Environmental Impact Assessment Report

Teindland Wind Farm

Volume 4

Non-Technical Summary

Document prepared by Envams Ltd for: Teindland Wind Farm Ltd

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Contents

1 INTRODUCTION

1.1 BACKGROUND

This document is the Non-Technical Summary (NTS) of the Environmental Impact Assessment Report (EIAR) prepared for Teindland Wind Farm Ltd (the Applicant) in support of an application to the Scottish Ministers for a consent under Section 36 of the Electricity Act 1989, with deemed planning permission under Section 57(2) of the Town and Country Planning (Scotland) Act 1997.

The application seeks consent to construct, operate, and decommission Teindland Wind Farm ("the wind farm"), a renewable energy development with a generation capacity exceeding 50 megawatts (MW), located in a commercial conifer forest known as Teindland Wood that is owned and managed by Forestry and Land Scotland (FLS), referred to as the Site, approximately 3 km north of Rothes in Moray.

As the wind farm exceeds the 50 MW threshold, it requires consent under Section 36 of the Electricity Act, rather than a "normal" planning permission, however, an Environmental Impact Assessment (EIA) is still required as part of the application.

The purpose of the Environmental Impact Assessment (EIA) is to assess the likely significant environmental effects of the wind farm and to propose mitigation where appropriate. This EIAR is the documented output of the EIA process.

1.2 THE WIND FARM

The wind farm includes up to 12 wind turbines with an output of approximately 86 MW, associated access tracks, a substation, a construction compound, a meteorological mast, underground cabling, and a Battery Energy Storage System (BESS) compound with batteries that would have an export capacity up to approximately 85 MW. Note that whilst a BESS has been included within the application, this will only be built out if there is a need for it to balance the grid network.

A full description of the wind farm and its physical and operational characteristics is provided in Chapter 4: Development Description of the EIAR, summarised in Chapter 4 of this NTS. The layout has evolved through a cyclical design process, influenced by environmental considerations and stakeholder feedback.

1.3 THE APPLICANT

The Applicant, Teindland Wind Farm Ltd, is a joint venture between European Energy UK Limited and Locogen.

European Energy is a global renewable energy developer headquartered in Copenhagen, with projects across Europe and beyond.

Locogen is a Scotland-based developer and consultant with extensive experience in delivering renewable energy projects in the UK.

1.4 THE PURPOSE OF THE NTS

This NTS provides a clear and accessible summary of the key findings of the EIAR, written in non-technical language to inform members of the public, stakeholders, and decision-makers.

It highlights the nature of the wind farm, its potential environmental impacts, and the proposed mitigation measures.

The NTS is supported by key figures available in Volume 2 of the EIAR, with the site location and layout plans (Figures 1.1 and 4.1) also included within this NTS document.

2 EIA METHODOLOGY

2.1 INTRODUCTION

This chapter explains the process used to carry out the EIA for the Teindland Wind Farm. The EIA is a structured approach used to identify and evaluate the potential environmental

effects of a development, and to propose measures that can avoid or reduce any negative impacts.

2.2 THE EIA PROCESS

The EIA for the wind farm application followed a staged approach, starting with site selection and progressing through consultation, design refinement, environmental assessment, and mitigation planning. The process included:

- Identifying baseline environmental conditions;
- Predicting the potential effects of the development;
- Incorporating mitigation measures into the design; and
- Reporting on residual and cumulative effects.

A formal Scoping Opinion was requested and received from the Scottish Government's Energy Consents Unit in 2022. This defined the scope of assessments and highlighted key topics, such as ecology, noise, landscape, and hydrology, to be addressed in detail in the EIAR.

2.3 CONSULTATION AND ENGAGEMENT

Consultation played a key role throughout the EIA. Statutory consultees—including the Scottish Environment Protection Agency (SEPA), NatureScot, Moray Council, and Historic Environment Scotland—were engaged through the Scoping process and beyond. Public engagement was also central to the assessment, with in-person exhibitions held in local venues, including Rothes, Fochabers, and Inchberry, and an online platform provided for feedback.

A summary of all community engagement events is provided in the EIAR with more detail provided in the Pre-Application Consultation (PAC) Report which also accompanies the application. These events informed the public about the wind farm proposals, presented draft plans and visuals, and gathered feedback that helped refine the design.

2.4 CONTENT OF THE EIAR

The EIAR includes assessments of the potential environmental effects of the wind during its construction, operation, and decommissioning phases. It covers a wide range of topics such as landscape and visual impact, ecology, cultural heritage, noise, hydrology, and socio-economic effects.

Each technical chapter in the EIAR follows a consistent format:

- Description of the topic and assessment methodology;
- Summary of consultation feedback;
- Baseline conditions (the state of the environment in the absence of Teindland Wind Farm);
- Assessment of predicted effects on the environment, taking into account embedded mitigation;
- Assessment of predicted residual effects, taking into account any additional mitigation;
- Consideration of cumulative effects of the wind farm together with other proposed developments; and
- A summary statement on whether, and which, effects are considered significant under the EIA Regulations.

2.5 BASELINE AND FUTURE CONDITIONS

The baseline for each topic was established through a combination of desk studies, field surveys, and data gathered from other developments in the area. This provided an understanding of the environmental context in the absence of the wind farm. Where relevant, future baseline conditions were considered, including the potential effects of climate change on sensitive environmental features.

2.6 ASSESSMENT OF SIGNIFICANCE

The significance of each environmental effect was generally determined by evaluating two key factors:

- The **sensitivity** of the receptor (such as a habitat, heritage site, or community); and
- The **magnitude** of the change caused by the development.

Using these factors, each effect was categorised as negligible, minor, moderate, or major, and either significant or not significant under the EIA Regulations. Professional judgement and guidance were applied to ensure consistency across topics. For some topics, a slightly different approach was taken, and that is described in those chapters.

2.7 MITIGATION AND MONITORING

The design of Teindland Wind Farm has already avoided and/or reduced impacts to a large extent and this is known as “embedded mitigation.” Additional mitigation has also been proposed in some cases, to further reduce potential effects, including construction practices and monitoring requirements, which are described in each technical chapter. Where necessary, post-consent monitoring will be undertaken to ensure mitigation measures are effective and allow for adjustments if needed.

2.8 RESIDUAL EFFECTS

Residual effects are those that remain after mitigation is applied. These have been assessed in each technical chapter, and where significant residual effects remain, these are highlighted in the summary tables and conclusions of the EIAR.

2.9 CUMULATIVE EFFECTS

The assessment also considered how the effects of the wind farm might interact with those from other proposed wind farm developments in the area. Where projects are already operational or consented, their combined influence was considered in relation to each environmental topic.

2.10 ASSUMPTIONS AND LIMITATIONS

All assessments in the EIAR are based on the most up-to-date design and environmental data available at the time of submission. Some assumptions are necessary due to data availability, environmental variability, or changes in baseline conditions. These are clearly stated in each topic chapter. Overall, sufficient information was available for a robust assessment of environmental effects.

3 SITE SELECTION AND DESIGN EVOLUTION

3.1 INTRODUCTION

This section explains how the Site for the Teindland Wind Farm was selected and how its design has developed over time. It describes the environmental, technical, and planning considerations that shaped the proposed layout. The design process aimed to balance maximising renewable energy generation with minimising environmental effects through an iterative and informed approach.

3.2 SITE LOCATION AND CHARACTERISTICS

The Site lies around 3 km north of Rothes and 10 km southeast of Elgin, in Moray. Covering approximately 1,054 hectares, the site is primarily made up of coniferous plantation forest and features rolling upland terrain. The land is currently used for commercial forestry and informal recreation, with a well-established network of forest tracks.

Although the Site is not designated for national landscape protection, it is partly located within the Spey Valley Local Landscape Area and contains the Teindland Quarry Site of Special Scientific Interest (SSSI). Several other ecological, heritage, and landscape designations lie within 10 km of the Site boundary.

3.3 SITE SELECTION PROCESS

The Site was proposed for potential wind farm development by FLS, the publicly owned landowners and forest managers, as part of a Scotland-wide exercise to diversify use and benefits from Scotland's forest estate. The Applicant chose to enter an agreement with FLS following a detailed assessment of technical, environmental, and planning considerations. Key factors included wind resource potential, access to the electricity grid, suitable transport links for turbine delivery, minimal peat presence, and avoidance of national or international designations. It was also essential that the Site allowed enough separation from residential properties to avoid unacceptable levels of noise, visual effects, or shadow flicker.

This selection process ensured that the Site could support a wind farm in planning and environmental terms before more detailed work was undertaken.

3.4 DESIGN STRATEGY AND EVOLUTION

The design of the wind farm evolved over several stages to address environmental and technical requirements while maximising energy generation. This involved balancing turbine placement with visual impacts, ground conditions, ecology, and proximity to sensitive receptors such as homes or protected habitats.

From the initial scoping layout of 17 turbines, the design was refined through successive stages. The final layout includes 12 turbines – eight with a maximum tip height of 230 metres and four up to 200 metres – plus supporting infrastructure like access tracks, a substation, and a BESS. These changes were made to reduce environmental effects and reflect stakeholder feedback.

3.5 KEY ENVIRONMENTAL CONSIDERATIONS

Landscape and Visual: Turbines were located centrally and set back from the Spey Valley to reduce visibility from sensitive viewpoints and neighbouring hilltops.

Cultural Heritage: Design avoided direct impacts on known heritage features, and changes made for landscape reasons also benefited setting effects.

Ecology and Ornithology: Surveys identified important habitats and protected species such as pine marten, otter, wildcat and osprey. Infrastructure was sited to avoid the most sensitive areas.

Peat and Hydrology: There is little peat at the Site, but the small areas of deep peat were avoided. Turbines and infrastructure were located at least 50 m from watercourses except for track crossings, and existing watercourse crossings were reused where possible.

Noise and Residential Amenity: Turbines were sited to remain within acceptable noise limits and to limit visual impacts for nearby residents.

Forestry: Tree felling was minimised by using existing forest clearings and access tracks, reducing the risk of windthrow in mature forest blocks.

3.6 CONCLUSION

The final design of the Teindland Wind Farm reflects a thorough and responsive design process, incorporating feedback, survey data, and best practice. The resulting layout balances the need for renewable energy generation with the protection of local environmental and community interests. It is the product of a detailed and transparent design evolution, aimed at delivering a sustainable and viable wind energy project.

4 WIND FARM DESCRIPTION

4.1 INTRODUCTION

This section describes the proposed Teindland Wind Farm ("the wind farm"), including its key components, infrastructure, and how it will be constructed, operated, and eventually decommissioned. It also highlights design elements that have been included to reduce potential environmental effects.

4.2 OVERVIEW OF THE WIND FARM

The wind farm will be a renewable energy project comprising up to 12 wind turbines. Of these, eight turbines will have a maximum tip height of 230 metres and four will be up to 200 metres. The total generation capacity from the turbines will be approximately 86 MW. In addition to the turbines, the development will include access tracks, a BESS with an output capacity of approximately 85 MW, a substation, a meteorological mast and cabling.

Final positioning and technical specifications will be confirmed following consent, with allowances for minor changes (known as “micro-siting”) to suit local ground conditions.

4.3 KEY COMPONENTS

The main components of the development include:

- Wind Turbines: Each turbine will be installed with a concrete foundation and nearby crane hardstanding area for assembly and maintenance. The turbines will be light grey and have a horizontal-axis, three-bladed design. The make and model of the turbines will be selected following consent.
- Access Tracks: A total of approximately 14 km of access tracks will be required, comprising 8 km of new track and 6 km of upgraded existing track. These will connect all turbines and infrastructure.
- BESS: This compound will contain approximately 20 battery units capable of storing up to 171 MWh of energy and delivering an output of around 85 MW.
- Substation Compound: Located in the southeast of the Site, the substation will house electrical equipment and a control building to manage grid connection.
- Meteorological Mast: A 149.9 m mast will be installed to monitor wind conditions.
- Electrical Cabling: Underground cables will connect turbines to the substation and control systems, usually running alongside the access tracks.
- Construction Compound: A temporary area for equipment and site offices will be established during construction and may be partially retained for operational use.
- Aviation lighting will be installed on turbines taller than 150 m to comply with Civil Aviation Authority (CAA) requirements, with measures to reduce visibility from the ground.

4.4 CONSTRUCTION PHASE

Construction is expected to last for twelve months, following tree felling required to clear space in certain areas for the wind farm infrastructure. The process includes foundation installation, access track building, turbine delivery and erection, and electrical works. Public access will be restricted in active construction areas but managed to allow continued recreational use where possible.

4.5 OPERATION PHASE

The wind farm will operate for up to 40 years. Regular inspections and maintenance of turbines, tracks, and electrical systems will be undertaken. Public access will be as it is now, that is, generally available, with limited restrictions where forestry and other physical work is ongoing, for safety reasons.

4.6 DECOMMISSIONING

At the end of the wind farm’s life, above-ground infrastructure will be removed. Turbines will be dismantled and transported off-site. Foundations will be removed to approximately 1 metre below ground level, and the site will be restored to allow natural regeneration or forestry use. The access tracks may be retained by the landowner where they are beneficial to ongoing management of the Site.

5 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

5.1 Introduction To Chapter

The Landscape and Visual Impact Assessment of the EIAR assesses the potential effects of the Teindland Wind Farm on the surrounding landscape and views. The assessment was

carried out by qualified landscape architects using best practice guidance from the Landscape Institute and NatureScot.

5.2 What Features Might Be Affected?

The landscape surrounding the Site includes rolling hills, farmland, and forested valleys, with nearby settlements such as Inchberry, Fochabers, and Elgin. The Site lies partly within the Spey Valley SLA, a locally important designation, and is close to other valued landscapes such as Brown Muir and Ben Aigan.

The wind turbines could be visible from parts of the Moray coast, the Spey Valley, and upland areas to the south, from locations in which clear views towards the Site are available. Important viewpoints include residential areas, scenic routes like the North East 250, and popular outdoor locations such as Ben Rinnes and Rothes Golf Course.

5.3 What Are The Potential Effects?

The development of the wind farm may affect both the character of the landscape and views experienced by people. The key potential effects that are assessed include:

- Changes to landscape character, particularly in areas close to the site or with open views.
- Visual impacts for residents, road users, and visitors, especially within 5 km of the turbines.
- Night-time effects from aviation lighting on the turbines.
- Cumulative impacts, where the proposed turbines may be seen alongside other existing wind farms.

5.4 How Will The Effects Be Managed?

The layout and design of the wind farm have been developed to reduce visual impacts:

- Most turbines are sited within forested areas to limit their visibility.
- Taller turbines are limited to eight, and only four require aviation lighting.
- Lighting has been minimised and will be dimmed during clear conditions.
- Turbines have been set back from the edges of the forest to reduce impact on views from the Spey Valley.

Consultation with key stakeholders, including NatureScot and Moray Council, has helped shape the assessment and ensure concerns are addressed as far as practicable.

5.5 What Are The Overall Effects?

The assessment identifies several **significant adverse effects** on both landscape character and visual receptors:

- Particularly around **Rothes, Inchberry**, and the **Spey Valley**.
- Along the **North East 250 scenic route**, where the wind farm will be visible in key stretches.

Beyond these areas, effects become **less significant or negligible**, especially where existing forestry or landform screens views.

Effects are generally **more significant within 4–5 km** of the Site, particularly in the Spey Valley SLA and around Rothes and Inchberry. Beyond this, visual effects tend to reduce due to distance and intervening forestry.

Although these effects are significant in some locations, they reflect the expected visual change from a development of this nature and it does not mean that they are unacceptable in planning terms. Landscape and visual effects are fully reversible on decommissioning of the wind farm after its operational life.

6 ECOLOGY

6.1 INTRODUCTION TO CHAPTER

The Ecology chapter of the EIAR assesses the potential effects of the Teindland Wind Farm on local wildlife, habitats, and designated ecological sites. It draws upon a wide range of desk studies and field surveys and follows best practice guidance from professional bodies like the Chartered Institute of Ecology and Environmental Management (CIEEM). Key receptors such as mammals, birds, bats, habitats, and ecological water features have been considered.

6.2 WHAT FEATURES MIGHT BE AFFECTED?

The Site is located within commercial forestry, featuring mainly plantation woodland and peatland areas. Ecological surveys identified the presence of important species such as otter, red squirrel, pine marten, wildcat, bats, and hairy wood-ant. Additionally, several areas of peatland and woodlands of Long-Established Plantation Origin (LEPO) were noted.

Nearby designated sites include the River Spey Special Area of Conservation (SAC) and several SSSIs. These support valuable species and habitats, including Atlantic salmon and freshwater pearl mussel. The Teindland Quarry SSSI within the Site is there to protect its geology, rather than ecology, however.

Habitat surveys confirmed that although large parts of the site are forestry plantation, some areas – such as LEPO woodland and peatland – are of moderate conservation value. Bat activity was generally low to moderate, but certain detector sites suggested the possible presence of nearby roosts.

6.3 WHAT ARE THE POTENTIAL EFFECTS?

The main potential ecological effects of the wind farm include:

- Habitat loss and fragmentation due to construction and felling activities.
- Disturbance to protected species such as bats, otter, red squirrel, and pine marten during construction and operation.
- Collision risks for bats with operational wind turbines.
- Temporary disturbance from construction noise, lighting, and human presence.
- Changes to watercourses and potential for pollution affecting aquatic species.
- Cumulative effects with other nearby wind farms were also considered but are not predicted to be significant.

6.4 HOW WILL THE EFFECTS BE MANAGED?

A number of measures have been embedded in the wind farm design and will be implemented to minimise ecological impacts:

- Infrastructure has been **sited away from sensitive areas** like deep peat and valuable habitats.
- A **Construction Environmental Management Plan (CEMP)**, which includes a **Water Quality and Fish Monitoring Plan (WQFMP)** will control construction activities to limit and monitor potential effects.
- A **Habitat Management Plan (HMP)** will enhance woodland structure, establish native riparian corridors, and support biodiversity.
- Specific **mitigation for bats** includes clearing trees in ‘key-hole’ areas around turbines and lighting controls.
- Measures such as **slow vehicle speeds**, **mammal ramps**, and **pre-construction surveys** will further reduce risks to wildlife.

Ongoing **monitoring and adaptive management** are proposed to ensure the effectiveness of mitigation over the wind farm’s 40-year lifespan.

6.5 WHAT ARE THE OVERALL EFFECTS?

The assessment concludes that, with mitigation, Teindland Wind Farm is unlikely to result in significant adverse effects on habitats or species. Most impacts are:

- Minor and local in nature,
- Temporary during construction, and
- Offset through compensatory planting and habitat enhancement.

Operational effects, particularly bat collisions, are considered potentially significant only at a local level (which is not significant in terms of the EIA Regulations), but not likely to impact wider populations. There are **no predicted cumulative impacts** with other nearby developments.

All effects on ecology are assessed as being not significant. Most effects are local in scale and temporary, especially during construction and decommissioning. No significant long-term effects are expected for any species or habitats. The outline HMP (which is provided in Technical Appendix A6.5, in Volume 3 of the EIAR) proposes significant enhancement of habitats, in addition to mitigation measures, including planting native broadleaf trees along watercourses and around standing water bodies within the Site.

Overall, the Teindland Wind Farm is considered to be compatible with ecological protection and biodiversity enhancement objectives.

7 ORNITHOLOGY

7.1 INTRODUCTION TO CHAPTER

The Ornithology chapter of the EIAR assesses potential effects on bird species and their habitats resulting from the construction, operation, and decommissioning of the Teindland Wind Farm. The assessment follows best practice guidance from the CIEEM, using detailed baseline surveys and professional judgment to focus on Important Ornithological Features.

7.2 WHAT FEATURES MIGHT BE AFFECTED?

The Site is near several designated sites important for birds, including the **Moray and Nairn Coast Special Protection Area (SPA)**. Bird species considered in the assessment include **osprey**, **goshawk**, **capercaillie**, **greylag goose**, and **pink-footed goose** due to their conservation importance or regular presence on or near the Site.

The Site supports breeding ospreys and goshawks and lies within the foraging range of wintering geese populations. The site also historically supported capercaillie, but recent surveys suggest they are likely no longer present.

7.3 WHAT ARE THE POTENTIAL EFFECTS?

Potential effects identified across the wind farm's lifecycle include:

- Collision risk for species such as pink-footed goose, greylag goose, osprey, and goshawk due to turbine blades.
- Disturbance and displacement during construction and operation, especially near breeding sites of sensitive species like osprey and goshawk.
- Barrier effects from turbines potentially altering flight paths of migratory geese and ospreys.
- Habitat loss or degradation, although most impacts are limited due to the commercial forestry nature of the Site.

7.4 HOW WILL THE EFFECTS BE MANAGED?

A series of mitigation and management measures are proposed to avoid or minimise potential effects:

- **Turbines have been sited** away from known nesting areas and migration corridors, particularly for osprey.
- A **CEMP** will be implemented, including:
  - A **Breeding Bird Protection Plan (BBPP)** to ensure no active nests are disturbed.
  - Appointment of an **Ecological Clerk of Works (ECoW)** to oversee bird-related mitigation.
- An **HMP** will enhance habitat structure and biodiversity.
- **Osprey-specific measures** include provision of artificial nesting platforms.

These measures are designed to ensure compliance with wildlife legislation and to deliver long-term ecological benefits.

7.5 WHAT ARE THE OVERALL EFFECTS?

With mitigation in place, the overall effects on bird populations are predicted to be:

- **Not significant** for all assessed species, including collision, displacement, and barrier effects.
- **Localised and temporary** in nature during construction and decommissioning phases.
- **Negligible at regional or national population levels**, even for sensitive species like pink-footed goose and osprey.

Modelling of the risk of collisions between birds and wind turbine blades estimated very low levels of collisions for all species assessed, e.g., an average of ~7 pink-footed geese and <1 osprey annually, well below thresholds likely to impact regional or national populations.

The wind farm is considered compatible with bird conservation objectives, with long-term monitoring and adaptive management in place to address any unforeseen impacts.

8 ARCHAEOLOGY AND CULTURAL HERITAGE

8.1 INTRODUCTION TO CHAPTER

The Archaeology and Cultural Heritage Chapter of the EIAR assesses the potential effects of the Teindland Wind Farm on cultural heritage assets, including archaeology, historic buildings, and designed landscapes. The study followed national guidelines and included a detailed desk-based assessment and field survey undertaken by qualified archaeologists, using information from Historic Environment Scotland (HES) and Aberdeenshire Council Archaeology Service (ACAS).

8.2 WHAT FEATURES MIGHT BE AFFECTED?

A total of 46 heritage assets were identified within 5 km of the Site, mostly related to historic agricultural settlements, boundary features, and woodland infrastructure. These include:

- One asset of regional value (a probable prehistoric cairn).
- 24 assets of local value, including farmsteads, boundary stones, and minor historic structures.
- 21 assets of negligible sensitivity due to poor preservation or limited historic interest.
- Beyond the site, within 10 km of the turbines, there are:
- 11 Scheduled Monuments,
- 31 Category A Listed Buildings,
- 148 Category B Listed Buildings,
- 11 Category C Listed Buildings (within 5 km),
- 3 Conservation Areas, and
- 3 Inventory Gardens and Designed Landscapes (GDLs).

Most views of the wind turbines from these features are limited due to topography and existing woodland.

8.3 WHAT ARE THE POTENTIAL EFFECTS?

Potential effects include:

- Construction impacts, where earthworks might disturb known or unknown buried archaeological remains.
- Operational effects on the setting of designated assets, mainly through visibility of turbines.
- Cumulative effects with other wind farms, especially in relation to visual changes in the wider historic landscape.

8.4 HOW WILL THE EFFECTS BE MANAGED?

Mitigation measures include:

- **Designing the layout** to avoid physical impacts on archaeological features and minimising views of turbines in key views from heritage features away from the Site.
- Implementing protection controls through the **CEMP** to guide contractors and protect any archaeology that is currently unknown but discovered during construction.
- **Monitoring or watching briefs** in areas with medium archaeological potential (e.g., parts of the delivery route where turbine vehicles will need to use land adjacent to the existing road).
- Preservation of unexpected finds in situ where possible, or **excavation and recording** if necessary.
- **Consultation with the Council's heritage advisers** on all mitigation.

8.5 WHAT ARE THE OVERALL EFFECTS?

Overall, the Cultural Heritage assessment found:

- No **significant physical effects** on any heritage assets.
- **No significant effects** on the settings of designated assets from a change in views, including after consideration of cumulative impacts with other nearby developments.
- Mitigation and design have reduced potential effects to negligible or minor levels.

Only one heritage asset (a field bank) lies close enough to face possible minor disturbance. No significant direct effects are expected. Operational impacts on settings of nearby high-sensitivity heritage assets (e.g., Gordon Castle, Rothes Castle, and Church of Dundurcas) are assessed as **minor or negligible, and not significant**.

The wind farm will have minimal residual effects and strong protection for archaeological and historic features.

9 NOISE

9.1 INTRODUCTION TO CHAPTER

The Noise Chapter of the EIAR assesses the potential noise effects of the Teindland Wind Farm on nearby homes and communities throughout its construction, operation, and decommissioning phases. The assessment follows national guidance and good practice recommendations from the Institute of Acoustics. The focus is on both general site noise and construction traffic noise. **What Features Might Be Affected?**

Several properties near the Site have the potential to be affected by noise. These include residences at Teindland Wells, Hillhouse, Sauchenbush, Carraburn, Barluack Farm, and Hillfolds Cottage. Baseline noise levels were established at representative locations following consultation with Moray Council. The substation is the only infrastructure located within 500 metres of a residence. There are no nearby wind farms that would contribute to cumulative noise effects, and BESS was excluded from detailed assessment due to distance and natural screening.

9.2 WHAT ARE THE POTENTIAL EFFECTS?

During the construction phase, noise from typical activities such as groundwork, vehicle movements, and substation construction is predicted to be well below acceptable noise limits at all nearby properties. As such, no significant construction noise effects are anticipated. Construction traffic was also assessed and found to have no significant effect on public roads used for access.

For the operational phase, predicted turbine noise levels at all identified properties were compared with national limits. While most locations remain within acceptable limits, two properties – Carraburn and Hillhouse – could experience slight exceedances at specific wind speeds under worst-case conditions, depending on the turbine model selected after consent is granted. To address this, a mitigation strategy involving reduced turbine noise modes at certain times and wind conditions has been developed for the candidate turbine, and this will be adapted for the turbine selected for construction to ensure the same noise limits are met. These measures ensure that operational noise levels remain compliant with national guidance.

During the decommissioning phase, noise levels are expected to be similar to or lower than those during construction, and appropriate best practice will be followed to avoid significant effects.

9.3 HOW WILL THE EFFECTS BE MANAGED?

Noise impacts will be managed through a series of embedded mitigation measures. During construction, best practice controls will be implemented, such as working hour restrictions, use of quieter plant and equipment, and temporary screening where necessary. Residents will be notified in advance of any particularly noisy activities. This will be manged through the **CEMP**.

For operational noise, effects depend on the turbine model selected. The noise modelling will be carried out on the selected turbine and any additional controls required to reduce noise to below the ETSU-R-97 limits will be implemented.

9.4 WHAT ARE THE OVERALL EFFECTS?

Overall, the assessment concludes that construction and traffic noise levels will not result in significant effects. Operational noise will be effectively managed through adaptive mitigation and will remain within national guidelines. Decommissioning noise is anticipated to be temporary and comparable to construction.

With these management measures in place, the Teindland Wind Farm is not predicted to result in any significant noise effects.

10 CLIMATE CHANGE

10.1 INTRODUCTION TO CHAPTER

This chapter evaluates how the Teindland Wind Farm may both affect and be affected by climate change. It considers the wind farm’s contribution to reducing greenhouse gas (GHG) emissions by assessing its net effect on carbon dioxide emissions using the Scottish Government's carbon calculator and explores how climate change may impact the wind farm over its operational life.

10.2 WHAT FEATURES MIGHT BE AFFECTED?

The assessment considered several climate-related factors that could influence the wind farm, such as wind speeds, temperature, and rainfall patterns. Changes in these areas can impact turbine efficiency, the potential for blade icing, and flood risk.

The climate is affected by emissions of greenhouse gases, including carbon dioxide, as a result of human activity.

10.3 WHAT ARE THE POTENTIAL EFFECTS?

The vulnerability of the wind farm to climate change is considered low. Wind speeds are not expected to change substantially, and the turbines are engineered to withstand extreme weather events. Warming temperatures may reduce the occurrence of blade icing, and the development design includes measures to manage runoff and avoid increased flood risk from heavier rainfall.

The process of manufacturing the components and constructing the wind farm will involve some carbon emissions, but the operational phase will avoid emissions that would have occurred from the electricity generated from other sources, including fossil fuels. There is a potential net effect on the climate, which is assessed.

10.4 HOW WILL THE EFFECTS BE MANAGED?

The wind farm has been carefully designed to minimise carbon losses and climate risks. Sensitive peatland areas were avoided during layout planning to reduce emissions from soil disturbance. Existing access tracks were reused where possible to limit the construction footprint on trees, and drainage systems were designed to handle increased rainfall. These measures are embedded in the design and are supported by a **Peat Management Plan** and a **CEMP**.

Such embedded mitigation helps minimise effects on the climate and ensures the wind farm delivers long-term environmental benefits while being resilient to the effects of a changing climate.

10.5 WHAT ARE THE OVERALL EFFECTS?

The wind farm will not be significantly affected by future climate conditions, thanks to its design and management measures.

In terms of its contribution to climate change mitigation, the wind farm is expected to deliver significant benefits. The savings are estimated to be around 56,000 tonnes of carbon dioxide per year based on the average electricity generation emissions. Emissions from construction are estimated at 221,000 tonnes of carbon dioxide. However, with the emission savings from renewable generation, the wind farm is projected to "pay back" its carbon cost in 4.0 years.

In conclusion, the wind farm will have **a significant beneficial effect** on climate change mitigation and aligns well with national targets to reduce emissions and transition to a net-zero energy system.

11 TRAFFIC AND TRANSPORT

11.1 INTRODUCTION TO CHAPTER

The Traffic and Transport Chapter of the EIAR assesses the potential impacts of the Teindland Wind Farm on the local and regional road network during its construction, operation, and decommissioning phases. It draws upon guidance from the Institute of Environmental Management and Assessment (IEMA), the Design Manual for Roads and Bridges (DMRB), and Moray Council policies. The assessment also incorporates feedback from stakeholders including local authorities and Police Scotland.

11.2 WHAT FEATURES MIGHT BE AFFECTED?

The wind farm will be accessed via an upgraded junction on the B9103, around 1.6 km north of the B9015 junction. The primary road network that may be affected includes the B9103, B9015, A941, A95(T), and A96(T), which serve as the main transport routes to the Site. Some of these roads, particularly those near Rothes and Charleston of Aberlour, are more sensitive to increased traffic due to their proximity to residential areas and their use by pedestrians and cyclists.

11.3 WHAT ARE THE POTENTIAL EFFECTS?

During construction, the wind farm is expected to generate approximately 33,500 two-way Heavy Goods Vehicle (HGV) movements over a 12-month period. The peak construction month could see over 6,500 two-way vehicle movements, with up to 25 vehicles per hour. Additionally, up to 169 turbine delivery trips will occur over a four-month period, and construction staff are expected to make around 60 two-way daily trips. These increases in traffic has the potential to lead to short-term congestion, delays, and safety concerns, particularly along narrow rural roads and within sensitive settlements like Rothes and Charleston of Aberlour.

During operation, traffic levels will be minimal and limited to occasional maintenance vehicles. As such, no significant impacts are anticipated. Decommissioning traffic is expected to mirror construction in scale and character, though it would also be temporary.

11.4 HOW WILL THE EFFECTS BE MANAGED?

Traffic impacts during construction will be managed through a detailed **Construction Traffic Management Plan (CTMP)**, which will include designated haul routes, signage, traffic control measures, and a delivery schedule designed to avoid peak hours and sensitive times such as school runs. Construction vehicles will use defined access points, and speed limits will be enforced on approach roads. Additional mitigation will ensure that local parking areas and roads remain safe and accessible for all users, including walkers and cyclists. Moray Council and Police Scotland will be consulted throughout to ensure safety and effective coordination.

11.5 WHAT ARE THE OVERALL EFFECTS?

While there may be short-term disruptions to traffic and local amenity during the construction phase – particularly on rural roads and within nearby villages – these effects are temporary and manageable. During operation and decommissioning, the impacts are expected to be negligible. With the implementation of a robust CTMP and stakeholder engagement, **traffic and transport effects will not be significant**.

Cumulative effects with other proposed wind farms in the area were considered. Due to staggered construction schedules and traffic management plans associated with those developments, no significant cumulative traffic impacts are predicted.

12 HYDROLOGY, HYDROGEOLOGY AND SOILS

12.1 INTRODUCTION TO CHAPTER

The Hydrology Chapter of the EIAR assesses how the Teindland Wind Farm could affect hydrology, surface water, groundwater, private and public water supplies, flood risk and peat. The assessment is based on identifying where pollution or physical changes could occur and assessing the potential for those to affect water resources, with embedded mitigation included in the assessment. The chapter draws upon a Peat Management Plan and an inventory of watercourse crossings.

12.2 WHAT FEATURES MIGHT BE AFFECTED?

The Site drains primarily into the River Spey, a designated SAC and SSSI. Multiple small watercourses rise within the Site and connect with the River Spey through tributaries such as the Feith Burn, Burn of Sourden, and Burn of Garbity.

Groundwater vulnerability within the site ranges from moderate to high, though no Groundwater Dependent Terrestrial Ecosystems (GWDTEs) were found on site. There is one public water supply protection zone—associated with Scottish Water's Badentinan Water Treatment Works—that overlaps a small portion of the site. Seventeen private water supplies were identified in the wider study area, none of which lie within 1 km of the proposed infrastructure.

The area receives moderate rainfall and, due to existing topography and impermeable soils, baseline runoff is already relatively high. Flood risk mapping indicates that development infrastructure is located outside areas of predicted fluvial, pluvial, tidal, and groundwater flood risk.

12.3 WHAT ARE THE POTENTIAL EFFECTS?

During construction, the primary risks include accidental spills of fuel or concrete, erosion, sedimentation, and disruption of surface or near-surface water flow.

Construction traffic and earthworks could increase surface runoff and sedimentation, but mitigation measures such as silt fences, settlement ponds, and track drainage are expected to manage these effectively.

During operation, the potential for long-term effects is limited due to the relatively small footprint of the infrastructure. Drainage design will maintain natural flow paths, and the use of existing forestry tracks reduces the requirement for new watercourse crossings.

12.4 HOW WILL THE EFFECTS BE MANAGED?

The design includes a 50 m buffer zone from watercourses and a 250 m buffer from boreholes and groundwater abstractions, reducing the risk of contamination or hydrological disruption.

However, these risks are managed through an embedded **CEMP**, which includes a wide range of standard mitigation measures such as impermeable membranes, buffer zones from watercourses, and pollution prevention procedures. This includes surface water management systems, pollution prevention plans, buffer distances, and appropriate design of watercourse crossings. Forestry and felling impacts will be managed through best practice outlined by Forestry Commission guidelines. Regular monitoring and compliance

with SEPA and Scottish Water requirements will further reduce risks throughout the development's lifecycle.

12.5 WHAT ARE THE OVERALL EFFECTS?

The wind farm is predicted to have only minor and **not significant effects on hydrology, groundwater and peat**.

The assessment also concludes that there will be **no significant effects on private or public water supplies**.

Decommissioning is expected to replicate construction-related risks, which will be managed using updated versions of the same mitigation plans.

13 AVIATION

13.1 INTRODUCTION TO CHAPTER

The Aviation Chapter of the EIAR examines the potential effects of the Teindland Wind Farm on both civil and military aviation operations, including impacts on radar systems and aviation safety. The assessment was undertaken by aviation specialists, using national guidance such as the Civil Aviation Authority's CAP 764 and safeguarding criteria provided by the Ministry of Defence (MOD).

13.2 WHAT FEATURES MIGHT BE AFFECTED?

The Site is situated in Class G airspace, which is the least restricted category in the UK. It is located approximately 19 km from RAF Lossiemouth, which operates a Primary Surveillance Radar (PSR), and around 50 km from Inverness Airport, which uses both a PSR and a TERMA mitigation radar. It is also within the wider area of interest for the MOD's Air Defence radar based at RAF Buchan, although the turbines will not be visible to that system.

Additionally, a glider site at Easterton, located roughly 7 km west of the Site, was identified, as well as one unlicensed aerodrome located well outside standard consultation buffers.

13.3 WHAT ARE THE POTENTIAL EFFECTS?

During construction, standard risks associated with the use of tall cranes may arise. However, these can be effectively managed through pre-notification to the MOD and CAA, and the use of temporary lighting where needed.

Operational effects primarily relate to potential interference with radar systems. RAF Lossiemouth may be affected by turbine visibility on its PSR, and while further assessment is required, the MOD has acknowledged the issue and confirmed that mitigation will be necessary. As the proposed turbines will exceed 150 metres in height, aviation safety lighting will be required in accordance with the Air Navigation Order. Inverness Airport has been consulted, and an assessment of their procedures has established that they would not be affected by the wind farm.

Decommissioning is expected to generate similar effects to the construction phase, which will be managed using standard aviation safety procedures.

13.4 HOW WILL THE EFFECTS BE MANAGED?

The developer will implement a **radar mitigation scheme** in agreement with the MOD to address any potential interference with RAF Lossiemouth's radar. This could involve radar filtering or other technical adjustments. A planning condition will ensure that mitigation is in place before turbines become operational.

Aviation lighting will be installed in compliance with CAA requirements, including medium-intensity red lighting on the four turbines at the corners of the wind farm. Consultation with relevant aviation stakeholders, including the MOD, NATS, and Inverness Airport, has been integral to ensuring that all aviation safety standards are met.

13.5 WHAT ARE THE OVERALL EFFECTS?

Radar modelling confirmed that the turbines will be visible to the radar systems at RAF Lossiemouth and Inverness Airport, but not to those managed by NATS. The radar mitigation scheme will adequately address these effects, such that there are no remaining radar issues.

With the proposed mitigation, there are **no predicted significant effects on civil or military aviation**. Potential radar interference from the development will be addressed through agreed solutions with the MOD. With aviation lighting approved by the CAA and consultation undertaken throughout the design process, the development is considered fully compatible with aviation safety requirements.

14 SOCIO-ECONOMICS, LAND USE, RECREATION AND TOURISM

14.1 INTRODUCTION TO CHAPTER

The Socio-Economics, Land Use, Recreation and Tourism chapter of the EIAR assesses the potential impacts of the Teindland Wind Farm on local and regional economic activity, employment, land use, tourism, and recreational resources. The analysis considers construction, operation, and decommissioning and includes both direct and indirect effects. It also evaluates public attitudes toward wind farms and any cumulative effects alongside other nearby developments.

14.2 WHAT FEATURES MIGHT BE AFFECTED?

The Site is used recreationally for activities including walking, horse riding, and the annual Speyside Stages motor rally (1 day per year). The surrounding region, within 5 km of the Site, also supports several tourist attractions such as the Speyburn and Glen Grant distilleries and is home to popular walking routes like the Speyside Way and a network of core paths.

In economic terms, Moray has an ageing population and slightly lower employment levels than the national average. Although tourism represents a smaller proportion of the economy than in some other parts of Scotland, it remains an important and growing sector supported by local businesses and hospitality providers.

14.3 WHAT ARE THE POTENTIAL EFFECTS?

Construction of the wind farm is expected to generate temporary employment, with around 30 workers on site. This equates to approximately 30 job-years or three full-time equivalent roles across the build period. The capital expenditure of the wind farm is estimated at £226 million, of which an estimated £27 million could benefit the local economy in Moray through supply chain contracts and local services. Additional benefits may arise indirectly through spending by workers on accommodation, food, and local amenities.

Land use impacts are expected to be minor. Although the permanent infrastructure footprint will cover around 24 hectares, this represents only a small portion of the overall site area and largely falls within existing forestry. Recreational access could be temporarily restricted on some forest tracks and walking routes during construction, but these disruptions will be managed carefully through an Access Management Plan. The Speyside Stages Rally may also require slight adjustments to avoid interactions with construction areas, with mitigation including safety barriers such as earth banks.

Once operational, the wind farm will continue to provide economic benefits through annual operational expenditure estimated at £10.26 million, with around £4.3 million of that potentially spent in the local area. A community benefit fund of up to £432,000 per year will also be established, alongside the possibility of up to 20% shared ownership arrangements. The operational phase will see only minor changes to land use – approximately 2.3% of the Site – while forestry operations and recreational access will generally continue as normal. The effect on recreational amenity of the visual impacts on nearby attractions and walking routes, including Ben Aigan and the Ordiequish Earth Pillars, are predicted to be minimal.

During decommissioning, socio-economic effects will mirror those seen in the construction phase but on a shorter-term basis. The Site will be restored following removal of infrastructure, ensuring continued recreational and forestry use into the future.

14.4 HOW WILL THE EFFECTS BE MANAGED?

The **Access Management Plan** will ensure public safety and recreational continuity during construction, with clearly marked diversions and advance notice of any temporary closures. Local contractors will be prioritised during procurement to maximise regional benefits, and coordination with rally organisers will reduce disruption to the Speyside Stages Rally. The wind farm will also provide long-term community support through benefit funding and opportunities for local investment in shared ownership.

14.5 WHAT ARE THE OVERALL EFFECTS?

Overall, the assessment found no significant adverse impacts on socio-economics, tourism, land use, or recreation. The construction and decommissioning phases will bring short-term benefits to the local economy, while the operational phase will provide long-term support through community funding and regional supply chain investment. Recreational access and tourism assets will remain largely unaffected, and cumulative impacts with other developments are assessed as being negligible.

15 OTHER ISSUES INCLUDING SHADOW FLICKER, TELECOMS AND UTILITIES

15.1 INTRODUCTION TO CHAPTER

This chapter considers a range of additional environmental and technical topics that do not fall under the main assessment areas, but which are relevant to the wind farm and/or require inclusion in EIA. These include shadow flicker, telecommunications, waste management, major accidents and disasters including battery safety, and transboundary effects.

15.2 SHADOW FLICKER

Shadow flicker can occur when the sun passes behind rotating turbine blades, casting intermittent shadows over nearby properties. This phenomenon only affects indoor spaces where the blade shadow crosses a full window opening and typically occurs under specific combinations of sunlight, wind direction, and building orientation.

A total of 32 properties were identified within a 1.75 km radius (equivalent to 10 rotor diameters) as potential receptors. Using conservative modelling assumptions that assume constant sunshine, rotor movement, and unobstructed line of sight, the assessment identified that 11 properties could experience shadow flicker exceeding the widely accepted thresholds of 30 minutes per day or 30 hours per year.

A **Shadow Flicker Mitigation Scheme** will be agreed with Moray Council before construction starts. This will commit to investigating any complaints, and where this finds that shadow flicker is occurring and residents are impacted by it, mitigation will be implemented. There are various options for this, with the fall-back option being turbine shutdown protocols during the affected days and times of day. With mitigation in place, **shadow flicker impacts would be not significant**.

15.3 TELECOMMUNICATIONS

Consultation with telecommunications operators during and prior to the scoping phase confirmed that the proposed turbines will not interfere with communication signals. The final design represents a smaller layout than initially proposed, further reducing any potential for interference. On this basis, there would be no significant effects on telecommunications infrastructure.

15.4 WASTE

Waste generation during construction is expected to be minimal and typical of infrastructure projects of this nature. Generally, materials such as soil and stone will be reused on site for restoration. All waste will be disposed of by licensed contractors in accordance with current

waste management regulations. A **Site Waste Management Plan** will be implemented as part of the **CEMP**.

Waste generation during operation will be very low and limited to maintenance activities, while decommissioning will involve the removal and recycling of materials wherever feasible.

15.5 MAJOR ACCIDENTS AND DISASTERS

The potential for accidents has been assessed across multiple chapters. Traffic risks are covered in Chapter 11, while the risk of pollution and chemical spills is addressed in Chapter 12 and will be controlled through the **CEMP**. Health and safety procedures during construction are covered in Chapter 4. **No other likely scenarios involving major accidents or disasters are predicted.**

The wind farm includes a BESS, which stores energy and helps stabilise electricity on the national grid. While battery fires are extremely rare, the BESS will follow industry best practice to manage this risk. The BESS is sited at least 520 metres from the nearest residence and away from environmentally sensitive areas. A **Battery Safety Management Plan (BSMP)** has been prepared and will be finalised following consultation with the Scottish Fire and Rescue Service. This plan will set out measures for fire prevention, containment, and emergency response, ensuring that **the residual risk from battery failure is very low and not significant**.

15.6 TRANSBOUNDARY EFFECTS

The potential for cross-border environmental effects, particularly on EU member states, was also considered. Given the distance to the nearest member state (Republic of Ireland), there is no realistic potential for the development to generate transboundary effects.

16 SUMMARY OF MITIGATION

Chapter 16 of the EIAR summarises the mitigation and control measures that are proposed elsewhere in the EIAR, to assist decision-makers in securing this mitigation by applying suitably worded planning conditions to the consent.

Teindland Wind Farm

EIAR Non-Technical Summary

Figure 1 - Site Location

LEGEND

Site Boundary

N

Scale: 1:100,000 at A3

0 3 6 km

Envams

Teindland Wind Farm

EIAR Non-Technical Summary

Figure 2 - Site Layout

LEGEND

- Site Boundary
- 200 m Turbines
- 230 m Turbines
- Met Mast Location
- Construction Compound
- Substation Compound
- BESS Compound
- Crane Hardstanding
- Proposed Track
- Existing Track
- Met Mast Guy Wires

N

Scale: 1:25,000 at A3

0 0.75 1.5 km

Envams