

Environmental Statement: Chapter 2 – Environmental Impact Assessment Methodology

ES 02

Development of National Significance

Alaw Môn Solar Farm

Land west of the B5112, 415m south of Llyn Alaw, 500m east of Llantrisant and 1.5km west of Llannerch-y-Medd, Anglesey

February 2024



2.0 EIA METHODOLOGY

Introduction

- 2.1 This chapter explains the EIA methodology and describes the ES structure and content. In particular, it details the process of identifying and assessing the likely significant environmental effects of the Development. The ES has been prepared in accordance with the EIA Regulations and reference has also been made to currently available good practice guidance on EIA.

Scoping

- 2.2 Scoping is an important tool for identifying the likely significant effects of a proposed development through its design, construction and completed phases and ensures that appropriate mitigation options are considered where necessary. A Scoping Report (Appendix 2.1) was submitted to Planning Inspectorate Wales (PINS Wales) (now Planning and Environment Decisions Wales (PEDW)) on 6th May 2021 in support of a formal request for a Scoping Opinion. The Scoping Report identified the topics proposed to be scoped into and out of the ES and for those assessments to be included, details of the scope and methodology of the assessments. The topics proposed to be scoped into the ES comprised:

- Landscape and Views;
- Biodiversity;
- Water Environment;
- Noise; and
- Cultural Heritage.

- 2.3 PINS Wales (now PEDW) adopted its Scoping Direction on 30th June 2021 (Appendix 2.2). Isle of Anglesey County Council ('IACC') provided an EIA Scoping response dated 11th June 2021 to PINS Wales to inform the Scoping Direction which is also included at Appendix 2.2. Table 2.1 below sets out how the key issues raised in the in PINS Wales's (now PEDW) adopted Scoping Direction, as well as IACC's Scoping response. Additionally, the table sets out how the issues have been addressed within the ES and their respective locations.

Table 2.1 Issues raised in the EIA Scoping Process

Issue Raised in the Adopted Scoping Direction (PINS Wales (now PEDW))	Applicant's Response	ES Chapter addressed
PINS Wales (now PEDW) identified that the ES should address any significant effects on Population and Human Health, in light of the EIA Regulations and should address the effects across separate ES Chapters or as an individual ES Chapter.	The likely significant environmental effects on Population and Human Health that may arise from the Development have been considered in the ES.	Chapter 7 Landscape and Visual Effects, Chapter 10 Transport and Access, Chapter 11 Air Quality, Chapter 12 Noise and Vibration and Chapter 13 Agricultural Land
PINS Wales (now PEDW) agreed that despite the Development being largely reversible and will be decommissioned at the end of its operational period, there will be impacts on the agricultural land. It was proposed by the Applicant that a standalone Agricultural Land Classification ('ALC') Report would be	An Agricultural Land ES Chapter has been provided.	Chapter 13 Agricultural Land

Issue Raised in the Adopted Scoping Direction (PINS Wales (now PEDW))	Applicant's Response	ES Chapter addressed
sufficient. However, PINS Wales (now PEDW) requested that an ES Chapter be provided.		
PINS Wales (now PEDW) recognised that due to the nature of the Development, there is not expected to be a large volume of operational traffic. However, as noted in the Scoping Report (Appendix 2.1), there will be temporary traffic effects during the construction phase. PINS Wales (now PEDW) stated there is not sufficient evidence in the Scoping Report on how the impacts will be mitigated against and therefore requested that an ES Chapter be provided.	A Transport and Access ES Chapter has been provided.	Chapter 10 Transport and Access
The Applicant proposed that emissions will not be generated during the operational phase of the Development. Although this was acknowledged, PINS Wales (now PEDW) stated there was not sufficient evidence to scope out the potential impacts on conservation sites during the construction phase of the Development, particularly in relation to the construction traffic and use of HGVs. Therefore, PINS Wales (now PEDW) requested that an ES Chapter be provided.	An Air Quality ES Chapter has been provided.	Chapter 11 Air Quality
PINS Wales (now PEDW) recognised that the Development would incorporate a battery storage facility and noted the potential fire risk associated with such a compound. PINS Wales also noted that the Applicant must consider the accidents and disasters associated with the battery storage facility. As such, an ES Chapter was requested to be scoped into the ES.	An Outline Battery Management Plan (Appendix 2.3) and accidents and disasters are also considered in the relevant ES chapters.	Appendix 2.3 Outline Battery Management Plan, Chapter 9 Water Environment, and Chapter 10 Transport and Access.
PINS Wales (now PEDW) noted that the construction of the Development would require the installation of solar photovoltaic panels. However, the Scoping Report (Appendix 2.1) did not provide sufficient detail on the procedure. As such, the Development's potential impact on the Nantanog Site of Special Scientific Interest located within the Site boundary is not clear. PINS Wales (now PEDW) requested that vibration is scoped into the ES.	A Noise and Vibration ES Chapter has been provided.	Chapter 12 Noise and Vibration
Issue Raised in IACC's EIA Scoping Response	Applicant's Response	ES Chapter addressed
IACC did not agree with the Scoping Report (Appendix 2.1) whereby Agricultural Land was proposed to be scoped out and replaced with an Agricultural Land Classification Report. IACC requested that an Agricultural Land ES Chapter was to be prepared as part of the ES.	An Agricultural Land ES Chapter has been provided as part of the ES. The Chapter has been supported by technical appendices, including Appendix 13.1 Agricultural Land Classification.	Chapter 13 Agricultural Land

Issue Raised in the Adopted Scoping Direction (PINS Wales (now PEDW))	Applicant's Response	ES Chapter addressed
IACC did not agree with the Scoping Report (Appendix 2.1) whereby Transport and Access was proposed to be scoped out of the ES and replaced with a Transport Statement and Outline Construction Traffic Management Plan. IACC requested a Transport and Access ES Chapter to be prepared as part of the ES.	A Transport and Access ES Chapter has been provided as part of the ES. The chapter is supported by Appendix 10.1 Transport Statement and Appendix 10.2 Outline Construction Traffic Management Plan.	Chapter 10 Transport and Access
IACC did not agree with the Scoping Report (Appendix 2.1) whereby Population and Human Health was proposed to be scoped out of the ES and replaced by a standalone Economics Benefits Statement. In addition, IACC requested that matters concerning Socio-Economics were scoped in to the ES.	PINS Wales's (now PEDW) adopted Scoping Direction (Appendix 2.2) stated that Population and Human Health could be addressed as a specific topic chapter or under separate topic chapters. This topic has therefore been addressed in separate topic chapters in the ES.	Chapter 7 Landscape and Visual Effects, Chapter 10 Transport and Access, Chapter 11 Air Quality, Chapter 12 Noise and Vibration and Chapter 13 Agricultural Land

Disciplines Scoped In

2.4 Further to the issues raised in the PINS Wales's (now PEDW) Scoping Direction and IACC's Scoping response, the technical disciplines scoped into the ES are as follows:

- Cultural Heritage;
- Landscape and Views;
- Biodiversity;
- Water Environment;
- Transport and Access;
- Air Quality (limited to the impacts of the Development's construction vehicle emissions on designated ecological sites);
- Noise and Vibration;
- Agricultural Land;
- Population and Human Health (separate chapter scoped out of the ES as topic considered in Chapter 7 Landscape and Visual Effects, Chapter 10 Transport and Access, Chapter 11 Air Quality, Chapter 12 Noise and Vibration and Chapter 13 Agricultural Land); and
- Major Accidents and Disasters (separate chapter scoped out of the ES as topic considered in Chapter 9 Water Environment, Chapter 10 Transport and Access, and Appendix 2.3 Outline Battery Safety Management Plan).

Disciplines Scoped Out

2.5 PINS Wales's (now PEDW) Scoping Direction and IACC's Scoping response agreed with the Applicant that the following technical disciplines can be scoped out of the ES:

- Climate Change;

- Land Contamination;
- Wind Microclimate;
- Daylight, Sunlight and Overshadowing;
- Socio-Economics
- Lighting; and
- Waste.

- 2.6 The Site area for the Development (approximately 268.77 hectares (ha)) is less than that associated with PINS Wales's (now PEDW) Scoping Direction (approximately 300ha). However, the Scoping Direction is considered relevant to the Development because the likely significant effects are similar as the proposed uses are the same.
- 2.7 The draft ES was submitted to consultees for comment as part of Pre-application Consultation (PAC). Table 2.2 below sets out how the key issues raised by the consultees have been addressed in the ES Technical Chapters. A detailed account of changes and amendments to each ES Chapter can be seen in Chapters 6-13.

Table 2.2 Issues raised during PAC

PAC Consultee	Comment	Applicant's Response
Cultural Heritage		
Cadw	Cadw requested further information explaining how the 60m buffer zone for the Scheduled Monument 'Cors y Bol' was determined. Cadw requested that access permission for the Scheduled Monument should be sought.	The Cultural Heritage ES Chapter and appendix 6.1 Heritage Statement have been amended.
IACC's Conservation Officer	Two further photomontages have been requested by IACC's conservation officer to and from the Listed Buildings that have particular sensitivity.	
Gwynedd Archaeological Planning Service	The Gwynedd Archaeological Planning Service requested that the Historic Environment Record data informing the ES baseline was to be updated. The planning service have also requested that the radiocarbon dates are presented within Appendix 6.1 of the ES. Additional clarification on the mitigation for the pits and post-holes and linear ditches within the Site has been requested. Additionally, strip, map and record excavation are required for the battery energy storage system and on-site substation.	
Landscape and Visual Effects		
IACC	IACC stated in an earlier pre-app response that the setting of some of the neighbouring listed buildings, particularly Church of St Mary near Ceidio, were more sensitive. The photomontages were requested to be updated. IACC also requested that the methodology was to be reviewed as not correctly applied through the ES Chapter submitted for PAC. IACC requested that further information was to be included on the mitigation and rationale for mitigation. Additionally, an outline LEMP was	The Landscape ES Chapter and associated figures and appendices have been amended to take into account the comments made by IACC.

PAC Consultee	Comment	Applicant's Response
	requested and included as an appendix to the ES Chapter.	
Biodiversity		
IACC	IACC requested various amendments to the Biodiversity ES Chapter. The IACC has requested clarity on great crested newts and precautionary mitigation, vegetation clearance during the construction phase, clarification on invasive non-native species and suggestion of further species related species-related biodiversity enhancements.	The Biodiversity ES Chapter and Appendix 8.2 have been amended following PAC comments.
Natural Resources Wales (NRW)	NRW requested a suitable condition for great crested newt conservation plan, amendment to the characterisation of birds within the bird survey and commented on the Nantnog Geological SSSI relating to the potential negative impact from scrub encroachment.	
Water Environment		
IACC	IACC requested that the Applicant confirms that there will be no increase in flooding to access tracks, specifically the access track to the Nantnog property.	The Water Resources ES Chapter and the Flood Consequences Assessment (Appendix 9.1) have been amended.
Transport		
IACC	<p>IACC requested various amendments to the Transport ES Chapter. The IACC have requested the following:</p> <ul style="list-style-type: none">Widening of the existing access gate to enable HGVs to access the Site without causing potential hazards;Verge strengthening (via bound material) to be provided adjacent to field access point to accommodate HGV swept movement;First 15m of every field access is to be constructed with a bound material to a specification agreed with IACC;Mitigations measures to be included to protect cyclists along the National Cycle Network, Route 5;Signage to be included as part of the detailed Construction Traffic Management Plan (CTMP) to protect cyclists from construction vehicles;The 'Access Strategy and Field Connections' (Figure 4.1 of the Transport Statement) does not shown the required changes to the HGV routing strategy agreed as per Figure 2.1 of the 2010-026/TN/01 Construction Traffic Management Plan Scoping Note, dated 01.09.2023;Bays constructed during the construction phase are to be made using permanent material, as opposed to temporary material;	The Transport ES Chapter, Transport Statement (Appendix 10.1) and Outline CTMP (Appendix 10.2) have been amended.

PAC Consultee	Comment	Applicant's Response
	<ul style="list-style-type: none"> Early dialogue is required between the Applicant and the IACC with regards to highways improvements; and Any works undertaken on the public highway shall require the consent of the Council, as Highway Authority, under S.278 of the Highways Act 1980. 	
Air Quality		
No changes required to the Air Quality ES Chapter		
Noise		
No changes required to the Noise ES Chapter		
Agricultural Land		
Welsh Government Soil Policy and Agricultural Land Use Planning Unit	<p>The Welsh Government Soil Policy and Agricultural Land Use Planning Unit states the following concerns and requests amendments:</p> <ul style="list-style-type: none"> The Development needs to give considerable weight to protecting BMV agricultural land; The loss of 159ha of BMV is a matter of national significance and should present an unacceptable adverse impact; "Overriding need" needs to be established for the Development; The Department does not accept the Development is temporary in reference to TAN 6 and the high risk of repowering; The change of use of land decreases the full BMV potential to low-level grazing at best; and The Welsh Minister's decision on DNS/3247619 is relevant. 	<p>The Agricultural Land ES Chapter and Framework Soil Management Plan (Appendix 13.3) have been amended.</p> <p>Matters relating to recent decision, planning balance and case for development are included in the Planning Statement submitted in support of the application.</p>

Approach to Technical Studies

- 2.8 The EIA studies commenced at an early stage in the development process and have been updated as the scheme has progressed over time. The findings of these baseline environmental studies have played an important role in defining the environmental sensitivities, constraints and opportunities associated with the Site.
- 2.9 The technical studies have been undertaken in accordance with current best practice. Specific guidance used is referenced within each of the respective assessment chapters. The majority of assessments involved consultations with statutory and non-statutory bodies, desk-based research, site inspections and surveys, impact prediction and mitigation.
- 2.10 The assessment and conclusions of the ES are based on the description of the Development provided in Chapter 3 Site and Development Description, description of the construction works contained in Chapter 5 Construction Methodology and Phasing and accompanying figures.

Structure of Technical Chapters

- 2.11 Each technical chapter of the ES (Chapters 6-13) has been set out broadly in line with Table 2.3 below.

Table 2.3: Structure of the Technical Chapters

Heading	Content
Introduction	Each of the technical chapters begins with an introduction providing context to the EIA completed.
Policy Context	This section includes a summary of policies of relevance to the environmental discipline and explains its purpose in the context of the Development and the ES.
Assessment Methodology	This section describes the method and approach employed in the assessment of likely significant effects, the criteria against which the significance has been evaluated, the sources of information used and any technical difficulties encountered. Relevant legislation is also identified.
Baseline Conditions	This section describes and evaluates the baseline environmental conditions i.e. the current situation and anticipated changes over time assuming the Site remains undeveloped.
Likely Significant Effects	This section identifies the likely significant effects on the environment resulting from the Development during construction and operational phases. A description of the likely significant effects of the Development and an assessment of their predicted significance is provided.
Mitigation Measures	This section describes the measures which would be implemented to mitigate against potential adverse impacts. Where possible, enhancement measures have also been proposed.
Residual Effects	The residual effects, i.e. the remaining effects of the Development assuming implementation of the proposed mitigation measures, have been estimated and presented.
Summary	Each technical chapter concludes with a brief summary outlining the potential residual effects for the construction phase (short/medium) and operation (medium/long-term) phase of the Development.

*An assessment of the potential for interactive effects is set out in Chapter 14 Summary and Residual Effects.

Likely Significant Effects

- 2.12 The assessment of impact significance has been undertaken using appropriate national and international quality standards. Where no such standards exist, the judgments that underpin the attribution of significance are described. The guidelines, methods and techniques used in the process of determining significance of effects are contained within each of the technical chapters presented.

Magnitude

- 2.13 The methodology for determining the scale, or magnitude, of effect is set out in Table 2.4 below.

Table 2.4: Methodology for Assessing Magnitude

Magnitude of Impact	Criteria for Assessing Effect
Major	Total loss or major/substantial alteration to key elements/features of the baseline conditions such that the post development character/composition/attributes will be fundamentally changed.
Moderate	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character/composition/attributes of the baseline will be materially changed.
Minor	A minor shift away from baseline conditions. Change arising from the loss/alteration will be discernible/detectable but not material. The underlying character / composition / attributes of the baseline condition will be similar to the pre-development circumstances/situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

Sensitivity

- 2.14 The sensitivity of a receptor is based on the relative importance of the receptor using the scale in Table 2.5 below.

Table 2.5: Methodology for Assessing Sensitivity

Sensitivity	Examples of Receptor
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor/resource is tolerant of change without detriment to its character, is of low or local importance.

Significance

- 2.15 The significance of an environmental effect is determined by the interaction of magnitude and sensitivity, whereby the impacts can be beneficial or adverse. Table 2.6 below shows how magnitude and sensitivity interact to derive effect significance.

Table 2.6: Methodology for Assessing Significance

Magnitude	Sensitivity		
	High	Moderate	Low
Major	Major Adverse/Beneficial	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial
Moderate	Major - Moderate Adverse/Beneficial	Moderate - Minor Adverse/Beneficial	Minor Adverse/Beneficial
Minor	Moderate - Minor Adverse/Beneficial	Minor Adverse/Beneficial	Minor Adverse/Beneficial - Negligible
Negligible	Negligible	Negligible	Negligible

- 2.16 The above magnitude and significance criteria have been provided as a guide for technical specialists to assess impact significance. Where discipline specific methodology has been applied that differs from the generic criteria above, this has been clearly explained within the given chapter under the heading of Assessment Methodology.

Mitigation

- 2.17 Any adverse environmental effects have been considered for mitigation at the design stage and, where practicable, specific measures have been put forward. Measures have been considered based on the following hierarchy of mitigation:
- Avoidance;
 - Reduction;
 - Compensation;
 - Remediation; and
 - Enhancement.
- 2.18 Where the effectiveness of the mitigation proposed has been considered uncertain, or where it depends upon assumptions of operating procedures, data and/or professional judgement has been introduced to support these assumptions.
- 2.19 Mitigation measures recommended during the construction phase are set out in the Outline Construction Environmental Management Plan (CEMP) (Appendix 5.1), with a detailed CEMP secured

via planning condition prior to the commencement of development and implemented throughout the duration of the works.

- 2.20 Mitigation to be implemented during the operational phase would be secured through planning conditions.

Cumulative Effects

- 2.21 A requirement of the EIA Regulations is to assess cumulative effects. Cumulative effects are generally considered to arise from the combination of effects from the Development and from other existing or approved schemes in its vicinity, acting together to generate elevated levels of effects. The assessment has been informed by paragraph 5(e) of Schedule 4 of the EIA Regulations, which states:

‘A description of the likely significant effects of the development on the environment resulting from, inter alia:

...

(e) the cumulation of effects with other existing and/ or approved projects...’

- 2.22 No cumulative schemes were considered as part of the draft ES submitted for statutory PAC. However, following PAC comments issued by IACC, the Maen Hir Solar and Energy Storage Project (DCO case reference: EN010156) and Carogg, Cemaes Battery Energy Storage System (Ref: FPL/2023/218) have been considered by each technical discipline for cumulative effects. These schemes are shown on Figure 2.1 and described in Table 2.7. As such, ES Chapter 15 (Cumulative Effects) considers the likely significant effects of the Development in combination with the identified Maen Hir Solar and Energy Project and Carogg Ganol Battery Energy Storage System.

Table 2.7 Cumulative Schemes

Application Reference	Description	Current Status	Distance to Site
Maen Hir Solar and Energy Storage Project (Development Consent Order (DCO) case reference: EN010156)	Electricity Generating Station including solar photovoltaic panels with a generating capacity in excess of 250 MW, a Battery Energy Storage System (BESS), a new substation and other Associated Development.	Pre-Application. Request for EIA Scoping Opinion submitted to PINS. The application is expected to be submitted to the Planning Inspectorate Q4 2024.	3km north east
Carogg Ganol Battery Energy Storage System (Ref: FPL/2023/218)	Installation of battery energy storage system, together with substation, transformer stations, site accesses, internal access tracks, security measures, access gates, other ancillary infrastructure and landscaping and	Submitted to the IACC. The application was validated in September 2023 and is expected to be determined in Q2 2024.	6km north

	biodiversity enhancements.		
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Residual Effects

- 2.23 The likely significant effects on the environment, assuming the successful implementation of mitigation measures proposed, have been identified within each chapter.

Assumptions and Limitations

- 2.24 The principal assumptions that have been made and any limitations that have been identified in preparing the ES are set out in each technical chapter. General assumptions include the following:
- Assessments assume the baseline conditions at the time of ES preparation (2021-2024) unless otherwise stated in the technical chapter;
 - It is assumed that current surrounding land uses do not change, with the exception of the committed and reasonably foreseeable developments identified;
 - Assessments are based on published sources of information and primary data collection. Sources are provided as necessary;
 - Assessments are based on the description of development set out in Chapter 3 Site and Development Description and the anticipated construction methodology and phasing described in Chapter 5 Construction Methodology and Phasing; and
 - Assessments conclude the “worst case” effects that would arise from the Development as defined by the parameters described in Chapter 3 Site and Development Description.

Objectivity

- 2.25 The technical studies undertaken within the ES have been progressed in a transparent, impartial and unbiased way with equal weight attached, as appropriate, to beneficial and adverse effects. Where possible, this has been based upon quantitative and accepted criteria together with the use of value judgments and expert interpretations.
- 2.26 The assessment has been explicit in recognising areas of limitation within the ES and any difficulties that have been encountered, including assumptions upon which the assessments are based. Where appropriate, the assessment of significance has been given confidence levels to give a judgement to the likelihood of an effect occurring.