# Craig y Perthi Solar Farm

# Environmental Statement

## Chapter 02: Approach to Environmental Impact Assessment

**Prepared for**

**JBM Solar Projects 25 Limited**

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| 3312-01-ES02-001 | July 2023 | Steve Harding | Steve Harding |
| | | | |
| | | | |



Well House Barns, Chester Road, Bretton, Chester, CH4 0DH

Camelia House, 76 Water Lane, Wilmslow, Cheshire, SK9 5BB

T: 0344 8700 007
enquiries@axis.co.uk
www.axis.co.uk

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# 2.0 APPROACH TO ENVIRONMENTAL IMPACT ASSESSMENT

## 2.1 Introduction

2.1.1 This Chapter sets out the legislative requirement for the application to be supported by an ES; the scoping process undertaken; the broad approach to the assessment that has been undertaken in relation to the topics that have been identified as having the potential to result in significant environmental effects; and finally, how the ES complies with the requirements of the EIA Regulations.

## 2.2 Need for Environmental Impact Assessment

2.2.1 The requirement for EIA was prescribed by European law under Council Directive 85/337/EEC ('the EIA Directive'). This Directive has been amended four times, with the latest amendment, the Environmental Impact Assessment (EIA) Directive (2014/52/EU) entering into force on 15 May 2014.

2.2.2 Planning is a devolved matter, therefore each country of the United Kingdom is required to implement any updates to the EIA Directive into domestic legislation. In Wales, the Directive has been enacted most recently into law by the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 [SI 2017 No. 571] – referred to hereafter as 'the EIA Regulations 2017'. These regulations came into force on the 16 May 2017.

2.2.3 The EIA Regulations prescribe the types of development for which EIA is mandatory (Schedule 1 development) and others that may require an assessment if they have the potential to give rise to significant environmental impacts (Schedule 2 development). The Proposed Development is for the construction and operation of an approximate 198 ha solar farm, which is covered by Schedule 2, Part 3(a) of the EIA Regulations:

*a) "3 Energy Industry*

*b) Industrial installations for the production of electricity, steam and hot water (unless included in Schedule 1).*

*c) The area of the development exceeds 0.5 hectare."*

2.2.4 Whilst the Proposed Development qualified as a Schedule 2 development in respect of the EIA Directive, no formal screening was undertaken as it was assumed, given

the location and scale of the Proposed Development, potential significant effects were likely. This was confirmed through an initial pre-application consultation with Newport City Council, the advice from which directed the developer towards a formal EIA process.

## 2.3 Scoping the Environmental Impact Assessment

2.3.1 Regulation 15 of the EIA Regulations stipulates that (in the context of DNS applications) prospective applicants may request a Scoping Direction from the Welsh Ministers. This is a written confirmation as to the information that, in the opinion of the Welsh Ministers, ought to be provided within the ES. However, requesting such n Direction is not a mandatory requirement.

2.3.2 A Scoping Report was submitted to PDEW on 22 December 2022 under Regulation 15 of the EIA Regulations. A copy of the Scoping Report is included in Appendix 2.1.

2.3.3 In response to the Scoping Report, PEDW issued a Scoping Direction on 25 May 2023, which outlined where there was agreement with the applicant's Scoping Report and where certain other aspects were required to be included within the EIA process. The Scoping Direction also included the comments of statutory consultation bodies as defined by Regulation 2(1) of the EIA Regulations. The Scoping Direction is included in Appendix 2.2.

2.3.4 With respect to the views of statutory consultation bodies, Regulation 17(4)(c) of the EIA Regulations states that:

*"(c) where a scoping opinion or direction has been issued in accordance with regulation 14 or 15, be based on the most recent scoping opinion or direction issued (so far as the proposed development remains materially the same as the proposed development which was the subject of that opinion or direction);"*

2.3.5 Appendix 2.3 includes a schedule of all the comments made by PEDW, with details of how these comments have been addressed within the EIA or reported in the ES.

## 2.4 Contents of the Environmental Statement

2.4.1 The information to be included in an ES is set out in Schedule 4 of the EIA Regulations 2017. Table 2.1 below provides cross-references to chapters in the ES where information relevant to the requirements of Schedule 4 can be found.

**Table 2.1 Review of Schedule 4 Requirements**

| Para | Schedule 4 Requirement | Location within the ES |
|---|---|---|
| 1 | Description of the development, including in particular—<br>(a) a description of the location of the development;<br>(b) a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works and the land-use requirements during the construction and operational phases;<br>(c) a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;<br>(d) an estimate, by type and quantity, of expected residues and emissions (such as water, air, oil and subsoil pollution, noise, vibration, light, heat, radiation) and quantities and types of waste produced during the construction and operational phases. | (a) Chapter 2.0<br>(b & c) Chapter 4.0.<br>(d) Chapter 4.0 as it relates to the scheme description and within Chapters 5.0 to 9.0 as it relates to individual topic areas. |
| 2 | A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the applicant or appellant which are relevant to the proposed development and its specific characteristics and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects. | Chapter 3.0 provides a description of the alternatives considered as part of the iterative design process. |
| 3 | A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge. | Chapters 5.0 to 9.0 as it relates to individual topic areas. |
| 4 | A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape. | Chapters 5.0 to 9.0 as they relate to individual topic areas. Matters relating to human health are addressed in topic specific chapters e.g., Hydrology and Flood Risk |
| 5 | A description of the likely significant effects of the development on the environment resulting from, inter alia—<br>(a) the construction and existence of the development, including, where relevant, demolition works;<br>(b) the use of natural resources in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;<br>(c) the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances and the disposal and recovery of waste,<br>(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters); | Chapter 4.0 as it relates to the scheme description and within Chapters 5.0 to 9.0 as it relates to individual topic areas. |

| Para | Schedule 4 Requirement | Location within the ES |
|---|---|---|
| | (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;<br>(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;<br>(g) the technologies and the substances used.<br>The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at European Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC(1) and Directive 2009/147/EC(2). | |
| 6 | A description of the forecasting methods or evidence used to identify and assess the effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved. | The overall EIA methodology and approach to assessment is described in Chapter 2.0. The specific technical methodologies used to identify and assess effects are fully described (or referenced) within Chapters 5.0 to 9.0 as they relate to individual topic areas. |
| 7 | A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases. | 'Embedded Mitigation' which forms part of the scheme design is described in Chapters 5.4 to 9.4.<br>Secondary mitigation measures, as they apply to individual environmental topic areas, are described in Chapters 5.6 to 9.6, |
| 8 | A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to European Union legislation such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant | Chapter 4.0 describes how the Proposed Development is resilient to major accidents and disasters and therefore why it is unlikely that |

| Para | Schedule 4 Requirement | Location within the ES |
|---|---|---|
| | assessments carried out pursuant to national legislation may be used for this purpose provided that the requirements of the Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies. | significant environmental effects would arise in relation to this. |
| 9 | A non-technical summary of the information provided under paragraphs 1 to 8. | A separate Non-Technical Summary is contained as ES Volume 1. |
| 10 | A reference list detailing the sources used for the descriptions and assessments included in the environmental statement. | References are provided as footnotes and / or reference document lists within, or at the end of each ES Chapter, as appropriate. |

## 2.5 EIA methodology

2.5.1 The approach to EIA is not standardised, but there are established, and recognised approaches set out by the Government and professional institutions as to methods to be used for the assessment of environmental effects. Where appropriate, the environmental effects of the Proposed Development have been assessed using definitive standards, legislation and guidance applicable to each of the technical areas covered within this ES.

2.5.2 In order to provide a clear and robust assessment each of the technical chapters presented within the ES follows the structure set out in the subsequent paragraphs.

### *Introduction*

2.5.3 A brief summary of the approach to the topic is provided outlining any key issues relevant to the subject area being assessed.

### *Methodology*

2.5.4 This section provides details of the assessment method followed, and provides the following information:

i) a description of any relevant legislation, policy or guidance which has been taken into account in the assessment.
ii) the findings from any consultations undertaken to date.

iii) the approach taken to gathering of any desk-based or field data. Where specific surveys have been undertaken an outline of the survey methodology is provided.
iv) the approach to the impact assessment is defined. This includes how the particular topic has defined impact magnitude, receptor sensitivity and how these relate to the overall level effect / significance.
v) any limitations or assumptions made in the assessment.

### *Baseline*

2.5.5 This section of the chapter provides a description of the baseline conditions at the Site and its environs, relevant to the topic being assessed. The baseline conditions have been established through consultation, collation and analysis of existing data sets and reports, and in some cases site specific field data. The baseline identifies any sensitive receptors that will need to be evaluated in the assessment.

2.5.6 Where relevant and appropriate the likely future state of the environment is set out by predicting future change in the baseline conditions in the absence of the Proposed Development, in line with current guidance . The future baseline is then taken into account when assessing the likely effects of the project over its operational lifetime.

### *Assessment of Effects*

2.5.7 This section of the chapter describes the likely significant environmental effects of the Proposed Development on the baseline condition at the Site and its environs, relevant to the assessment topic. As indicated above, the assessment considers potential future changes in the baseline environment where relevant. The assessment includes a description of the nature, extent and significance of these effects. The assessment considers the embedded mitigation measures that have been specifically incorporated into the Proposed Development to reduce environmental effects of the project.

2.5.8 The Applicant is applying for a temporary, yet generational development, for 40 years, therefore the assessment of effects will consider the construction, operational and decommissioning phases of the Proposed Development.

2.5.9 The EIA Regulations do not provide definitive methods for the assessment of significance and a variety of methods are employed within EIA methodologies. The method used to assess the effects is specific to each discipline. Where available and

appropriate, the assessments follow impact assessment criteria and methodology set out by relevant professional institutions. Where such guidance is not available, or prescriptive methods are not set out by the relevant professional body, then assessment criteria have been developed by the technical specialists to enable a clear and structured assessment to be undertaken.

2.5.10 The level of the effect is, in general, derived by considering the magnitude of the impact and the sensitivity of the receptor to a change resulting from the Proposed Development.

2.5.11 Depending on the discipline there are several factors that need to be considered when establishing the type and magnitude of an effect, including:

i) Whether the effect is adverse or beneficial.
ii) Whether it is temporary or permanent.
iii) Extent or spatial scale of the effect.
iv) Duration of the effect.
v) Whether the effect is reversible.
vi) Probability / likelihood of the effect.

2.5.12 Similarly, the sensitivity of a receptor is the function of several elements dependent on the discipline and effect being assessed, these could include:

i) Designation and legal status.
ii) Quality.
iii) Rarity.
iv) Importance.
v) Ability to adapt to change.

2.5.13 Having established the magnitude of the effect and the sensitivity of the receptor, the significance of the effect is then defined. For some disciplines, a matrix is used to classify the level of effect by correlating magnitude and sensitivity, as shown in Table 2.2.

**Table 2.2 Example Significance of Effect Matrix**

| | | Magnitude of Impact Severity | | | |
|---|---|---|---|---|---|
| | | High | Medium | Low | Negligible |
| Receptor Sensitivity | High | Major | Moderate | Minor to Moderate | Negligible or Minor |
| | Medium | Moderate | Minor to Moderate | Minor | Negligible |
| | Low | Minor to Moderate | Minor | Negligible or Minor | Negligible |
| | 2013 | Negligible or Minor | Negligible | Negligible | Negligible |
| | Negligible | Major | Moderate | Minor to Moderate | Negligible or Minor |

2.5.14 Where a matrix is not used, the magnitude of change and the sensitivity of the receptor is used to make a reasoned professional judgement to establish the level of the effect and whether it is significant or not.

2.5.15 Where the findings of an assessment are set out as different levels of effect (e.g., major, moderate, minor, etc.) the assessment clearly sets out where an effect is significant. This may vary between disciplines and the threshold is defined within each chapter. This approach is used to assist the decision maker, consultees and other interested parties in establishing the most important environmental effects of the Proposed Development.

2.5.16 There is no statutory definition of what level of effect is to be regarded as significant and there is often not a single, definitive, correct answer as to whether an effect is significant or not. Generally, in EIA terms, a significance of effect of 'Moderate' or above would be deemed significant.

2.5.17 A significant effect does not necessarily mean that such an effect is unacceptable to decision-makers nor necessarily results in a breach of planning policy. This is a matter to be weighed in the planning balance alongside other material considerations[1] . What is important is that the likely significant environmental effects of any proposal are transparently assessed and described in sufficient detail to

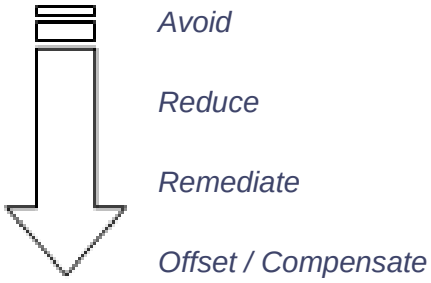
[1] *A material consideration is a matter that should be taken into account in deciding a planning application or on an appeal against a planning decision https://www.planningportal.co.uk/services/help/faq/planning/about-the-planning-system/what-are-material-considerations Accessed 7 October 2022.*

enable the determining authority to make a balanced and well-informed judgement as part of the decision-making process.

2.5.18 In all instances, the assessments contained within this ES set out the basis of the judgements made so that the readers of the ES can see the weight attached to the different factors and can understand the rationale of the assessment. In this sense the ES clearly explains how the significance of effects has been derived.

***Mitigation***

2.5.19 It is a requirement of the EIA Regulations to describe the measures envisaged to prevent, reduce and where possible offset any significant effects on the environment. Whilst not a requirement of the EIA Regulations, mitigation measures can be used to reduce or avoid any adverse effect, whether or not that effect is deemed to be 'significant'. Mitigation can be achieved in a number of ways as listed below; this approach is often referred to as the mitigation hierarchy with mitigation being selected as high up the hierarchy as possible.




2.5.20 Many of the mitigation measures associated with the Proposed Development have been incorporated into the design of the scheme. On the basis that these mitigation measures are considered to be embedded into the project, they have been taken into account when coming to a judgement of the significance of the effects of the Proposed Development and are not necessarily specifically referenced within the individual ES assessment chapters.

2.5.21 Where additional mitigation, compensation or enhancement measures are proposed to prevent, reduce or offset adverse effects unavoidable through design, or to provide benefits to the Proposed Development and / or local environment; these are described separately within the mitigation section of each chapter. Where such measures have been defined, an explanation is provided of how these measures will mitigate the identified effects of the Proposed Development.

### *Cumulative Effects*

2.5.22 The EIA Regulations require that a description of the likely significant effects of the development on the environment should be included in the Environmental Statement, including cumulative effects. On this basis, each technical chapter provides an assessment of likely significant cumulative environmental effects with other projects in the area.

2.5.23 The EIA Regulations do not define cumulative effects. However, a commonly accepted description is:

*"Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project" (European Commission, 1999)"*

2.5.24 There is no defined methodology in the UK as to how cumulative effects should be assessed. In determining the approach to be adopted to this element of the assessment, reference will be made to the following guidance:

i) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission 1999).
ii) Cumulative Effects Assessment Practitioners Guide (Canadian Environmental Assessment Agency 1999).
iii) Guidelines for Environmental Impact Assessment (Institute of Environmental Management and Assessment 2006).
iv) The State of Environmental Impact Assessment Practice in the UK (Institute of Environmental Management and Assessment 2011).
v) Assessing the Cumulative Impact of Onshore Wind Energy Developments (Scottish Natural Heritage, 2012).

2.5.25 Paragraph 5(e) of Schedule 4 of the EIA Regulations requires a:

*"description of the likely significant effects of the development on the environment resulting from …. the culmination of effects with other existing and/or approved projects."*

2.5.26 In this regard the regulations are specific about the projects that should be considered to result in cumulative effects i.e., existing and/or approved projects. However, it is proposed to also include projects that are currently awaiting

determination within the cumulative assessment as there is a possibility that these projects could be approved whilst the application for the Proposed Development is being determined. Accordingly, the assessment of cumulative impacts will encompass the effects of the Proposed Development in combination with relevant:

i) Existing development, under construction.
ii) Approved development, awaiting implementation.
iii) Schemes awaiting determination within the planning process.

2.5.27 The presence of operational schemes (and for some disciplines, schemes that are under construction, but not yet operational) is an established influence upon the environment, that will be considered when determining the baseline for the non-cumulative assessment for each discipline chapter. The non-cumulative assessment of effects will have full regard to the presence of such schemes when arriving at any conclusions.

2.5.28 As such, the additional schemes that would form part of the assessment of cumulative effects will be major projects that have either been granted planning consent but have not yet been constructed and major projects for which a planning application is awaiting determination. Major projects are developments that are one or more of the following[2]:

*"a) the winning and working of minerals or the use of land for mineral-working deposits;*

*(b) waste development;*

*(c) the provision of dwellinghouses where—*

*(i) the number of dwellinghouses to be provided is 10 or more; or*

*(ii) the development is to be carried out on a site having an area of 0.5 hectares or more and it is not known whether the development falls within sub-paragraph (c)(i);*

*(d) the provision of a building or buildings where the floor space to be created by the development is 1,000 square metres or more; or*

[2] *The Town and Country Planning (Development Management Procedure) (Wales) Order 2012*

*(e) development carried out on a site having an area of 1 hectare or more."*

2.5.29 Projects that fall outside the above criteria will only be included in the assessment if specifically identified by stakeholders and agreed as material to the ES.

2.5.30 Each topic will have a different spatial zone where potential cumulative significant effects could occur. A preliminary search area of 5 km from the Site has been used to identify schemes that have the potential to result in cumulative effects. The search was undertaken via the interactive search facilities on the Newport City Council and Monmouth County Council websites. Additionally, a search was undertaken on the Welsh Inspectorate website to identify any other Developments of National Significance that may interact with the Proposed development either during construction or operation. The developments considered likely to have the potential to give rise to significant cumulative effects are reported below in Table 2.3.

**Table 2.3 Cumulative Schemes**

| Name of Development | Description of Development |
|---|---|
| Rush Wall Solar Farm - Land near the village of Redwick, south-east of Newport, Wales on the Caldicot Levels<br><br>DNS application - 3220457 (PEDW) | The installation of a solar park with an approximate design capacity of 75MW. Development includes ancillary electrical equipment and infrastructure, access tracks, security fencing and CCTV. |
| Magor Net Zero - Land Adjacent to Brewery House Magor Brewery Newport Road Magor Monmouthshire NP26 3DJ<br><br>EIA Scoping Stage (PEDW) | Proposed solar and wind power facility at a location south of the brewery; including ground-mounted solar PV, wind turbine, hydrogen electrolysers, hydrogen and energy storage and ancillary and associated infrastructure and cabling. |
| Land at Vinegar Hill, Undy - Land At Vinegar Hill Vinegar Hill Undy Monmouthshire<br><br>Planning Ref - DM/2019/01937 (Monmouthshire County Council) | Outline planning application for up to 155 dwellings, associated open space and infrastructure with all matters excluding access reserved, of which full planning permission is sought for 72 dwellings, associated open space and infrastructure. |
| Rockfield Farm, Undy - Rockfield Farm, The Elms, Undy, Caldicot, Monmouthshire, NP26 3EL<br><br>Planning Ref - DC/2016/00883 (Monmouthshire County Council) | Master planned development of 13.8 hectares of land for residential use and employment use; up to 266 Proposed residential units and approximately 5575 square meters of B1 floor space. |
| Magor Brewery - Newport Road Magor Caldicot Monmouthshire NP26 3RA<br><br>Planning Ref - DM/2020/00103 (Monmouthshire County Council) | Erection of sixteen fermentation vessels, enclosed supporting structure and external stairs; extension of existing high level access walkway; earth works; and temporary works including re-use of existing car park as vessel assembly site, creation of two temporary replacement car parks, temporary site roads and walkways, and associated works. |

| Name of Development | Description of Development |
|---|---|
| Glan Llyn Development Site - Queensway Llanwern Newport South Wales<br>(Newport City Council) | Comprehensive regeneration of former Newport Llanwern Steelworks for residential, business and community development. Numerous applications dating back to the original outline application in 2006. |
| Llanwern Village<br>Planning Ref - 13/0806 amending 06/0845<br>(Newport City Council) | 13/0806 \| variation of condition (time limits) of planning permission 06/0845 for residential development (up to 1100 dwellings) and provision of primary school, village centre, public open space, landscaping and associated infrastructure works (affecting Public Rights of Way 397/3, 397/7, 397/9 AND 397/10) |

2.5.31 As reported in Table 2.3, there are seven developments that have been identified that have the potential to give rise to significant cumulative environmental effects in conjunction within the Proposed Development. Figure 2.1 Cumulative Developments highlights the location of these developments, along with operational renewable energy projects that may give rise to cumulative effects during operation. These developments are considered further, as required, within the individual technical chapters within this ES.

### *Residual Effects and Conclusions*

2.5.32 This section of each technical chapter provides a textual description of the likely residual effects of the Proposed Development following the implementation of any additional mitigation or enhancement measures.

2.5.33 The conclusions summarise the key elements of the assessment and include a statement on whether the Proposed Development is likely to result in any significant environmental effects.