

Environmental Statement: Chapter 3 – Site & Development Description

ES 03

Development of National Significance

Alaw Môn Solar Farm

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

February 2024



3.0 SITE AND DEVELOPMENT DESCRIPTION

Site Context and Description

- 3.1 The Site is located on the Isle of Anglesey in North Wales, within the administrative boundary of the Isle of Anglesey County Council (IACC) and extends to 268.77 hectares (ha) (as shown in Figure 1.1). The Site is located approximately 500m to the south east of the small hamlet of Llantrisant and approximately 1.5km to the west of the village of Llannerch-y-medd. It is also to the west of the B5112 and approximately 415m to the south of Llyn Alaw. The Site includes land within the adopted highway of local roads that runs from the main part of the Site to the point of connection to the National Grid Substation at Wylfa.
- 3.2 The topography of the landscape within which the Site is located is rolling, and to the north, the Site extends over and down a local ridgeline that defines the south-eastern edge of the Afon Alaw valley. Llyn Alaw reservoir is a large waterbody to the north of the Site, with the rivers Afon Alaw and Cors-y-bol flowing south-west towards the coast. There are a number of smaller watercourses and drains through and between the Site, including a tributary of the Cors-y-bol; a pond within the Site, drainage ditches, and a number of ponds in the immediate vicinity of the Site.
- 3.3 The Site is irregularly shaped. Within the central part of the Site, several farm buildings at Nantanog are present, which are encompassed by, but located outside of, the Site boundary. Other properties in the vicinity of the Site include a cluster of houses in the hamlet of Carmel to the south of the Site.
- 3.4 The Site comprises predominantly agricultural fields, currently utilised for grazing purposes. The agricultural fields are typically bound by hedgerows.

Environmental Baseline Conditions

Cultural Heritage

- 3.5 There are several prehistoric monuments recorded within a 2km radius of the Site boundary, as shown on Figure 6.4 of the ES. These comprise Bronze Age burial mounds (including the Scheduled Monument of Cors-y-Bol Round Barrow, which lies adjacent to the north-western boundary of the Site), numerous Bronze Age standing stones, possible Bronze Age burnt mounds, Iron Age hillforts (including the Scheduled Monument of Y Werthyr, which lies approximately 1.2km to the west of the Site), and possible Bronze and/or Iron Age settlement and associated stock enclosures and field systems.

Landscape

- 3.6 There are no landscape designations or designated features within the Site. As shown on Figure 7.11 of the ES, there are six Public Rights of Way (PRoW) that run through or adjacent to the Site and National Cycle Route ('NCR') 5 runs adjacent to the Site. The Site is located within National Landscape Character Area (NLCA) 2: Central Anglesey and the north-western part of the Site lies within LCA 5: North Western Anglesey and the south-eastern part of the Site lies within LCA 17: West Central Anglesey.

Biodiversity

- 3.7 Although not designated for its ecological importance, the Nantanog Site of Special Scientific Interest (SSSI) is designated for its nationally important geological exposure and is within the Site boundary. However, the built Development area is on either side of the SSSI, outside of the SSSI's boundary, as shown on Figure 3.1. The Site is also approximately 350 metres south of Llyn Alaw, which is designated as a SSSI due to its ecological importance. Two further SSSIs are located in close proximity to the Site; Tyddyn Grrfer and Llyn Llywenan are located 1.5km south and 2.1km south-west of the Site, respectively.
- 3.8 Cors y Bol Local Wildlife Site (LWS) is present adjacent to western part of the Site boundary. Additionally, two further LWSs are present in the vicinity of the Site, comprising Tir Pori Traian and Cors

Tre'r Ddol LWS, which are located adjacent to the north-eastern part of the Site boundary and 1km south of the Site, respectively.

Flood Risk

- 3.9 The National Resources Wales (NRW) flood mapsⁱ, the majority of the Site is located within fluvial Flood Zone A. As shown on Figure 3.1 of Appendix 9.1, there are limited areas along the western part of the Site boundary and north-eastern corner of the Site are located in fluvial Flood Zone B. A very limited area along the western part of the Site boundary is located in Fluvial Flood Zone C2, associated with Cors Y Bol.
- 3.10 According to Technical Advice Note (TAN) 15 of the NRW, Zone A is considered to be at little or no risk of fluvial or tidal/coastal flooding; Zone B is defined as areas known to have been flooded in the past, evidenced by sedimentary deposits; Zone C is based on the extreme flood outline, equal to or greater than 0.1% Annual Exceedance Probability (AEP; river, tidal or coastal); Zone C1 is defined as areas of the floodplain which are developed and served by significant infrastructure, including flood defences; and Zone C2 is defined as areas of the floodplain without significant flood defence infrastructure.
- 3.11 According to NRW long term flood risk mapping, the Site is not considered to be at risk from tidal flooding. The majority of the Site has a very low surface water flood risk, with limited areas of up to a high surface water flood risk associated with the ordinary watercourses within the Site and isolated ponding.

Transport

- 3.12 The A55, also known as the North Wales Expressway, is the main road in North Wales, connecting Chester to Holyhead. For most of its extent, it is a dual carriageway. The B5112 connects the A55 to the Site. The B5112 is rural in nature, but for the majority of its length, it is wide enough for vehicles to pass. There are some areas of narrowing, particularly to the south of Trefor. The B5112 is regularly used by large agricultural vehicles. The Site Access Approach and the public roads between the fields are rural in nature and used by large agricultural vehicles.
- 3.13 As noted above, there are six PRoWs and NCR 5 that are either located on, or adjacent to, the Site.

Agricultural Land

- 3.14 The predictive agricultural land classification (ALC) map shows the Site as comprising predominantly Sub-grade 3a agricultural land, with areas of Grade 2 agricultural land. A detailed ALC survey was carried out at the Site in April 2021, using the Ministry of Agriculture, Fisheries and Food ('MAFF') methodology. This covered a slightly larger area than is now included within the Site boundary. The detailed survey determined that approximately half of the area surveyed (147.1ha or 49.1% of the area) is classified as Sub-grade 3a agricultural land. Approximately one-third (99ha or 33% of the area) is classified as Sub-grade 3b agricultural land. There are smaller proportions of Grade 2 (39ha or 13% of the area) and Grade 4 (7.5ha or 2.5% of the area) agricultural land also present. The remainder of the land within the area is classified as non-agricultural uses, i.e., woodland, roads, buildings (7.2ha or 2.4% of the area).

The Development

- 3.15 The Development comprises a Development of National Significance application for:
- “Installation of a solar farm and energy storage facility, with associated infrastructure, works, and access”***
- 3.16 The Development's layout is shown on Figure 3.1 and Figure 7.13 of the ES and the other plans for the Development are provided at Appendix 3.1.
- 3.17 The solar photovoltaic (PV) panels will be ground mounted to a piled frame made of galvanised steel or aluminium. The posts would be pile-driven into the ground to a suitable depth based on the ground

conditions within the Site to secure the framework without the need for concrete foundations. The framework is designed to hold the solar PV panels secure in high winds and will be designed according to the relevant codes and standards. The solar PV panels are of a 'fixed' design. This means that the supporting metal framework is installed at 15° to 30° from horizontal having a maximum height of 3m above existing ground levels in long linear rows running from east-west. The solar PV panels will face south. The installed angle is dependent on the existing ground topography and spacing between each row of solar PV panels.

- 3.18 It is anticipated that the total electricity generating capacity of the Development would be approximately 160 mega-watts (MW).
- 3.19 The Development will include the following equipment:
- Solar PV arrays (fixed panels), which would be a maximum of 3m in height with the solar PV panel raised 0.8m from the existing ground level at a fixed orientation and tilt angle of between 15° and 30°;
 - 34 inverter and transformer units (measuring 2.4m in width x 12.2m in length x 3.5m in height) at various locations around the solar PV arrays;
 - A 132 kilovolt ('kV') substation including 33kV switch rooms, a 132kV relay room, transformers, circuit breakers, an LV control room, associated electrical equipment up to 6m in height and palisade fencing. The substation is constructed on an aggregate base following 'cut and fill' earthworks;
 - Battery Energy Storage System ('BESS') Facility of 42 containers (each measuring 2.4m in width x 12.2m in length x 2.9m in height) containing batteries, 21 battery inverter and transformer units, a control room (measuring 3m in width x 6m in length x 5.7m in height (to top of weather station) and substation building, comprising a single compound adjacent to the 132 kV substation. The BESS Facility is constructed on two levels following 'cut and fill' and earthworks;
 - Boundary fencing around the perimeter of the Site extending to 2.1m in height. This fencing will comprise wooden pressure treated tanalised posts and high-tensile, galvanised steel, and plain wire deer fence. The fence will be equipped with badger/fox/small mammal gates at appropriate points to enable free access. The fencing enclosing the BESS Facility and substation is 2.4m in height wire mesh fencing;
 - A CCTV system, pole mounted, located at strategic points around the Site perimeter. CCTV cameras will be between 2.5m and 3m above ground level;
 - Associated access tracks;
 - Two storage containers (measuring 2.4m in width x 12.2m in length x 2.9m in height) for spare parts etc.;
 - Relevant communications and monitoring equipment, including weather station; and
 - Creation of new or improvement of existing vehicular accesses for the construction, operational and decommissioning phases of the Development.
- 3.20 The BESS Facility proposed may be charged during periods of lower electricity demand, typically during the day when the full capacity of the solar farm is not required by demand on the network. The stored energy can be discharged during periods of high or peak demand, which is typically in the early evening. The energy storage units may also be charged by taking excess electricity from the grid at periods of very low demand, typically overnight from energy sources other than the Development, to be released at times of higher demand, this provides a management service to the network.
- 3.21 The Development will connect to the electricity network via the National Grid Substation at Wylfa. The route is shown in Figure 1.1, and the connection will be provided by underground cabling located within

the adopted highway. A Section 50 licence will be sought at the appropriate time. The ES considers the likely significant environmental effects of the grid connection.

- 3.22 A flexibility in the Development design and layout exists due to the advancement of module technology and commercial availability. The generation capacity of 160 MW could be achieved in reduced total module area and change of inverter and cabling locations.

Temporary Construction Compounds

- 3.23 During the construction phase, a construction compound will be set up within the Site, near to the main site access at Chawaen Bach Farm which will serve the Development, thus reducing the distance delivery vehicles will need to travel after reaching the Site's entrance.

Operation

- 3.24 The Development has a modelled operational lifespan of 40 years and linked to the first export date of electrical energy from the Development. During the operational phase, the activities on-Site would comprise maintenance activities, including servicing of plant and equipment and vegetation management.

Decommissioning

- 3.25 Given the Development's modelled operational lifespan of 40 years, it is a long-term, temporary development. Following cessation of energy generation and exportation at the Site, and as part of the contractual obligations with the landowner, the above ground elements would be decommissioned and removed from the Site. Prior to the commencement of decommissioning, a decommissioning plan will be prepared and the Site will be surveyed to identify ecological constraints.
- 3.26 A decommissioning plan would be prepared prior to the decommissioning commencing. The Site will be surveyed by an appropriately qualified ecologist to identify any ecological constraints arising from decommissioning activities.
- 3.27 It cannot reasonably be foreseen what legislative protection will be afforded to particular wildlife species at the end of the Development's lifespan. Further surveys for protected species which could be impacted by decommissioning would also be expected. Where possible and when electrical items have an ongoing life-span they will be removed from the Site in whole units and re-used in current form. Where units do not have an ongoing life-cycle they will be placed into a suitable re-cycling skip or container and then removed from the Site to a suitable waste recycling centre. Following decommissioning, there may be a period of soil management aftercare.

REFERENCES

ⁱ Available at: <https://naturalresources.wales/flooding/check-your-flood-risk-on-a-map-flood-risk-assessment-wales-map/?lang=en>