Applicants are encouraged to engage with the planning team and relevant aviation bodies before committing to a site or design.

Applicants should consult the airport or airfield operator where wind proposals are located within the safeguarding zones of airfields and Perth, Fife, Dundee or Edinburgh airports shown on the Aviation and Defence Safeguarding Map. CAA and NATS will be consulted for all turbines.

The Ministry of Defence (MOD) will also be consulted on all applications over 11m or with a rotor diameter of 2m and all wind applications within the Munduff Hill weather radar safeguarding zone. Mitigation measures such as lighting, siting and technical features will need to be agreed by the relevant authorities and included in visual impact assessments.

Solar

Large arrays have limited potential for impacts on navigation from reflection, glare and security lighting. The relevant aerodrome or airfield operator should be contacted for any ground mounted Solar PV application within the airfield safeguarding zones.

Applications proposing solar tracking systems will also require consultation with Ministry of Defence (MOD), Civil Aviation Authority (CAA) and National Air Traffic Services (NATS).

3.7 Telecommunications and Broadcasting Installations

Key Policies:

- NPF4 Policy 11e (v)

Wind

Interference with radio communication and local television and radio reception should be assessed prior to development. Ofcom can provide advice on relevant operators and the Joint Radio Company can undertake screening for telemetry used by energy utilities.

Developers will be expected to resolve any potential issue with the relevant operators or, in the case of interference with TV and radio signals, with individual occupiers.

3.8 Roads and Transport

Key Policies:

- NPF4 Policy 11(e)(vi)
- NPF4 Policy 13: Sustainable Transport
- LDP2 Policy 33A(g)
- LDP2 Policy 60: Transport Standards and Accessibility Requirements

Key Guidance

- National Roads Development Guide | SCOTS
- Transport Planning Guidance | PKC

All Proposals

Construction vehicles, delivery of infrastructure and materials, and ongoing fuel deliveries can cause significant disruption to transport routes, rural roads, and safety, amenity and air quality in towns and villages. Road alignment or widening, and physical impacts on the road surface condition will also need to be addressed. In consultation with the relevant road authorities, a Transport Assessment, covering impacts on the road network, and a Construction Traffic Management Plan (CTMP), are likely to be required for large proposals.

Transport assessments and associated CTMP should show adverse impacts are avoided, mitigated or minimised including:

- Routes, timing, and number of vehicles for construction and ongoing fuel, feedstock or digestate movements are designed to minimise disruption
- Consideration of the cumulative impacts of fuel delivery where routes are affected by existing HGV deliveries

- Sites are designed for safe access and operation including in emergency situations
- Works and final installations are designed, sited and screened to prevent distraction to passing drivers.

3.9 Historic Environment

Key Policies:

- NPF4 Policy 11(e)(vii)
- NPF4 Policy 7 (Historic Assets and Places)
- LDP2 Policy 33 (Renewable and Low Carbon Energy)
- LDP2 Policies 26-31 (Historic Environment Policies)

Key Guidance

- Historic Environment Policy for Scotland | Historic Environment Scotland (HES)
- Managing Change: Setting | HES
- Managing Change: Micro-Renewables | HES
- Planning Advice Note 2/2011 Planning and Archaeology
- Interactive Heritage Map | PKC
- Listed Building Consent and Conservation Area Checklists | PKC

All proposals

Installation can affect the fabric and setting of historic interests and underlying archaeology. Reducing energy consumption and improving energy efficiency must be addressed before considering more intrusive measures that installations that may have an adverse impact on the historic character and interest.

While some permitted development rights apply for the installation of renewable energy measures in listed buildings or conservation areas, listed building consent and/or planning permission will likely be required.

Roof mounted technology and flues may impact on the historic fabric and special interest of listed buildings, and must be carefully considered on a case by case basis. In conservation areas they should be carefully installed and discretely sited to protect the historic character or and appearance of the area.

The visual impact on heritage assets including historic battlefields, gardens and designed landscapes, listed buildings, and conservation areas and their settings must be taken into account in the development of renewable energy projects. Large installations may affect the setting of or views to/from heritage assets and will not be acceptable where they have significant adverse effects, as assessed against NPF4 Policy 7. Landscape and visual appraisals should clearly address potential adverse effects and appropriate mitigation.

All installations requiring ground disturbance should identify known archaeology and the potential for archaeology across construction sites through discussions with the Perth and Kinross Heritage Trust (PKHT). Where known or potential archaeological resources may be affected, a mitigation plan should be developed in association with PKHT. Mitigation may include recording finds or providing enhancement for acceptable proposals such as interpretative signage.

Proposals with significant transport requirements for construction or ongoing fuel delivery should also ensure historic structures are protected from vibration, ground disturbance or overly heavy loads.

There may be potential to incorporate existing historic buildings and structures into proposals. Hydro proposals, for example, could include sensitivity repair and reuse of historic weirs, waterwheels and mill lades.

The use of existing ancillary buildings for heat pump plant rooms and bioenergy could ensure new renewable proposals are more sensitive to historic settings, where it is ensured that new pipework or vibrations will not damage historic fabric.

3.10 Hydrology, Water Environment and Flood Risk

Key Policies:

- NPF4 Policy 2(b): Climate Mitigation and Adaptation
- NPF4 Policy 11(e) (viii)
- NPF4 Policy 20: Blue and Green infrastructure
- NPF4 Policy 22: Flood Risk and Water Management
- LDP2 Policy 45: Lunan Lochs Catchment Area
- LDP2 Policy 47: River Tay Catchment Area
- LDP2 Policy 52: New Development and Flooding
- LDP2 Policy 53: Water Environment and Drainage

Key Guidance

- Guidance and advice notes | SEPA
- Flood Risk Standing Advice | SEPA
- Vulnerability Guidance | SEPA
- Diffuse pollution in the urban environment | SEPA
- Guidance on assessing the impacts of development proposals on groundwater abstractions | SEPA
- Abstractions Guidance | SEPA
- Flood Risk and Flood Risk Assessments | PKC
- Flood Risk Management Plans | PKC
- SUDS manual C753F | CIRIA
- Engineering in the Water Environment Guidance | SEPA

All proposals: Hydrology and Water Environment

Activities affecting the water environment may require a Controlled Activities Licence (CAR) licence from SEPA including in river engineering work; this includes all hydropower applications and water source heat pumps; and drainage. Authorisation may also be required for abstraction of water for construction, water storage or to de-water excavations, and surface water and construction run-off. The planning team will consult closely with SEPA to assess applications, identify conditions and co-ordinate with CAR applications. SEPA guidance contains checklists to assess whether proposals will be able to obtain a water use licence.

See: CAR A Practical Guide | SEPA

Any large installation or excavation works may impact on the water environment through changes to hydrology, water supplies and water quality through construction excavation, drainage, and de-watering while compacted areas, tracks and hardstandings may lead to increased runoff. These changes may lead to impacts on private water supplies, aquatic and terrestrial habitats and species including Ground Water Dependent Terrestrial Ecosystems (GWDTEs).

Assessments and Evidence Required:

- Where required Construction Method Statements should map construction areas and storage compounds and identify all onsite, and connected, watercourses, lochs, water supplies, and wetlands; and appropriate buffers

For all major and EIA proposals, and all hydropower proposals:

- A draft CEMP
- Identify all private and public water supplies in the site catchment, assess impacts and identify mitigation for water supplies
- Consult Scottish Water for advice on precautions where development may affect a Protected Water Area
- Consult NatureScot on any proposals that may affect a Protected Area or Protected Species
- Surveys should extend beyond the site boundary to recommended distances taking micro-siting into account
- A Phase 1 habitat survey can identify wetlands. A National Vegetation Classification (NVC) of each wetland will identify GWDTEs and other habitats dependent on surface and ground water.
- Identify and avoid impacts on groundwater abstractions and GWDTEs within a minimum of 10m from all development, 100m of excavations < 1m and 250m from excavations >1m.

Early consideration of site and route selection is the best way to avoid sensitive habitats including wetlands and water supplies, abstractions and drinking water supply.

Impacts are best managed by adherence to best practice construction per NatureScot and SEPA Guidance.

Roads, tracks and trenches (excavations <1m depth) should be sited/routed 100m from abstractions and GWDTES; and excavations and buildings (>1m) 250m away. A site-specific assessment will be required if these buffers cannot be achieved. Any effects on GWDTEs should be assessed, avoided and mitigated in line with SEPA guidelines.

Water crossings should be avoided where possible and where unavoidable address SEPA and PKC Guidance mitigation requirements.

Minimising vegetation removal and timeous post construction remediation can reduce sedimentation. SUDS are required for construction and operation to treat and control run-off. Drainage to SUDS must be in place before any excavation with construction drainage and SUDS separated from clean water flows.

Natural waterflows must be maintained across habitats. This can be helped by minimising the use of impermeable surfaces and using permeable access tracks. Drainage must be designed in line with PKC and SEPA Guidance.

All Proposals: Flood Risk

NPF4 Policy 22(a) provides an exception for essential infrastructure in a flood risk area (as defined in NPF4 glossary) "where the location is required for operational reasons" provided it will:

> " (i) not increase the risk of surface water flooding to others, or itself be at risk
> (ii) manage all rain and surface water through [SUDS]…
> (iii) seek to minimise the area of impermeable surface„ Policy 22(c)

SEPA and PKC Guidance on flood risk and Flood Risk Assessment, and drainage impact and Drainage Impact Assessment must be adhered to. Roads and tracks should avoid the functional floodplain. Secondary egress for safety reasons may be considered. Buildings and structures will depend on adherence to flood risk guidance in line with SEPA vulnerability guidance.

If development in a flood risk area as defined in NPF4 is required, proposals must demonstrate why this is the case for operational reasons including reasons why alternative areas outwith flood risk areas are not suitable. Operational reasons will be assessed in terms of the criticality of having the proposal within a flood risk area, for it to be able to operate, and not financial reasons. Mitigation must be in place to ensure the requirements of policy 22(c) are addressed.

Local Flood Risk Management Plans must be referenced and proposals should contribute to and must not adversely affect the mitigation actions contained within.

Drainage management of the site must avoid any increase in flooding downstream, particularly on Potentially Vulnerable Areas identified in Local Flood Risk Management Plans. Inappropriately designed weirs, tracks and river crossings can introduce an increase in flood risk.

- A Drainage Impact Assessment may be required where there are new tracks or hardstandings, or where the proposal may affect a sensitive area as set out in PKC Guidance on flood risk and Flood Risk Assessment.
- A Flood Risk Assessment will be required if a development is proposed within a flood risk area as defined in the NPF4 glossary.

Wind

Large Turbines and Wind Farms are likely to have significant impacts due to construction de-watering, excavations, tracks and crane pads.

Following careful site selection, siting of turbines and design of tracks and hardstandings must take into account existing ground cover, waterlogging and slope, the proximity and connection of the water environment.

Submissions must show how potential run-off and pollution are addressed through SUDS and drainage and a drainage impact assessment is likely to be required. Drainage proposals must be designed to allow maintenance per the SuDS Manual requirements.

Mitigation as recommended by Ecological Clerk of Works must be followed and further measures may be required including:

- a water quality management plan to ensure water protection measures are monitored and maintained

- Monitoring of identified water sensitivities and GWDTEs; with plans for remedial action.

See: Good Practice During Windfarm Construction | NatureScot

Hydro

Given the in-stream nature of hydro construction and operation particular care must be taken for both site selection, construction and operation. See SEPA guidance for in stream works.

Water quality and hydrology can be affected by construction run off and scouring, sedimentation, and submerged vegetation.

Areas sensitive to changes in hydrology and morphology must be avoided. Submissions must address how water quality, hydrology and morphology of both construction and operation will be mitigated with best practice construction shown through the CMS and CEMP. A water quality management plan may be required to ensure water quality protection measures are monitored and maintained.

Changes to water flow from flow diversion, transfers from other catchments, engineering works, weirs, intakes and outfalls may also change morphology and hydrology with impacts on fish passage, recreation and tourism and water supplies. Inflow and outflow must be carefully designed and sited and transfers between otherwise unconnected watercourses avoided. Impacts on areas sensitive due to water abstraction, and agricultural abstraction and groundwater quality must be avoided or impacts mitigated.

Information on flow including compensation flow, must be provided along with an assessment of downstream effects.

All weirs will give rise to some degree of local water level change and potentially temperature change and should be taken into account in assessing aquatic ecology.

All submissions must demonstrate that watercourse crossings and in-river engineering can cope with extreme rainfall, and powerhouses and other dry land infrastructure is designed and sited in accordance with NPF4 Policy 22.

A cumulative impact assessment will be required where there are existing hydropower structures or proposals on the tributary particularly where there are agricultural abstractions or good groundwater quality.

Guidance:

- Hydroelectric power | NatureScot
- Hydropower | SEPA

Solar, Energy Storage & Enabling Infrastructure

Impacts on the water environment from surface run-off from panels, non-permeable foundations, areas of hard-standing, erection of buildings, compaction and tracks must be considered.

Vegetation around and under solar arrays should be retained for wildlife or grazing, and permeable access tracks used along with localised SUDS for any run-off (per NPF4 Policy 22(c)(ii).

Site selection should take into account electricity infrastructure vulnerability to flood risk, with careful siting and design of inverters and transformers to reduce flood risk in line with NPF4 Policy 22. Battery storage is unlikely to be suitable in flood risk areas.

Run-off from battery storage firewater is not covered by SEPA authorisation and must be contained to prevent pollution of the water environment (See section 3.13). Containment ponds/impoundments for firewater from an authorised abstraction will not need SEPA approval but should be filled during winter months.

3.11 Biodiversity

Key Policies:

- NPF4 Policy 3: Biodiversity
- NPF4 Policy 4: Natural Places
- NPF4 Policy 11(d): Energy
- LDP2 Policy 42: Green Infrastructure
- LDP2 Policy 33: Renewable & Low Carbon Energy
- LDP2 Policy 45: Lunan Lochs Catchment Area
- LDP2 Policy 47: River Tay Catchment Area

Key Guidance:

- Renewable energy | NatureScot
- Planning and development advice | NatureScot
- Biodiversity | SEPA
- Planning for Nature Guidance | PKC
- NPF4 Policy 3 Interim Guidance Note | PKC
- Perth & Kinross Nature Networks | PKC
- Tayside LBAP | Tayside Biodiversity Partnership (TBP)
- TBP Development Guidance | TBP
- Local Nature Conservation Sites | PKC
- Planning and development: protected areas | NatureScot
- Site Link for Protected Areas | NatureScot
- Bats and onshore wind turbines survey assessment and mitigation | NatureScot
- Guidance on SACs and SPAs | PKC
- Habitats Regulations Appraisal (HRA) | NatureScot
- Planning and development: protected species | NatureScot

Natural Places

NPF4 Policy 4 sets out the requirements for new developments in relation to natural places. This includes a general statement in policy 4(a):

" Development proposals which by virtue of type, location or scale will have an unacceptable impact on the natural environment, will not be supported„ NPF4 Policy 4(a)

NPF4 Policy 4 sets out tests for protected areas, local designations and protected species. These cover national parks, landscape, biodiversity, and protected species. Note Landscape and Visual impacts are addressed in section 3.4.

The following guidance and supporting information should be referred to in preparing submissions:

Biodiversity

NPF4 Policy 3 sets out the requirements for new developments in relation to biodiversity including significant biodiversity enhancement for national, major and EIA developments, and enhancement for local proposals. The mitigation hierarchy and nature networks are key to all proposals. For the avoidance of doubt all submissions should demonstrate that the mitigation hierarchy has been addressed in the order as set out in the NPF4 Glossary.

Major and EIA proposals should refer to Scottish Government guidance, and local proposals must be in accordance with NatureScot's Developing with Nature guidance.

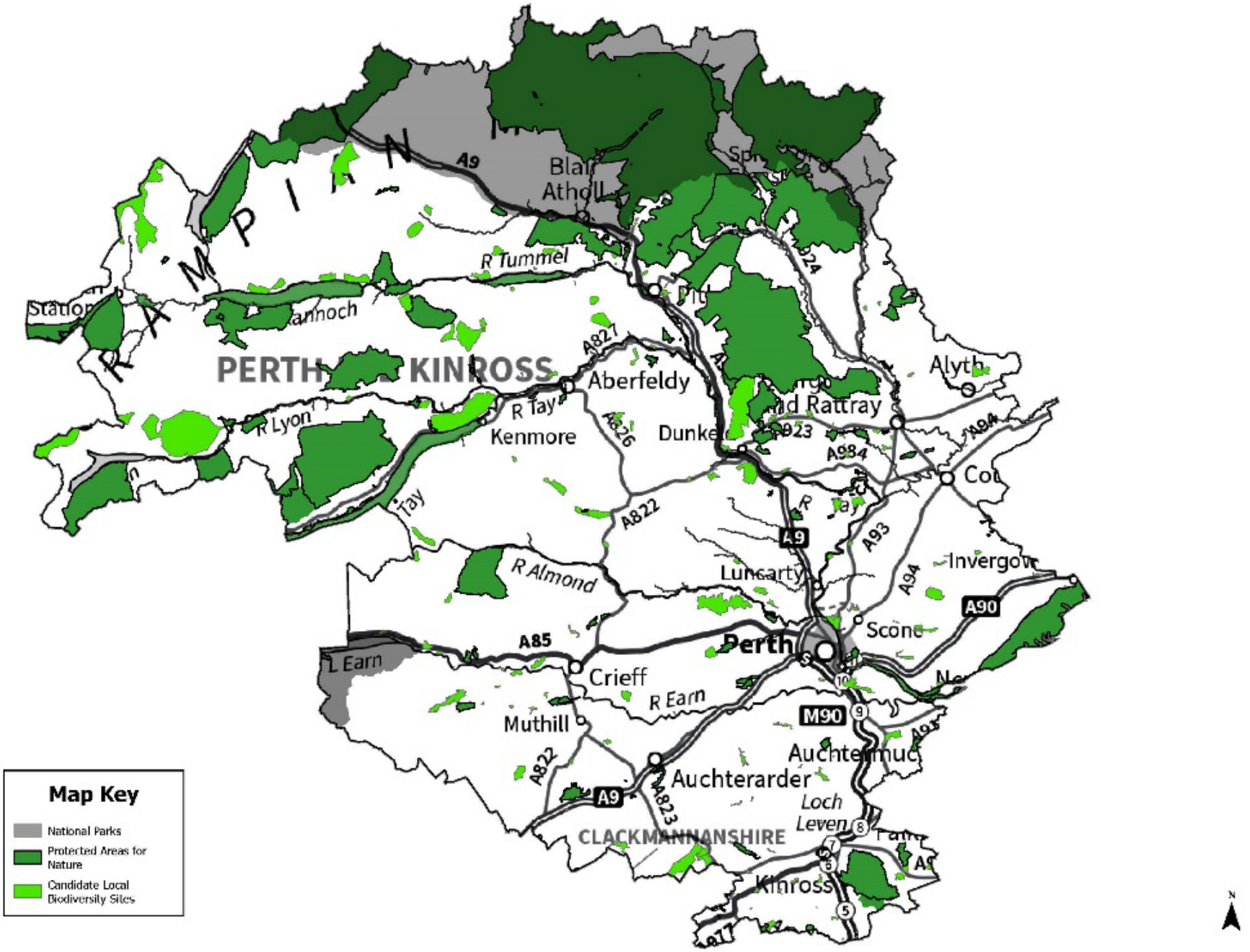
The Council Planning & Biodiversity webpage provides our Planning for Nature Guidance including minimum mitigation requirements, an Interim Guidance Note on information required to support NPF4 Policy 3, and information on nature networks and local biodiversity sites.

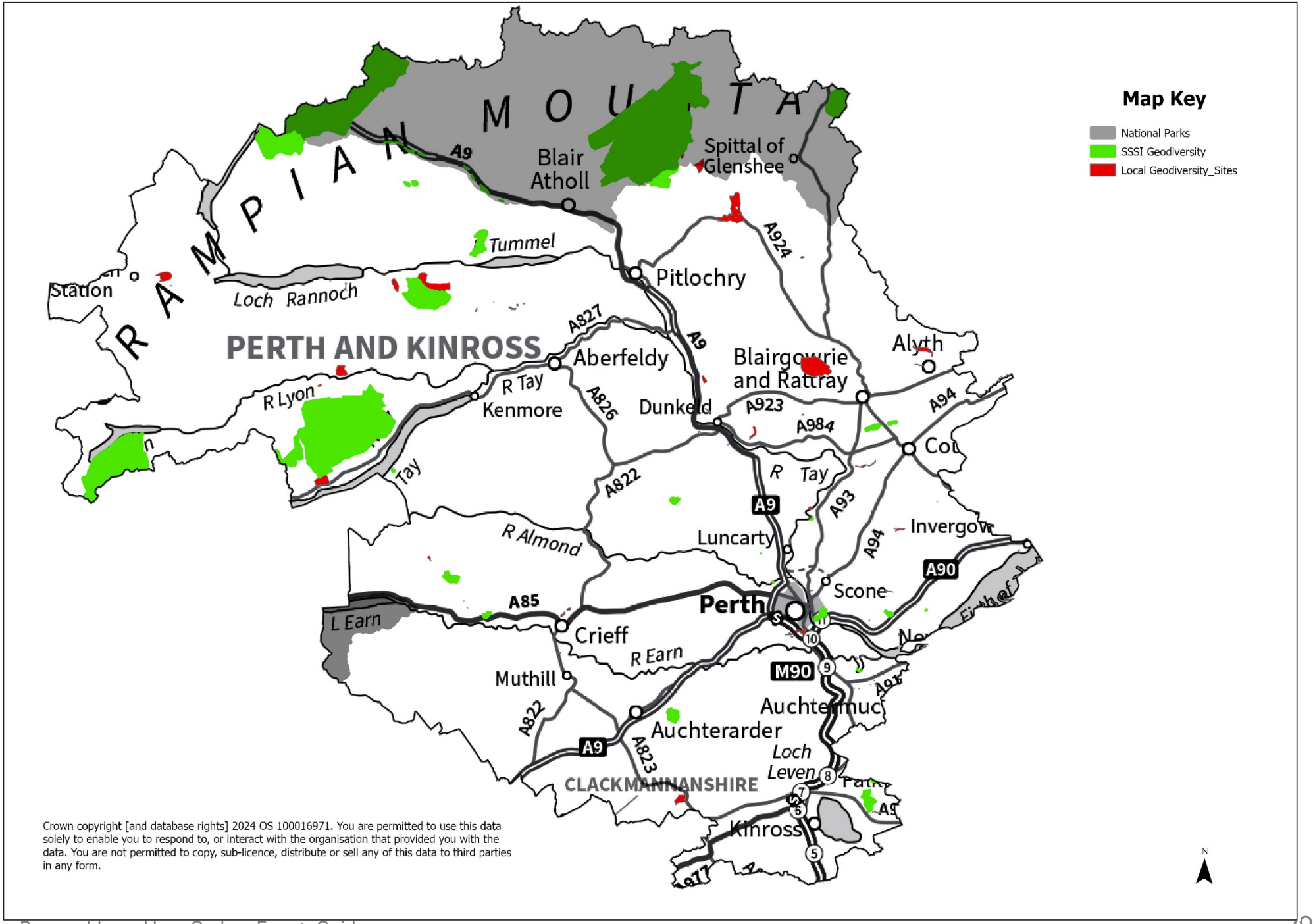
Relevant habitat and species records

- Scottish Biodiversity List
- Tayside Local Biodiversity Action Plan
- NBN Atlas
- Tayside Raptor Study Group
- Scottish Badgers
- NatureScot (FWPM)
- Tay District Salmon Fisheries Board
- BSBI
- Fife Nature (Kinross area only)

Geodiversity

NPF4 Policy 4(c) and 4(d) includes impacts on nationally significant SSSIs and candidate Local Nature Conservation Sites which are designated for their geological value. Geological Review Sites (GCRs) are generally covered by one of these designations but are of national or international significance requiring notification to NatureScot. Impacts on GCRs fall within the scope of NPF4 Policy 4(a). Mitigation of impacts on geodiversity should be based on the qualities for which sites are designated. In general proposals should not impede the access, visibility or experience of these sites.


Map Key
National Parks
Protected Areas for Nature
Candidate Local Biodiversity Sites
PERTH & KINROSS
CLACKMANNANSHIRE
R Tummel
R Tay
R Lyon
R Almond
L Earn
R Earn
Aberfeldy
Kenmore
Dunkeld
Blair Atholl
Luncarty
Perth
Scone
Crieff
Muthill
Auchterarder
Kinross
Alyth
Invergowrie
A9
A822
A827
A826
A85
A90
M90
A93
A94
A823



All Proposals

All proposals should show how impacts on natural heritage have been avoided, mitigated and compensated for, and how biodiversity will be enhanced, in line with the above policies and associated guidance. Surveys will be relative to the size, location and sensitivity of the site and surrounding habitat and can be identified during pre-application enquiries or EIA scoping discussions.

All proposals except small scale renewables must be accompanied and informed by an Ecological Impact Assessment (EcIA) in accordance with CIEEM Guidelines and include an assessment of the level of biodiversity enhancement in accordance with our Interim Guidance on NPF Policy 3. EcIA are expected to be proportionate and for small scale proposals may be based on a Preliminary Environmental Assessment Report (PEAR). However, a PEAR alone will not normally be considered sufficient.

Submissions without EcIA, biodiversity enhancement assessments, recommended surveys, or with surveys outwith the correct season will result in applications being delayed or refused.

Annex 4 of the PKC Planning for Nature guidance provides a helpful checklist of information required to inform a planning application regarding biodiversity. Information should be submitted in accordance with the checklist to reduce future information requests and delays.

Biodiversity, green infrastructure and nature network protection and enhancement should be implemented throughout the design of the project from initial design to construction, compensation, restoration, operation and decommissioning. Submitted designs and landscaping plans should clearly show where protections, mitigation and enhancement recommended in the EcIA is being applied.

Site selection and development design is expected to demonstrate adherence to the mitigation hierarchy in order. Compensation will not be accepted in place of an impact that could have been avoided by design. Any unavoidable loss must be compensated in accordance with guidance before positive measures can be considered enhancement.

Renewable installations can avoid direct loss and fragmentation of habitats, woodland and green infrastructure through carefully sited infrastructure and access tracks.

Considered early, indirect damage to plants and habitats from changes to soils and hydrology can also be avoided. Infrastructure may also disrupt or displace wildlife from their foraging, roosting, breeding and commuting habitats. This may include displacement of birds, badgers, reptiles and amphibians from breeding and foraging/ hunting grounds; disruption to bat roosts in woodland, or disturbance/fragmentation of bat foraging habitats in and near woodland, woodland edges, watercourses, wetlands, lochs and hedgerows. Even small domestic installations will need to address impacts on bat roosts and breeding birds in buildings and trees.

Best practice construction includes working in the correct season for relevant species, and providing a safe site for wildlife particularly where there are open trenches or pipework. Measures must be taken on site to minimise risks of transfer of invasive non-native species. Restoration, compensation, landscaping and/or enhancement should be carried out as early as possible and promote biodiversity, climate resilience, flood protection, and recreation in line with the Council's Forest and Woodland Strategy, LBAP and Green Infrastructure guidance.

A landscape plan or habitat management plan should detail mitigation, restoration, enhancement and monitoring. For Major and EIA proposals, conclusions from the EcIA and the requirements detailed in PKC's Planning for Nature Guidance should be used to create a Site Biodiversity Action Plan. This will contain quantity, locations, techniques, timescales, and monitoring arrangements. Priority species are available in the Tayside Biodiversity Action Plan and Scottish Biodiversity List.

Wind

All wind turbines larger than micro turbines can provide a collision risk to birds' commuting, hunting or migration flight paths as well as loss or displacement of birds from breeding, foraging and hunting habitat. Turbines also pose a collision and barotrauma risk to bats.

Desktop search areas for protected sites and species must consider ecological connectivity. For example:

- 20km search area for geese and goose SPAs and SSSIs
- 10km search for bats and bat SACs

Additional surveys required include detailed surveys and collision risk modelling of wintering, breeding, foraging and migrating birds for all EIA developments. For non-EIA development the level of assessment will be relative to the risk and connectivity to sensitive areas and populations.

Cumulative impact assessments on birds and bat populations will be required for EIA developments in line with NatureScot guidance.

Site location, layout and choice of turbines should be shown to avoid adverse impacts. Additional mitigation expected will include a buffer between turbines and hedges or woodland edges appropriate to bird and bat species present. A monitoring, shut down or slow turbine plan will provide further precautionary mitigation.

Enhancement opportunities for wind include bog and peatland restoration, woodland restoration to create alternative corridors and contribute to Nature Networks.

- Onshore wind energy | NatureScot
- Renewable | SEPA

Hydro

Hydropower development can have significant impacts through the installation of tracks and penstocks, but also operational impacts on the water environment.

Changes to water quality, quantity, flow, depth, sediment and temperature can affect the habitat, food availability, spawning and migration of a wide range of species.

Information on the impacts of hydrological changes on relevant species should be provided. Species include fish surveys as required by SEPA, aquatic invertebrates, aquatic birds, otters, beavers and bryophytes.

Impacts on species throughout their lifecycle including migration should be considered and addressed in site selection and design. Negative impacts can be avoided or mitigated by using degraded watercourses with poor ecological status, sites upstream of existing fish barriers, avoiding sites with poor hydrology, and ensuring the design and location of intakes and tailraces does not detrimentally affect habitat through changes to morphology and hydrology.

Cumulative impacts on protected species should be addressed where there are other installations in the local catchment.

Weir location and design should demonstrate that they do not prevent fish, lamprey and eel access to feeding, breeding and spawning areas. Fish and mammals can be injured by poorly designed or inadequately screened intake structures, weirs, tailraces, outfalls and fish passes. Intakes and outfalls must be screened to protect wildlife.

Use of existing weirs will prevent new fish barriers, or can be upgraded to restore fish passage where NatureScot advise this is appropriate. Other enhancement opportunities include natural flood management and riparian planting to provide shading, water quality improvements and erosion control.

- Hydroelectric power | NatureScot
- Renewable | SEPA

Solar

Roof mounted PV or solar thermal should not disturb or block access to bat roosts and bird nests in or on roofs.

Solar farms, even on arable land, have potential to displace breeding and wintering birds, mammals, amphibians and reptiles from foraging and breeding areas. Surveys should assess the existing resource and consider the location and design of the site and fencing. Siting the solar farm on land with low biodiversity value with a view to enhancement is encouraged with a substantive buffer between the site and existing trees or waterbodies.

The remaining habitat can continue to have value with wildflower meadows or grasslands under arrays that can support pollinators and ground-nesting

birds. Vegetation should be cut manually in accordance with the plan or by low intensity grazing.

Native hedges around the site in addition or substitution to fences can provide security, screening and habitat. Where fences are used badger gates and low level gaps for amphibians and hedgehogs will allow continued use of the site, while passive infrared lighting will reduce impacts on birds and bats.

- Solar energy | NatureScot
- Renewable | SEPA

Energy Storage and Enabling Infrastructure

Battery storage and enabling infrastructure have potential to displace breeding and wintering birds, mammals, amphibians and reptiles from foraging and breeding areas. Surveys should assess the existing resource and consider the location and design of the site and fencing. Siting the scheme on land with low biodiversity value with a view to enhancement is encouraged with a substantive buffer between the site and existing trees or waterbodies.

Proposals for enabling infrastructure that involve a corridor of development e.g. transmission lines, will need to consider impacts across the length of the site and the impacts on commuting species. Bird surveys in accordance with NatureScot guidance may be required.

Native hedges around the site rather than fences can provide security, screening and habitat. Where appropriate badger gates and low level gaps for wildlife in fencing will allow continued use of the site, while passive infrared lighting will reduce impacts on birds and bats.

3.12 Trees, Woods and Forests

Key Policies:

- NPF4 Policy 11(e)(x)
- NPF4 Policy 6: Forestry, Woodland and Trees
- LDP2 Policy 40: Forestry, Woodland and Trees

Key Guidance

- Forest & Woodland Strategy | PKC
- Planning for Nature | PKC
- Interim Guidance on NPF4 Policy 3 | PKC
- Management of Forestry Waste | SEPA
- Use of trees cleared to facilitate development on afforested land | SEPA
- Control of Woodland Removal Policy| Scottish Forestry
- CWRP Implementation Guidance | Scottish Forestry
- Woodfuel Advice Note | Ofgem

All proposals

Tree surveys are required for all developments where there are trees on site, to inform design and mitigation taking into account the protection of trees and avoidance of impacts on their ecological condition, through both NPF4 and LDP2. This includes:

- Ancient and veteran trees
- Individual trees of high biodiversity interest
- Trees of high natural, historic and cultural heritage value, including orchards
- Trees or groups of trees of high amenity value
- Trees in conservation areas

Woodland surveys may be required where identified through Preliminary Ecological Appraisals or for potentially affected ancient woodland categories including LEPO. See PKC's Planning for Nature Annex 1 for advice on tree and woodland surveys.

Proposals must then demonstrate how construction of installations and tracks will avoid adverse impacts, fragmentation and loss of hedgerows, woodland and trees in accordance with the mitigation hierarchy. LDP2 sets out that tree removal is only permitted where unavoidable. NPF4 sets out that woodland loss is only supported in accordance with the policy on woodland removal. All loss must be restored or compensated in line with PKC and national guidance.

Proposals should also seek to expand and enhance connectivity between areas of natural and ancient woodland. Proposals affecting forestry should

adhere to SEPA and Scottish Forestry standards and guidance, and the Council's Forest and Woodland Strategy.

Wind

In non-native plantation forestry, restructuring for wind optimisation may be supported if SEPA guidelines are followed subject to impacts on soil, biodiversity and timber production. Keyholing is preferred, except on peat where clear felling and peat restoration should be pursued.

Hydro

Particular care should be taken with hydro schemes to avoid loss of, and to enhance, riparian woodland. Impacts on land capable for timber production should be minimised.

Solar

Sites for solar farms are expected to avoid trees, hedges and woodland, and an appropriate buffer should be applied between site fencing and surrounding woodland to protect roots and provide a maintenance corridor. Native hedges with hedge trees are encouraged as enhancement.

Bioenergy

Unsustainable biomass fuel can impact GHG emission savings and habitats. See section 2.7 for guidance on sustainable fuel sources.

Fuel sustainability can be demonstrated by providing a management plan, long term forestry plan, or meeting Ofgem sustainability criteria.

3.13 Hazardous Installations

Key Policies:

- LDP Policy 33A(a): Renewable Energy
- NPF4 Policy 23: Health and Safety

Key Guidance:

- Developers' planning application advice | HSE
- Grid Scale BESS planning Guidance for FRS | NFCC
- Guidance for Pollution Prevention: major spillages and firewater | NIEA / SEPA

All Proposals

Site searches should address pipeline and HSE consultation zones set out in LDP2 and where applicable set out mitigation as required to accord with NPF4 Policy 23.

Energy Storage

Applicants must address the associated risks with battery storage. Fires are rare but may produce toxic gases and chemical run-off into soils and waterways. Applicants should carry out a site specific risk assessment and develop a robust risk management plan and emergency response plan. Proposals must address matters contained in NFCC guidance including:

- Fault, fire and gas detection and monitoring
- Water based fire suppression systems.
- Deflagration venting and explosion protection
- Two access points and tracks suitable for fire service vehicles including passing places with no overhead obstructions
- 6 metres between units unless tests demonstrate a safe smaller gap
- 30m separation to occupied buildings subject to mitigation
- 10m separation from combustible material
- Suitable water provision within 90m of the site or tanks that can provide 1500L/min for 2 hours (180,000L).
- Impervious surface
- Sufficient storage e.g. tanks, bunded lagoons, for run off from firewater as demonstrated in a firewater management plan. This may need to be for a greater volume than the water provision. 10m separation between BESS units and water tanks.

Submissions should provide a plan showing sensitive receptors within 1km of the site.

3.14 Construction Impacts

Key Policies:

- NPF4 Policy 11: Energy
- LDP2 Policy 33A(e): Renewable and Low Carbon Energy

Key Guidance

- Good practice guide for contractors | NatureScot
- Good Practice during windfarm construction | NatureScot
- Hydropower | SEPA
- Guide to hydropower construction good practice | SEPA
- Appendix 2: CMS Template

All Proposals

Construction best practice must be followed and consideration given to all temporary and permanent infrastructure including hill tracks and borrow pits, staff and storage compounds, crane pads, weirs, penstock and cable/pipework routes, excavations and bunding.

Guidance on best practice construction methods and approaches is also included under separate chapters, where relevant.

A draft Construction Method Statement (CMS) will be required as part of a submission or an EIA Report:

- Where there is potential for impacts on the water environment, good quality soils, carbon rich soils, priority habitats, or archaeology
- Where there is potential for impacts on a site designated for its natural heritage such as SSSIs, SPAs and SACs.
- For all large turbines and wind farms
- For all hydropower
- For all major and EIA proposals

Most renewable energy projects will require a Construction Environmental Management Plan (CEMP) by condition. A draft CEMP may also be requested at the planning stage to inform proposals in sensitive environments. A full CEMP will be required before construction, and the advice of an independent Ecological Clerk of Works (ECOW) as agreed by the Council, in consultation with NatureScot and SEPA where relevant.

3.15 Soils

Key Policies:

- NPF4 Policy 5: Soils
- LDP2 Policy 33: Renewable and Low Carbon Energy
- LDP2 Policy 51: Soils

Key Guidance

- Soil | SEPA
- SEPA Position Statement on Planning and Soils
- Soil carbon management | NatureScot

3.15.1 All Soils

Soils provide a wide range of services from carbon storage to food growing. Erosion, compaction, disturbance and loss can impact habitats and waterways and negate Greenhouse Gas (GHG) reductions. Many of these effects can be avoided, minimised and mitigated through good practice construction and management.

NPF4 Policy 5(a) only supports proposals where they are designed and constructed in accordance with the mitigation hierarchy and in a manner that protects soil from damage including from compaction and erosion, and that minimises soil sealing.

Soils stripped onsite should be minimised and stored for post-construction restoration which should be appropriate to the surrounding environment. Restoration should take place as soon as tracks or areas are completed or no longer required and aim to enhance soils and vegetation and prevent further erosion.

Impacts on soils and peatland considered should include all aspects of the development including any borrow pits, tracks, and areas required during construction.

Construction of tracks, cable and pipeline routes particularly on the steep ground typical of hydropower, can lead to erosion which can be exacerbated by changes in drainage patterns. Drainage strategies should demonstrate that erosion is not exacerbated by changes in hydrology

through direct erosion or drying out. In areas likely to be prone to erosion, applications should avoid disturbance of trees and vegetation. Where unavoidable, measures to safeguard soils during construction, and planting of natural protection during restoration should be provided.

Solar applications can minimise erosion through careful site selection, avoiding steep slopes and maintaining vegetation. Using driven, screw or floating mounts can minimise soil impacts.

See section 2.7 for guidance on bioenergy feedstocks to protect soils.

3.15.2 Prime Agricultural Land and Good Quality Soils

NPF4 Glossary defines prime agricultural land as that identified as being Class 1, 2 or 3.1 in the land capability classification for agriculture developed by Macaulay Land Use Research Institute (now James Hutton Institute). LDP2 Policy 51 includes this land and classes 1-3.2 as Good Quality Soils

Submissions must refer to the 1:50K Scale Land Capability Map in the first instance and only the National Scale Land Capability map where 1:50k is not available.

NPF4 Policy 5(b) sets out three qualifications for renewable energy which will be supported on these soil types; all of which must be demonstrated in submissions:

- there is a specific locational need and there is no other suitable site
- there is secure provision for restoration; and
- the layout and design of the proposal minimises the amount of protected land that is available.

Submissions should set out the operational reasons why a site is required over sites of a lower grade classification within a site search appropriate to the technology. Site searches must set out each area investigated, and the reasons why the alternative site was not considered suitable.

Submissions should ensure designs demonstrate that restoration of land to its previous use is feasible following decommissioning. Note that the temporary nature of an installation is expected except for wind energy where proposals must be suitable in perpetuity.

Submissions should clearly set out how the design minimises the use of prime agricultural land, in accordance with the mitigation hierarchy including decisions taken to reduce the footprint.

LDP2 Policy 51: Soils requires development on all Good Quality Soils to:

- Minimise impacts
- Implement appropriate soil management
- Adopt best practice when moving, storing and reinstating soils
- Consider opportunities to re-use soils necessarily excavated

This information should be set out in a draft Soil Management Plan with submissions.

The cumulative loss of prime agricultural land is an important consideration. Major and EIA proposals must set out the cumulative loss of prime agricultural land including consented and submitted proposals under consideration. This should show:

- The loss of land in hectares
- The loss of prime land as a % of each affected soil class of prime agricultural land within:
    - the local area and
    - Perth and Kinross as a whole

Wind

The loss of any prime agricultural land will be appraised as a permanent loss of land so should be minimised through careful layout and design and continued use as productive land as far as possible.

Solar

Large solar farms can require a large land area and are often proposed in lowland areas where prime agricultural land is typically located. Proposals must not lead to an unacceptable cumulative loss of prime land and proposals should maximise continued productive use of the land beneath panels.

Energy Storage & Enabling Infrastructure

Battery storage and substation developments typically have specific locational requirements in terms of proximity to existing/planned

infrastructure. Site searches for Energy Storage must extend at least 3km from the substation where need is identified.

3.15.3 Carbon Rich Soils, Peatland and Priority Peatland Habitat

- Carbon and Peatland Map | NatureScot
- Restoring Scotland's Peatlands | NatureScot
- Advising on peatland, carbon-rich soils and priority peatland habitats in development management | NatureScot
- Waste position statement for developments on peat | SEPA
- Development on peatland guidance – waste | SEPA
- Assessment the impact on peatland and carbon rich soils (forthcoming) | SEPA
- Developments on peatland: Site surveys | Scottish Government
- Floating roads on peat | SNH & FCS
- Guidance on the assessment of peat volumes, reuse of excavated peat and minimisation of waste

NPF4 Glossary sets out the definition of:

- Peatland
- Carbon rich soils
- Priority peatland habitat

Note that developments on peatland and priority peatland must also comply with policy 3(b) and 3(c) Biodiversity.

NPF4 Policy 5(c) sets out two qualifications for renewable energy which will be supported on these soil types; both must be demonstrated in submissions:

- Essential infrastructure must demonstrate a specific locational need and that there is no other suitable site.
- Renewable energy must optimise the contribution of the area to GHG emissions targets.

Development on these soils types must be accompanied by:

- a site specific assessment as set out in NPF Policy 5(d);
- a peat management plan setting out how the assessment has informed the projects application of the mitigation hierarchy
- plans for restoration and enhancement and associated studies and plans. Proposals on peatland are expected to provide compensatory restoration for damaged peatland in line with NatureScot guidance which requires a 1:10 ratio.

The mitigation hierarchy requires:

- Avoidance and minimisation of impacts through site selection, route and design with buffers between infrastructure and carbon soils.
- Minimising unavoidable impacts by minimising the footprint of compounds and tracks and using floating roads or alternative delivery mechanisms.
- Restoring disturbed peatland and restoring and enhancing peatland in the wider area as compensation.

Wind

Turbine foundation excavations and the large footprint of wind farms can impact across a large area of peatland, carbon rich soils, and priority peatland habitat, through direct loss as well as indirect impacts on drainage and water flows. Information required for developments on peat is included in SEPA windfarm guidance.

Hydro

Changes to water flows and drainage, and construction of track and penstock routes, can disturb or drain peatland and carbon rich soils, leading to impacts on the water environment, the loss of rare habitats and any GHG emission savings.

Submissions should ensure changes to watercourses do not impact on peatland viability, directly or indirectly.

Solar

Solar farms may impact these soils through changes to water flow from panels, trenches, drainage and tracks and they should be avoided through site selection unless impacts can be avoided through design.

Battery Storage, Bioenergy & Enabling Infrastructure

Large-scale battery storage, substations and bioenergy proposals can have sizeable footprints leading to direct loss as well as indirect impacts of hardstanding and tracks on drainage and water flows. Proposals are expected to minimise hardstanding on these soils. Cross-boundary Impacts

Key Policies

- NPF4 Policy 11e
- LDP2 Policy 33

Key Guidance:

- Loch Lomond & Trossachs National Park - Planning
- Cairngorms National Park - Planning

3.16 Cross Boundary Applications

Proposals may have effects across neighbouring planning authority boundaries particularly with regards to Roads and Transport, Landscape and Visual Impacts, and Biodiversity. Applicants should consider the plans and policies of these authorities, and they will be consulted where there may be an effect.

Cumulative assessments should include applications and installations within other planning authorities' boundaries where there is a landscape/visual, transport, or ecological connection.

National Parks

Part of Perth and Kinross is in Loch Lomond & The Trossachs National Park. Proposals here are made to the National Park Authority (NPA) in line with their LDP.

In the Cairngorms National Park, proposals are made in line with the Cairngorms LDP and submitted to Perth & Kinross Council for determination. The Cairngorms NPA may then opt to 'call in' and determine the application.

3.17 Decommissioning & Restoration

Key Policies

- NPF4 Policy 11(e)
- LDP2 Policy 33

Key Guidance

- Life Extension and Decommissioning of onshore wind farms | SEPA
- Decommissioning and Restoration Plans for wind farms | NatureScot
- Batteries | SEPA
- Waste Batteries and Accumulators Regulations 2009

All proposals

NPF4 Policy 11(e) paragraphs (xi) and (xii) require all proposals to show how the following considerations are addressed:

- proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration
- the quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans

Decommissioning should be considered when designing and choosing components of all renewable developments. Electronics should be recycled in accordance with the Waste Electrical and Electronic Equipment Regulations 2013.

Restoration can involve works both post-construction as well as post-operation of the development. Restoration requirements are relevant across a range of planning considerations and have been included under the relevant section. In line with NPF4 Policy 11(e), the Council will seek appropriate measures, including restoration bonds or other appropriate financial mechanism, are included as part of any permission, where relevant.

Submissions for all EIA and major installations, or proposals potentially affecting sensitive environments including peatland and the water environment should include a draft Decommissioning and Restoration Plan (DRP). A full updated DRP will need to be agreed with the Planning Authority and consultees prior to decommissioning.

A draft DRP should contain:

- Proposed timing, options, associated impacts and mitigation particularly regarding impacts on habitats, peat, the water environment and transport
- Reuse and recycling options
- Proposals for restoration of borrow pits and tracks
- Proposals for habitat, agricultural land, peatland and/or recreation enhancement
- Provisional, index linked, costs for restoration

A Decommissioning Method Statement demonstrates how decommissioning will take place while protecting the environment and should include:

- Proposed timing, options, associated impacts and mitigation associated with removal of in-ground and in-water infrastructure.
- How materials will be reused or recycled in compliance with the waste regulatory framework
- How potential contaminants will be safely disposed of including heat pump units and heat transfer fluid, AD waste
- Measures to ensure no contamination of soils or the water environment
- Timing and method of restoration and enhancement, particularly of habitat and agricultural land, waterways and riparian habitat.
- Proposed restoration monitoring and aftercare

Wind

As noted under NPF4 Policy 11(f), wind farms are expected to be suitable for use in perpetuity. Decommissioning will be required at the end of the permission period or where operation ceases and should be considered at design stage.

Removal of all infrastructure will be required unless the adverse impacts of removal are shown to outweigh the benefits, such as wind turbine bases below ground.

Hydro

Hydropower schemes will need to be decommissioned once they are deemed to have ceased operation. Decommissioning of above ground and in-water infrastructure and associated restoration must be considered at design stage.

Solar

Decommissioning will be required as a condition for all installations at the end of the permission period, based on the expected life of the technology, or once operation has ceased. Removal of all infrastructure will be required unless outweighed by adverse impacts.

The design of roof mounted, and small ground-mounted installations should ensure decommissioning can be carried out with minimal impacts particularly in historic environments.

Energy Storage, Bioenergy, Enabling Infrastructure

Decommissioning will be required as a condition for energy storage at the end of the permission period, based on the expected life of the technology, and for all installations once operation has ceased. Removal of all infrastructure will be required unless outweighed by adverse impacts.

Batteries must be sent for recycling to an approved battery treatment operator or exporter.

A financial mechanism may be required by legal agreement to ensure decommissioning and restoration can be undertaken.

3.18 Renewable Energy Generation and Greenhouse Gas Emissions Reduction Targets

Key Policies:

- NPF4 Policy 1: Tackling the climate and nature crises
- NPF4 Policy 2: Climate mitigation and adaption
- NPF4 Policy 11(e): Energy
- NPF4 Policy 5(d)(iii): Soils
- LDP2 Policy 33A (b): Renewable and Low Carbon Energy

Key Guidance

- Draft Bioenergy Policy Statement | Scottish Government
- Assessing Greenhouse Gas Emissions and Evaluating Their Significance | IEMA
- Carbon Calculator for Wind Farms on Scottish Peatlands | ClimateXChange

All proposals

In considering the assessment of proposals against NPF4 Policy 11(e), significant weight will be placed on the contribution towards:

- renewable energy generation targets, and
- greenhouse gas emissions (GHG) reduction targets

Proposals should include information detailing the contribution(s) of the proposed development towards UK and Scottish Government targets for renewable energy generation and GHG reductions.

The contribution of proposals to renewable energy targets should be presented using the following information, where relevant:

- Electrical or heat generation capacity (kWh/MW)
- Expected annual generation (kWh/MWh)
- Equivalent number of homes powered or heated
- Fuel used and source (where relevant)
- Fuel and/or generation technology being replaced or displaced

LDP2 Policy 2(a) requires that:

“ Development proposals will be sited and designed to minimise lifecycle greenhouse gas emissions as far as possible„

EIA Development must provide a Greenhouse Gas Emissions Assessment in accordance with IEMA guidance.

Major proposals must present a proportionate assessment of lifetime carbon emissions including embedded carbon, transport and soil loss and describe the steps taken to minimise emissions. This will be taken into account alongside GHG reductions of the technology.

All proposals on peatland and carbon rich soils must carry out an assessment of the likely net effects of the development on climate emissions and loss of carbon.

Bioenergy proposals must demonstrate adherence to greenhouse gas and land sustainability criteria for feedstocks to be considered low carbon as set out in Section 2.7.

3.19 Grid Capacity

Key Policies:

- NPF4 Policy 11e
- LDP2 Policy 33 (Renewable and Low Carbon Energy)
- LDP2 Policy 35 (Electricity Transmission Infrastructure)

Key Guidance

- Network Capacity Information - SSEN
- SSEN Network Maps

All proposals

NPF4 Policy 11e states that grid capacity should not constrain renewable energy development and it is for developers to agree connections to the grid with the relevant network operator. For the PKC area, this is SSEN.

For proposals involving grid infrastructure, underground connections should be considered where possible. This will be informed by wider considerations including landscape and visual impact, and potential impact on, for example, natural heritage, biodiversity, peatland/carbon rich soils/priority peatland habitat, prime land, and the historic environment. Proposals for grid infrastructure including reconfigured, extended and/or new substation infrastructure, should involve early engagement with relevant stakeholders including the planning authority, key agencies, and affected communities.

3.20 Cumulative Impacts

Key Policies

- NPF4 Policy 11e
- LDP2 Policy 33

Key Guidance

- Assessing the cumulative landscape and visual impact of onshore wind energy developments| NatureScot
- Renewable Map | PKC

All Proposals

The impact of a technology may be exacerbated by existing, consented or proposed installations in the area with a similar effect. An assessment of the cumulative effects may be required for large applications and even small applications in sensitive locations.

NPF4 Policy 11(e) requires proposals to demonstrate cumulative impacts are addressed. The scale of infrastructure required to help meet the national targets for renewable energy generation and GHG emissions reduction is such that cumulative impacts will need to be carefully considered to ensure developments are steered to the right locations and of an appropriate design and scale.

Cumulative impacts are particularly relevant to:

- landscape/visual amenity,
- natural places
- biodiversity
- peatland/carbon rich soils/priority peatland habitat
- prime agricultural land
- roads and transport

Proposals should address:

- Existing installations
- Submitted proposals
- Proposals with permission not yet implemented
- Proposals and installations in neighbouring planning authorities.
- Impacts from all industrial installations including energy storage, substations and other grid infrastructure.

The cumulative search area will be defined by the nature and scale of the proposal and impacts and is best discussed with PKC through pre-application enquiries.

See the relevant section for policy specific information.

3.21 Permission Lifetime and Extensions

Key Policies

- NPF4 Policy 11(f)
- LDP2 Policy 33B

Key Guidance

- Life extension and decommissioning onshore windfarms | SEPA

3.21.1 Permission lifetime

NPF4 Policy 11(f) advises that consents for development proposals may be time-limited. This includes wind farms, but wind power sites are expected to be suitable for use in perpetuity.

Solar farms and most wind turbines will be time limited. Other proposals will be required to carry out decommissioning once they cease operating. Submissions should nevertheless identify the expected life-time of the development.

3.21.2 Life Extensions and Repowering

Both upgrading existing technology (repowering) and extending the life of an existing installation planning permission (life extension) can maximise resource availability. Repowering and extension applications will be treated as new applications subject to the contemporary legal and policy framework, but applications in suitable sites where impacts have been shown to be capable of mitigation are encouraged, where submitted well before the existing permission expires. The impacts of the existing installation will be a material consideration including environmental or operational issues, and results of monitoring. New environmental studies may be required if monitoring is insufficient, and applicants are encouraged to improve upon the existing site and review community benefits and shared ownership.

Wind

Repowering can involve full or partial replacement of turbines at any time during the life of the installation, and may involve fewer, larger turbines on a larger footprint with potential for a significant change to landscape, visual and other impacts. Additional considerations include:

- Changes to renewable target contribution and GHG payback
- Changes to and history of community support
- Effects on soils and the water environment through revised height, footprint and layout
- Revised landscape and visual impacts due to changes in height, rotor size and layout.
- Revised cumulative impacts
- Impacts on natural heritage and biodiversity including on successful restoration and changes to habitats and wildlife
- Impacts from changes to, retention of or decommissioning of infrastructure including tracks, crane pads and foundations
- Innovation that provides future flexibility, reuse and recycling
- Reuse of materials, tracks and cables
- Recycling of materials that cannot be reused
- Changes to restoration plans

Hydro

Hydropower permissions including PSH will not normally be time limited. Any material alteration to hydropower installations is likely to require a fresh application for planning permission particularly if an increase of the size or height of the weir or dam is proposed.

Alterations to a hydro scheme are also likely to require authorisation under CAR so applicants should contact SEPA at an early stage.

Solar

Solar farms will be time-limited but life extension or repowering can maximise resource availability. Proposals for repowering with material change involving more or larger panels, trenching or cabling - will require a new application. New permissions may include an option for life extension, subject to approval and identified limitations including the presence/availability of prime agricultural land.

3.21.3 Geographical Extensions

Wind

Adding additional turbines to an existing wind farm will be treated as a new application taking into account the existing wind farm and cumulative impacts on the environment. Extensions should fit naturally with existing turbines and layout. If the proposed extension is intended to outlast the existing turbines, additional visualisations and impact assessments will be required to address the impact of the extension on its own.

Solar

Adding additional panels to an existing solar installation may make the best use of the available resource dependent upon the scale, nature and layout of the existing/proposed scheme. Geographical extensions will be treated as new applications taking into account the existing installation and cumulative environment particularly with regard to soils and landscape and visual effects. Extensions should aim to fit with, or improve on, the existing panels and layout, and use as much of the existing infrastructure as possible.

4 Appendices

4.1 NPF4 and [LDP2] Policies

The following shows NPF4 Policy 11 alongside additional requirements in [LDP2 Policy 33]. References to directly relevant (NPF4 Policies) and extant [LDP2 Policies] are also highlighted.

Policy 11

a) Development proposals for all forms of renewable, low-carbon and zero emissions technologies will be supported. These include:

   i. wind farms including repowering, extending, expanding and extending the life of existing wind farms;
   ii. enabling works, such as grid transmission and distribution infrastructure;
   iii. energy storage, such as battery storage and pumped storage hydro;
   iv. small scale renewable energy generation technology;
   v. solar arrays;
   vi. proposals associated with negative emissions technologies and carbon capture; and
   vii. proposals including co-location of these technologies. [33A… taking into account…(i) Opportunities for energy storage]

b) Development proposals for wind farms in National Parks and National Scenic Areas will not be supported.

c) Development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.

d) Development proposals that impact on international or national designations will be assessed in relation to Policy 4.
(NPF4 Policy 4: Natural Places)

e) In addition, project design and mitigation will demonstrate how the following impacts are addressed:

   i. impacts on communities and individual dwellings, including, residential amenity, visual impact, noise and shadow flicker;[air quality…including impacts from construction]
   ii. significant landscape and visual impacts, recognising that such impacts are to be expected for some forms of renewable energy. Where impacts are localised and/or appropriate design mitigation has been applied, they will generally be considered to be acceptable. [*taking into account* landscape character, Local Landscape Areas, Wild Land Areas and other considerations in LDP2 Policy 39]
   (NPF4 Policy 4: Natural Places)
   (NPF4 Policy 8: Greenbelt)
   iii. public access, [recreation and tourism interests] including impact on [core paths,] long distance walking and cycling routes and scenic routes [including the A9 trunk road; and other established routes for public walking, riding or cycling.]
   iv. impacts on aviation and defence interests including seismological recording;
   v. impacts on telecommunications and broadcasting installations, particularly ensuring that transmission links are not compromised;
   vi. impacts on road traffic and on adjacent trunk roads, including during construction;
   vii. impacts on historic environment;
   viii. effects on hydrology, the water environment and flood risk;
   ix. biodiversity including impacts on birds [and natural heritage];
   (NPF4 Policy 3; NPF4 Policy 4)
   x. impacts on trees, woods and forests;
   [LDP2 Policy 40](NPF4 Policy 6)

[33A: Proposals… will be supported subject to the following factors being taken into account…]

- [(a)…hazardous installations (including pipelines)][and

[(e) Construction and service tracks and borrow pits associated with any development]

[(f) Effects on soils including:

- Carbon rich soils, deep peat and priority peatland habitats; or
- Prime agricultural land]

(NPF4 Policy 5)

[(j) Cross-boundary impacts including any impacts on the qualities of the Cairngorms and Loch Lomond and the Trossachs National Parks]

xi. proposals for the decommissioning of developments, including ancillary infrastructure, and site restoration; [Decommissioning including any conditions/bonds considered necessary for site restoration] [Policy 33C: Decommissioning and Restoration of Existing Facilities: In cases where the permission expires or the project ceases to operate for a specific period, the removal of the development and associated equipment and the restoration of the site will be required to a standard agreed with the Council…]

xii. the quality of site restoration plans including the measures in place to safeguard or guarantee availability of finances to effectively implement those plans; [Appropriate financial bonds or other financial mechanism(s) for site restoration may be required]; and

xiii. cumulative impacts.[and…]

In considering these impacts, significant weight will be placed on the contribution of the proposal to renewable energy generation targets and on greenhouse gas emissions reduction targets.

Grid capacity should not constrain renewable energy development. It is for developers to agree connections to the grid with the relevant network operator. In the case of proposals for grid infrastructure, consideration should be given to underground connections where possible.

f) Consents for development proposals may be time-limited. Areas identified for wind farms are, however, expected to be suitable for use in perpetuity.

[Policy 33B: Repowering and Extending Existing Facilities]

[As a result of the potential to make the best use of existing sites and through the continued use of established infrastructure such as grid connections, proposals for the repowering (including life extensions) of existing renewable and low-carbon energy facilities will be encouraged, subject to detailed assessment against the same factors and material considerations as apply to proposals for new facilities. The current use of the site will be a material consideration in any such proposals.

Geographical extension of existing facilities will also be assessed against criteria (a) to (j) above and any other material considerations [including NPF4 Policy 11], with particular emphasis on any potential cumulative impacts arising as a result of the proposed development. Further guidance on the key considerations when dealing with proposals for repowering and extending existing facilities will be provided in Supplementary Guidance to this Policy.]

4.2 Construction Method Statement Template

What are the environmental/ecological risks and where are they?
All areas of risk to ecology, the water and built environment must be considered. • Provide a plan of the site, clearly showing the areas of potential pollution. These should be highlighted and numbered, with a simple key. An example of this is provided, for guidance. • All sensitive habitat should be considered and mitigated.
Who is aware of these risks?
All on-site staff must be made aware that pollution has to be prevented and ecological impact mitigated. • Indicate how everyone is made aware of this requirement e.g. in induction, clearly displayed CMS, as part of daily monitoring checks, signed information sheet and site diary.
What can be done to prevent pollution/harm?
Mitigation measures appropriate to prevent pollution have to be considered and must be routinely monitored and replaced where required. • Using individual numbers from the site map above, indicate exactly what mitigation measures will be used to prevent siltation, run-off and oil spills etc. • Clearly defined, robust Construction Exclusion Zones.
What will you do if the mitigation fails?
There will be circumstances where mitigation measures e.g. overloaded silt curtains are in need of repair and replacement. A thorough monitoring regime and adequate replacement kits must be in place. • Detail what spill kits etc. will be available and where these will be located. These should be marked on the map.
Who will you contact?
The appropriate authorities and water users will have to be made aware of environmental incidents as they occur. • List the names and contact numbers of the interested parties who you will contact in the case of emergency.

Example site plan