Prosiect Maen Hir

Solar a Storio Ynni

Preliminary Environmental Information Report
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lightsource bp

Ynys Môn - The Isle of Anglesey, shortened to Anglesey for every day use, is a long-settled land. From the earliest hunter gathers circa 7000BC that set up seasonal camps on the Island after the end of the last Ice Age, to the present day, communities have interacted with, and shaped the land on which they depended for their shelter, food, fuel and building materials. Evidence of the past is all around us. It is in the archaeological record beneath our feet, and in myths, legends and stories we pass on generation to generation and forms an Anglesey rich in the Welsh language and culture today. It is also visible in the rich architecture of churches and chapels, domestic and industrial buildings, and in the very fabric of the landscape; the patterns of fields, settlements and routeways.

Some of the most enigmatic of Anglesey's monuments are the Island's standing stones or 'meini hirion' (the plural) and are why we name this project 'Prosiect Maen Hir'. Their purpose may have been driven by the practical need to stake a claim on the land, or to demarcate special places that provided a link to the ancestors. They may also mark the passage of time by aligning to the movement of celestial bodies, astronomy and sacred places for the Druids (the priests of the Celts). Their true meaning is lost in the mists of time. However, the effort to source and erect the megaliths would have clearly represented a huge communal endeavour, indicating they were enormously important to the societies that created and maintained them.

The enduring presence of the meini hirion indicates that many of the stones have retained meaning and value over the intervening generations. Some have been respected and venerated within changing religious movements. Others have been repurposed as gate posts. They are an important part of Anglesey's heritage tourism and today, are protected and cherished as enigmatic survivors of our past.

The standing stones of Anglesey have borne witness to many changes over the millennia. They have seen the sun rise and fall many thousands of times, a key aspect for some of the meini hirion and ancient stone burial chambers linked to the sun's alignment and in particular the solstice. However, they remain steadfast sentinels and symbols of the enduring and everlasting relationship between the Island's heritage, communities and the land.

Our project, known as Maen Hir, represents a further chapter in the history and future of Anglesey, today known as 'Ynys Môn - Ynys Ynni/Anglesey Energy Island' because of the Island's land and sea contribution to the low carbon/net zero energy ecosystem and mix. It marks our generations urgent need to respond to the challenges of our times and the urgency and shared responsibility to achieve Net Zero. Prosiect Maen Hir will tread lightly within the landscape; recognising and respecting the rich layers of Welsh language and cultural significance. The meini hirion will oversee Prosiect Maen Hir, and the positive environmental, cultural and economic legacy it will create.

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Glossary

Term	Description
132kV Substation	Substations within the Solar PV Site comprising 132kV Transformers and Switchgear contained within a palisade fenced compound.
33kV Substation	Substations within the Solar PV Site comprising 33kV Transformers and Switchgear housed within containers or brick buildings with no fencing.
Access Tracks	Existing and proposed tracks within the PEIR Boundary (not including public highways).
Alternating Current	The form in which electricity is delivered to the National Grid. Otherwise known as AC.
Ancillary Buildings	The office, storage and plant buildings which may be located within the Solar PV Site.
Ancillary Infrastructure	Works that are ancillary to the Project, including means of enclosure and boundary treatment, security and monitoring infrastructure, landscaping and biodiversity measures including planting, drainage and irrigation works, signage, earthworks, and access including permissive paths.
Applicant	Lightsource SPV 204 Limited, a wholly owned subsidiary of Lightsource bp.
Associated Development	Development associated with the Project including the BESS, Grid Connection Route and Ancillary Infrastructure integral to the construction, operation, maintenance, and decommissioning of the Project.
BESS	Battery Energy Storage System - a system that allows renewable energy from the grid or the Project to be stored and then released to the grid, or an off-taker, when the power / service is needed most. Typically comprising containers which include the rack, modules, and cells; Power Conversion Systems (inverters and transformers) and ancillary infrastructure.
Cable Route Corridor	The route for the proposed 132kV and/or 33kV underground cables connecting the 33kV and 132 kV Substations to the BESS and the Project Substation.
Central Inverters	Inverters comprising containerised units located throughout the Solar PV Site.

Term	Description
Community Solar Project	A 5MWp (DC) solar project which is intended to be owned by an independent management organisation for the benefit of the local community.
Construction Compounds	Areas used during construction comprising hardstanding, car parking, construction site office and welfare facilities, working areas, storage of materials and equipment, waste management facilitates, security infrastructure including fencing, lighting and cameras.
Construction Phase	The period of commissioning and constructing the Project as described in Chapter 5 of this PEIR.
Cumulative effects	Effects upon the environment that result from the incremental impact of an action when added to other past, present or reasonably foreseeable actions. Each impact by itself may not be significant but can become a significant effect when combined with other impacts.
DCO Application	The application for a Development Consent Order (DCO) to be submitted by the Applicant for the Project.
Decommissioning Phase	The period of decommissioning the Project including the removal of all of the PV Arrays including modules, Mounting Structures, Inverters and Transformers, the BESS and Project Substation.
Development Consent Order	The means of obtaining permission for a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008. Otherwise known as DCO.
Direct Current	The electrical charge that flows one way from the Solar Modules or BESS. Otherwise known as DC.
Displacement	The extent to which benefits of a development are offset by reductions in output or employment elsewhere.
EIA Regulations	Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended).
Environmental Impact Assessment	A process by which information about the likely significant effects (LSE's) of the Project is collected, assessed and used to inform decision making. Otherwise known as EIA.
Fixed South Facing Structure	PV Tables forming fixed structures that face south.
Former Oil Depot	The area of brownfield land within Maen Hir North that was formerly a Shell operated fuel terminal.

Term	Description
Green Infrastructure	A network of multi-functional green spaces and other green features, urban and rural, which can deliver quality of life and environmental benefits for communities.
Grid Connection Cables	The 400kV cables connecting the Project Substation to the NGET Substation.
Grid Connection Corridor	The proposed corridor for the Grid Connection Cables between the Project Substation and the National Grid Electricity Transmission Substation.
High Voltage Distribution Cables	Cables (33kV and 132kV) which transmit electricity between the Transformers, Switchgear and the 33kV and 132kV Substations.
Highway Works	Public highways where there is potential for works such as road widening or amending to facilitate construction access.
Inverters	Inverters convert the Direct Current (DC) electricity generated by the PV Panels, to Alternating Current (AC) which is compatible with the wider National Electricity Transmission System.
IoACC	Isle of Anglesey County Council
kV	A kilovolt (kV) is a unit of measurement for electric potential or voltage.
Likely Significant Effects	Likely significant effects (LSE's) upon the environment, as defined in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended).
Low Voltage Distribution Cables/Cabling	Cables which transmit electricity from the PV Arrays to the 33kV substations.
Mitigation	Measures including any process, activity or design to avoid, prevent, reduce, or offset an adverse environmental effect of the Project.
Mitigation and Enhancement Areas	Land that is being proposed for mitigation and enhancement including retained agricultural land.
Mounting Structure	The metal frames onto which the PV Modules are attached.
MW	A Megawatt (MW) is a unit of measurement equating to 1 million watts of electricity.
MWp	The maximum capacity (peak) of installed MW DC solar capacity.
National Electricity Transmission System	The United Kingdom's high-voltage electricity transmission network, known as the National Grid. Otherwise known as NETS.

Term	Description
National Grid Electricity Systems Operator	The electricity system operator for Great Britain, who move electricity around the National Grid to keep homes and businesses supplied with energy. Otherwise known as NGESO.
National Grid Electricity Transmission	The owner and operator of the high-voltage electricity transmission network in England and Wales. Otherwise known as NGET.
Nationally Significant Infrastructure Project	Large scale infrastructure development that requires development consent pursuant to the Planning Act 2008. Otherwise known as NSIP.
NGET Substation	A new 400kV Substation anticipated to be consented, owned and operated separately by NGET. Not a part of the DCO Application.
Operational Phase	The period within which the Project is operational, following the Construction Phase, and which includes maintenance and replacement activities.
Parcels	The main land parcels of the Solar PV Site comprising Maen Hir North, Maen Hir Central and Maen Hir South (A and B). Shown on Figure 5-1 Parameter Plan Overview.
PEIR	Preliminary Environmental Information Report - a document prepared to set out the preliminary identified likely significant effects of the Project upon the environment.
PEIR Boundary	The boundary around the area of land that makes up the Project for the purposes of the PEIR including the Solar PV Site, Mitigation and Enhancement Areas, Cable Route Corridor and the Highway Works.
Permissive Paths	New recreational permissive paths that the public can use during the Operational Phase of the Project.
Planning Inspectorate (PINS)	An executive agency of the Department for Levelling Up, Housing and Communities of the United Kingdom Government with responsibility for making decisions and providing recommendations and advice on a range of land use planning-related issues across England and Wales.
Point of Connection (POC)	The NGET Substation and associated connection into the existing 400kV overhead lines located in proximity to the Project, which the Project will connect into.
Primary Construction Compound	An area within Maen Hir North where construction deliveries will be set down and managed throughout the Construction Phase.

Term	Description
Project Substation	The 400kV Project Substation comprising electrical infrastructure such as the Transformers, Switchgear and metering equipment required to facilitate the export of electricity from the Project to the National Grid. The Project Substation will convert the electricity transmitted along the 33kV and/or 132kV cabling up to 400kV for onward transmission to the NGET Substation via the Grid Connection Corridor.
Project Substation Switch Room	The main 33kV switch room within the 400kV Project Substation compound.
PV Arrays	Rows or groups of PV Tables that are connected to one another to form a PV Array which is either connected to a String Inverter or a Central Inverter.
PV Module or panel	Solar panels, also known as photovoltaic (PV) panels or PV Modules, are made up of cells, which convert the light energy from daylight into electrical energy. The solar panels are fixed to a Mounting Structure and referred to as a PV Table.
PV Table	PV Modules fixed to a Mounting Structure.
Receptor	A component of the natural or man-made environment that is affected by an impact, including people.
Rochdale Envelope	A flexible approach employed where the nature of the proposed development means that some details of the Project have not been confirmed (for instance the precise dimensions or locations of structures) when the application is submitted. Allows the EIA to be based on a 'worst-case' approach.
Single Axis Tracker	A tracking system that allows the PV Modules to rotate and track the movement of the sun. Otherwise known as SAT.
Solar PV Site	The Parcels within the PEIR Boundary that are being proposed for PV Arrays, 33kV / 132kV Substations, Access Tracks, Low Voltage Distribution Cables, BESS, Project Substation and other Ancillary Buildings and Infrastructure.
String Inverters	Inverters located throughout the Solar PV Site, mounted on structures under or next to PV tables.
Study Area	The area to which a particular assessment or survey relates. The study area will vary depending on the nature of the technical assessment.

Term	Description
Switchgears	Switchgears are the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment.
The Project	A Nationally Significant Infrastructure Project (NSIP) for the installation of solar photovoltaic (PV) Modules and associated development which would allow for the generation, storage and export of electricity. The details of the Project are described in Chapter 5 of this PEIR. The Project is known as 'Prosiect Maen Hir'.
Transformers	A structure serving to transform or 'step-up' electricity to a higher voltage
Twin MV Skid	Two power conversion systems and one transformer.
Written Scheme of Investigation	A document which outlines known and potential archaeological features and deposits, or built heritage elements, and suggests a structure for exploring them using the most appropriate and cost-effective archaeological techniques.
Zone of Influence (ZoI)	The area for the assessment of combined effects. Zones of Influence (ZoIs) are variable depending on the environmental factor being discussed.
Zone of Theoretical Visibility (ZTV)	A map, usually digitally produced, showing areas of land within which the Project is theoretically visible.

1 Introduction

1.1 Overview

1.1.1 This Preliminary Environmental Information Report (PEIR) has been prepared on behalf of Lightsource SPV 204 Limited (the 'Applicant') for a solar generating station with a capacity of over 350 megawatts (MW) alternating current (AC), and associated development including a Battery Energy Storage System (BESS), Project Substation, Community Solar Project and Ancillary Infrastructure, on land in Anglesey (the Project) (see Figure 1-1).

1.1.2 The Project, known as 'Prosiect Maen Hir' will form a key part of the Isle of Anglesey County Council's (IoACC) Energy Island Programme, which seeks to put Anglesey at the forefront of low carbon energy research and development, production and servicing, delivering economic, community, and environmental benefits.

1.1.3 As the Project is located in Wales and has a generating capacity of over 350MW, it is a Nationally Significant Infrastructure Project (NSIP) and therefore requires a Development Consent Order (DCO) under the Planning Act 2008 (Ref 1-1).

1.2 The Applicant

1.2.1 Lightsource SPV 204 Limited is a subsidiary of Lightsource bp; a global leader in development, financing, management and operation of utility-scale solar projects. For over a decade Lightsource bp has been harnessing sunlight to help power the world in a clean, sustainable and responsible way. Lightsource was established in 2010 and has provided sustainable and affordable energy to businesses and communities throughout the UK.

1.2.2 In 2017 Lightsource formed a joint venture with bp and subsequently became Lightsource bp. Most recently, bp has announced the intention to fully acquire Lightsource bp, which currently operates as a 50:50 joint venture with bp. Lightsource bp is scaling-up to help meet the rising demand for reliable electricity, while supporting the global energy transition to net zero. Lightsource bp has developed 9.5GW of solar capacity globally to date.

1.3 Need for the Project

1.3.1 There is a growing body of UK energy and climate change international commitments, law, policy and guidance which highlights an urgent need for new energy generation infrastructure, particularly from renewable sources such as solar. Alongside this drive for new energy generation, the UK Government has committed to achieving net zero greenhouse gas emissions by 2050 and decarbonisation of the energy sector by 2035 (Ref 1-4).

1.3.2 Decarbonisation is a UK legal requirement and is of global significance. In June 2019, the Government passed law to end the UK's contribution to global warming by 2050: Net Zero (Ref 1-5).

1.3.3 UK electricity demand is expected to double by 2050. Decarbonisation requires the electrification of energy which is currently sourced from fossil fuels (including gas, petrol and diesel). The UK's pathway to achieving Net Zero by 2050 must also involve wider transitions outside of the power sector, including decarbonising transport, industry, agriculture and homes.

1.3.4 In July 2024, the Climate Change Committee (CCC) published their 2024 Progress Report to Parliament. The report stated that "*Urgent action is needed to get on track for the UK's 2030 target"* and that *"solar installations must increase by five times"* (Ref 1-6).

1.3.5 Extensive electrification requires the major expansion of renewable and other low-carbon power generation to ensure that the UK is capable of securely meeting future electricity demand, and with a significantly lower carbon intensity. The decarbonisation of UK electricity generation is therefore vitally important to meet the UK's legal obligations on carbon emissions and ensure sustainable energy resilience.

1.3.6 The decommissioning of existing generation assets such as coal and nuclear power stations also increases the requirement to develop new low-carbon generation with urgency in order to avoid blackouts in future.

1.3.7 Nuclear power has historically met circa 20% of UK electricity demand, but existing nuclear stations began to close in 2021. Only one existing plant (1.2GW)

is scheduled to remain operational beyond 2028. One new nuclear project (Hinkley Point C, funded and currently under construction) is scheduled to be commissioned in the late 2020s. At the time of writing, the only other new nuclear power station with development consent is Sizewell C. Sizewell C started a private investment process in September 2023 and is proposed to be a replica of Hinkley Point C. Wylfa Newydd which is the site of a closed Nuclear Power Station located on the north coast of Anglesey (closed 2012), has been bought by the UK Government, who have confirmed it is the preferred site for a new nuclear power station.

1.3.8 Great British Nuclear will be making a final investment decision on a Small Modular Reactor (SMR) in in 2029. National Grid ESO's Future Energy Scenarios report (Ref 1-7) includes a commissioning assumption for the first Sizewell C unit and the first SMR in the UK in 2034.

1.3.9 Only one UK coal station is still in operation and is currently scheduled to close in September 2024. Carbon Capture Utilisation and Storage (CCUS) is a key plank under development to support Net Zero by facilitating the decarbonisation of the UK's thermal (carbon emitting) fleet, currently circa 40GW, decarbonising industry, producing low-emissions hydrogen and delivering greenhouse gas removal technologies. Recent progress has been made towards bringing CCUS clusters forward by the end of the decade.

1.3.10 The UK has substantial renewable energy resources, and the Government is targeting 50GW of offshore wind to be operational by 2030 to harness that resource and shield consumers from volatile international energy markets. But wind on its own is not sufficient and the Overarching National Policy Statement for Energy (NPS EN-1) (November 2023) states at Paragraph 3.3.20 that "*a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar.*"

1.3.11 The National Policy Statement for Renewable Energy Infrastructure (EN-3) emphasises the government's commitment to sustained growth in solar capacity to contribute to meeting net zero by 2050 (paragraph 2.10.9). Paragraph 2.10.10 of EN-3 sets out the government's goals in regard to solar deployment.

Specifically, it notes that "*The British Energy Security Strategy states that government expects a five-fold increase in combined ground and rooftop solar deployment by 2035 (up to 70GW). It sets out that government is supportive of solar that is "co-located with other functions (for example, agriculture, onshore wind generation, or storage) to maximise the efficiency of land use*". It goes on to mention the Powering Up Britain: Energy Security Plan which states that the government seeks large scale ground-mount solar deployment across the UK on low and medium grade agricultural land.

1.3.12 The development of large-scale solar in the UK (National Grid estimates up to 39.1GW by 2030 rising to 92GW by 2050) will provide an essential diversity to the UK's low-carbon generation portfolio, working with other technologies to deliver security of supply and value to UK consumers. The British Energy Security Strategy (April 2022) set an ambition of 70GW of solar by 2035 (an increase of 56GW from the current provision).

1.3.13 Mission Zero, published in January 2023 by Rt Hon Chris Skidmore MP, Chair of government's Independent Review of Net Zero, finds that "*The benefits of net zero will outweigh the costs*" and believes that "*This is too important to get wrong*". Mission Zero recommends the "*Full-scale deployment of solar…to harness one of the cheapest forms of energy, increase our energy independence and deliver up to 70GW of British solar generation by 2035*".

1.3.14 The 2022- 2024 Government's Powering Up Britain strategy (updated April 2023) concludes that an acceleration of the deployment of renewables is critical to the delivery of the Government's plans: "*Our goal is to develop up to 50GW of offshore wind by 2030 and to quintuple our solar power by 2035*" [p7], noting that 14GW of solar was already installed in the UK at the time of writing the report. The strategy has yet to be undated since the election of the new 2024 Government. However, the 2024 Labour manifesto committed to work with the private sector to double onshore wind, triple solar power, and quadruple offshore wind by 2030 (Ref 1-8). as part of their commitments to 'Make Britain a Clean Energy Superpower.

1.3.15 Solar generation is therefore a critical element of the plan to decarbonise the UK electricity sector with urgency and is already a leading low-cost generation

technology in the UK. The national need for solar generation is urgent and the capacity required is significantly greater than the capacity of projects currently understood to be in development.

1.3.16 Solar addresses all important aspects of existing and emerging government policy. It will make a critical and timely contribution to decarbonisation and security of supply in the UK, will help shield consumer bills from volatile energy prices and international supply markets, and provides the potential to deliver biodiversity net gains through its development.

Welsh National and Local Policy Context

1.3.17 In response to the Committee on Climate Change (CCC) report published in May 2019, titled 'Net Zero – The UK's contribution to stopping global warming', in April 2019, The Welsh Minister for Environment, Energy and Rural Affairs, declared a climate emergency for Wales (Ref 1-9). This was followed In June 2019 by the UK government[1].

1.3.18 IoACC declared a climate emergency in September of 2020, making a commitment to become a carbon neutral council by 2030. To deliver upon this commitment, IoACC adopted the "Towards Net Zero Plan, March 2022 – March 2025" (Ref 1-10) which set out a number of aims and objectives to decarbonise the County, including facilitating the development of new low carbon energy generation.

1.3.19 This demonstrates that at both the national and local level, the Government and local authority are seeking to deliver rapid and transformative changes to avoid the impacts of climate change.

1.3.20 Planning Policy Wales (PPW) (12th Edition) (2024) states that renewable energy has the capacity to deliver upon the Well-being of Future Generation's Goals (2015) for both a "*Resilient Wales*" and a "*Globally Responsible Wales*". The overarching policy document sets out that Wales is committed to reducing its overall carbon footprint through the promotion of renewable energy over carbon-emitting sources and resource choices through which multiple benefits

[1] https://www.parliament.uk/business/news/2019/may/mps-debate-the-environment-and-climate-change/

can be realised. The PPW states that Wales's topography lends itself to renewable energy generation to facilitate delivery of this change.

1.3.21 First established in the 10th Edition of PPW (2018), Welsh Government announced its ambitions to deliver a 70% renewable electricity target by 2030, this target remains in the 12th (and most recent iteration) of the document.

1.3.22 The planning system has an active role to help ensure the delivery of these targets. Paragraph 5.9.1 of the PPW states that "*Local Authorities should facilitate all forms of renewable and low carbon energy development and should seek cross department cooperation to achieve this*". In doing so, planning authorities should seek to ensure their area's full potential for renewable and low carbon energy generation is maximised and renewable energy targets are achieved.

1.3.23 This is further supported in Future Wales: The National Plan 2040. Policy 17 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*", citing that significant weight should be given to renewable energy projects to meet national targets.

1.3.24 Policy 24 (North West Wales and Energy) is regionalised to North West Wales, it acknowledges that the Isle of Anglesey can facilitate the delivery of new energy developments and investment.

1.3.25 It is therefore considered, given the abundance of relevant policy at both the National, Regional and Local level in support of the delivery of renewable energy projects, that the Project would demonstrate compliance. The Project has the ability to deliver upon the critical need for solar infrastructure to meet energy targets.

1.3.26 At the local level, The Anglesey and Gwynedd Joint Local Development Plan (2017) has a number of policies which seek to ensure that new development addresses climate change challenges. Policy PS 6 (Alleviating and adapting to the effects of climate change) states that:

"In order to alleviate the effects of climate change, proposals will only be permitted where it is demonstrated that they have fully taken account of and responded to

the following: i. Reducing Energy Demand; ii. Energy Efficiency; iii. Using low or zero carbon energy technologies wherever practical, viable and consistent with the need to engage and involve communities; protect visual amenities, the natural, built and historic environment and the landscape."

1.3.27 Policy PS7 (Renewable Energy Technology) states that the Council will seek to ensure that the plan area wherever feasible and viable realises its potential as a leading area for initiatives based on renewable or low carbon energy technologies by promoting:

"Renewable energy technologies within development proposals which support energy generation from a variety of sources which include biomass, marine, waste, water, ground, solar and wind."

1.3.28 Whilst it is acknowledged that IoACC are in the process of replacing their local plan, the adopted plan is clear that due to the landscape opportunities on Anglesey, there is context to deliver Solar on a large scale.

1.3.29 Further to the adopted planning policy, IoACC have implemented a number of strategies to help facilitate the delivery of energy infrastructure within the County. The Isle of Anglesey Energy Island Project (EIP) is a collaborative mechanism between stakeholders within the public, private and third sectors working in partnership, putting Anglesey at the forefront of low carbon energy research and development, production and servicing. It seeks to 'de-risk' strategic major investment and provide support for the development of business, infrastructure, people and communities.

1.3.30 Utilising the ambitions and targets of the EIP, by 2028 IoACC have committed to a minimised direct carbon emissions to ensure that the net zero 2030 target is achievable.

1.3.31 IoACC has also developed and adopted a Community Benefit Contributions Strategy (2021) (Ref 1-11) which sets out how promotors of large-scale infrastructure projects can deliver benefits to local communities and maximise long-term sustainability, quality of life and wellbeing of the Island and its communities.

1.4 Consenting Regime and Need for Environmental Impact Assessment

1.4.1 Under Section 14(1)(a) and 15(3A) of the Planning Act 2008, the Project is defined as an NSIP, more specifically, as an onshore generating station in Wales with a generating capacity exceeding 350MW that does not generate electricity from wind. The Environmental Impact Assessment (EIA) legislative framework for projects of this type is the Infrastructure Planning (EIA) Regulations 2017 (the 'EIA Regulations'), as amended.

1.4.2 The EIA Regulations specify which developments are required to undergo EIA and development relevant to the NSIP planning process are listed under either 'Schedule 1' or 'Schedule 2'. Developments listed in Schedule 1 must be subject to EIA, while developments listed in 'Schedule 2' must only be subjected to EIA if they are considered "*likely to have significant effects on the environment by virtue of factors such as its nature, size or location*". The criteria on which this judgement must be made are set out in Schedule 3 of the EIA Regulations.

1.4.3 The Project falls under Schedule 2 Part 3(a) of the EIA Regulations as it constitutes "*industrial installations for the production of electricity, steam and hot water*…".

1.4.4 The Applicant considers that due to the Project's nature, size and location, it has the potential to have likely significant effects on the environment and therefore constitutes EIA development. In accordance with Regulation 8(1)(b) of the EIA Regulations, the Applicant provided notice within the Scoping Request (Appendix 2-1) that it will provide an ES in support of the DCO Application. Prior to the ES stage, this PEIR has been prepared.

1.5 Purpose of this PEIR

1.5.1 Regulation 12(2) of the EIA Regulations states that the purpose of the PEIR is to provide sufficient information that "*is reasonably required for the consultation bodies to develop an informed view of the likely significant environmental effects of the development (and of any associated development)".*

1.5.2 This PEIR therefore presents the preliminary findings of the EIA undertaken for the Project for the purposes of statutory consultation in accordance with the

Planning Act 2008. The information presented within this report is preliminary and is based on the design of the Project as set out in Chapter 5: Project Description. Further design and EIA work is being undertaken to refine the assessment of predicted likely environmental effects. The final findings of the EIA process will be reported within the ES, which will be submitted with the DCO Application.

1.6 EIA Consultant Team

1.6.1 The Consultants who have contributed to the preparation of this PEIR are set out in Table 1-1.

Table 1-1 EIA Consultant Team

Discipline	Organisation
Planning	DWD and LDA Design
EIA Coordination	LDA Design
Landscape and Visual	
Major Accidents and/or Disasters, Waste	
Masterplanning and Design	
Ecology and Biodiversity	AECOM
Climate Change	
Cultural Heritage and Archaeology	Cotswold Archaeology
Access and Highways	Velocity
Noise and Vibration	BWB Consulting
Air Quality	
Water Resources	
Ground Conditions	
Agriculture and Soils	Kernon Countryside Consultants
Glint and Glare	Neo-Environmental
Socio-economics	Volterra Partners
Health	

1.7 References

Ref 1-1 Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities & Local Government (2021) Planning Act 2008.

Ref 1-2 HM Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Ref 1-3 The Planning Inspectorate (2020) Advice Note Seven: Environmental Impact Assessment: Process, Preliminary Environmental Information and Environmental Statements.

Ref 1-4 Department for Business, Energy & Industrial Strategy (2021) Plans unveiled to decarbonise UK power system by 2035.

Ref 1-5 His Majesty's Government (2008) Climate Change Act 2008.

Ref 1-6 Climate Change Committee (2024) Progress Report to Parliament.

Ref 1-7 National Grid Electricity System Operator (2024) Future Energy Scenarios report.

Ref 1-8 Labour Party (2024) Labour Manifesto: Make Britain a clean energy superpower.

Ref 1-9 Welsh Government (2019) Press Release: Welsh Government makes climate emergency declaration.

Ref 1-10 Isle of Anglesey County Council (2022) Towards Net Zero Plan.

Ref 1-11 Isle of Anglesey County Council (2021) Community Benefit Contributions Strategy.

2 Environmental Impact Assessment Methodology

2.1 The EIA Process

2.1.1 EIA is the process of compiling, evaluating and presenting the likely significant environmental effects of a project. It is born out of Directive 85/337/EC (as amended) (Ref 6-1) on the assessment of the effects of certain public and private projects on the environment. Following a series of amendments, a new Directive, EIA Directive 2014/52/EU (Ref 6-2) came into force on 15 May 2014. This Directive was transposed into English law, for the purposes of the Project, on 16 May 2017 through the EIA Regulations (Ref 6-3).

2.1.2 To ensure that the EIA Regulations continue to operate following the UK's withdrawal from the European Union, the EIA Regulations were amended under the Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018 (SI 2018/1232) (Ref 6-4) to replace references to EU Directives and legislation and to uphold international obligations through domestic legislation.

2.1.3 In general terms the main stages in the EIA are as follows:

- Establish the baseline – collate and review available data and undertake baseline surveys
- Scoping – identify likely significant effects to determine the scope of the EIA
- Consultation – seek feedback from consultees and the public in relation to key environmental issues, methodology and design approaches
- Assessment and design response – finalise methodologies using topic specific guidance and best practice techniques and assess the likely significant effects of the Project, identify and evaluate alternatives, provide feedback to the project design team, incorporate any necessary mitigation measures and assess residual effects
- Preparation of the PEIR and subsequent Environmental Statement (following Statutory Consultation).

2.1.4 The EIA process is designed to produce an environmentally sensitive development by considering and assessing the effects of the Project against

existing environmental baseline conditions. To date, the EIA team has undertaken a review of both the environmental sensitivities within and surrounding the PEIR Boundary, and the study areas of the respective topic chapters, to identify any potential environmental effects. Where the environmental baseline has been informed by site visits and environmental surveys, these are detailed in the relevant topic section of this PEIR.

2.1.5 The EIA process is undertaken in accordance with the EIA Regulations, guidance produced by PINS and the Institute of Environmental Management and Assessment (IEMA) and other environmental topic-specific guidance. This PEIR sets out details on the methodology and approach, along with the overall conclusions of the EIA process. It also outlines the main parameters and detailed design aspects of the Project against which the assessment has been undertaken.

2.1.6 Development parameters have been determined and fixed for the purposes of the PEIR assessment through an iterative approach taking into account baseline environmental information, the evolving design and any associated technical requirements.

2.2 Baseline Conditions

2.2.1 An important step in the EIA process is to establish a baseline against which to assess the effects of the Project. Information relating to the existing environmental baseline has been collected through field and desktop study, including:

- Online/digital resources
- Data searches, e.g. Local Biological Record Centres, Historic Environment record, etc.
- Baseline surveys
- Available environmental information submitted in support of other planning applications for development in the vicinity of the Project

2.2.2 For each environmental topic chapter, the methods of baseline data collection have been discussed with the relevant consultees where relevant.

2.2.3 Further data gathering including seasonal surveys, will continue to progress, with any limitations to assessment set out within each topic chapter.

2.3 EIA Scoping

2.3.1 EIA Scoping is the process of identifying the issues to be considered within the PEIR and ES and establishing the scope of the assessment. Although scoping is not a mandatory requirement under the EIA Regulations, it is recognised as a useful preliminary procedure which helps to identify the main effects that the Project is likely to have on the environment.

2.3.2 The EIA Scoping Opinion Request was issued to PINS on 9 November 2023 (see Appendix 2-1) who subsequently adopted the EIA Scoping Opinion on 19 December 2023 (see Appendix 2-2).

2.3.3 Appendix 2-3 sets out the Project response to the Scoping Opinion presenting in a tabular format demonstrating how the points raised have been considered and addressed. This table signposts where each of the issues is addressed in the PEIR.

2.3.4 The overarching methodology set out in this Section and the technical topic methodologies set out in Chapters 6-17 are in accordance with the Scoping Opinion except where this is highlighted and justified in Appendix 2-3 and the technical chapters themselves.

2.4 Consultation

2.4.1 Consultation with stakeholders is being undertaken throughout the EIA process to gather feedback on the Project, baseline survey methodologies and results, and emerging mitigation measures. Further detail on stakeholders who have already been consulted can be found within the individual environmental chapters of the PEIR.

2.5 EIA Methodology

EIA Assessment Scenarios

2.5.1 The EIA will assess the effects of the following scenarios:

- Construction Phase
- Operational Phase
- Decommissioning Phase

2.5.2 The Operational Phase is proposed to be 60 years.

2.5.3 The potential likely significant effects arising as a result of the Project will be assessed against these three baselines as follows:

- Construction Phase – Current and Future Baseline
- Operational Phase – Future Baseline
- Decommissioning Phase – Future Baseline

2.5.4 The 'future baseline' scenario describes the changes from the baseline scenario as far as natural changes can be established.

Prediction of Likely Effects

2.5.5 When undertaking an EIA, environmental effects are classified as either permanent or temporary, as appropriate to the effect in question. Permanent effects are those which are irreversible (e.g., permanent land take.). The duration of temporary effects differs for each environmental topic depending on their own methodologies but can broadly be defined as:

- Short Term
- Medium Term
- Long Term

2.5.6 In assessing the significance of likely effects identified through the EIA process, account is taken as to whether effects are direct or indirect, secondary, cumulative, transboundary, short, medium or long term, permanent or temporary and neutral, positive or negative.

Determining Significance

2.5.7 The EIA will identify the likely 'significance' of environmental effects (beneficial or adverse) arising from three phases (construction, operation and decommissioning) of the Project. The significance of residual effects will be determined by reference to the criteria set out for each environmental topic. The approach to assessing and assigning significance to an environmental effect is derived from a variety of sources including, in particular, the National Policy Statements (NPSs), Planning Policy Wales (PPW) and relevant planning practice guidance, legislative requirements, topic specific guidelines, standards and codes

of practice, the EIA Regulations, advice from statutory consultees and other stakeholders and the expert judgement of the team undertaking the EIA.

2.5.8 The likely effect that the Project may have on identified environmental receptors will generally be influenced by a combination of the sensitivity (or importance) of the receptor and the predicted magnitude of impact from the baseline conditions.

2.5.9 Assignment of environmental sensitivity of a receptor will generally depend on the vulnerability, recoverability and value/importance of the receptor. The environmental sensitivity (or importance) will be determined using the following categories, and may vary for each topic:

- High – high importance and rarity, international level and very limited potential for substitution
- Medium – high or medium importance and rarity, regional level and limited potential for substitution
- Low – low or medium importance and rarity and local level
- Negligible – very low importance or rarity and local level

2.5.10 Where other categories of sensitivity have been used, this will be set out in the individual environmental topic methodologies.

2.5.11 The categorisation of the magnitude of impact will take into account the following factors:

- Extent
- Duration
- Frequency
- Reversibility

2.5.12 Impacts will be defined as either beneficial or adverse. As a guide, magnitude of impact will generally be assigned using the categories below. Further details of the topic-specific methodologies adopted for the EIA, will be defined within the methodology section of each of the topic chapter:

- High:
  - Adverse: Loss of a resource and/or quality and integrity of a receptor; severe damage to key characteristics, features or elements.

    - Beneficial: Large scale or major improvement of receptor quality; extensive restoration or enhancement, major improvement of attribute quality.
- Medium:
    - Adverse: Loss of resource, but not adversely affecting integrity; partial loss of and/or damage to key characteristics, features or elements.
    - Beneficial: Benefit to or addition of key characteristics, features or elements. An improvement to attribute quality.
- Low:
    - Adverse: Some measurable change in attributes, quality or vulnerability, minor loss of or alteration to one (possibly more) key characteristics, features or elements.
    - Beneficial: Minor benefit to or addition of one (possibly more) key characteristics, features or elements, some beneficial impact on attribute or reduced risk of a negative impact occurring.
- Negligible:
    - Adverse: Very minor loss or detrimental alteration to one or more characteristics, features or elements.
    - Beneficial: Very minor benefit to or positive addition of one or more characteristics, features or elements.
- No change: No loss or alteration to characteristics, features or elements, no observable impact in either direction.

2.5.13 The overall significance of the effect will be assigned by the interaction of both sensitivity of the receptor and magnitude of impact. The level of significance will be determined in each of the environmental topic assessments and will consider relevant topic-specific legislation, planning policy and guidance.

2.5.14 Professional judgement will be used to assign the most appropriate option where the matrix offers more than one level of significance. The topic assessments will adopt this general approach to assigning significance, unless stated in the individual topic chapters.

Cumulative Effects

2.5.15 The Cumulative effects assessment will be undertaken in accordance with PINS Advice Note 17 and consider two types of cumulative effects:

- Effect interactions: combined effect of an individual development effects – for example, noise, dust and visual on one particular receptor; and
- In-combination effects: multiple developments generating additive effects which together have an increased effect on the same receptors.

2.5.16 Each topic chapter within the ES will provide a summary of effect interactions, setting out how the particular topic area has considered and assessed these synergistic effects arising as a result of direct effects from other environmental chapters. Rather than assessing this separately, these effects are often considered within the main assessment owing to the integrated nature of the EIA process, where this is the case, this will be explained within each of the environmental topic chapters of the PEIR/ES.

2.5.17 The Cumulative effects assessment approach is set out in Chapter 18 of this PEIR.

Transboundary Effects

2.5.18 Regulation 32 of the EIA Regulations requires the consideration of any likely significant effects in the environment of another European Economic Area (EEA) member state. Guidance on the consideration of transboundary effects is provided in the PINS' Advice Note 12 'Transboundary Impacts and Process', published in December 2020 (Ref 6-5).

2.5.19 Annex 1 of Advice Note 12 sets out the transboundary screening proforma for potential effects on the environment on another EEA member state and includes the following criteria and relevant considerations:

- Characteristics of the development
- Location of development (including existing use) and geographical areas
- Environmental importance
- Potential impacts and carrier
- Extent

- Magnitude
- Probability
- Duration
- Frequency
- Reversibility
- Cumulative impacts

Mitigation

2.5.20 Regulation 14(2)(c) of the EIA Regulations requires that where significant effects are identified "*a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment*" should be included in the ES.

2.5.21 Environmental effects remaining after mitigation measures have been incorporated are termed residual effects and these will be fully described in the PEIR/ES.

2.5.22 Mitigation measures are developed as part of an iterative process and therefore will be developed throughout the EIA process in response to the findings of the initial assessments.

2.5.23 Measures will be identified in order to avoid, reduce and, if possible, offset significant adverse effects identified during the EIA process. Where possible, these measures will be incorporated into the form, design or environmental management procedures of the Project. Once these measures are incorporated into the design, they are termed 'embedded measures'.

2.5.24 The PEIR and the ES will assess effects with embedded measures in place. Where significant adverse effects are identified after considering these embedded measures, 'additional mitigation measures' will be proposed where practicable. These will be taken into account in the assessment of residual effects.

2.5.25 A summary of all mitigation measures and how they will be secured, either inherently through the Project design, or through control documents, or requirements within the DCO, will be set out in the ES.

2.5.26 The process of iterative design, assessment and consultation is set out below, adapted from IEMA's 'Guide to Shaping Quality Development' (IEMA, 2015) (see Plate 1 below). As shown on Plate 1 below, we are part way through the design, assessment and consultation process and the PEIR provides a snapshot of where we are in the process, to help inform engagement and feedback from stakeholders about the Project.

2.5.27 Environmental effects remaining after the mitigation measures have been incorporated into the Project and/or control documents, as agreed with the Project team and stakeholders (where necessary), are termed residual effects and these will be fully described in the ES along with how they are proposed to be secured within the DCO Application.

Monitoring

2.5.28 Regulation 21 of the EIA Regulations requires the Secretary of State to consider whether it is appropriate to impose a 'monitoring measure' which is a "*provision requiring the monitoring of any significant adverse effects on the environment*". The ES will specify which effects, if any, will require monitoring, and the mechanism by which they will be monitored.

Consideration of Alternatives

2.5.29 It is necessary to consider reasonable alternatives for the Project, and to set these out clearly in the ES, in accordance with paragraph 2 of Schedule 4 to the EIA Regulations:

"A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects."

2.5.30 Regulation 14(2)(d) of the EIA Regulations also requires that the ES should include:

"A description of the reasonable alternatives studied by the applicant, which are relevant to the proposed development and its specific characteristics, and an

indication of the main reasons for the option chosen, taking into account the effects of the development on the environment".

2.5.31 The consideration of alternatives has involved the analysis of different layouts, scales, technologies adopted, design parameters and site selection process. Chapter 4: Alternatives and Design Evolution, includes a description of the alternatives relevant to the Project that have been considered, as well as the justification for selecting the chosen option.

2.6 Structure of this PEIR

2.6.1 The PEIR consists of the following Volumes:

Volume I: Main Report

2.6.2 Volume I comprises the main text of the PEIR and sets out the introduction to the Project, the EIA Process, a description of the Project, along with the preliminary consideration of the likely significant effects associated with different environmental topics. The exception to this is Chapter 15: Other Matters, which presents assessments relating to topics where no individual chapter was warranted, either due to the brevity of the assessment, or which may have no significant effects associated with the Project.

2.6.3 Volume 1 comprises several chapters as set out below:

- Glossary
- Chapter 1: Introduction
- Chapter 2: EIA Methodology
- Chapter 3: PEIR Boundary and Context
- Chapter 4: Reasonable Alternatives and Design Evolution
- Chapter 5: Project Description
- Chapters 6 – 17: Environmental Topic Assessments comprising:
  - Chapter 6: Landscape and Visual
  - Chapter 7: Ecology and Biodiversity
  - Chapter 8: Heritage
  - Chapter 9: Transport and Access
  - Chapter 10: Noise and Vibration
  - Chapter 11: Ground Conditions

- Chapter 12: Soils and Agriculture
- Chapter 13: Water Resources
- Chapter 14: Climate
- Chapter 15: Other Matters
- Chapter 16: Socio-economics
- Chapter 17: Health

- Chapter 18: Cumulative Assessment

Volume II: Figures

2.6.4 Volume II comprises the supporting figures for each technical chapter within Volume I, which are provided in a separate volume so that they can be shown at a suitable scale and easily interpreted.

Volume III: Technical Appendices

2.6.5 Volume III includes data set of appendices which comprise Planning Policy, consultation commentary, and other relevant data required to support the assessment conclusions set out in Volume I.

Non-Technical Summary

2.6.6 A Non-Technical Summary (NTS) has been prepared which provides a brief description of the Project, a broad summary using non-technical language of the likely significant effects, and mitigation measures identified to reduce or remove those effects. This document has been provided in bilingual form in both Welsh and in English.

2.7 References

Ref 6-1 European Union (1985) Directive 85/337/EC.

Ref 6-2 European Union (2014) Directive 2014/52/EU.

Ref 6-3 HM Government (2017) The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Ref 6-4 HM Government (2018) The Environmental Assessments and Miscellaneous Planning (Amendment) (EU Exit) Regulations 2018.

Ref 6-5 The Planning Inspectorate (2020) Advice Note Twelve: Transboundary Impacts and Process.

Ref 6-6 Institute of Environmental Management and Assessment (2017) Delivering Proportionate EIA.

Ref 6-7 Institute of Environmental Management and Assessment (2015) Shaping Quality Development Guidance.

3 PEIR Boundary and Context

3.1 Context

3.1.1 Ynys Môn - The Isle of Anglesey, is a long-settled land. From the end of the last Ice Age to the present day, communities have shaped this land on which they depend for shelter, food, fuel, and building materials. Evidence of the past, and of change, is visible across the Island; in the fabric of the landscape, the architecture of buildings, the pattern of settlements, and the energy infrastructure - both old derelict windmills and newer wind, solar and nuclear developments, and overhead lines.

3.1.2 Some of the most characteristic features of Anglesey are the standing stones, or 'meini hirion' (the plural); and that is why the Project is named 'Prosiect Maen Hir'. The stones mark the passage of time and align to the movement of celestial bodies, being hugely important to the communities that created and maintained them. They feature variously throughout the Island either standing alone, or having been incorporated into gateposts, but remain as symbols of the relationship between the Island's heritage, communities, and land.

3.1.3 Prosiect Maen Hir represents a further chapter in the history and future of Anglesey and responds to the need to achieve Net Zero.

3.2 The PEIR Boundary

3.2.1 The PEIR Boundary is located in the north of the Island and comprises the following:

- Solar PV Site (includes the PV Arrays, Community Solar Project, BESS, 132kV Substations, Project Substation, and Access Tracks) – approx. 1023ha
- Mitigation and Enhancement Areas – approx. 261ha
- Cable Route Corridor – approx. 971ha
- Grid Connection Corridor - (specific location not yet defined)
- Highway Works – approx. 26ha
- Construction Compounds - (specific locations not yet defined)

3.2.2 The PEIR Boundary is defined as comprising three linked Parcels for ease of referencing (see Figure 2-1). The Parcels are:

- Maen Hir North - near Rhosgoch and Bodewryd
- Maen Hir Central - around the northern and eastern periphery of Llyn Alaw
- Maen Hir South A and B - to the north-east and south-east of Llannerch-y-medd

3.2.3 The land predominantly comprises agricultural fields largely used for grazing, with an area of brownfield land within Maen Hir North close to Rhosgoch which was formerly a Shell operated oil depot (the 'Former Oil Depot').

3.2.4 The PEIR Boundary also assumes that the NGET Substation will be located within Maen Hir Central to the east of Llyn Alaw, which is one of the Applicant's options for co-locating the Project Substation.

3.2.5 The PEIR Boundary contains a variety of habitats typical of rural pastoral farmland. These are characterised by improved grassland, grazed by cattle and sheep, with some small areas of arable land. Field boundaries include hedges, dry stone walls and cloddiau (a locally characteristic boundary feature of a dry-stone wall with compacted earth or earth/rubble core). Semi-natural vegetation includes semi-improved grasslands, marshy ground (including fen habitat), neutral and acid grasslands. Heathlands are present along field margins. Large woodland blocks and forestry plantations are not characteristic. Tree cover tends to be restricted to copses and shelterbelts with linear woodlands defining field boundaries or associated with wetlands/streams. Many woodland copses are isolated in agricultural land, and around farms. Notable areas of regenerating woodland/scrub are associated with the Former Oil Depot and along the Anglesey Central Railway, a disused former railway.

3.2.6 Outside the areas designated for their ecological value, priority habitats tend to be poorly connected discrete areas within individual fields. These include areas of purple moor grass and rush pasture, lowland acid grassland, lowland heathland and fen. There are also some small areas of ancient semi-natural and restored ancient woodland.

3.2.7 The landscape of the PEIR Boundary and the wider Island, especially but not solely the north-western part of Anglesey, includes many standing stones, burial mounds, and other funerary monuments, most of which are Scheduled Monuments. The historic core of Amlwch is a Conservation Area, comprising many Listed Buildings. In the surrounds further Listed Buildings including medieval churches, farmsteads, bridges, windmills, and a watermill are present.

3.2.8 Beyond the primary transportation route of the A55 linking the mainland of Wales to the port at Holyhead, the main roads tend to follow the coast. Within central Anglesey, a network of roads focusses on Llannerch-y-medd, the main market town in proximity to the Project. Beyond this is a network of winding rural roads, linking villages, hamlets and isolated farms and dwellings.

3.2.9 This subsection sets out a more detailed description of the PEIR Boundary. More detailed baseline information is provided within each of the environmental topic Chapters (6 – 17).

Maen Hir North

3.2.10 Maen Hir North is located at OS grid reference SH 40643 91159 (approximate centre).

3.2.11 The area is characterised by a complex of fields with consistent south-west to north-east orientation and shallow valleys. It is predominantly intensively grazed improved grassland across the drumlins with marshy grasslands and scrub between.

3.2.12 There are occasional rocky outcrops with remnant dry ericaceous heath and acid grassland. Local field boundary patterns are defined by cloddiau, fences and hedgerows. The settlement pattern in the wider area beyond Maen Hir North is characterised by the rural villages linked by winding lanes and the port town of Amlwch, which lies outside the PEIR Boundary.

3.2.13 There is visible energy infrastructure in the area around Maen Hir North including the Porth Wen Solar Farm to the north, numerous existing wind turbines (Rhyd-y-Groes and Ystgellog wind farms), occasional disused windmills, and a variety of overhead lines. The parcel includes the Former Oil Depot at Rhosgoch; a brownfield area with remnant haul roads, hardstandings, embankments and

settling pools surrounded by areas of regenerating scrub and gorse vegetation and woodland.

3.2.14 Maen Hir North is partly within the Mynydd Mechell Special Landscape Area (SLA) designation to the west at Clegyrog Blas within the visual context of the existing 400kV overhead lines and existing energy infrastructure. The northern parcel is also partially visible within distant and elevated views from the Parys Mountain SLA approximately 1.75km to the east.

3.2.15 There are fragmented networks of Public Rights of Way (PRoW) crossing the parcel and connecting to local settlements and Mynydd Mechell and Mynydd Parys Special Landscape Areas (SLAs). The Copper Trail National Cycle Network Route (NCN500) runs through the parcel along the existing roads.

3.2.16 The Wen (a Main River) runs in parallel with a portion of the northern eastern edge of the parcel. The Goch (a Main River) runs along the eastern most edge of the parcel. Glasgraig Fawr (a Main River) runs through the south-eastern part of the parcel. The Afon Wygyr (a Main River) interacts with the parcel within the central-eastern portion, flowing initially along the eastern edge before briefly entering the parcel and then running parallel to the central-northern and north-west portion of the parcel.

3.2.17 The parcel is not subject to any statutory heritage designations. There are four scheduled monuments within 1km of the parcel, including: Bodewryd Standing Stone, located approximately 0.14km to the south-west of the parcel; Pen-y-Morwyd Round Barrow, located approximately 0.09km west of the parcel; Llifad Carreglefn, located approximately 0.07km west of the parcel; and Dyffryn Adda Copper Furnace and Precipitation Ponds, located approximately 0.52km north-east of the parcel.

3.2.18 There are no Registered Historic Parks and Gardens within 1km of the parcel. There are nine Listed Buildings within 1km of the parcel.

Maen Hir Central

3.2.19 Maen Hir Central is located at OS grid reference SH 39271 87654 (approximate centre).

3.2.20 The topography of the area is characterised by extensive drumlin fields surrounding the reservoir of Llyn Alaw, which lies outside the parcel, and which is a Site of Special Scientific Interest (SSSI).

3.2.21 The area is predominantly intensively farmed improved grassland across the drumlins with marshy grasslands (including lowland fen) and scrub between. The local field boundary patterns defined by cloddiau, fences and hedgerows. There are indications of historic hedgerow removal in some places.

3.2.22 There is visible energy infrastructure including numerous existing wind turbines (Llanbabo wind farm), occasional disused windmills and overhead lines.

3.2.23 The area is relatively sparsely settled with isolated dwellings, farms and hamlets linked by winding lanes.

3.2.24 Very few existing PRoW are within the parcel with limited public access to Llyn Alaw.

3.2.25 Glasgraig Fawr (a Main River) runs from Llyn Alaw to the central eastern area of the parcel before running along the eastern edge of the parcel. Afon Alaw (a Main River) flows from Llyn Alaw into the central eastern area of the parcel before following the western boundary of the south-eastern side of the parcel.

3.2.26 Maen Hir Central is not subject to any statutory heritage designations. There are two scheduled monuments within 1km of the parcel, including: Llys Einion Standing Stone, located approximately 0.66km to the east of the parcel; and Maen Chwyf, located approximately 0.93km east of the parcel.

3.2.27 There are no Registered Historic Parks and Gardens within 1km of the parcel. There are four Listed Buildings within 1km of the parcel.

Maen Hir South

3.2.28 Maen Hir South comprises two parcels - Maen Hir South A and Maen Hir South B.

Maen Hir South A

3.2.29 Maen Hir South A is located at OS grid reference SH 44251 82199 (approximate centre).

3.2.30 The area is situated to the north-east of Llannerch-y-medd between Llandyfrydog, Pen-y-Foel and the B5111. The parcel is located within a shallow basin to the north-east of Llannerch-y-medd and separated by the moderately rising landform of Pen-y-Foel to the south.

3.2.31 It is characterised by gently undulating pastures of improved grassland with medium scale geometric field enclosures. The parcel drains into a shallow basin landform to the centre and east with marshy grassland and bog within low lying areas near Plas Llandyfrydog. Field boundaries are typically defined by hedgerows with intact cloddiau evident to the east of the parcel.

3.2.32 Two PRoW run through the parcel; one through the western extent and the other through the eastern extent. The Copper Trail runs along the western and northern boundaries of the area.

3.2.33 There are two scheduled monuments within 1km of the parcel, including: The Maen Chwyf burial site Scheduled Monument is located within the northern extent of the area, and the Llys Einion Standing Stone is 85m to the north-west of the area.

Maen Hir South B

3.2.34 Maen Hir South B is located at OS grid reference SH 44222 82348 (approximate centre).

3.2.35 The area is characterised by undulating topography with occasional rocky outcrops and small areas of semi-natural habitat including mires scattered throughout the area within a matrix of improved agricultural grassland.

3.2.36 It is relatively well-vegetated landscape with small copses/woodlands and linear tree belts typically along water courses. There is a field pattern of medium sized fields defined by hedgerows. The area is lightly settled with linear hamlets, isolated farms and dwellings linked by winding lanes and the small market town of Llannerch-y-medd.

3.2.37 There are no existing PRoW within the parcel. The North Wales Coast National Cycle Network Route (NCN500) runs adjacent to the northern and eastern boundaries of the parcel.

3.2.38 The Afon Cefni (a Main River) runs past the south-western boundary of the parcel. The Afon Ysgoldy (a tributary of the Afon Cefni) runs from the central western part of the area and joins the aforementioned Afon Cefni flowing to the south-western boundary of the parcel. A network of drains and streams, which follow field boundaries, are also present across the parcel.

3.2.39 Maen Hir South B is not subject to any statutory heritage designations. There are three scheduled monuments within 1km of the parcel, including: Llech Golman, located approximately 0.1km to the west of the central extent of the parcel; Maen Addwyn, located approximately 0.1km west of the parcel; and Carreg Leidr which is located approximately 0.48km to the north of the parcel.

3.2.40 There are no Registered Historic Parks and Gardens within 1km of the parcel. There are 18 Listed Buildings within 1km of the parcel.

4 Reasonable Alternatives and Design Evolution

4.1 Introduction

4.1.1 This chapter of the PEIR provides a summary of the reasonable alternative options that have been considered by the Applicant for the Project to date, including the initial site selection process for the Project, and its evolution into the Scoping Boundary and the PEIR Boundary, and through the development of the design.

4.1.2 This chapter also details how the assessment of sites and design alternatives has been undertaken and details the factors that have been considered and the main reasons for selecting the options presented in the PEIR.

4.1.3 Schedule 4, paragraph 2 of the EIA Regulations requires the following information to be presented in the ES: "*A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*".

4.1.4 This section is based on Paragraph 4.3.22 of the Overarching National Policy Statement for Energy (EN-1) which sets out the principles that should guide the Secretary of State when deciding what weight should be given to alternatives. This includes:

"the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner; and only alternatives that can meet the objectives of the proposed development need to be considered".

4.1.5 Paragraphs 4.3.2.3 – 4.3.29 of EN-1 go on to set out the principles around the consideration of Alternatives in more detail. Paragraph 4.3.29 states that "*potential alternatives to a proposed development should, wherever possible, be identified before an application is made to the Secretary of State (so as to allow appropriate consultation and the development of a suitable evidence base in relation to any alternatives which are particularly relevant)".*

4.1.6 The following alternatives have been considered during the design evolution process to date:

- Alternative site locations;
- Alternative size and scale;
- Alternative solar technologies; and
- Alternative design options including layouts for the Project generally as well as for specific design elements such as the Solar development and BESS.

4.1.7 The consideration of 'no development' as an alternative to the Proposed Development has not been considered as a reasonable alternative as it would not deliver the proposed renewable electricity generation capacity which is required in order to meet the UK's net zero targets. It is also required to meet the target in Wales to be net zero by 2050 and to generate renewable electricity equal to 70% of the country's electricity consumption by 2030.

4.2 Site Selection

4.2.1 Site selection is an iterative process by which appropriate locations for solar development are identified and subsequently refined to result in a proposed site. The selection process balances a number of variables and seeks to filter out inappropriate locations, identify preferred locations and focus on areas where relevant policy, notably NPS EN-3, supports the principle of development.

Site identification

4.2.2 The Applicant's vision is to develop a nationally significant solar generation facility at utility scale in order to contribute to meeting the UK's urgent national need for low-carbon electricity. The approach to site selection follows established principles which are enshrined in NPS EN-3 and expanded upon from paragraph 4.2.17 below.

4.2.3 The starting point for the site selection was a UK wide assessment undertaken by the Applicant to identify transmission substations and/or overhead lines (OHLs) with suitable capacity to accommodate a utility scaled solar development to see if there were any connection opportunities.

4.2.4 These initial searches were supplemented with assessments of initial key planning criteria which sought to identify sites which:

- benefited from good levels of irradiance;
- benefited from positive local renewable energy policy context;
- were minimally constrained in terms of environmental designations and flood zones;
- could deliver a positive local legacy;
- were accessible for construction;
- demonstrated generally favourable topography;
- had due regard to the proximity of residential receptors; and
- ideally included brownfield land.

4.2.5 This initial stage in the process utilised publicly available information via portals such as magic.gov.uk, Natural Resources Wales maps, DEFRA and Natural England mapping, local authority websites including constraint maps, and provisional and predictive agricultural land classification data.

4.2.6 The assessment identified several potential areas across the UK, one of which was a connection to the Wylfa-Pentir circuit (400k overhead line).

4.2.7 At a high-level, Anglesey had the potential to deliver a scheme which reflected positive outcomes against the initial key planning assessment criteria, outlined in paragraph 4.2.4 above. Anglesey is crossed by the Wylfa-Pentir 400kV high voltage transmission lines which have capacity in addition to capacity available at Wylfa South substation. These lines are important arteries of the National Electricity Transmission System (NETS). They provide resilience through strength in depth to the NETS to enable very high levels of reliability to all users and are therefore likely to be well suited to connect large-scale solar generation facilities and allow the bulk transmission of power to consumers nationally whenever that power is demanded. From a technical perspective, it was therefore considered a suitable location for a utility scale solar development.

4.2.8 Further, IoACC's 'Anglesey Energy Island Programme' indicated there may be some support from IoACC and some stakeholders for this type of project. This programme was established by IoACC and is a collective effort between several

stakeholders within the public, private and third sectors working in partnership, putting Anglesey at the forefront of low carbon energy research and development, production and servicing, and bringing with it potentially huge economic rewards. It was considered that a proposed utility scale solar development would help deliver on the ambitions laid out in the programme and result in tangible benefits for local communities.

4.2.9 Discussions with National Grid Electricity System Operator (NGESO) identified that the existing Wylfa substation had capacity, and an initial connection offer was made to the Applicant for 240MW. After further technical engagement with NGET, it was determined that the most technically beneficial and cost-effective solution (for NGET) to provide a connection to a utility scale solar development would be a new direct connection to the existing 400kV overhead line (OHL) via the construction of a new substation (which would be consented by NGET). It is important to recognise that NGET is regulated by OFGEM and required to provide value for money which is defined by the regulator as "*ensuring that taxpayers' money is used efficiently, economically and effectively. The objective is to achieve the best possible level of output of acceptable quality and the lowest long-term cost*" (Ofgem 'What is value for money, 2009').

4.2.10 The Applicant therefore initially focused on identifying land that was suitable for utility scale solar development close to the 400kV OHL, specifically seeking to minimise disruption to residential receptors and avoid areas of higher sensitivity in Anglesey before starting discussions with landowners on what land would be potentially available for development.

4.2.11 Suitable land was identified by the Applicant and in 2021 the Applicant consulted on a proposed solar development based on the 240MW connection. This was located in the north part of the Isle of Anglesey, in general proximity to the 400kV OHL. The project was initially known as Môn Solar.

4.2.12 During this initial consultation, the Applicant was approached by a number of additional landowners who registered their interest in being part of the Project. Given the urgent need and general policy support for renewable energy development nationally and within Anglesey, the Applicant undertook an

assessment of the suitability of the new land which had been offered for solar development, initially using the criteria outlined in paragraph 4.2.4.

4.2.13 Following this initial high-level review, it was clear that the additional land offered the potential for utility scaled solar development. Therefore, the Applicant undertook a systematic appraisal of all the land potentially available for development. This process is described below.

4.2.14 The Applicant sought further engagement with NGET about the potential for a larger connection and submitted a grid connection application.

4.2.15 In February 2023 an offer was received from NGET for an additional 120MW connection, on top of the 240MW already secured. Any proposed solar generating station with a generating capacity over 350MW in Wales qualifies as a Nationally Significant Infrastructure Project (NSIP) by virtue of the thresholds outlined in Section 15(3) of the Planning Act 2008.

4.2.16 As the Project will constitute a generating station with a generating capacity of over 350MW it must be consented under the Planning Act 2008. Paragraph 2.10.53 of National Policy Statement for Renewable Energy Infrastructure (NPS EN3) states that "*for the purposes of Section 15 of the Planning Act 2008, the maximum combined capacity of the installed inverters (measured in alternating current (AC)) should be used for the purposes of determining solar site capacity*."

Site Selection

4.2.17 Give the Project would be determined under the NSIP regime, it was appropriate to review and revalidate the site selection approach in the context of paragraphs 2.10.18 – 2.10.48 of NPS EN-3, which include:

- Irradiance and site topography
- Land availability
- Network connection
- Proximity of a site to dwellings
- Agriculture land classification and land type
- Accessibility
- Public rights of ways

- Security and lighting

4.2.18 The factors listed above have had an important influence in the site selection process for the Project. However, there are other technical and environmental factors that also play a significant role in determining site selection.

4.2.19 To ensure the land proposed for the Project was comprehensively assessed, the Applicant undertook a two-stage site appraisal process to identify land suitable for solar development and for inclusion in the Project. These appraisals informed the EIA Scoping and PEIR boundaries for the Project.

4.2.20 The purpose was to provide a holistic critical review of the land previously identified by the Applicant to inform the original Mon Solar project and the additional land identified during the constitution for that project, on the potential suitability for solar development based on environmental, social and economic factors, as reflected in the NPS.

Stage 1 appraisal

4.2.21 An initial site and context appraisal, including a field-by-field BRAG (Black, Red, Amber or Green) assessment was undertaken in Autunm 2022.

4.2.22 The appraisal was designed to provide a high-level strategic overview, which identified key constraints and barriers to development, as well as potential opportunities to deliver benefits or enhancements. The appraisal was based on a combination of desk-based appraisal of constraints, technical feasibility and site visits.

4.2.23 The technical topics included in the initial stage review included:

- Landscape
- Ecology
- Agricultural land
- Cultural Heritage
- Residential receptors (properties and settlements)
- Transport and access
- Flood risk
- Planning policy, designations and history / activity

4.2.24 For the initial appraisal the land for appraisal was split into three clusters: Northern, Llyn Alaw Lake, and Southern clusters. This subsequently evolved into the Maen Hir North, Maen Hir Central and Maen Hir South as described in Section 3.2. Note that the land at Maen Hir South A was not included at this stage and therefore did not form part of the initial BRAG. However, it was subsequently apprised before being included in the PEIR Boundary. The design evolution of the Project is described in section 4.6.

4.2.25 The focus of the stage 1 appraisal considered feasibility for accommodating solar arrays. The appraisal did not include a detailed review of suitability for locating associated infrastructure (cable routes / substations / BESS etc.). This formed part of the stage 2 appraisal and design process set out in paragraph 4.2.79 and 4.2.80 below.

4.2.26 The stage 1 BRAG assessment was based on the criteria set out below.

- GREEN – No known constraints – standard design offsets / mitigation measures can be deployed to manage risk.
- AMBER – Potential constraint – further modelling / site investigation / design / mitigation work required to inform design. Targeted Stakeholder Engagement required to agree approach.
- RED – Known constraint – Presents some challenges which could be mitigated subject to further investigation. In most cases, these challenges could likely be overcome through application of mitigation, e.g. in the form of landscaped screening, wildlife corridors etc., further modelling / site investigation / and design. Targeted Stakeholder Engagement required to agree approach.
- BLACK – Known constraint – Significant issue which cannot be resolved, and therefore should not be pursued for solar development.

4.2.27 A conservative approach was adopted whereby the worst rating across all the disciplines for a particular field was taken as the overall BRAG rating for that field. This ensures that a potentially significant consenting issue identified by one

discipline prevailed. Where a constraint relates to only part of a field, the worst rating was been applied to that whole field.

4.2.28 An overall 'black' rating indicated that a constraint was identified by at least one discipline which was sufficiently significant to remove it from consideration solar array development.

4.2.29 Fields rated 'Red' indicate that at least one discipline identified a constraint which, whilst likely could be overcome, would, in some cases demand the application of significant mitigation and consultation with relevant statutory consultees to do so. Fields rated 'Amber' indicate that at least one discipline has identified moderate constraints which can likely be overcome through appropriate mitigation.

4.2.30 Fields rated 'Green' would indicate that all disciplines concluded that there are very limited or no constraints to solar array development and that any constraints which are presented, could be easily mitigated. Given the range of disciplines that contributed to the BRAG assessment and the conservative approach taken for calculating overall BRAG, achieving an overall 'Green' rating was intentionally a high bar.

4.2.31 The following paragraphs first summarise the how the land included within the PEIR boundary performs against the site selection factors set out in NPS EN-1, then summarises how other environmental factors were considered via the BRAG assessment in forming the selection of fields for inclusion in the Project and the PEIR Boundary.

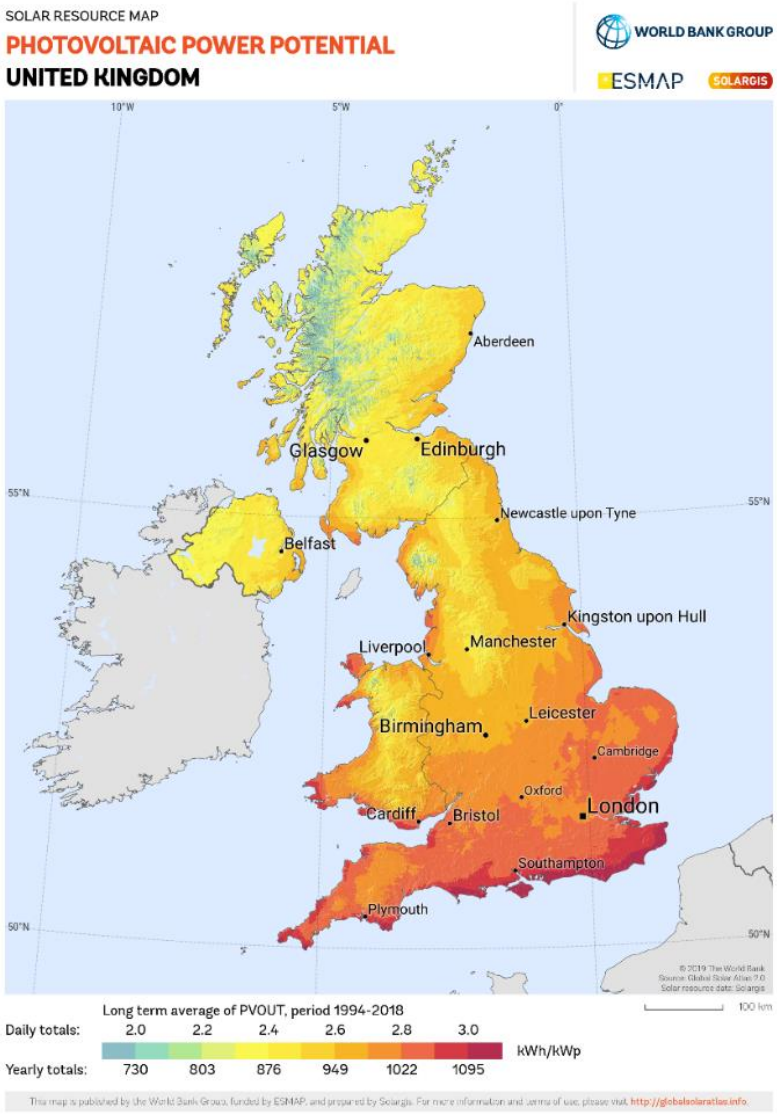
NPS EN3 - paragraphs 2.10.18 – 2.10.48

Irradiance and site topography

4.2.32 NPS EN-3 notes that irradiance and site topography are key inputs to the site selection process under paragraph 2.10.19 – 2.10.20, which state "*Irradiance will be a key consideration for the applicant in identifying a potential site as the amount of electricity generated on site is directly affected by irradiance levels. Irradiance of a site will in turn be* affected *by surrounding topography, with an uncovered or exposed site of good elevation and favourable south-facing aspect more likely to increase year-round irradiance levels*. *This in turn affects the carbon emission savings and the commercial viability of the site*."

4.2.33 Anglesey benefits from strong levels of irradiance as demonstrated on the UK solar irradiance map, at Image 4-1, below.

Image 4-1 Photovoltaic Power Potential United Kingdom



4.2.34 The PEIR Boundary sits within a mixed landscape including areas which are low lying and flat, as well as areas of undulating landscape. Parts of the PEIR boundary are uncovered or exposed with good elevation, which is one of the factors noted in EN-3 that affects irradiance. The undulating landscape provides a significant amount of south facing aspects but, additionally, provides scope to break longer views and provide natural screening opportunities.

Network connection

4.2.35 As noted above in paragraph 4.2.7, a grid connection agreement to the Wylfa-Pentir 400kV OHL which connects to the Wylfa substation was one of the first factors that led the development to the general area of Anglesey.

4.2.36 It is important to note at this stage, that while the Applicant is working closely with NGET to identify suitable locations for the point of connection and associated works, the final decision on site selection for the new 400kV NGET Substation is not within the Applicant's control and is expected to be consented by NGET by way of an application made via the Town and Country Planning Act 1990.

Proximity of the PEIR Boundary to dwellings

4.2.37 Anglesey has a generally sparse settlement pattern and one which is considered to be able to accommodate utility scale solar development. The approach to site selection also focussed on minimising the likely significant effects upon residential properties in close proximity to the Project.

4.2.38 More detail on how proximity to residential dwellings influenced initial site selection is set out in the stage 1 appraisal process at paragraphs 4.2.68 - 4.2.72.

Agricultural land classification (ALC) and land type

4.2.39 Whilst NPS EN-3 indicates that land type should not be a "predominating factor in determining the suitability of the site location", it states that where the use of agricultural land has been shown to be is necessary, poorer quality land should be preferred to high quality land and Best and Most Versatile land should be avoided where possible.

4.2.40 The Predictive Land Classification Map produced by the Welsh Government demonstrates that across Anglesey the general quality is a mix of Grade 2, Grade 3a and Grade 3b. Grade 3b appears to be the predominating classification with some areas of Grades 2 and 3a which occupy a significant portion of the central northern part of the island. ALC was therefore an important factor for the Applicant when selecting land that makes up the Project.

4.2.41 More detail on how ALC influenced initial site selection is set out in the stage 1 appraisal process at paragraphs 4.2.61 and 4.2.62 below.

Accessibility

4.2.42 The PEIR Boundary is accessible by the rural road network, enabling construction to take place. The nearest Strategic Road Network (SRN) is the A5025, which is a strategic coastal highway that acts as the primary ring road around the island. The A5025 connects with the A55 and A5 trunk roads at the Britannia Bridge over the Menai Strait. The A55 is a major road that runs along the north coast of Wales, providing links between Holyhead, Bangor, Conwy, and Chester. It also connects to the M53 and M56 motorways, continuing onto Manchester and Liverpool.

Public Rights of Way

4.2.43 NPS EN-3 recognises the potential for impacts on PRoWs as a result of utility scale solar development. The policy seeks to ensure that the recreational value and enjoyment of the PRoWs is maintained and advises applicants to design the layout and appearance of a site to ensure continued recreational use. It also encourages minimising visual impacts and maximising opportunities for enhancement of routes.

4.2.44 Anglesey is traversed by a significant number of Public Rights of Way (PRoW), however, the Project has sought to avoid direct impacts with these as far as is reasonably practicable. The interaction between the PRoWs across the land parcels is limited and represents a considered approach. In Maen Hir North, five PRoWs are within the PEIR boundary predominantly in the vicinity of Bodewryd with a longer stretch of footpath 44/028/2 running south-west to north-east roughly adjacent to the southern boundary of the Former Oil Depot. Maen Hir Central has a single direct interaction with PRoW 44/027/1 towards the eastern boundary and is located generally in an area where the PRoW network is less comprehensive. Maen Hir South (A and B) interact with two PRoWs to the north-east of Llannerch-y-medd but are largely separated from the network. The opportunity to enhance the network through increased accessibility and connectivity is being explored.

Other relevant locational consideration: Environmental considerations (BRAG Assessment)

4.2.45 The Applicant had regard to several important environmental considerations when determining the most appropriate location for the Project. Figure 4-1 provides an

overall view of the key environmental and landscape constraints which informed the siting of the Project.

4.2.46 A summary of headline results of the initial stage of appraisal are identified below and further details will be provided in the ES. It should be noted that this stage related only to fields proposed for solar development and not other aspects of the Project.) The areas were identified as 'clusters' for the purpose of the BRAG review; these subsequently formed the parcels assessed within this PEIR, known as Maen Hir North, Maen Hir Central, and Maen Hir South A and B.

Landscape

4.2.47 None of the fields in any of the proposed clusters were located within any National landscape designations. However, some fields along the northern and eastern edges of Maen Hir North and Maen Hir Central are in proximity to the Anglesey Coast AONB covering most of the island's coastline and incorporating the North Anglesey Heritage Coast. Issues of setting would need to be address via detailed design.

4.2.48 The northern cluster lies between the two local landscape designations, Special Landscape Areas (SLA), to the west, Mynydd Mechell which emerges as craggy raised land in contrast to the surrounding drumlin landforms with irregular field patterns, areas of bare rock, and numerous small ponds with areas marshy ground. A limited number of fields are located within this designation and score 'red' in the appraisal. Development is not prohibited within the SLAs provided it considers the statement of value and special qualities of these non-statutory designations.

4.2.49 The east of the north cluster is dominated by the otherworldly Mynydd Parys (Parys Mountain). Parys Mountain and the valley adjoining to Amlwch is also a registered landscape of outstanding and of special interest in recognition of the nationally important historic and cultural legacy of this post-industrial landscape.

4.2.50 A small number of fields are rated as black for landscape impact within the northern cluster due to them forming prominent parts of the drumlin landscape.

4.2.51 The initial site visit and desktop study highlighted the distinctiveness of this landscape, including the drumlins and the contrast of historic post-industrial Parys

Mountain. The relatively open landscape and the distinctive drumlin landform will inevitably give rise to impacts, however there is also an opportunity to work within the cut and reveal the valleys below, working with the landform as opposed to jarring against it.

4.2.52 Overall, the majority of fields within the northern cluster provide a mix of green, amber and red scoring some good suitability for PV Arrays but need for further assessment.

4.2.53 The Llyn Alaw Reservoir cluster includes a number of fields that are gently undulating in a landscape generally suitable for PV Arrays subject to design that follows the contours and avoids hill crests. Some areas have greater sensitivity as the land approaches more prominent drumlin dominated landscapes to the north of the cluster. Some areas are in proximity to scattered residential properties where further assessment would be required to determine suitable mitigation measures.

4.2.54 Overall, fields within the Llyn Alaw Reservoir cluster provide a mix of green, amber and red scoring some good suitability for PV Arrays but need for further assessment. No fields were scored black on landscape terms in the Llyn Alaw Reservoir cluster.

4.2.55 The southern cluster includes substantial areas of gently undulating slops that are generally suitable for PV Arrays. Sensitivity increases towards Dulas Bay Hinterland, a gently undulating landscape, and sits beneath to the west of the outcrop of Mynydd Bodafon. Proximity to the coastal AONB also requires consideration of context. There are also fields that form parts of the valley complex which have higher sensitivity due to steepness and orientation of slopes.

4.2.56 Overall, fields within the southern cluster are rated green, amber and red that would provide some good suitability for PV Arrays but need for further assessment. No fields were scored black on landscape terms in the southern cluster.

Ecology

4.2.57 None of the fields in any of the proposed clusters sit within any of the National Site Network (SPAs, SACs and also considers Ramsar sites). However, some

fields do lie in close proximity in some areas and there could be pathways for indirect effects to occur. In addition, functionally linked land could be used by species, in particular bird species associated with these sites and therefore the proposed development could have an effect on the populations associated with them.

4.2.58 None of the fields are located within any Sites of Special Scientific Interest (SSSI). However, a number of fields around the Llyn Alaw cluster were immediately adjacent to the Llyn Alaw SSSI.

4.2.59 None of the fields were located within national or local designated sites including National Nature Reserve (NNR), Local Nature Reserve (LNR) or Local Wildlife Sites (LWS).

4.2.60 The majority of the land under consideration has received either an amber or red BRAG rating for ecology, although green fields are present in some parcels where no protected or notable species or habitats are currently known. Only one field was allocated a rating of black for ecological reasons, due to more than half of the field comprising ancient woodland, and whooper swans likely being present in the remaining areas, however it could still be used for mitigation and enhancement purposes. Although the preliminary desk-based assessment has highlighted some parcels as potentially being unfavourable, in many cases it is likely to be possible to mitigate and reduce the level of adverse impacts to sensitive ecological features.

Agricultural Land Classification (ALC)

4.2.61 According to Predictive Agricultural Land Classification mapping the vast majority of the fields within each cluster are located ALC categories 3a or 3b. The confidence of the predictive mapping is such that Subgrade 3b, Grade 4 and Grade 5 is considered as accurate and an ALC survey is not required to establish the presence of BMV land. However, predictive ALC classifications of Subgrade 3a has a higher level of uncertainty due to the resolution of the underpinning data.

4.2.62 The only way to accurately determine the designation of predictive 3a is through field survey. For land within the survey that is predictive Grade 2, there is again a level of uncertainty to this classification and field surveys will be able to identify

the most limiting factor more accurately to ALC grading. However, fields comprised of more than a 30% predictive ALC grade 2 have been rated black.

Planning history and designations

4.2.63 The majority of fields are not subject to any planning designations, as defined on the Council's Proposals Map (2017). As such the vast majority score a green rating. Some fields fall within the SLA local landscape designation and are scored 'red' as a result. None of the fields are located within Policy AND 2: PV Solar Energy which identifies land suitable for Solar development greater than 5MW. The policy states that solar development outside of this area would only be permitted in "*exceptional circumstances when the need for a scheme can be justified and there are specific locational circumstances*".

4.2.64 Part of the Northern Cluster included land designated at the Former Oil Depot which safeguards the site as an allocated employment site under policy CY 1.

Cultural Heritage

4.2.65 There are over 1,122 listed buildings on Anglesey and, numerous scheduled monuments. However, the majority of fields assessed in each cluster are scored as 'green' for heritage as any potential impacts could be reasonably mitigated through normal design measures. Fields close to particular heritage assets are scored amber or red depending on the significance of the assets and proximity of potential solar development to the setting of those assets.

4.2.66 Parys Mountain was subject to copper mining over 4,000 years ago in the Bronze Age and is designated as a UNESCO World Heritage Site. Some fields in the northern cluster are scored as amber as a result.

4.2.67 Where fields are located close to heritage assets, further work will be required to establish the potential effects on the setting of these assets and how the design might respond to this. At this stage no fields have been excluded for further consideration on the basis of proximity to heritage assets.

Residential Properties

4.2.68 Fields across all clusters are rated based on the proximity of residential properties and the opportunity for mitigation via set back or ability to provide screening. The small settlement of Rhosgoch is located to the south of the northern cluster, and

there are also dwellings scattered throughout the area. One field in the northern cluster was identified as black as they are considered sufficiently close and limited in area that it is not considered that solar development could be adequately mitigated. However, they may offer potential for supporting infrastructure or general mitigation or enhancement.

4.2.69 The Llyn Alaw Reservoir cluster appraisal identified one field as having a black rating due to its very close proximity to a residential property with limited opportunity for setback or mitigation.

4.2.70 The appraisal didn't identify any fields to be rated as black in the southern cluster based on proximity.

4.2.71 Overall, the majority of fields across all clusters are rated green (as being more than 300m from a proposed solar PV field), amber or red as allowing at least some opportunity for mitigation and warrant some further investigation.

4.2.72 For the other fields assessed, it is considered that the risks presented by the proximity to dwellings can be managed by the deployment of appropriate mitigation through detailed design, such as offsets from properties.

Transport and Access

4.2.73 Due to the rural nature of the surrounding area within the A5025, a number of the local roads do not have formal road names or route designations, as well as having a lack of formal restrictions.

4.2.74 Most of the parcels are bound by public highways, therefore not requiring new roads to be constructed to enable access to the Project. For construction, it is only required that local roads undergo improvement works.

4.2.75 The appraisal found good accessibility to the local highway network across all clusters. Some fields are accessible directly from the public highway or via an agricultural track, and are generally rated green as a result. However, some fields appear to only be accessible via other fields. This would not prevent solar development in those fields but would be slightly less favourable as it would require the design to include additional accessways to ensure the ingress and

egress of maintenance vehicles. No fields have been rendered not worthy of further investigation on the basis of access.

Flood Risk

4.2.76 The majority of fields are within Flood Zone 1 – the lowest risk zone for Wales. The remainder are at least partly within Flood Zones 2 and 3. Whilst those fields which are in areas of higher flood risk are less favourable, they are still capable of accommodating PV Arrays, provided electrical equipment is elevated above predicted flood levels, taking account of climate change. Therefore, while it is not technically considered that flood risk should render any fields unworthy of further investigation, the Applicant took the decision not to include any solar PV arrays within flood Zones 2 and 3.

4.2.77 Overall following completion of the stage 1 appraisal it was considered that through further assessment, design and the application of appropriate mitigation, the impacts of Solar PV development on fields with the fields rated 'Red' and 'Amber' could be significantly reduced and therefore were worthy of further consideration.

Stage 2 Appraisals

4.2.78 Following the stage 1 appraisal, a further, more detailed set of appraisals were undertaken. These second stage appraisals built upon the initial assessment by considering specific potential mitigation measures that could be implemented to address constraints that would limit the development of solar in a particular field, and also consider wider opportunities for enhancement. The appraisal commenced from Summer 2023 and informed the extents of the Scoping Boundary, and the PEIR Boundary for the Project.

4.2.79 The stage 2 appraisals benefited from further detailed site assessment work, emergent results of survey data and further site investigation, ground truthing and design workshops. The process is iterative and ongoing and will be updated as further detailed survey information becomes available and in discussion with stakeholders. Further details will be provided in the ES.

Cable routing

4.2.80 An appraisal was undertaken to determine the potential extents of land required for cable route corridors for the proposed 132kV and/or 33kV underground cables connecting the 33kV and 132kV Substations to the BESS and the Project Substation.

4.2.81 The appraisal considered 6 routing options, each with their own corridor. The appraisal was based on a combination of desk-based appraisal of constraints, technical feasibility and site visits. Following the appraisal, none of the routes were excluded from further consideration. As such, the Scoping Boundary, and subsequent PEIR Boundary were drafted to encompass all routing options for further assessment. Further details will be provided in the ES.

Project Substation

4.2.82 NGET are undertaking their own site selection exercise to identify sites along the OHL route for the new NGET Substation. The Applicant's preference is to locate the Project Substation as close as possible to the location of the new NGET substation for technical reasons. Therefore, the Applicant undertook an appraisal of suitable locations for the Project Substation and the NGET substation following Horlock Rules (Ref 4-1). Potential locations have been identified that could accommodate both the Project Substation and the NGET substation. The PEIR Boundary has therefore been designed to accommodate the likely location. Further details will be provided in the ES.

PV Arrays and associated infrastructure (132kV and 33kV Substations and BESS)

4.2.83 Further to the initial BRAG assessment described in paragraphs 4.2.21 - 4.2.31 above, the Applicant undertook a more detailed review of fields identified as 'Red' and 'Amber' to determine specific mitigation measures that could reduce impacts of solar PV development in those fields. The appraisal also considered potential locations for the 132kV and 33kV Substations and BESS.

4.2.84 The appraisal specifically considered enhancement opportunities to inform the Green Infrastructure Strategy. This ensured that field specific mitigation measures could be considered in a broader context and help to contribute to the achievement of wider sustainability outcomes. This also ensured that the EIA

scoping and PEIR boundaries captured all the land required to deliver mitigation. Further details will be provided in the ES.

Other relevant locational consideration: Land ownership and land use

4.2.85 For the initial project, and throughout its evolution to date, the Applicant sought to approach landowners with significant (i.e. more than 100 acre) holdings in proximity to the Wylfa-Pentir 400kV OHL to enter into voluntary agreements.

4.2.86 In parallel, a search for brownfield land was undertaken.

4.2.87 The Applicant identified the Former Oil Depot to the east of Bodewryd as brownfield land which could potentially be brought forward as part of the Project. This land is currently proposed to accommodate the Project Substation, BESS and PV Arrays potentially including the Community Solar Project.

4.2.88 IoACC does not hold a brownfield land register, however, consultation with Council Officers in February 2024 has confirmed that the only other brownfield site in relative proximity to 400kV line for this purpose is the former Octel Bromine Plant at Amlwch ('the Bromine Site').

4.2.89 The Bromine Site has a long industrial history, previously being used to produce bromine from sea water, which ceased production in 2004. The Bromine Site has been discounted by the Applicant as not being suitable for the Project due to the location, relative to the proposed point of connection (Wylfa-Pentir 400kV overhead line). The Bromine Site is located on the north side of Amlwch adjacent to the coastline. The cabling work to reach this Site would cause considerable disruption to the road network and adjacent communities, as well as having resultant adverse environmental impacts. The Bromine Site is closely situated to Statutory Environmental Designations and important ecological sites including the North Anglesey Marine Special Area of Conservation (SAC) and Anglesey Terns Special Protection Area (SPA) as well as the National Landscape area.

Summary

4.2.90 This section has provided a summary of the process that the Applicant went through in determining an appropriate location for solar development. Having identified the objective to deliver a utility scale solar development, to meet the urgent need for such projects in the UK and having regard to the general suitability

of the Isle of Anglesey area for such development, the Applicant identified the Wylfa Pentir circuit as having spare capacity to deliver such a development and entered into discussions with NGET about how best to connect. Given the urgent need for renewable energy to address the climate crisis, this available capacity should be utilised (and made the most of) where it occurs.

4.2.91 The Applicant sought to identify land with lower agricultural classification generally, and outside of environmental designations. They then looked for willing landowners within this area, with large land holdings, capable of accommodating a large project on a site, within close proximity of the existing OHL, which led to the identification of the land that would form the Project. The land within the Project is also considered suitable from a planning and environmental perspective for solar, having regard to wider environmental constraints.

4.3 Alternatives considered

Policy Background

4.3.1 NPS EN-1 paragraph 4.3.9 confirms that from a policy perspective, there is no general requirement to consider alternatives or to establish whether a development represents the best option. Although there are specific requirements in relation to compulsory acquisition and habitats sites, the NPS does not change requirements in relation to compulsory acquisition and habitats sites.

4.3.2 The Applicant's focus was on identifying land that was suitable for solar and available for development, which is in accordance with NPS EN-1 paragraph 4.3.9. The local policy context is supportive of development for renewable energy on the Isle of Anglesey, which is another factor that was considered in the selection of a Site location.

4.3.3 Regulation 18(2)(d) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (EIA Regulations) requires "*a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment*" to be presented in the ES. A

summary of the reasonable alternatives considered to date is therefore presented in this PEIR and a full description of the alternatives will be provided in the ES.

4.3.4 The Applicant is a specialist solar and BESS developer and therefore alternative technologies for electricity generation were not considered.

4.4 Alternative solar technologies

4.4.1 The parameters of the DCO application will maintain a degree of flexibility under the Rochdale Envelope to allow for the most appropriate solar technology to be utilised at the time of construction. Further information can be found within Chapter 2: Methodology, and Chapter 5: Project Description.

4.4.2 There are currently two options being considered for the type of solar technology utilised by the Project:

- Fixed South Facing Structure
- Single Axis Tracker

4.4.3 The description of these two technologies is set out in Chapter 5 paragraphs 5.2.9 – 5.2.13.

4.5 Alternative layouts

4.5.1 The design and layout of the Project has evolved iteratively throughout an ongoing environmental assessment process, site selection assessment and taking into consideration the emerging Design Principles and Project Outcomes (Appendix 4-1), engagement with stakeholders and consultees and feedback from the initial consultation for the Môn Solar project in 2021.

4.5.2 The layout and extent of the Project for the purposes of the PEIR has been developed through careful consideration of the relevant constraints and opportunities and in response to the Applicant's evolving understanding of the PEIR Boundary's environmental conditions as part of the ongoing EIA process. The layout and extent of the Project will continue to be refined as the Applicant prepares the ES and DCO Application, taking into account consultation feedback and ongoing engagement with stakeholders.

4.5.3 Following the identification of the PEIR Boundary as outlined above in this chapter, the available land within the PEIR Boundary was subject to an initial

assessment to identify suitability for Solar development and suitable locations for the BESS and Project Substation. The assessment focused on the suitability of land parcels based on environmental, social and economic factors. Further detail will be provided in the ES.

Battery Energy Storage System and Project Substation

4.5.4 The Applicant also carried out an assessment to identify sites that would be potentially suitable for the BESS and the Project Substation based on the information available at the time of the assessment. The areas that were considered suitable for the BESS and Project Substation were areas that could potentially accommodate infrastructure up to 15m in height. Additional areas have been identified to accommodate smaller 132kV substations up to 7m in height. Further details will be provided in the ES.

4.5.5 The following factors have informed the development of the design in this regard:

- Proximity and visual impact to residential receptors
- Areas where noise could be accommodated or mitigated
- Land with accessible access and egress
- Generally level or slightly sloping topography
- Impact on the setting of heritage assets
- Landscape setting and visibility
- Flood Zone 2 or 3; and
- Proximity and location of PRoW

4.6 Design Evolution

4.6.1 The PEIR boundary evolved following EIA Scoping (November 2023), due to survey results as part of the preliminary environmental assessment and landowner interests changing. Following scoping, approximately 188 ha of land to the north of Llannerch-y-medd (hereafter ‘the Land’) (Figure 4-2) that fell within the EIA Scoping Boundary identified as accommodating the Main High Voltage Cable Route, Grid Connection Corridor and construction access, was identified as being suitable for Solar development and further Mitigation and Enhancement Areas. It was added to form Maen Hir South A.

4.6.2 Since scoping, further amendments have been made to the PEIR Boundary due to landowner interests changing. An area in the south end of Maen Hir Central (refer Figure 4-3) was removed from the Project (except for the Cable Route Corridor) due to the landowners deciding to expand their core farming business, rather than diversifying with solar.

4.6.3 The main stages and iterations of the Project to date are summarised in Table 4-1 below. Further details will be provided in the ES.

Table 4-1 The main stages and iterations of the Project

Stage	Factors which influenced the proposed Project at this stage
Non-Statutory Consultation (Môn Solar) Stage 1 March 2021	Preliminary site boundary relating to the original grid connection offer of 240MW. This boundary was influenced by engagement with landowners willing to enter into agreements with the Applicant, and some initial feasibility work carried out by the Applicant. The Project extents was defined by the availability of land and some initial environmental surveys. The Former Oil Depot was identified as a potential location to accommodate the BESS, and to the east of Llyn Alaw as a location to accommodate the Project Substation.
Scoping Boundary (Maen Hir) (Stage 2) November 2023	Following the initial non statutory consultation for Môn Solar, additional land becoming available, and the receipt of the additional grid offer to form a generating station with a capacity in excess of 350MW, Môn Solar evolved into Prosiect Maen Hir NSIP. The Project extents were extended to include additional land which had come forward, and the removal of some discrete pockets of land which were no longer considered appropriate for the Project, either due to their location from the rest of the Project, or due to individual landowner circumstances. In summary, following landowner engagement the changes to the boundary of the project included: • Land to the south west of Llannerch-y-medd, south of the B5112 was removed from the Project. • Land to the south of Llyn Alaw at Ceidio was removed from the Project. • Land to the south of Capel Coch to the east of the B5111 was brought into the Project. • Land to the north of Llyn Alaw at Llanbabo was brought into the Project. • Following this change to the proposed Project, site visits and desktop studies were undertaken to review the land under consideration, and to consider those areas most suitable to form the Project, prior to submitting the Scoping Request. The Scoping Boundary was defined with data from desk-based studies, and preliminary environmental surveys, and was adopted with a view to including any land that could ultimately form part of the Order limits (the extent of the final DCO Application). The intention was that the Scoping Boundary would be further refined following further surveys, environmental assessment, design, and consultation.

Stage	Factors which influenced the proposed Project at this stage
PEIR Boundary (Maen Hir) Stage 3 August 2024	Ongoing landowner engagement resulted in additional land being brought into the project (and forming part of Maen Hir South A), and some pockets of land being removed from the Project due to landowner circumstance. Feedback from environmental Surveys including landscape and visual, ecology, heritage, noise transport and other topics forming the PEIR, better defined those areas to be excluded from the Solar PV Site. Following landowner engagement, additional land to the north east of Llannerch-y-medd was brought into the Project, and forms Maen Hir South A. Some areas of land were removed from Solar PV Development but retained within the PEIR Boundary as Mitigation and Enhancement Areas, to potentially provide ecological mitigation, green infrastructure opportunities, access, and routes for underground cables. This was due in part to environmental assessments concluding these areas were not suitable for Solar PV, and in part due to landowner requests. Commitments were made to not locate solar infrastructure within Flood Zones 2 and 3. Commitments were made to only construct cabling underground, and that no new Overhead Lines would be constructed. Areas for potential Solar development were removed from visually prominent fields with a review at each individual location to take account of landscape and visual impacts. Buffers and set-backs were defined to ensure features such as woodland, cloddiau, hedgerows, and watercourses, were not impacted by development. Project Outcomes and Design Principles are being developed in ongoing consultation with the Design Commission for Wales (DCfW) as part of the design review process.

4.7 Summary

4.7.1 Further detail on the site selection process undertaken to date will be provided in the ES.

4.7.2 Following Statutory Consultation, the Applicant will review feedback from all stakeholders and consultees and feed this into the design review process, prior to fixing the design parameters for the purposes of the Environmental Statement and DCO Application.

4.7.3 The layout and design of the Project will continue to evolve, and any further evolution documented in the ES.

4.8 References

Ref 4-1 National Grid (1994) Substations and the Environment: Guidelines on Siting and Design

5 Project Description

5.1 Overview

5.1.1 The Project comprises the construction, operation and maintenance, and decommissioning of a solar electricity generating station with a capacity of over 350 MW (megawatts), Associated Development including a Battery Energy Storage System (BESS), a 5MWp Community Solar Project, Project Substation and Ancillary Infrastructure.

5.1.2 The Project will be connecting to a new National Grid Energy Transmission (NGET) Substation, which is anticipated to be consented separately by National Grid Electricity Transmission (NGET).

5.2 Components of the Project

Overview

5.2.1 The Project comprises the following principal components as the NSIP and associated development:

- Solar PV Site (Maen Hir North, Maen Hir Central and Maen Hir South A and B) containing:
  - PV Arrays – PV Modules and Mounting Structures forming PV Tables and laid out in PV Arrays
  - Low Voltage Distribution Cabling
  - 33kV / 132kV Substations, to include but not limited to:
    - Transformers
    - Switchgear
  - Inverters - String Inverters (under or next to PV Tables) or Central Inverters (which would be located throughout the Solar PV Site)
  - Transformers - required to step up the voltage of the electricity generated by the PV Arrays before it is routed to the Project Substation
  - Project Substation which consists of:
    - electrical infrastructure such as the Transformers, Switchgear and metering equipment with a ring main unit (RMU unit) at 33kV

  - Battery Energy Storage System - Typically comprising containers which include the rack, modules, and cells; Power Conversion Systems (inverters and transformers) and ancillary infrastructure
  - Fencing, security and Ancillary Infrastructure
  - Access Tracks
  - Highway Works
  - Drainage and services
  - Publics rights of way improvements and permissive paths
  - Green Infrastructure
  - 5MWp Community Solar Project
  - Construction Compounds
- Cable Route Corridor – The route for the proposed 132kV and/or 33kV underground cables connecting the 33kV and 132 kV Substations to the BESS and the Project Substation.
- Grid Connection Corridor – The proposed corridor for the Grid Connection Cables between the Project Substation and the NGET Substation. This corridor is still to be defined as it is dependent on the siting of the NGET Substation.
- Mitigation and Enhancement Areas

5.2.2 Further details for each of the key components will be provided in the ES, with the main elements being set out below.

Parameters

5.2.3 The Parameters of the key elements of the Project are shown on Figures 5-1 to 5-4.

5.2.4 The field numbering is shown on Figures 5-5 to 5-7.

PV Arrays

5.2.5 Solar panels, also known as photovoltaic (PV) panels or PV Modules, are made up of cells, which convert the light energy from daylight into electrical energy.

5.2.6 The solar panels are fixed to a Mounting Structure and referred to as a PV Table. Rows or groups of PV Tables that are connected to one another form a PV Array.

5.2.7 The PV Arrays will have a direct current (DC) generating capacity which will be converted to Alternating Current (AC) by a String Inverter or Central Inverter.

5.2.8 There are currently two options being considered for the type of solar technology utilised by the Project, and which are described below:

- Fixed South Facing Structure
- Single Axis Tracker

Fixed South Facing (FSF) Structure

5.2.9 The PV Arrays will be orientated east west and would be installed between approximately 15 and 25 degrees to the horizontal facing south to optimise daylight absorption.

5.2.10 They will have a maximum height of 3.5m above ground level at the rear, regardless of tilt angle, and a clearance between 0.5m and 1m at the front so as not to restrict the movement of animals such as sheep. The minimum pitch will be approximately 6.5m.

Single Axis Tracker (SAT)

5.2.11 The PV Arrays will be orientated north south and would operate between approximately 60 degrees from the horizontal (facing east in the morning) moving toward 0 degrees (horizontal) at midday, and approximately 60 degrees from the horizontal (facing west in the evening). The PV Models would track from east to west throughout the day and would return to their resting position at approximately 60 degrees (facing east) over night.

5.2.12 They will have a maximum height of 3.5m above ground level, regardless of tilt angle, and a clearance between 0.5m and 1m at the front so as not to restrict the movement of animals such as sheep. The minimum pitch will be approximately 4.5m.

5.2.13 The Mounting Structure will be pile driven or screw mounted into the ground to a typical depth of approximately 2.5m, subject to ground conditions. The option to install concrete blocks, avoiding the need for driven and screw anchored installation will be based on the results of the archaeological survey and the

geotechnical analysis. The Mounting Structure would likely be made of either anodised aluminium alloy or galvanised steel and would have a rough matt finish.

Inverters

5.2.14 Inverters are required to convert the DC electricity collected by the PV Modules into AC which allows the electricity generated to be exported to the National Electricity Transmission System. Inverters are sized to deal with the level and intensity of voltage, which is output from the PV Arrays.

5.2.15 There are two options for inverters:

- **String Inverters** can be mounted underneath or behind the PV Modules and are typically 1.5m in length by 0.5m in depth by 1m in height.
- **Central Inverters** will be distributed throughout the Solar PV Site. The containers would typically be mounted on an area of hardstanding and typically be housed within a container measuring approximately 8.5m x 2.5m and 3m in height.

Transformers

5.2.16 Transformers are required to step up the voltage of the electricity generated by the PV Arrays before it is routed to the Project Substation. If String Inverters are used, Transformers are required which are typically housed within containers and will be distributed throughout the Solar PV Site. The footprint of the Transformers will typically be 5.5m by 4.5m and 3.2m in height. The containers are typically externally finished in keeping with the prevailing surrounding environment, often utilising a green painted finish.

5.2.17 Where Central Inverters are used, the Transformers can be housed within the same area or within a separate outdoor cabinet, which would be smaller in scale than the Central Inverters.

Switchgears

5.2.18 Switchgears are the combination of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgears are used both to de-energise equipment to allow work to be done and to clear faults downstream.

Low Voltage Distribution Cabling

5.2.19 Low Voltage Distribution Cabling between PV Modules and the inverters will typically be located above ground level (along a row of racks), fixed to the PV Tables, and then buried underground in trenches within the Solar PV Site and potentially within the Mitigation and Enhancement Areas.

33kV / 132kV Substations

5.2.20 The Solar PV Site will contain 33kV / 132kV Substations which comprise Transformers and Switchgear that sit upon concrete foundations. They will gather generated electricity before it is routed to the Project Substation and BESS via the Cable Route Corridor. 33kV Substations would be required as a minimum with the potential for 132kV Substations if required.

33kV Substations

5.2.21 The 33kV Substations would be housed in brick buildings or containers within the Solar PV Site. The maximum size for the 33kV Substations would be 13m by 4m with a height of 4m. No fencing is required around the 33kV Substations as the electrical components are contained within an enclosure. It is anticipated that there would be a maximum of 18 33kV Substations, the locations of which are yet to be identified.

132kV Substations

5.2.22 Depending on technical requirements, 132kV Substations may also be needed. The 132kV Substations would have maximum dimensions of 30m x 40m with a height of 7m. The Transformer and Switchgear would not be contained within buildings or containers so palisade fencing would be required around the 132kV Substations. If required, it is anticipated that there may be up to ten 132kV Substations across the Solar PV Site within the locations set out in the Parameter Plans (Figures 5-1 to 5-4).

High Voltage Distribution Cables & Cable Route Corridor

5.2.23 High Voltage Distribution Cables (33kV and 132kV) are required between the Transformers, Switchgear and the 33kV and 132kV Substations. The dimensions of trenching will vary subject to the number of underground cables and will be dependent on the method of installation and ground conditions. However, they

are anticipated to be typically 1.8m in depth and 2.5m in width except where watercourses and utilities need to be crossed. Joint pits will be approximately 12m by 5m with a depth of 3m. There may be a requirement for horizontal directional drilling (HDD) or Pipe Jacking as methods to install underground cables, pipes, ducts and culverts.

5.2.24 The construction works would have a total working width of 6.5m in addition to temporary construction Access Tracks. The extent of the Cable Route Corridor is shown on the Parameter Plans and will be refined as the Project design evolves. The Cable Route Corridor includes construction access and will exclude residential properties and their immediate surroundings and sensitive environmental receptors where practicable.

Project Substation

5.2.25 The Project Substation will comprise electrical infrastructure such as the Transformers, Switchgear and metering equipment required to facilitate the export of electricity from the Project to the National Electricity Transmission System. The Project Substation includes a control building which will include office space and welfare facilities as well as operational monitoring and maintenance equipment. The indicative size of the Project Substation compound is 200m by 200m, with an approximate height of 15m that allows for the substation and associated electrical control buildings and office/welfare buildings.

5.2.26 The Project Substation may comprise two 400/33kV Transformers which will have a switchgear with a maximum footprint of 15m by 8m and a height of 11m located within the Project Substation compound.

5.2.27 The Applicant intends on locating the Project Substation in proximity to the NGET Substation, if practicable.

Grid Connection Corridor

5.2.28 The electricity generated by the Project is expected to be exported via a 400kV connection between the Project Substation and the new NGET Substation. The grid connection cables to the NGET Substation will comprise 400kV cables within a trench with a total working construction width of up to 20m.

5.2.29 The alignment and route of the Grid Connection Corridor will depend on the location of the new NGET Substation, which is to be determined by NGET. This has meant that the PEIR Boundary is necessarily broad to ensure that the assessment has covered the maximum area of land required for the Grid Connection Corridor. A high-level assessment has been carried out to explore route options, as set out in Chapter 4: Alternatives and Design Evolution. This will evolve further as engagement with NGET progresses.

National Grid Energy Transmission (NGET) Substation

5.2.30 NGET are currently undertaking a siting study for the provision of the new NGET Substation to which the Project will connect. NGET has not yet identified the location for the NGET Substation; however, they have provided the Applicant with details of the parameters being used for their site selection process. The Applicant has applied these parameters to land within and in proximity to the Project and identified a potentially suitable site for the NGET Substation and included this site within the PEIR Boundary. Based on the information currently available, the Applicant considers a potential location of the NGET Substation to be within Maen Hir Central to the east of Llyn Alaw, as shown on the Parameter Plans (Figures 5-1 to 5-4) and the assessment in the PEIR is based on this location.

5.2.31 However, as a result of NGET's ongoing feasibility work and investigations, it is possible that the NGET Substation could be built in another location.

5.2.32 The DCO Application will include consent for the Grid Connection Corridor from the Project Substation to the NGET Substation, however the NGET Substation will be consented separately. The Applicant anticipates receiving confirmation from NGET of the new NGET Substation location before submitting the DCO application. Should this change any design assumptions made for PEIR, the environmental impact assessment will be updated accordingly in the ES.

BESS

5.2.33 The Project will include a Battery Energy Storage System (BESS). The BESS is designed to provide peak generation and grid balancing services to the National Grid Electricity Transmission System (NETS). It will do this by allowing both electricity generated from the PV Arrays to be stored in batteries and dispatched

when required as well as having the ability to import surplus energy from NETS and redistribute when needed.

5.2.34 The BESS will comprise batteries which would be housed in containers and the Twin MV Skid which facilitates the bidirectional conversion of electricity from DC to AC and back as needed.

5.2.35 The BESS system is anticipated to have up to 1.6 GWh import / export capacity.

5.2.36 The typical dimensions of the battery containers would measure 15m x 4m and 4m in height located on areas of hard standing. The compound would also contain the Twin MV Skid approximately 12m by 7m and 4.5m in height.

5.2.37 The BESS would also include other ancillary infrastructure such as lighting poles up to 4m high which face inwards, ventilation / cooling and fire suppression systems, Access Tracks and hardstanding areas.

5.2.38 The Former Oil Depot is the preferred location for the BESS. An alternative site to the east of Llyn Alaw within Maen Hir Central has also been identified as being potentially suitable to accommodate the BESS in the event that the Former Oil Depot is not utilised for the BESS (see the Parameter Plans).

Community Solar Project

5.2.39 The Applicant will provide a 5MWp Community Solar Project as part of the Project. It is anticipated that the Community Solar Project will be owned and managed by Menter Môn. Income generated by the Community Solar Project will be used to finance projects that directly benefit local communities and the environment in proximity to the site of the Project.

5.2.40 The location of the Community Solar Project will be a distinct area within the wider Project but not physically different from the rest of the Project.

Fencing, security and Ancillary Infrastructure

5.2.41 A fence will enclose the operational areas of the Solar PV Site. The fence is likely to be a ‘deer fence’ (wooden or metal posts with a wire mesh) and up to 2m in height. Palisade fencing up to 3.5m in height would be required around the perimeter of the 132kV Substations, the Project Substation and the BESS.

5.2.42 Pole mounted closed circuit television (CCTV) systems installed at a height of up to 3.5m are also likely to be deployed around the perimeter of the operational areas. Access gates will be of similar construction and height as the perimeter fencing. Clearances above ground or mammal gates will be included to permit the passage of wildlife where required.

5.2.43 CCTV cameras would use night-vision technology with a minimum 45m range, which would be monitored remotely and avoid the need for operational night-time lighting. No areas of the Project are proposed to be continuously lit during operation. For security, operational lighting would include Passive Infra-red Detector (PID) systems installed around the perimeter of the Project.

5.2.44 The lighting of the Project Substation would be in accordance with health and safety requirements. All lighting would seek to limit any impact on sensitive receptors.

5.2.45 No areas are proposed to be permanently lit.

Construction Compounds

5.2.46 Temporary Construction and decommissioning Compounds will be located within the Project. It is anticipated that there will be one main construction compound (with an approximate footprint of 250m by 250m) and up to seven smaller compounds (with an approximate footprint of 100m by 100m each) across the Solar PV Site.

5.2.47 The main construction compound may contain offices, mobile welfare units, canteens, storage and waste skips, construction worker car parking areas and space for storage, laydown and turning area.

5.2.48 Perimeter fencing for the Construction and decommissioning Compounds would be up to a maximum of 2.5 metres in height. Security infrastructure including cameras would be up to a maximum of 3.5m high around the perimeter of compounds.

5.2.49 Temporary construction lighting, in the form of mobile lighting towers, will be required in areas where natural lighting is unable to reach (sheltered/confined areas), and during core working hours within winter months. Artificial lighting will

be provided to maintain sufficient security and health and safety, whilst adopting mitigation principles to avoid excessive glare, and minimise spill of light to nearby receptors (including ecology and residents) as far as reasonably practicable.

5.2.50 Lightning protection masts will be located within the Construction and decommissioning Compounds which will be up to 6m.

Construction Access Strategy

5.2.51 It is assumed for the purposes of the PEIR that the majority of construction traffic will be routed to the PEIR Boundary from the Port of Liverpool with a lesser volume of traffic coming from the Port of Holyhead. This is based on the Applicant's logistics planning around the likely place of arrival of Project components which assumes Abnormal Indivisible Loads (AILs) such as Transformers will arrive at the Port of Holyhead, a cargo port, while the components requiring larger numbers of Heavy Goods Vehicles (HGVs) such as the PV Modules will arrive at the Port of Liverpool, a container port. The construction routing includes two primary routes and two AIL routes as shown on Figure 9-2. The primary routes are:

- Route 1 - Northern Route: Access to / from the north, via Britannia Bridge - A5025 - B5111 - Unclassified Road towards Penbol - Rhosgoch
- Route 2 - Southern Route: Access to / from the south, via Britannia Bridge - A55 - Junction 6 of the A5 - Holyhead Road - B4422 - B5109 - Lon Sardis - NCR5

Highway Works

5.2.52 To facilitate construction access there is the potential need for Highway Works on public highways. Where practicable, construction haul routes will be internalised within the Solar PV Site to avoid the need for highway works. Highway Works are likely to comprise new access points, road widening, hedgerow removal and junction works to facilitate the safe movement of HGVs and AILs. The potential areas where works may be required are shown on Figures 2-1 to 5-4.

Access Tracks

5.2.53 It is anticipated that onsite Access Tracks will follow the alignment of the existing agricultural tracks, where practicable. New internal Access Tracks will be up to 4.5m wide and passing bays will be provided along the internal Access Tracks.

The main access junctions will be a minimum of 6m wide to facilitate access for construction vehicles. The onsite Access Tracks will likely be constructed of compacted stone or tarmac with excavation reduced as far as practicable. Where drainage is required a ditch, or a swale, may be located downhill of the internal access track to control surface water run-off.

Green Infrastructure

5.2.54 The existing hedgerows, cloddiau, woodland, ditches, ponds and field margins will be retained within the layout of the Project where practicable, except for removal and/or crossings required for new or upgraded Access Tracks, perimeter fencing and cabling. Accesses will be designed to use existing agricultural gateways/tracks between the fields where practicable. The width of any new accesses will be reduced as far as practicable.

5.2.55 Minimum offsets from the PV Arrays or perimeter fencing have been identified and form part of the package of Design Principles (see Appendix 4-1) that have shaped the Project to date. These offsets will be used to deliver a combination of embedded mitigation and enhancement in the form of hedgerow planting and/or grass/wildflower planting. The offsets may be increased to deliver further mitigation or enhancements and/or respond to root protection areas where required as the design evolves and further assessment is carried out.

Proposed development on the Former Oil Depot

5.2.56 The Former Oil Depot (acquired by Conygar Investment in 2015) has been dormant for a number of years, with a lack of confirmed development opportunities coming forward to date despite being allocated for employment use in the Isle of Anglesey County Council Local Plan.

5.2.57 As part of the DCO Application, the Applicant is proposing BESS and PV Arrays (and potentially the Community Solar Project) with Ancillary Infrastructure on part of the Former Oil Depot in Rhosgoch.

5.2.58 The Project has potential to support future employment-generating uses on the Former Oil Depot with a reliable source of renewable energy; this would be via a private wire to the BESS. The Applicant's ambition is that the infrastructure delivered by the Project could support economic development on the Former Oil

Depot in accordance with Local Plan policy CYF 1 and the emerging Freeport tax site status of that site.

5.2.59 The works required to bring forward the Primary Construction Compound, and to develop the BESS and Community Solar Project, will involve direct infrastructure improvements that could help unlock the wider Former Oil Depot to support future development and employment opportunities (beyond the Project itself). This infrastructure includes, but is not limited to, improved site accessibility, remediation where required, ground works and drainage, and security.

5.2.60 There are also opportunities to provide wider environmental and community benefits, associated with the Project, on the Former Oil Depot including the potential enhancement of habitats for biodiversity, and recreational access.

5.2.61 The Applicant is committed to working with the Isle of Anglesey County Council and Anglesey Freeport on plans for the Former Oil Depot to deliver long-term benefits for the local and regional economy.

5.3 Project Parameters and the Rochdale Envelope

5.3.1 In order to maintain flexibility in the design and layout at this stage in the process, the assessment of the Project in this PEIR will adopt the Rochdale Envelope approach, as described in Advice Note Nine 'Rochdale Envelope' as published by the Planning Inspectorate (PINS) in July 2018. This involves specifying parameter ranges, including details of the maximum, and where relevant the minimum, size (footprint, width, and height relative to above ordnance datum (AOD)), technology, and locations of the different elements of the Project, where flexibility needs to be retained.

5.3.2 The use of the Rochdale Envelope approach has therefore been adopted to present a likely worst-case assessment of the potential environmental effects of the Project. The list of parameters is presented in tabular form in Appendix 5-1, which can be read alongside the Parameter Plans, which set the spatial extent of the Project components.

5.3.3 The parameters include the following:

- Potential areas for PV Arrays

- Potential Mitigation and Enhancement Areas, underground cabling and access
- Potential areas for Project Substation and BESS
- Potential areas for 33kV/132kV Substations
- Highway Works
- Cable Route Corridor – area for 33kV/132kV cabling (including access) between the Solar PV Site which will exclude residential properties and their immediate surroundings and sensitive environmental receptors (where practicable)
- Grid Connection Corridor - The proposed corridor for the Grid Connection Cables between the Project Substation and the National Grid Electricity Transmission Substation.

5.3.4 These Parameter Plans provide a visual representation of the Project components and will evolve into the Works Plans that will be assessed within the Environmental Statement and which will form part of the DCO Application.

5.3.5 To further assist with the assessment, Project Outcomes and Design Principles are being developed that will guide (within the parameters) the size, type and colour of elements of the Project. The Design Principles will help secure design mitigation that has been identified through the EIA process. This is an iterative process and will be ongoing throughout the course of the pre-application stage of the Project. The draft Design Principles are at Appendix 4-1.

5.4 Development Capacity

5.4.1 The parameters assessed in the PEIR account for a degree of overplanting to ensure that the benefits in terms of low carbon energy generation can be maximised.

5.4.2 The designated National Policy Statement (NPS) EN-3 (17 January 2024) clarifies in paragraph 2.10.53 that ‘the maximum combined capacity of the installed inverters (measured in alternating current (AC)) should be used for the purposes of determining solar site capacity’.

5.4.3 EN-3 clearly explains the difference between direct current (DC) and alternating current (AC) in paragraph 2.10.50. ‘Overplanting’, or oversizing as it may also be

referred to, is a term used by the solar industry to describe the situation in which the maximum installed generating capacity (DC) of the solar modules is larger than the facility's inverter capacity and/or grid connection (AC), and also explains installed generating capacity (DC, or commonly referred to as MWp) can be larger than the AC export capacity to the grid.

5.4.4 This enables a solar farm to maximise the renewable energy generating efficiency over its lifetime and make best use of the available grid connection's export capacity with the land that is available for the development. Importantly, whilst installed generation capacity can be maximised at a site through overplanting, the capacity exported to the national grid never exceeds the inverter capacity. Overplanting is a standard practice in the design process across the solar industry worldwide.

5.4.5 EN-3 confirms that overplanting should be considered acceptable by planning decision-makers, provided that:

- the electricity exported to the grid does not exceed the statutory threshold such that the scheme would be categorised as a "nationally significant infrastructure project"
- the overplanting can be justified; and
- the decision-maker assesses the proposed development and its impacts on the basis of its full extent including any overplanting.

5.4.6 Specifically, paragraph 2.10.55 of EN-3 recognises that the installed generating capacity of a solar farm will decline over time in correlation with the reduction in panel array efficiency (known as degradation), and that applicants may account for this by 'overplanting' solar panel arrays. Footnote 92 confirms that "*Overplanting refers to the situation in which the installed generating capacity or nameplate capacity of the facility is larger than the generator's grid connection*".

5.4.7 In addition, an increased MW DC relative to the MW AC installed inverter capacity in the design accommodates:

- power losses with converting direct current (dc) to alternating current (ac);

- power losses from transporting electricity and the increasing or decreasing of voltage levels; and
- a lower generation in real world conditions including:
  - times of low irradiation (i.e. when it is cloudy, or at dawn and dusk); and
  - shading (e.g. from trees, particularly in the winter months and at the start end of the days.)

5.4.8 To expand on this, the additional installed capacity allows for more generation during the shoulder hours[2] of a given day when demand is high, as well as during the shoulder months (spring, autumn and winter).

5.4.9 Schemes which are overplanted will therefore generate more low-carbon electricity at times of lower irradiation (compared to a site which is not overplanted) and at those times output will achieve the grid connection capacity. The overplanting allows for the maximum efficiency in energy generation to be achieved throughout the year – which will result in greater benefits through more homes powered and tonnes of carbon saved, compared to a site where the ratio of DC to AC is 1:1.

5.5 Environmental Management

5.5.1 A suite of environmental management plans will be prepared in support of the DCO Application which will be informed by the EIA process and developed alongside the ES.

5.5.2 An initial draft of the outline Construction Traffic Management Plan (oCTMP) has been prepared in support of the PEIR to assist with the construction routing strategy and traffic management measures external to the Solar PV Site and allow an assessment of impacts upon the highway network.

5.5.3 The following environmental management plans will be prepared in support of the ES and DCO Application following further assessment and design evolution:

- Outline Construction Environmental Management Plan (oCEMP)

[2] Dawn and dusk when the sun is not as high in the sky as during the middle of the day and thus less solar energy is being generated

- Outline Landscape and Ecological Management Plan (oLEMP)
- Outline Operational Environmental Management Plan (oOEMP)
- Outline Soil Management Plan (oSMP)
- Preliminary Employment, Skills and Supply Chain Plan (PESS)
- Outline Decommissioning Environmental Management Plan (oDEMP)

5.6 Construction

Construction Activities

- Site preparation:
  - The establishment of the Construction Compounds
  - Highway works as required to facilitate access
  - Delivery of construction materials, plant and equipment
  - The establishment of perimeter fencing
  - The upgrade of existing tracks and construction of new Access Tracks
  - The upgrade or construction of crossing points (bridges/culverts) over watercourses and below ground utility infrastructure
  - Marking out location of PV Tables
  - Advanced habitat creation and landscaping (if appropriate)
- Solar PV Site construction:
  - Delivery of Project components
  - Erection of PV Tables
  - Mounting of PV Modules
  - Installation of electrical cables including digging trenches
  - Installation of 33kV / 132kV Substations (including Transformers, inverters and Switchgear)
  - Construction of the Project Substation
  - Construction of the BESS
  - Construction of onsite electrical infrastructure to facilitate the export of generated electricity
  - Construction of the 5MWp Community Solar Project
  - Testing and commissioning

- Habitat and landscaping creation and reinstatement in accordance with the principles set out within the Landscape and Ecology Management Plan (LEMP) and Green Infrastructure Strategy.

Construction Programme

5.6.1 Construction phasing for the Project is currently being developed in response to evolving technical requirements including but not limited to Grid Connection timescales. The Project could be delivered in up to two phases.

5.6.2 Under a single-phase construction programme, enabling works could start in Q4 2026, with the Project being energised in Q4 2028. It is anticipated the construction phase for this scenario would be approximately 24 months long.

5.6.3 Under a two-phase construction programme, enabling works for the first phase could start in Q4 2026, with the first phase being energised in Q4 2028. The second phase would be constructed at a later date and energised at a date to be agreed with NGET and not later than 2037. In this scenario, part of the Project would be constructed and operational before the remaining part. It is anticipated that each of the construction phases under this scenario would be approximately 24 months long.

5.6.4 For the purposes of the assessment in the PEIR, worst-case scenarios for the duration of the construction phase have been considered for each technical discipline. For example, in terms of road traffic, a single 24-month construction period has been assessed as this reflects the peak volume of traffic movements that could occur. Whereas for Climate Change, a two-phase construction programme may result in a greater impact in respect of lower lifetime emissions than a single phase.

5.6.5 The final programme will be dependent on the detailed design, potential environmental constraints, and grid connection date(s) for the Project and will be detailed and assessed in the ES.

Construction Traffic

5.6.6 There will be HGV and Light Goods Vehicle (LGV) vehicle movements associated with deliveries and construction worker arrivals and departures. Typical construction vehicles will include excavators, ramming machines, cable layers,

low loaders, crane and waste vehicles, trenchers, telehandlers, forklift trucks and tractors/trailers.

5.6.7 The total HGV peak during construction would be 95 two-way movements per day and the daily LGV peak would be 191 two-way movements per day.

Working Hours

5.6.8 Working hours for all construction activities during the week (Monday – Friday) will be 07:00-19:00 and 08:00-13:00 on Saturdays. On Saturday afternoon/evenings (13:00 – 18:00), all activities may be undertaken except for HGV deliveries and works likely to generate substantial levels of noise. On Sundays and Bank holidays there will be no construction activities.

5.6.9 HDD drilling or Pipe Jacking is an exception to the above where it may be necessary to continue works for technical and safety reasons outside of these working hours. If other works are required outside of the construction working hours, this would be agreed with the local planning authority.

5.6.10 Commissioning works (see description below) may also need to take place outside the construction working hours.

Commissioning

5.6.11 Commissioning of the Project will include testing and commissioning of the processing equipment. This will involve mechanical and visual inspection, electrical and equipment testing, and commencement of electricity supply into the grid. These works would require lighting, running of equipment which may generate noise and some limited vehicle movements.

5.7 Operation, Maintenance and Replacement

5.7.1 The Operational Phase of the Project is proposed to be 60 years. During the Operational Phase of the Project, onsite activities would include routine servicing, maintenance activities, management of vegetation and the replacement of equipment as and when required.

Routine Maintenance and Servicing Activities

5.7.2 At this stage of the Project, it is anticipated that there would be approximately 10-12 permanent staff based onsite for routine inspection and maintenance activities.

At times during operation, it will be required for additional staff to attend when necessary for maintenance activities or the replacement of faulty equipment. Indicative operational traffic flows are provided and assessed in Chapter 9: Transport. The ES will confirm the final likely operational traffic flows.

Management of Land and Vegetation

5.7.3 The land underneath and around the PV Arrays would be managed through sheep grazing and/or mechanical cutting in order to maintain the field vegetation during the operational phase of the Project.

5.7.4 The management of the landscape and ecological features will be undertaken in accordance with the Landscape and Ecological Management Plan (LEMP).

5.7.5 An outline Soil Management Plan (oSMP) will be prepared as part of the ES to ensure soil quality is managed throughout the operational phase of the Project.

Replacement

5.7.6 During operation of the Project, various components may require replacement based on their design life. As components approach the end of their design life, there will be an evaluation to determine if they require replacement. It is not anticipated that wholescale replacement of the Project in one stage would be required; it would be programmed in stages acknowledging that the generation capacity of the Project may be relatively reduced whilst elements were replaced.

5.7.7 The Applicant proposes to submit a replacement schedule at agreed intervals to IoACC (at years 10, 20, and then approximately every 5 years after that), excluding unforeseen emergencies that require immediate replacement. The replacement schedule shall include the following details as a minimum:

- The extent and nature of the scheduled replacement;
- Details of likely construction traffic volumes and traffic management measures;
- The proposed timing of the replacement works; and
- Confirmation that the environmental effects that are likely to arise as a result of such activities and the environmental controls to be implemented are not materially new or different than those assessed in the ES.

5.7.8 The Applicant will further notify IoACC of any replacement that has been undertaken as a result of unforeseen emergencies. Such notification shall be given as soon as practically possible but no later than 14 days from the emergency replacement being carried out.

5.7.9 It is not possible to develop a fixed schedule of replacement at this stage in the process as it is not known which elements will need to be replaced at what time; however, Table 5-1 sets out the anticipated design life of the key components of the Project based on information currently available:

Table 5-1 Anticipated Life span of Key Project Components

Component	**Anticipated number of times component may be replaced during 60 years**
Grid Infrastructure / Project Substation	
Transformers	up to 2 times
Busbars, isolators, bushings and surge arresters	up to 3 times
BESS	
Batteries and power conversion systems	up to 4 times
Transformers part of the Twin MV Skid	up to 2 times
Solar PV	
PV Modules and PV Tables	up to 2 times
Inverters	up to 3 times
33kV / 132 kV Transformers	up to 2 times

5.7.10 The ES will include further details of the replacement activities and appropriate management controls will be developed as part of the DCO Application. The oOEMP and oCTMP will include measures to control the potential adverse effects generated by replacement activities such as HGV traffic and noise.

5.8 Decommissioning

5.8.1 Decommissioning is anticipated to take approximately 6 to 12 months.

5.8.2 During the Decommissioning Phase, all the solar infrastructure including PV Arrays, inverters, Transformers, Switchgear, fencing, Ancillary Infrastructure, BESS and the Project Substation would be removed and recycled or disposed of in accordance with good practice following the waste hierarchy, with materials being reused or recycled whenever practicable. All waste will be disposed of in accordance with the legislation at the time of decommissioning. Underground cabling is anticipated to be decommissioned in situ.

5.8.3 Any requirement to leave the Access Tracks would be discussed and agreed with the landowners at the time of decommissioning and, if appropriate, consented separately.

5.8.4 The Solar PV Site would subsequently be returned to the landowner's full control and use in accordance with the oDEMP. The detailed DEMP which will be based on the oDEMP submitted with the DCO Application will be subject to the approval of the local planning authority, IoACC.

5.9 Design Principles

5.9.1 The Project has developed a series of Design Principles that underpin the design process and integration of the Project into its context. These can be referred to at Appendix 4-1.

5.9.2 The Design Principles govern the design development and enable delivery of the Project Outcomes, which are highlighted below:

1 Ecosystem Resilience

Society benefits greatly from services provided by healthy resilient ecosystems. This Project creates an opportunity to strengthen existing ecosystems at a landscape scale

2 Cultural Places

The landscape of Anglesey is ancient and unique. The Project creates the opportunity to support the ongoing and historic dialogue between people and place.

3 A Thriving Landscape

Over time north-east Anglesey has seen dynamic shifts in land use. The Project provides an opportunity to create a multifunctional landscape that accommodates energy generation, continued agriculture, and space for natural processes.

4 Decarbonisation

One of the drivers for development of renewable energy is to de-carbonise energy generation. The Project will support a transition to net zero in a sustainable way that gives people a new future that is better than the present.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