

# Mynydd Maen Wind Farm

## Design and Access Statement

January 2025

## Contents

Contents.....	2
1.1 Background.....	4
1.2 Planning Policy and Guidance.....	7
Planning Policy Wales 12th Edition, Welsh Government (February 2024) .....	7
Future Wales: The National Plan 2040 (February 2021).....	7
Caerphilly County Borough Council Local Development Plan .....	9
SP3 - Development in the Southern Connections Corridor .....	9
SP6 - Place Making .....	9
CW1 - Sustainable Transport, Accessibility and Social Inclusion .....	10
CW3 - Design Considerations - Highways .....	10
Torfaen County Borough Council Local Development Plan .....	10
S2 Sustainable Development .....	11
S3 Climate Change .....	11
BW1 General Policy - Development Proposals .....	11
Design and Access Statements in Wales: Why, What and How, Design Commission for Wales (2017) .....	13
Designing for Renewable Energy in Wales, Design Commission for Wales (2023) .....	13
1.3 Design .....	14
Layout 1 – Initial Feasibility Stage.....	16
Layout 2 – Revised Turbine Layout .....	17
Layout 3 – Turbine Layout Revision .....	17
Layout 4 – Pre-Application Consultation .....	17
Landscape and Visual.....	17
Ecology and biodiversity .....	17
Hydrogeology and Hydrology .....	17
Geology & Mining .....	17
Acoustic.....	18
Shadow Flicker .....	18
Electromagnetic Interference, TV and Radio .....	18
Aviation .....	18
Public Rights of Way and Common Land .....	19
Final Turbine Layout.....	19

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1.4	Design Solution .....	21
	Amount .....	21
	Layout.....	21
	Scale .....	22
	Appearance .....	22
	Wind Turbines and Foundations.....	22
	Crane Hardstandings.....	23
	Access Tracks.....	23
	Substation and Control Building .....	23
	Temporary Construction Compound .....	24
	Borrow Pits.....	24
	Site Signage .....	24
1.5	Access .....	26
	Off Site Access/Construction Traffic .....	26
	On-Site Construction Traffic.....	26
	Operational Traffic .....	26
1.6	Conclusions.....	28
1.7	References .....	29

## 1.1 Background

- 1.1.1 The Applicant, Renewable Energy Systems Ltd (RES) is proposing to develop the Mynydd Maen Wind Farm on land at Grid Reference 29150 19450 between Newbridge and Cwmbran in the administrative boundaries of Caerphilly County Borough Council (CCBC) and Torfaen County Borough Council (TCBC). The Mynydd Maen Wind Farm is hereafter referred to as 'the proposed wind farm.'
- 1.1.2 A detailed description of the Development is provided in Section 1.3 of this Design and Access Statement (DAS) in relation to the following works, as set-out within the planning application:  
'The proposed wind farm comprises 13 horizontal axis wind turbines, along with an improved site entrance, new and improved access tracks, crane hardstandings, control building and substation compound, electricity transformers, underground cabling, and drainage works.'
- 1.1.3 This Statement has been prepared in accordance with statutory legislation for Developments of National Significance (DNS) to be submitted to Planning and Environment Decisions Wales (PEDW) under Part 5 of the Planning (Wales) Act 2015, which amends the Town and County Planning Act 1990 ("the Act") and the Developments of National Significance (Procedure) (Wales) Order 2016 and subsequent Regulations.
- 1.1.4 The statutory requirement for a DAS to accompany an application for a DNS is prescribed in Article 14 of 'The Developments of National Significance (Procedure) (Wales) Order 2016.'
- 1.1.5 Preparation of the DAS has had regard to the following national and local policy guidance:
- Design and Access Statements in Wales: Why, What and How, Design Commission for Wales (2017) (Ref 1);
  - Planning Policy Wales, 11th Edition, Welsh Government (2021) (Ref 2);
  - Future Wales: The National Plan 2040 (February 2021) (Ref 3);
  - Designing for Renewable Energy in Wales, Design Commission for Wales (2023) (Ref 4);
  - Caerphilly County Borough Council Local Development Plan, adopted 2010 (Ref 5); and
  - Torfaen County Borough Council Local Development Plan, adopted 2013 (Ref 6).
- 1.1.6 The Statement forms part of a suite of documents which comprise the application for the proposed wind farm, consisting of application drawings, forms and certificates, Planning Statement, Environmental Statement (ES) and Pre-Application Community Consultation (PACC) Report.
- 1.1.7 This Statement provides details of the design principles that have influenced the wind farm proposal and the access issues associated with the application site in accordance with relevant policy and guidance.
- 1.1.8 No single approach is required by the above guidelines, and the content and level of detail to be contained within a DAS varies, depending upon the scale and type of the development proposed. Within the context of this application, the structure of the DAS is set out broadly in line with these guidelines as far as is relevant to the proposed wind farm.

### Site Location

- 1.1.9 The application site is located on registered common land between Newbridge and Cwmbran, south Wales. The eastern part of the site is located within TCBC, and the western part of the

site is located within CCBC. The location of the Site is shown on ES Figure 1.1 'Site Location Plan'.

- 1.1.10 The application boundary is shown on ES Figure 1.2 'Planning Application Boundary' and contains the main wind farm site, including the position of the wind turbines and associated infrastructure and all upgrades required along the access route.
- 1.1.11 The site lies on a plateau approximately 472 m above ordnance datum (AOD) at its highest point. From this point, the plateau extends to the south and slopes gently down in all directions. On the north, east and western sides of the plateau, the land drops sharply at the valley edges. Small watercourses drain the Site to the west and north-east.
- 1.1.12 Land cover consists of upland grassland, used as rough grazing, and is open access registered common land. The application boundary follows the edge of the upland plateau to the north, east, and west. The summit of Mynydd Maen features an OS trig point, a gas governor station and two communications masts within fenced compounds. The compounds are accessed via a track from the entrance to the common and Abercarn Mountain Road. A high-voltage overhead power line spans the site.
- 1.1.13 There are several public rights of way (PRoW) crossing the application site, including footpaths linking the surrounding valleys, and following the ridge of Mynydd Maen south. Being unenclosed upland grazing, the application site is open access land.

### *Project Description*

- 1.1.14 The Development consists of the following elements, as shown on ES Figure 3.1 'Infrastructure Layout'.
- Thirteen three-bladed horizontal axis wind turbines, to be erected on steel re-enforced concrete foundations;
  - Hardstanding areas at each turbine location;
  - Approximately 8.65 km of new and upgraded access track;
  - An upgraded site entrance off the public road;
  - Wind farm substation compound containing electrical apparatus and a control building;
  - Temporary construction compound;
  - Permanent and temporary drainage works;
  - Three potential borrow pit search areas;
  - Off-site road improvement works;
  - Associated ancillary works
  - Secondary applications under section 16 and section 38 of the Commons Act 2006 will be submitted in association with this primary application

### *Site Context*

- 1.1.15 The application site, as defined by the red line boundary on ES Figure 1.2 'Planning Application Boundary' covers an area of approximately 376.60 hectares (ha). It is noted that the areas, as defined by the red line boundary, within each local planning authority are as follows:
- Site Area CCBC: 256.6 ha
  - Site Area TCBC: 120 ha
- 1.1.16 There are no international or national landscape designations covering the site or the immediate surroundings. Part of the south-eastern corner of the site overlaps with the South-West Uplands

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Special Landscape Area as identified by TCBC. Bannau Brycheiniog National Park is located approximately 4.1 km north of the proposed wind farm at its closest point. The site also lies adjacent to the Abercarn Visually Important Local Landscape as identified by Caerphilly County Borough Council.

- 1.1.17 The majority of the application site is located within Pre-Assessed Area (PAA) 10 as designated within Future Wales: The National Plan 2040. All of the proposed turbines and associated infrastructure are located within the PAA. The Welsh Government has determined the area as being capable of accommodating wind energy development in an acceptable way, subject to the criteria set out in Policy 18 of Future Wales.
- 1.1.18 The majority of the application site is designated as Registered Common Land and includes a network of PRowS that traverse the Site.
- 1.1.19 Operational wind farms close to the Site include: two large operational wind turbines at Oakdale Business Park, located approximately 5.6 km to the north-west of the site; three operational wind turbines at Pen Bryn Oer Wind Farm, which is located approximately 16.4 km to the north-west of the site; and two operational wind turbines at Rassau Industrial Estate located approximately 17 km to the north-west of the site.
- 1.1.20 At Newport to the south-east, there is one operational wind turbine at ANP Newport, two turbines at Solutia UK Ltd and two turbines at the Tesco distribution centre at Magor.

## 1.2 Planning Policy and Guidance

### *Introduction*

- 1.2.2 The design of the proposed wind farm has been influenced by a range of planning policy considerations, as well as good practice guidance. Full detail of the planning policy framework is provided within the Planning Statement and within Chapter 4 of the ES, which accompany this application.
- 1.2.3 This section provides an outline and assessment of the design policy framework at both a national and local level that is of relevance to the proposed wind farm.

### *National Planning Policy*

#### **Planning Policy Wales 12th Edition, Welsh Government (February 2024)**

- 1.2.4 PPW 12 was published in February 2024. It sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the overall national planning policy framework for Wales.
- 1.2.5 Its key principles (page 17) are:
- Growing our economy in a sustainable manner;
  - Making best use of resources;
  - Facilitating accessible and healthy environments;
  - Creating and sustaining communities; and
  - Maximising environmental protection and limiting environmental impact.
- 1.2.6 PPW recognises the importance of renewable energy in the context of international targets, highlighting the abundance of resource and the benefits that renewable energy development can bring. PPW sets out a set of national planning policy objectives which are designed to support growth, protect the environment, and ensure that decisions are made at the local level.
- 1.2.7 PPW 12th Edition states clearly that the design principles and concepts that have been applied to development proposals should be reflected in the content of the DAS.
- 1.2.8 In preparing a DAS, applicants are advised that an integrated and inclusive approach to sustainable design should be followed, proportionate to the scale and type of the development proposal.

#### **Future Wales: The National Plan 2040 (February 2021)**

- 1.2.9 Future Wales (2021) is the Welsh Government's National Development Framework ('Future Wales') and is the highest tier of the development plan in Wales and is a framework for planning the change and development Wales will need over the next two decades. It sets out (page 96) that proposals for large scale energy development are classed as DNSs and as set out in legislation "applications for developments of national significance must be determined in accordance with Future Wales, which is the National Development Plan for Wales".
- 1.2.10 As the most recent expression of national planning policy and as the highest tier of the Development Plan, Future Wales has primacy in the planning policy hierarchy. However, it is also explained that the content and policies of all tiers of the Development Plan are strongly influenced by Planning Policy Wales (PPW), which is the complete land use planning policy document for Wales (as referred to below) and a material consideration in the decision-making process for DNS applications.
- 1.2.11 Future Wales does not contain statements on all land use planning issues as set out in PPW, however importantly, it does state that (page 15): "deciding where to locate renewable energy

generation technology is a spatial issue of such significance that national ambitions are unlikely to be achieved without national planning policies”.

1.2.12 Policies 17 and 18 set out requirements in respect of renewable energy and are the policies against which DNS applications will be determined.

1.2.13 Policy 17 - ‘Renewable and Low Carbon Energy and Associated Infrastructure’ states:

*“The Welsh Government strongly supports the principle of developing renewable and low carbon energy from all technologies and at all scales to meet our future energy needs.*

*In determining planning applications for renewable and low carbon energy development, decision-makers must give significant weight to the need to meet Wales’ international commitments and our target to generate 70% of consumed electricity by renewable means by 2030 in order to combat the climate emergency.*

*In Pre-Assessed Areas for Wind Energy the Welsh Government has already modelled the likely impact on the landscape and has found them to be capable of accommodating development in an acceptable way. There is a presumption in favour of large-scale wind energy development (including repowering) in these areas, subject to the criteria in policy 18.*

*Applications for large-scale wind and solar will not be permitted in National Parks and Areas of Outstanding Natural Beauty and all proposals should demonstrate that they will not have an unacceptable adverse impact on the environment.*

*Proposals should describe the net benefits the scheme will bring in terms of social, economic, environmental, and cultural improvements to local communities.*

*New strategic grid infrastructure for the transmission and distribution of energy should be designed to minimise visual impact on nearby communities. The Welsh Government will work with stakeholders, including National Grid and Distribution Network Operators, to transition to a multi-vector grid network and reduce the barriers to the implementation of new grid infrastructure.”*

1.2.14 Policy 18 - ‘Renewable and Low Carbon Energy Developments of National Significance’ provides the criteria for assessing large scale proposals for renewable and low carbon energy and it is required to be read together with Policy 17. It states:

*“Proposals for renewable and low carbon energy projects (including repowering) qualifying as Developments of National Significance will be permitted subject to policy 17 and the following criteria:*

- 1. Outside of the Pre-Assessed Areas for wind developments and everywhere for all other technologies, the proposal does not have an unacceptable adverse impact on the surrounding landscape (particularly on the setting of National Parks and Areas of Outstanding Natural Beauty);*
- 2. There are no unacceptable adverse visual impacts on nearby communities and individual dwellings;*
- 3. There are no adverse effects on the integrity of Internationally designated sites (including National Site Network sites and Ramsar sites) and the features for which they have been designated (unless there are no alternative solutions, Imperative Reasons of Overriding Public Interest (IROPI) and appropriate compensatory measures have been secured);*
- 4. There are no unacceptable adverse impacts on national statutory designated sites for nature conservation (and the features for which they have been designated), protected habitats and species;*
- 5. The proposal includes biodiversity enhancement measures to provide a net benefit for biodiversity;*

6. *There are no unacceptable adverse impacts on statutorily protected built heritage assets;*
7. *There are no unacceptable adverse impacts by way of shadow flicker, noise, reflected light, air quality or electromagnetic disturbance;*
8. *There are no unacceptable impacts on the operations of defence facilities and operations (including aviation and radar) or the Mid Wales Low Flying Tactical Training Area (TTA-7T);*
9. *There are no unacceptable adverse impacts on the transport network through the transportation of components or source fuels during its construction and/or ongoing operation;*
10. *The proposal includes consideration of the materials needed or generated by the development to ensure the sustainable use and management of resources;*
11. *There are acceptable provisions relating to the decommissioning of the development at the end of its lifetime, including the removal of infrastructure and effective restoration. The cumulative impacts of existing and consented renewable energy schemes should also be considered."*

### **Local Planning Policy**

- 1.2.15 At the local level, the extant Torfaen Local Development Plan ('TLDP'), adopted in 2013, and the Caerphilly County Local Development Plan ('CCLDP'), adopted in 2010, have been considered.
- 1.2.16 In providing the local planning framework for the proposed wind farm, the adopted LDPs contain a number of policies of relevance. These are referred to in full within the accompanying Planning Statement and are not repeated here. However, those relating to the design and access aspects of the proposed wind farm are summarised below.

#### **Caerphilly County Borough Council Local Development Plan**

- 1.2.17 The extant LDP for CCBC ('CCLDP') was adopted in November 2010 and identifies where new developments (for example housing or employment facilities) will be located. The CCLDP provides a framework for local decision-making by setting out CCBC's land use policies and proposals to control development in the county borough up to 2021. The CCLDP provides the basis by which planning applications will be determined consistently and appropriately.
- 1.2.18 Relevant policies from the adopted CCLDP are set out below:

#### ***SP3 - Development in the Southern Connections Corridor***

*"Development proposals in the Southern Connections Corridor will promote sustainable development that:*

- A. *Uses previously developed land within settlement limits*
- B. *Reduces car borne trips by promoting more sustainable modes of travel*
- C. *Makes the most efficient use of the existing infrastructure*
- D. *Has regard to the social and economic function of the area and*  
*Protects the natural heritage from inappropriate forms of development".*

#### ***SP6 - Place Making***

*"Development proposals should contribute to creating sustainable places by having full regard to the context of the local, natural, historic and built environment and its special features through:*

- A. *An appropriate mix of uses that reflect the role and function of settlements*

- B. *A high standard of design that reinforces attractive qualities of local distinctiveness*
  - C. *Design in accordance with best practice in terms of designing out crime*
  - D. *A location and layout that reflects sustainable transport and accessibility principles and provides full, easy and safe access for all*
  - E. *The incorporation of resource efficiency and passive solar gain through layout, materials, construction techniques, water conservation, and where appropriate the use of sustainable drainage systems*
  - F. *The efficient use of land, including higher densities where development is close to key transport nodes*
  - G. *The incorporation and enhancement of existing natural heritage features*
- The incorporation of mitigation measures that improve and maintain air quality”.*

#### **CW1 - Sustainable Transport, Accessibility and Social Inclusion**

*“Development proposals that are likely to generate a significant number of trips will only be permitted provided:*

- A. *Walking and cycling are modes of travel which have been actively encouraged for short trips to and within the development and to nearby services and facilities, including public transport nodes, through the provision of appropriate infrastructure.*
- B. *Provision has been made for ease of cycling, including secure bike storage and cyclist facilities.*
- C. *It has been demonstrated that where a significant number of freight trips will be generated, the least environmentally damaging route will be utilised .*
- D. *The use of Green Travel Plans has been encouraged, where appropriate”.*

#### **CW3 - Design Considerations - Highways**

*“Development proposals must satisfy the following highways requirements:*

- A. *The proposal has regard for the safe, effective, and efficient use of the transportation network*
- B. *The proposal ensures that new access roads within development proposals are designed to a standard that:*
  - i. *Promotes the interests of pedestrians, cyclists and public transport before that of the private car, and*
  - ii. *Safely and effectively accommodates the scale and nature of traffic, which those roads are intended to serve*
- C. *Parking, appropriate servicing and operational space have been provided in accordance with the CSS Wales Parking Standards 2008*
- D. *Where access onto a highway is required the proposal takes account of the restrictions relevant to the class of road as designated in the road hierarchy ensuring movements and speeds are controlled through appropriate design, in order to ensure highway safety and amenity”.*

#### **Torfaen County Borough Council Local Development Plan**

- 1.2.19 The extant Torfaen Local Development Plan (‘TLDP’) was adopted in December 2013 and provides a framework for local decision-making by outlining the TCBC’s land use policies and proposals to control development in the county borough up to 2021 and beyond. The TLDP indicates where development will be encouraged and where it will be resisted.
- 1.2.20 Relevant policies from the adopted TLDP are set out below:

### **S2 Sustainable Development**

*“Development proposals will need to demonstrate they have taken account of the following principles and where relevant that they: -*

- a) Contribute to the regeneration of existing communities;*
- b) Meet Sustainable transportation and infrastructure priorities and promotion of a sustainable transport hierarchy, including reducing the reliance on the private motor car and encouraging the use of more sustainable modes of transport;*
- c) Conserve and enhance the natural and built environment;*
- d) Promote the efficient use of land;*
- e) Maximise the efficient use of existing community infrastructure;*
- f) Utilise Sustainable construction techniques;*
- g) Promote sustainable Economic and employment growth; and*
- h) Are located within the Urban Boundary unless it is an acceptable development in the countryside.”*

### **S3 Climate Change**

*“Development proposals shall seek to mitigate the causes of further climate change and adapt to the current and future effects of climate change; and will be supported where they demonstrate consideration of the following hierarchy of criteria (where appropriate):*

- a) Ensuring that locational decisions are sustainable and avoid areas susceptible to flooding unless justified by national planning policy;*
- b) Achieving Sustainable Design to ensure residual energy requirements are minimised through:
 
  - i. Supporting climate responsive development through location, orientation, density, layout, built form, materials and landscaping;*
  - ii. Reducing surface water run-off and flood risk through the use of Sustainable Urban Drainage Schemes (SUDS) unless it is shown that these measures are uneconomic or impractical;*
  - iii. Promoting water efficiency by reducing the demand for water; and*
  - iv. Exploring opportunities to maintain habitat connectivity through the provision of green infrastructure in design;**
- c) Achieving energy efficiency in developments and in line with national standards where required; and*
- d) Utilising renewable and low or zero carbon energy technologies to generate heat and electricity requirements which includes heating, cooling and power networks powered by renewable energy sources, or that connect to existing Combined Heat and Power or communal / district heating networks.”*

### **BW1 General Policy - Development Proposals**

*“All development proposals will be considered favourably providing they comply with the following criteria where they are applicable: -*

- A. Amenity and Design
 
  - i. The proposal does not constitute over development of the site in terms of the scale, density, massing and form of the development;*
  - ii. The design and visual appearance of the proposal takes account of the local context in terms of siting, appearance, elevation treatment, materials and detailing;*
  - iii. The proposal respects the urban fabric of the area in terms of pattern of development, the space around and between buildings and the setting of the site;**

- iv. *The proposal includes a landscaping and planting scheme, which enhances the site and the wider context including green infrastructure and biodiversity networks and allows it to adapt to climate change;*
- v. *For extensions to buildings, the proposals complement and enhance the form, siting, materials, details and character of the original building, its curtilage and the wider area;*
- vi. *The proposal does not have an unacceptable impact upon the amenities of the occupiers of adjoining or neighbouring properties.*

#### **B. Natural Environment**

- i. *The proposal does not result in unacceptable adverse effects in respect of land contamination, instability or subsidence; air, heat, noise or light pollution; landfill gas; water pollution; or flooding, from or to the proposal;*
- ii. *The proposal does not result in significant adverse effects on the integrity of a European designated site or its designated features in the context of the site's conservation objectives;*
- iii. *The proposal does not result in a significant adverse effect on a nationally designated site;*
- iv. *The proposal contributes to the conservation and/ or enhancement of the strategic biodiversity network of Torfaen and does not result in a significant adverse effect on the network;*
- v. *The proposal does not result in the unacceptable loss or harm to features of landscape importance including trees and woodland that have natural heritage or amenity value; and*
- vi. *The proposal does not have an unacceptable adverse impact upon the water environment or pose an unacceptable risk to the quality and quantity of controlled waters (including groundwater and surface water), and where practicable and reasonable improves water quality.*

#### **C. Built Environment**

- i. *The proposal contributes to the preservation and enhancement of the historic built environment wherever possible (including heritage assets and their settings);*
- ii. *The proposal does not detrimentally affect the character of the immediate and surrounding built environment; and*
- iii. *Where practicable, existing construction materials on the site are re-used or recycled.*

#### **D. Utilities Provision**

- i. *The proposal does not prejudice the existing or proposed level of service provision; and*
- ii. *In areas served by the public foul sewer, planning permission will only be granted where the development can be served by the existing public foul sewerage system or, if the system is inadequate, the statutory undertakers and/or the developers will ensure satisfactory improvements are provided prior to the development becoming operational.*

#### **E. Design and Transport**

- i. *The proposal should be designed in accordance with the relevant national and local highway design guidance and where appropriate, the Council's adopted parking / cycling provision standards;*

- ii. *The proposal ensures that new access roads within the development layout connect the development to a range of services and facilities and are designed to promote the interests of pedestrians, cyclists and public transport before the private car;*
- iii. *Where access onto an existing highway is required, the proposal takes account of restrictions relevant to the class of road as designated in the road hierarchy, ensuring movements and speeds are controlled through appropriate design, in order to ensure highway safety and protect amenity;*
- iv. *The road network is capable of safely and effectively sustaining the scale and nature of additional traffic generated by the proposal and allows for adequate servicing throughout the proposal, with a Transport Assessment being provided where appropriate;*
- v. *It has been demonstrated that where a significant number of freight trips will be generated, the least environmentally damaging transport mode and route will be utilised, wherever possible; and*
- vi. *The proposal is informed by a Green Travel Plan where appropriate.”*

#### **Other Guidance**

##### **Design and Access Statements in Wales: Why, What and How, Design Commission for Wales (2017)**

- 1.2.21 The 'Design and Access Statements in Wales: Why, What and How' Guidance, (Design Commission for Wales (DCfW), 2017) (Ref 1) states that the DAS should explain 'how the design has responded to the site, context, brief, vision, relevant policy and objectives of good design'. It also recommends that the DAS is 'concise and illustrated wherever possible to highlight the key information relating to design'.

##### **Designing for Renewable Energy in Wales, Design Commission for Wales (2023)**

- 1.2.22 The 'Designing for Renewable Energy in Wales' Guidance (DCfW, 2023) (Ref 4) is a non-statutory document that updates and expands on the previous Designing Wind Farms in Wales 2014 good practice guidance, published by the Design Commission for Wales. It states that it is compliant and builds upon the requirements included within PPW, and consideration has been given to its contents throughout the DAS, as the guidance is primarily aimed towards large scale wind farms as opposed to small to medium scale wind farm developments.

### 1.3 Design

#### *Introduction*

- 1.3.1 This section considers the need for renewable energy and the process of site selection, followed by an outline of the design principles that have guided the design solution. This includes details of the iterative design process that has been undertaken. Finally, the approach to the design of the proposed wind farm is presented in line with the requirements set out in the relevant guidance.

#### *Vision*

- 1.3.2 The promotion of renewable energy is a clear priority which runs through national legislation, plans, programmes and policy. National legislation has set legally binding targets for renewable energy and reductions in CO<sub>2</sub> emissions. Both energy and planning policy seek to promote renewable energy development and recognise the importance of onshore wind projects. National policy recognises that the development of renewable energy is vital to facilitating the delivery of the Government's commitments on both climate change and renewable energy development.
- 1.3.3 This support forms a key element of the UK Government's climate change programme and Welsh Government planning policy and guidance, both of which re-affirm the respective administration's commitment to delivering sustainable development and in tackling climate change. The full context for the promotion of renewable energy development at all levels from the international, national, through to the local level is set out within the Planning Statement and Chapter 4 of the ES which accompany this application.
- 1.3.4 The proposed wind farm will make an important contribution towards the Welsh Government's renewable energy targets and the reduction in the emission of gases that contribute to climate change.

#### *Site Selection*

- 1.3.5 Renewable Energy Systems Ltd (RES) has an established track record as a developer of renewable generating facilities. As part of its process of site selection, an extensive range of technical, environmental and economic assessment tools are used to identify potential Wind Farm sites, based on the following criteria:
- Sufficiently high wind speeds to ensure energy production from the wind turbines that would yield an adequate return on investment;
  - A site which complies with planning policy and in particular, avoids unacceptable effects on designated sites; maintains an appropriate distance from dwellings and avoids impeding or interfering with major electromagnetic transmission and airport communication systems;
  - A site of sufficient area to accommodate the number of wind turbines required for economic viability;
  - Adequate vehicular access to a site using existing roads wherever possible to minimise the amount of civil works, particularly during the construction phase;
  - Terrain and topography affect wind flow across a site and need to be considered in relation to turbine performance, specification and life-span; and
  - Suitable ground conditions for the construction of wind turbine foundations, erection of the machines and the provision of access tracks and cables.
- 1.3.6 This was further assessed through a GIS (Geographical Information System) based site selection study, which was used to identify potential constraints which could restrict development or would need to be addressed in the design process. The findings of this assessment demonstrated

that the proposed wind farm site had the potential to accommodate a wind farm development, subject to further feasibility studies.

### *Feasibility Study*

1.3.7 A preliminary review of data was undertaken at an early stage in the project, following the initial site selection process to establish potential environmental constraints and designations affecting the proposed wind farm site. From this, a key constraints drawing was prepared, informed by the following surveys and assessments:

- Breeding and wintering bird survey;
- Ornithological vantage point survey;
- National Vegetation Classification (NVC) Phase 2 survey;
- Terrestrial fauna surveys;
- Peat probing;
- Hydrology assessment;
- Archaeology and cultural heritage surveys;
- Landscape field survey;
- Aviation;
- Transport and traffic;
- Geology and mining;
- Ground Investigations;
- Noise;
- Shadow flicker;
- Electromagnetic Interference; and
- Technical and engineering site walkovers.

1.3.8 An overview was undertaken of the planning policy position at a national and local level in order to determine compatibility with the policy framework.

1.3.9 Following these studies, it was considered that the application site was technically and environmentally viable as a wind energy development of the scale proposed.

1.3.10 As the next stage in assessing the site's feasibility, the Applicant undertook an iterative design exercise to investigate alternative designs solutions. The purpose of this process was to identify any issues which would make the Site unacceptable for development and to ensure that the final design was environmentally, economically and technically viable.

### *Design Strategy*

1.3.11 The relationship of a wind farm to its setting is a key consideration in wind farm design in view of the potential impacts of such large-scale structures within the landscape and therefore a clear strategy is important in setting out the overall approach to the design development of the wind farm proposal.

1.3.12 The overall aim of the design strategy for the proposed wind farm has been to balance the need to optimise the energy yield whilst paying due regard to environmental and technical sensitivities.

1.3.13 The overall aims of the design strategy have been to:

- Produce a cohesive layout which would be legible in views from the surrounding landscape, whilst respecting environmental constraints;
- Develop a layout that reflects the landform and topography of the landscape; and
- Develop a layout that relates to other wind farms in the locality.

1.3.14 The design strategy for the proposed wind farm has therefore considered the surrounding natural environment, as well as site accessibility and economic aspects.

#### *Design Evolution*

1.3.15 The layout and design of the proposed wind farm has been led by design considerations and constraints which are expanded upon below. The combination of design, technical and environmental constraints has, through the iterative process of the Environmental Impact Assessment (EIA), resulted in the design solution for the proposed wind farm. At the same time, the site layout has provided an optimum environmental fit within the technical and environmental parameters of the proposed wind farm.

1.3.16 The section below describes in further detail the constraints which have influenced the design of the final layout for the proposed wind farm. Throughout the layout and design process, constraints within the application site have been identified and addressed through various desk studies and consultations.

1.3.17 Constraints have been considered as part of the proposed Development's design and assessment, which has resulted in the consideration and modification of the scheme proposals as demonstrated below. The process of designing the site layout has been an iterative one undertaken under five main design stages, as follows:

- Layout 1 - Initial Feasibility Stage
- Layout 2 - Revised Turbine Layout
- Layout 3 - Turbine Layout Revision
- Layout 4 - Pre-Application Consultation
- Final Layout - Final Constraints and Refinement

1.3.18 All four previous layout iterations are shown on Figure 2.3 'Turbine Layout Evolution' in the accompanying ES. The final turbine layout is shown on Figure 2.2 'Turbine Layout'.

#### **Layout 1 - Initial Feasibility Stage**

1.3.19 At the beginning of the development process an initial layout was produced to show the maximum potential extent of the development within the developable area. The developable area was defined as the land with slopes of less than 15% on which it would technically be feasible to install large wind turbines. The initial layout was prepared in accordance with design principles, prior to baseline surveys being completed, informed by the following:

- Provisional buffer separation from housing prior to environmental studies
- Provisional buffer around the existing transmitter as a precautionary measure prior to consultation
- Tip height plus 10% buffer to public roads
- Slope

1.3.20 In addition, the preliminary landscape and visual impact assessment guidance was taken into account to reduce the associated impacts of the proposed wind farm, as well as the initial constraint setbacks as a result of the overhead transmission line. Furthermore, this initial turbine layout ensures that all turbines are located within the Pre-Assessed Area for onshore wind development as set out in the national development framework for Wales, Future Wales: The

National Plan 2040. This identified that the Site could potentially accommodate 21 turbines with a 149.9 m tip height. This is shown in Layout 1 of Figure 2.3: Turbine Layout Evolution.

#### **Layout 2 - Revised Turbine Layout**

- 1.3.21 The key risks addressed through the second layout iteration were landscape and visual impact and telecommunications and electro-magnetic interference (EMI) links. The developable area for turbine siting was reduced to take into account more detailed feedback from the landscape and visual impact consultant and create a turbine exclusion zone to minimise the visual impact of the proposed wind farm. In addition, turbines were repositioned in order to reduce the proposed wind farm's effects on the EMI links between transmitter masts.
- 1.3.22 This resulted in a layout of 15 turbines, as shown in Layout 2 of Figure 2.3: Turbine Layout Evolution.

#### **Layout 3 - Turbine Layout Revision**

- 1.3.23 The second major iteration of the turbine layout was revised primarily to take into account the information gathered as part of the utility surveys carried out on the application site. As a result of these surveys, an appropriate buffer was applied to High-Pressure Gas Pipelines (HPG) and overhead lines (OHL) to ensure that turbines were sited at a sufficient distance. In addition, a more detailed consideration of the terrain resulted in turbine movements.
- 1.3.24 As a result of these changes, the turbine layout was reduced to 13 turbines, as shown in Layout 3 of Figure 2.3: Turbine Layout Evolution.

#### **Layout 4 - Pre-Application Consultation**

- 1.3.25 The fourth iteration of the turbine layout took place following the completion of environmental surveys and was included in the Pre-Application Consultation documents. Detailed environmental and technical surveys were carried out to characterise the baseline environmental conditions on the site and associated study areas, as described in more detail in chapters five to 14 of the ES. Any constraints to development resulting from the baseline surveys were added to the key constraints drawing and design recommendations were taken into account as the layout evolved.

#### ***Landscape and Visual***

- 1.3.26 As described in Chapter 5: Landscape and Visual, ZTV drawings were prepared to indicate from where all, or parts of, the proposed wind farm were likely to be visible. These were used primarily to assist the identification of areas with theoretical visibility and the location of Preliminary Viewpoints as part of the baseline Landscape and Visual Impact Assessment (LVIA), and later to assist in the detailed analysis of the potential visibility of the proposed wind farm throughout the Study Area that was used for the LVIA.

#### ***Ecology and biodiversity***

- 1.3.27 Following the baseline surveys and characterisation of the site no additional layout constraints were proposed by the ecological consultant.

#### ***Hydrogeology and Hydrology***

- 1.3.28 As recommended in Chapter 9: Hydrogeology and Hydrology, turbine centres are located a minimum of 50 m from significant watercourses. A significant watercourse is defined as a watercourse that appears on 1:50,000 Ordnance Survey mapping.

#### ***Geology & Mining***

- 1.3.29 A series of ground investigations have quantified the geological and mining hazards relating to the site. As described earlier in this chapter the layout of the proposed wind farm has been iteratively developed to take account of the results; to avoid geological and mining hazards as

well as areas of deep peat. On this basis, and as confirmed in the Scoping Direction, RES has scoped out a detailed impact assessment chapter for geology and mining from the Environmental Assessment.

- 1.3.30 The potential impact on sensitive habitats associated with peat is considered as part of the ecology and biodiversity assessment, and an assessment of peat hydrology is considered as part of the hydrology and hydrogeology assessment.

#### *Acoustic*

- 1.3.31 One of the key turbine layout design constraint considerations was the minimisation of impacts at the nearest residential receptors and as such the turbine layout was designed to ensure that there is an adequate separation distance between any of the proposed turbines and the nearest residential property.
- 1.3.32 As described in detail in Chapter 11: Acoustic, background noise surveys were carried out to establish baseline conditions and the wind turbine layout was assessed for acoustic impact. A noise curtailment regime has been proposed to mitigate acoustic impacts on residential properties such that operational noise levels comply with the relevant criteria at certain residential properties.

#### *Shadow Flicker*

- 1.3.33 Whilst there is no specific standard for the assessment of shadow flicker in the UK, planning requirements of shadow flicker are contained within Parsons Brinckerhoff (2011) which states: “the 10 rotor diameter rule has been widely accepted across different European countries, and is deemed to be an appropriate assessment area”.
- 1.3.34 A separation distance from housing has been applied for visual impact and noise to the key constraints drawing. However, the effects of shadow flicker have been assessed within 10 x the rotor diameter (1170m) plus the requested micro-siting allowance (50m) to cover an area 1220m from the turbine locations. Chapter 12: Shadow Flicker & Reflected Light provides more information.

#### *Electromagnetic Interference, TV and Radio*

- 1.3.35 Wind turbines can potentially interfere with communication systems that use electromagnetic waves as the transmission medium, primarily television, radio or point to point electromagnetic (PtP EM) links. Wind turbines therefore may cause interference to television reception in the proximity of a wind farm, causing loss of picture detail, loss of colour or loss of audio. Microwave links can also be affected by the reflection, scattering, diffracting and blocking of the electromagnetic signal caused by wind turbines. Potential impact on PtP EM links and TV/Radio signal are addressed separately in the following paragraphs and table.
- 1.3.36 For PtP EM links, RES has consulted with all organisations operating microwave links which could be affected by the proposed wind farm. This is detailed in Chapter 13: EMI & Aviation.
- 1.3.37 Should interference to TV reception occur as a result of the proposed wind farm, a range of viable mitigation measures can be considered, with the most suitable method chosen on a case-by-case basis. Any necessary work would be undertaken in a timely manner following receipt of a valid complaint and would be funded by the wind farm operator.

#### *Aviation*

- 1.3.38 Wind turbines can potentially interfere with aviation operators by either physically affecting the safeguarding of an aerodrome by the close proximity of the turbines or through interference with the Air Traffic Control (ATC) radars that direct aircraft in flight. RES consulted with all relevant organisations which could be affected by the proposed wind farm including the Defence Infrastructure Organisation (DIO) and Cardiff Airport and Bristol Airport.

- 1.3.39 Pre-submission consultation was undertaken with airports located in proximity to the proposed wind farm. The proposed wind farm is approximately 35 km north-east of the Cardiff Airport primary radar and approximately 40 km north-west of the Bristol Airport primary radar.
- 1.3.40 A planning condition has been agreed with Cardiff Airport, as below:  
*“No turbines shall be erected until a scheme for the mitigation of impact of the wind turbines on the operation of Cardiff Airport primary surveillance radar (the “radar mitigation scheme”) has been submitted to and approved in writing by the Local Planning Authority. The development shall thereafter be operated fully in accordance with the approved radar mitigation scheme throughout the operational life of the development. “*
- 1.3.41 A planning condition has been agreed with Bristol Airport, as below:  
*“No turbines shall be erected until a scheme for the mitigation of impact of the wind turbines on the operation of Bristol Airport primary surveillance radar (the “radar mitigation scheme”) has been submitted to and approved in writing by the Local Planning Authority. The development shall thereafter be operated fully in accordance with the approved radar mitigation scheme throughout the operational life of the development. “*
- 1.3.42 No response has yet been received from the DIO via scoping but previous liaison with the DIO indicates that there will be a requirement for the proposed wind farm to agree a suitable scheme of visible and/or infrared lighting to assist military aircraft in avoiding the proposed wind turbines.
- 1.3.43 The proposed wind farm is approximately 86 km south-west of the NERL Clee Hill radar. NERL has indicated that the proposed wind farm would have an unacceptable impact upon the Clee Hill en-route radar that may impact operations from the London Area Control Centre. NATS has issued a draft Statement of Common Understanding (SOCU) to RES, which is currently being negotiated.

#### ***Public Rights of Way and Common Land***

- 1.3.44 A number of public footpaths cross the site. Following consultation with Caerphilly County Borough Council and Torfaen County Borough Council, it may be necessary to divert some of these rights of way either permanently or temporarily during construction of the wind farm. Applications for rights of way diversions cannot be submitted with a DNS application and, where necessary, these applications will be submitted following determination of the DNS application.
- 1.3.45 The proposed wind farm also includes the provision of 14.50 ha of new common land to replace the 11.80 ha of common land that will be occupied by the proposed wind farm infrastructure.
- 1.3.46 Further information on common land and the proposed diversions to public rights of way are provided in Chapter 3: Proposed Development.
- 1.3.47 As a result of the surveys and assessments outlined above and from feedback received during consultation, the turbine layout was adjusted to account for the Phase 2 peat survey results to ensure that turbine positions and the associated infrastructure avoided areas of deeper peat. This resulted in Layout 4 shown in Figure 2.3: Turbine Layout Evolution.
- 1.3.48 Prior to the layout being finalised RES engineers undertook site visits to check that there were no remaining physical characteristics on-site that may impact upon the turbine performance such as topography and the proximity and height of forestry in relation to the turbines and to agree principles for the design of the on-site infrastructure based on the constraints identified.

#### **Final Turbine Layout**

- 1.3.49 The final turbine layout iteration took place following the Pre-Application Consultation. Further wind measurements were obtained, updating understanding of wind distribution on site,

especially the dominant wind direction. This enabled the site to be re-optimised to minimise turbine loads and further avoid peat in response to feedback from statutory consultees during the Pre-Application Consultation and the further peat survey in May 2024. This layout is shown with the turbine coordinates in Figure 2.2: Turbine Layout.

### *Design Consultation*

- 1.3.50 A variety of activities have been undertaken by the Applicant to inform the local community and to involve them throughout the design development process. The consultation process has involved a series of meetings with key stakeholders, as well as through public exhibition events held in March 2022 and June 2023, which has allowed members of the public and others to engage directly with the Applicant's design team.
- 1.3.51 Consultation with statutory and non-statutory bodies has continued throughout the design development, from the preliminary layout of the proposed wind farm to the consideration of the scheme details with CCBC and TCBC as part of pre-application discussions.
- 1.3.52 Further details of the consultation process and how this has informed the final design solution are included within the accompanying ES. A Pre-Application Consultation Report, which includes details of consultation undertaken with the public and with statutory bodies, has been produced and is submitted with this application.

## 1.4 Design Solution

### *Introduction*

- 1.4.2 The development proposals have been finalised in response to site surveys and various assessments, along with responses to the consultations undertaken and detailed design work, as described in the previous section.
- 1.4.3 As part of the final design solution, consideration has been given to the design issues in terms of location and size of each of the component parts of the proposed Development, as well as technical and environmental requirements.

### *Character*

- 1.4.4 The following sub-sections address each of the character elements of the proposed wind farm in turn:

#### **Amount**

- 1.4.5 The proposed wind farm will involve the erection of 13 wind turbines up to 149.9 m tip height. A typical wind turbine is shown on ES Figure 3.2 'Typical Wind Turbine Elevation'. The proposed wind farm also includes associated infrastructure including: a substation and control building within a site compound (see ES Figure 3.6 'Substation Building and Compound'); a temporary construction compound (see ES Figure 3.8 'Typical Temporary Construction Compound'); formation of upgraded site entrance from the public road network (see ES Figure 3.7 'Site Entrance'); access tracks within the application site (see ES Figure 3.1 'Infrastructure Layout'); turbine foundations (see ES Figure 3.3a 'Typical Wind Turbine Gravity Foundation' and Figure 3.3b 'Typical Wind Turbine Piled Foundation'); crane hardstandings (see ES Figure 3.4 'Crane Hardstanding General Arrangement'); and drainage works.
- 1.4.6 The actual land take of the proposed permanent infrastructure occupies an area of 11.80 ha, approximately 3.13 % of the area enclosed by the application boundary. The total area, including temporary construction working area is 39.67 ha.
- 1.4.7 The overall land take of the proposed wind farm is considered to be minor and no change is proposed to any of the existing land use practices around the turbines. The proposed wind farm will not affect the current use of the application site.
- 1.4.8 Operational effects on the existing land use are considered to be minimal. The current use of land within the application site for grazing will continue. The construction of the access tracks will benefit current land use practices through ease of access.
- 1.4.9 It is anticipated that the proposed wind farm will have the capacity to generate enough energy to power approximately 55,000 homes each year. Furthermore, the proposed wind farm is likely to reduce CO<sub>2</sub> emissions by 83,300 tonnes each year and has a 35 year operational period.
- 1.4.10 Once the operational life of the proposed wind farm has ended, a decision will be made about whether to refurbish, remove or replace the turbines.

#### **Layout**

- 1.4.11 The proposed wind farm layout is shown on ES Figure 3.1 'Infrastructure Layout'. This has been designed with consideration given to a range of technical and environmental requirements and constraints (as detailed in Section 3 of this Statement). This has included factors such as visual impact, location of watercourses, ecological constraints, location of infrastructure, noise amenity, impact on cultural heritage, impact on ecology, ground stability, and site topography.
- 1.4.12 The final turbine locations have also been influenced by other technical factors, such as achieving appropriate spacing between turbines.

1.4.13 The location of the wind turbines therefore represents the point which minimises adverse environmental effects and which has allowed the most appropriate layout for the proposed wind farm to be achieved.

1.4.14 Elements of the proposed wind farm may be subject to further, minor refinement known as ‘micrositing’, within the application boundary. In the event that micrositing is required post consent, the Contractor and Applicant will review all environmental constraints to ensure the proposed micrositing will be environmentally acceptable.

#### **Scale**

1.4.15 Wind turbine design continues to evolve and improve and therefore the most suitable model for the application site can change with time. The exact model of turbine will be chosen following planning consent and prior to construction as part of a procurement process. Nonetheless, the turbine selection will not differ materially from those assessed within the accompanying ES and will be within the specified parameters.

1.4.16 The maximum turbine height up to 149.9 m has been chosen as a result of technical surveys and environmental considerations. Photomontages of the proposed wind turbines from a number of agreed viewpoints in the area have been included within Chapter 5 of the ES.

1.4.17 The landscape and visual effects of the scale of turbines within their landscape setting have been considered through a comprehensive landscape and visual impact assessment, which is included in Chapter 5: Landscape and Visual Impact Assessment (LVIA) of the ES. The Bannau Brycheiniog National Park (BBNP) is located approximately 4.1 km to the north-east of the proposed wind farm at its closest point, and part of the south-eastern corner of the site overlaps with the South-West Uplands Special Landscape Area as identified by TCBC. The site also lies adjacent to the Abercarn Visually Important Local Landscape as identified by Caerphilly County Borough Council.

1.4.18 The LVIA has concluded that the proposed wind farm would result in direct and significant effects on the Visual and Sensory Aspect Areas within which it is located and indirect significant effects on Visual and Sensory Aspect Areas extending to approximately 5 km north. In relation to visual effects, it is accepted that the proposed wind farm would be visible from various nearby properties, settlements as well as the surrounding road network and footpath network. It has been assessed that there would be significant visual effects experienced at 14 of the 37 representative viewpoints which have been included in the LVIA. Of all the properties within 2 km of the proposed wind farm, those which would have a clear, open view of one or more turbines would experience a significant visual effect. However, none of the residents of any occupied private property would experience such an overbearing or overwhelming effect on their visual amenity that their properties would become unattractive places in which to live.

1.4.19 It is noted that localised significant effects on landscape character and visual amenity are inevitable as a result of commercial wind energy development anywhere in the UK. Whilst the LVIA identified some significant landscape and visual effects it is considered that the landscape has the capacity to accommodate the effects identified, especially given that it is located within an area that has been assessed by the Welsh Government as being capable of accommodating wind energy.

1.4.20 The Cultural Heritage assessment (Chapter 8 of the ES) has concluded that the proposed wind farm will not have a significant impact on any Landscapes of Historic Interest.

#### **Appearance**

1.4.21 There is little difference in design between the potential turbine types that could be considered for the proposed wind farm. The final choice of wind turbine will be dependent on economics and available technology at the time of construction but will be within the maximum dimensional envelope of the blade tip heights specified for the purpose of assessment. ES Figure 3.2 ‘Typical Wind Turbine Elevation’ illustrates the typical wind turbine dimensions.

#### **Wind Turbines and Foundations**

- 1.4.22 In terms of appearance the turbines will be of a standard three blade horizontal axis design, with maximum height to blade tips of 149.9 m.
- 1.4.23 A significant amount of research has been undertaken in relation to turbine colour and finish and a matt grey finish is generally agreed to be the most appropriate. This is reflected in the DCfW guidance (Ref. 1): “A light grey colour generally achieves the best balance between minimising visibility and visual impacts when seen against the sky.....Light grey will relate positively to a range of backdrops seen within the different views of and in different weather conditions.”
- 1.4.24 Each turbine will have a transformer and switchgear. The transformer's function is to raise the generation voltage from approximately 720 volts to the higher transmission level that is required to transport the electricity into the grid. Depending on the turbine supplier, the transformer and switchgear may be located inside or outside each turbine. The external transformers are typically 7.0m (long) x 4.0m (wide) x 2.5m (high).
- 1.4.25 The wind turbines will be erected on steel re-enforced concrete foundations. The turbine bases will be appropriately designed for the specific ground conditions. It is anticipated that the foundations will be of gravity base design, but there may be the requirement to use piled foundations where ground conditions dictate. Final base designs will be determined after a full geotechnical evaluation of each turbine location, which will be undertaken prior to the start of construction. ES Figure 3.3a ‘Typical Wind Turbine Gravity Foundation’ provides an illustration of a typical gravity base wind turbine foundation design. ES Figure 3.3b ‘Typical Wind Turbine Piled Foundation’ provides an illustration of a typical piled wind turbine foundation design.

#### **Crane Hardstandings**

- 1.4.26 During the erection of the turbines, crane hardstanding areas will be required at each turbine base (ES Figure 3.4 ‘Crane Hardstanding General Arrangement’). Typically, these consist of one main permanent area of 1,100m<sup>2</sup> adjacent to the turbine position, where the main turbine erection crane will be located. The other areas, totalling 530m<sup>2</sup>, will be temporarily used during the assembly of the main crane jib. The hardstanding will be constructed using the same method as the excavated access tracks and involves the topsoil being replaced with suitable structural fill to finished level.
- 1.4.27 After construction operations are completed, the temporary crane pad areas will be reinstated. There will be a requirement to use cranes on occasion during the operational phase of the proposed wind farm, so the main crane hardstanding (1,100m<sup>2</sup>) will be retained to ease maintenance activities.

#### **Access Tracks**

- 1.4.28 The on-site access track layout has been designed to minimise environmental disturbance by avoiding sensitive features and keeping the length of track commensurate with the minimum required for operational safety. Typical access track designs are shown in ES Figure 3.5 ‘Access Track Typical Details’.
- 1.4.29 The access track itself will be constructed of inert material of suitable grade to withstand the expected traffic loading. Road construction techniques and roadside ditches will be designed to minimise the effect on natural hydrology as much as possible.

#### **Substation and Control Building**

- 1.4.30 A substation and control building will be required on-site to provide a point of connection for the wind farm to the local electricity distribution network. The layout and elevations of the proposed control building and substation compound are shown in ES Figure 3.6 ‘Substation Building and Compound’. The substation equipment (transformers etc) will be located within an onsite compound measuring up to 108m x 80m. The substation and control building will be designed and constructed to the standard required by the distribution network operator (National Grid Electricity Distribution (NGED)) for the accommodation of substation equipment. The compound area will be surrounded by a 2.4m metal palisade security fence.

- 1.4.31 Two single story control buildings will be located outside of the fenced compound area. The customer substation will measure approximately 8.3 m x 3.5 m within the fenced 33kV compound. These control buildings will accommodate switchgear and metering, protection and control equipment.

#### **Temporary Construction Compound**

- 1.4.32 During the construction phase of the proposed wind farm, the wind farm will include a temporary construction compound. This will cover an area of 50m x 80m. The proposed temporary compound area will be constructed by top soil excavation in a similar manner to the access tracks, and laying stone over a geotextile membrane. During construction, temporary fencing will be erected as required, around the construction compound. Details of the temporary compound layout are included on ES Figure 3.8 'Typical Temporary Construction Compound'. The compound will include the following:

- Temporary portable cabins for office accommodation, monitoring of incoming vehicles and welfare facilities
- Self-contained toilets with provision for waste storage and removal
- Containerised storage areas for tools, small plant and parts
- An area for site vehicle parking and storage of larger material items
- A standing and turning area for vehicles making deliveries to the site
- A bunded area for storing fuels, oils and greases.

- 1.4.33 On completion of the construction work these facilities will be removed and the areas will be reinstated.

#### **Borrow Pits**

- 1.4.34 Borrow pits are proposed as a potential source of site won rock for use primarily in the construction of new tracks and hardstandings. The location of the borrow pit areas of search are shown on ES Figure 3.1 'Infrastructure Layout' and ES Figure 3.9 shows indicative borrow pit details.

- 1.4.35 These areas of search are shown as the maximum potential area of borrow pit extraction, but it is not anticipated that these areas will be fully exploited. Areas of search are shown as the nature and quality of the underlying geology will not be known until the detailed pre-construction ground investigation has been completed. Once operations are sufficiently underway, restoration of the borrow pits will take place progressively behind the working area to encourage re-vegetation. This will minimise any impact to the surrounding environment by minimising the working area at any point.

#### **Site Signage**

- 1.4.36 The proposed wind farm will have a series of signs to provide directions and also information on health and safety. Temporary construction signage will direct traffic on site and also identify areas to avoid due to environmental constraints or mitigation measures.

#### **Community Safety**

- 1.4.37 Properly designed, erected and maintained wind turbines are a safe form of technology. The nature of the proposed wind farm is such that it raises no issues in terms of 'secured by design' criteria.
- 1.4.38 Signs will be erected at the entrance to the application site to provide information about the proposed wind farm, together with contact and safety information.

- 1.4.39 There are several public rights of way crossing the site. Being unenclosed common land, the site is open access. During construction, temporary livestock fencing will be erected to prevent members of the public and livestock from accessing working areas and deep excavations. This temporary fencing will be installed and removed on a rolling basis to ensure only the minimum working area required is fenced off at any stage of the construction period.
- 1.4.40 The implementation of the Construction Environmental Management Plan (CEMP) will ensure that disruption to PROWs during construction are kept to a minimum and adequate warning signage will be provided.

#### *Environmental Sustainability*

- 1.4.41 The concept of renewable energy is to generate power from sustainable resources, in this case wind energy. It is anticipated that the proposed wind farm will have the capacity to generate enough energy to power approximately 55,000 homes and generate enough renewable energy for carbon savings of over 83,300 tonnes each year, with a 35 year operational period.
- 1.4.42 The location of the proposed wind farm will not facilitate travel by public transport, walking or cycling, although it is assumed that there may be an element of car sharing amongst staff working at the application site.
- 1.4.43 The wind turbine components will largely be sourced from outside the area and delivered on specialist vehicles. For other elements, such as the use of stone, borrow pits on Site will limit the amount of material imported to the Site. For the construction of the turbine and control building foundations, imported ready mixed concrete is likely to be used, which will be sourced from a local concrete batching facility.
- 1.4.44 During construction and decommissioning, wherever possible excavated stone or soils will be reused on site primarily for the restoration of disturbed ground, including cable trenches and wind turbine foundations, and in earthworks for tracks.
- 1.4.45 The ES outlines other measures which will be employed in relation to pollution prevention, such as the bunding of areas used for fuel storage in the site compound.

## 1.5 Access

### *Introduction*

- 1.5.2 The proposed wind farm will need to be accessed by vehicular traffic during construction, operation and decommissioning phases. The traffic impacts of the proposed wind farm during these phases are discussed below, together with any implications for public and disabled access.

### *Movement*

#### **Off Site Access/Construction Traffic**

- 1.5.3 A single site entrance on the Abercarn Mountain Road at the location [E323605, N198054] of the existing entrance to the common has been identified and verified by subsequent site visits. Modification would be required to facilitate the passage of abnormal delivery vehicles. Details are shown on ES Figure 3.7 'Site Entrance'. This access will be used by all vehicles accessing and leaving the Site.
- 1.5.4 The total number of vehicle journeys during the approximate 15-month wind farm construction period is anticipated to be approximately 23,635. However, if site won stone is used, the total number of vehicle journeys during the wind farm construction period would fall to approximately 11,876. The greatest number of journeys per day will be generated when the turbine foundations and transformer bases are poured.
- 1.5.5 Deliveries of construction materials and turbine components to the application site will be carefully managed in accordance with a detailed traffic management plan.

#### **On-Site Construction Traffic**

- 1.5.6 The on-site access track layout has been designed to minimise environmental disturbance and land take. New tracks are proposed to access the individual turbine locations, with a running width of approximately 4.5m. The tracks will be constructed of crushed and graded stone. Following construction, the appropriate material will be used to reinstate the track sides.

#### **Operational Traffic**

- 1.5.7 During operation traffic associated with the wind farm will be minimal. Site traffic will be limited to small maintenance vehicles carrying crews of two people undertaking general maintenance work and repair. Typically, four maintenance visits will be carried out per month.

### *Public Rights of Way/ Public Access*

- 1.5.8 There are several public rights of way crossing the site. Being unenclosed common land, all of the site is open access.
- 1.5.9 Following consultation with Caerphilly County Borough Council and Torfaen County Borough Council, it may be necessary to divert some of these rights of way either permanently or temporarily during construction of the wind farm. Applications for rights of way diversions cannot be submitted with a DNS application and, where necessary, these applications will be submitted following determination of the DNS application.

### *Access for All*

- 1.5.10 Whilst the new access tracks will provide additional walking opportunities for all, including the less mobile, they have not been designed for this purpose. Wind farm developments are not operational developments of a type that are required to be accessed by members of the public regardless of mobility levels (other than maintenance staff) and therefore specific disabled access has not been considered as part of the proposed wind farm.

1.5.11 The emphasis within the proposed wind farm has been on reducing the impacts of the wind farm in this location, therefore measures such as hard surfacing or reducing gradients have not been considered.

## 1.6 Conclusions

- 1.6.1 The proposed wind farm has been designed with the consideration of a range of technical and environmental constraints. Mitigation measures have been proposed wherever possible to reduce any adverse impacts of the proposed wind farm on the environment.
- 1.6.2 The proposed wind farm is consistent with and positively enhances the key international and national (UK and Wales) objectives to increase renewable energy production, whilst balancing this against the environmental impacts of the proposed wind farm. The accompanying ES has shown that this has been achieved with no unacceptable impacts on a range of environmental considerations in line with policy guidance.
- 1.6.3 Consultation with key stakeholders and the local community has played an important part in the iterative design process and the final design has been appropriately informed by this.
- 1.6.4 The traffic impacts of the proposed wind farm and implications for public access have been appropriately assessed. The route to the application site has been selected in order to minimise traffic impacts and utilise existing tracks where possible. The improvements required to the access tracks are minimal and have been sensitive to environmental constraints. It is therefore considered that the design solution has met the objectives of the design strategy, comprising a technically viable layout which minimises adverse environmental effects.

## 1.7 References

1. Design and Access Statements in Wales: Why, What and How (2017) Design Commission for Wales (Ref 1);
2. Welsh Government Planning Policy Wales 11th Edition (2021) (Ref 2);
3. Future Wales: The National Plan 2040 (2021) (Ref 3);
4. Designing for Renewable Energy in Wales, Design Commission for Wales (2023) (Ref 4);
5. Caerphilly County Borough Council Local Development Plan, adopted 2010 (Ref 5);
6. Torfaen County Borough Council Local Development Plan, adopted 2013 (Ref 6).