Environmental Statement: Chapter 15 – Cumulative Effects

ES 15

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

15.0 CUMULATIVE EFFECTS

Introduction

15.1 This chapter summarises the potential cumulative effects of the Development with two other schemes in close proximity of the Site. Effects are also known as inter-project cumulative effects or in combination effects. The assessment has been informed by paragraph 5(e) of Schedule 4 of the EIA Regulations, which states that an ES should include:

> ***'A description of the likely significant effects of the development on the environment resulting from, inter alia:***
>
> ***...***
>
> ***(e) the cumulation of effects with other existing and/ or approved projects...'***

Cumulative Schemes

15.2 In the PAC comments, it was requested by IACC that the Maen Hir Solar and Energy Storage Project (DCO (Development Consent Order) case reference: EN010156) and Carrog Ganol Battery Energy Storage System (Ref: FPL/2023/218) be assessed for the potential to give rise to likely significant cumulative effects on the environment when combined with the Development during the construction and operational phases. Whilst neither project is approved, they are considered to be reasonably foreseeable but there is no certainty that they will be brought forward.. The full detail of the two identified schemes can be seen in Table 15.1 below as well as on Figure 2.1 (Cumulative Schemes Plan).

Table 15.1: Cumulative Schemes

Project Reference	Description	Status	Appox. Distance
DCO Case Reference: EN010156 Maen Hir Solar and Energy Storage Project	Electricity Generating Station including solar photovoltaic panels with a generating capacity in excess of 350 MW, a Battery Energy Storage System (BESS), a new substation, and other Associated Development.	Pre-application. Request for EIA Scoping Opinion submitted to PINS. The application is expected to be submitted to the Planning Inspectorate Q4 2024.	3 km north east of the Site
IACC Case Reference: FPL/2023/218 Carrog Ganol Battery Energy Storage System	Installation of battery energy storage system, together with substation, transformer stations, site accesses, internal access tracks, security measures, access gates, other ancillary infrastructure and landscaping and biodiversity enhancements.	Planning application submitted to the IACC. The application was validated in September 2023 and is reasonably expected to be determined in Q2 2024.	6 km north of the Site.

Maen Hir Solar and Energy Storage Project

15.3 The Maen Hir Solar and Energy Storage Project would be located on three parcels of land measuring 1,234 ha. The three parcels include land near Rhosgoch and Bodewryd, land south-east of Llanerch-y-medd and land near the north and east of Llyn Alaw. The Site is located closest to the second parcel of land south-east of Llanerch-y-medd, approximately 3 km south-west.

15.4 The proposed development comprises the construction, operation, and decommissioning of a 350 MW PV installation, BESS, 5 MW community solar PV array, and associated equipment including inverters, transformer stations and switchgears. Connection to the electricity grid would be made via a new National Grid 400 kV Substation which is to be consented separately by National Grid Electricity Transmission. The project would have an operational lifespan of 60 years after which it will be decommissioned.

Carrog Ganol Battery and Energy Storage System

15.5 Carrog Ganol Battery Energy Storage System proposes energy storage, together with substation, transformer stations, and supporting infrastructure. The proposed development would be located on fields at Carrog Ganol, to the south of Cemaes. The BESS would consist of 158 battery containers, which measure 6.1 m long, 2.5 m wide and 2.5 m in height. Within the containers will be battery infrastructure, a power distribution system, auxiliary systems and ventilation and cooling systems. The containers would be located in an enclosed and fenced off area.

15.6 The BESS would have capacity to store 660 MW and would connect to a nearby National Grid substation via a trenched cable which would run beneath the highway. The cable route is not submitted for approval as part of the current planning application.

Methodology

15.7 The potential for likely significant cumulative effects on the environment as a result of the identified cumulative schemes has been assessed with respect to each technical discipline below. The assessments are based on the information available in the public domain. As stated above, the Maen Hir Solar and Energy Storage Project is at an early stage and the assessment of the likely significant effects has been based on the submitted Scoping Report[i]. The Carrog Ganol BESS is currently being determined by IACC and a full suite of planning application documents[ii] is available to inform the cumulative assessment.

15.8 Technical consultants have taken a qualitative approach to assessment and applied professional judgment to assess the potential for cumulative effects. This is a proportionate and robust approach given that neither cumulative scheme is approved and full, final assessments are not available for the Maen Hir Solar and Energy Storage Project. Each assessment notes the relevant assumptions and limitations.

15.9 Table 15.1 summarises the cumulative effects. The Applicant is only responsible for mitigation measures required for the Development. Where assumptions have been made in respect of standard mitigation measures that cumulative schemes would likely be required to implement, these are stated in the text and Table 15.1. Mitigation measures for each cumulative scheme would be agreed with the relevant authorities and be the responsibility of each scheme's applicant to implement.

Cultural Heritage

Construction

15.10 Groundworks for the construction phase of the Development could result in a degree of harm to known and potential buried archaeological remains within both the Site and the grid connection element.

15.11 The land proposed for the Maen Hir Solar and Energy Storage Project and Carrog Ganol BESS does not intersect with the land of the Site or the grid connection, and there is currently no suggestion that the land proposed for the Maen Hir Solar and Energy Storage Project contains buried archaeological remains that are a continuation of, or otherwise directly associated with, remains within the Site or the grid connection.

15.12 As such, no cumulative effects on the archaeological resource of the Site or the grid connection are anticipated to arise from the construction of the Development and the construction of the Maen Hir Solar and Energy Storage Project nor Carrog Ganol BESS.

15.13 Chapter 6 concluded that no harm to the significance of any identified designated historic assets would arise from the construction phase of the Development. This removes the possibility for cumulative effects arising from the construction phase of the Maen Hir Solar and Energy Storage Project or Carrog Ganol BESS.

Operation

15.14 Chapter 6 concluded that no harm to the significance of buried archaeological remains within the Site would arise from the operational phase of the Development. This removes the possibility for cumulative effects arising from the operational phase of the Maen Hir Solar and Energy Storage Project or Carrog Ganol BESS.

15.15 Chapter 6 concluded that the operation of the Development would result in minor harm through change to setting to the significance of both the Scheduled Monument known as Cors-y-Bol and the Scheduled Monument known as Y Werthyr.

15.16 The Screened Zone of Theoretical Visibility Model within the Scoping Report for the Maen Hir Solar and Energy Storage Project indicates that Maen Hir North and Maen Hir Central would be visible from Y Werthyr as well as from Cors-y-Bol and the field of the Site to its east (from where it is experienced).

15.17 While no heritage setting assessments have yet been undertaken for the Maen Hir Solar and Energy Storage Project, there is potential for this scheme and the Development to have cumulative operational effects for the Scheduled Monument known as Cors-y-Bol as well as the Scheduled Monument known as Y Werthyr.

Landscape and Visual Effects

Landscape Effects

Construction

15.18 A cumulative assessment has been carried out with regard the landscape receptors within ES Chapter 7, the cumulative scheme at Carrog Ganol is located over 6km to the north, given the distance and degree of separation this has been scoped of the landscape and visual cumulative assessment.

15.19 A landscape cumulative assessment has been undertaken to consider the Development alongside the Maen Hir Solar and Energy Storage Project – see Cumulative Landscape Effects Table 15.2 and Figure 2.1: Cumulative Schemes Plan. The extent of the national and regional character areas and Aspect Areas identified within LANDMAP is such that it is considered that although the schemes are located within a relative short distance from each other the nature of change to the overall areas would not result in significant cumulative effects.

Operation

15.20 No significant cumulative effects will arise at either year 1 or year 15. The nature and extent of the cumulative schemes is such that although there would be some beneficial aspects arising on the landscape structure the long term character of the area will change through the introduction of large solar arrays that will affect the character of the immediate and local area.

Visual Effects

Construction

15.21 A visual cumulative assessment has been undertaken to consider the Development alongside the Maen Hir Solar and Energy Storage – see Cumulative Visual Effects Table 15.3. With regard to the potential cumulative visual effects, it is predicted that some of the PRoW located on the ridgeline and associated falling landform around Llyn Alaw would have a degree of intervisibility between the Site and the Maen Hir Solar and Energy Storage Project. The greatest effects are considered to occur during a cumulative construction phase (if concurrently constructed). This would result in there being combined, succession and sequential cumulative effects, of which there are a number which are considered to be Moderate Adverse (Significant). However, it is important to note that these effects for the majority reflect those arising from the scheme in isolation, given the nature of the proposals within Development and the Maen Hir Solar and Energy Storage Project and the intervening distance it limits views to long distance. The one exception is effects form the northern side of Llyan Maen - SCP 19 - where the views from the minor roads are in proximity to the Maen Hir Solar and Energy Storage Project and as such the cumulative effects are increased.

Operation

15.22 Once the schemes are constructed the nature and location of views from a number of receptors would mean that the intervening built form would reduce the intervisibility. For example, along the minor roads in proximity to the Site – SCP 6 and for Maen Hir Solar and Energy Storage Project – SCP 19. There are still potential Moderate Adverse effects arising from users of the minor road network within proximity to the both schemes, as the proposed landscape mitigation planting would not have matured, however, this is closely related to the Development within the Site and not the cumulative effects.

15.23 At year 15 the landscape proposals would have matured and provide further screening / filtering of views. It is important to note that although the landscape proposals would help mitigate and reduce the visual effects the nature of existing views across the undulating landscape will change and although there would be some beneficial aspects to the schemes the nature and character of the views will have changed.

15.24 Sequential effects have been considered and can be seen in detail in tables 15.2 (Cumulative Landscape Effects Table) and 15.3 (Cumulative Visual Effects Table).

15.25 A review of the RVAA has been carried out and given the location, orientation and degree of separation between the Site and the Maen Hir Solar and Energy Storage Project there would be no change to the effects stated within the assessment either during construction, year 1 or at year 15.

Biodiversity

Construction

15.26 Carrog Ganol Battery Energy Storage System site covers an area of 15.6 ha, approximately 6 km to the north of the Site. It includes three fields; the field boundaries include mature trees and established hedges. The site boundary adjoins areas of established woodland to the east. The central fields are large open areas of modified grassland; the most northern field contains cereal crops.

15.27 The battery storage units are to be laid out on a series of grass terraces and accessed by a network of roads. New woodland, tree and hedge planting, and meadow seeding is proposed. The supporting documentation states that the proposed development would deliver a measurable Biodiversity Net Gain (BNG) (although details, such as a completed metric, are not provided); however, this statement appears to accord with the extent of habitat creation shown on the Landscape and Ecology Management Plan. The assessment that is summarised in the planning statement, states that "*the scheme would be net beneficial to local wildlife and that the development would not cause any significant impacts to biodiversity*". Given this assessment, there is not considered to be potential for a cumulative impact with the Development.

15.28 The published information suggests that the Carrog Ganol Battery Energy Storage System will be designed in a way that protects existing features and delivers ecological enhancement. Thus, given current planning policy requirements (e.g. secure improvements to ecological resilience), it is assumed that this proposed development, when considered in combination with the Development, may have potential to give rise to a positive effect on some ecological features, particularly if there is a consistent, coherent landscape-scale approach to the design and the features targeted for enhancement.

15.29 Maen Hir Solar and Energy Storage Project is currently ongoing ecological survey work (including survey for various protected species and birds), and ecological baseline information is not yet available.

15.30 Maen Hir Solar and Energy Storage Project includes fields adjacent to Llyn Alaw and thus there could be potential for impacts on birds associated with the SSSI (i.e. waterfowl) and on the local Greenland white-fronted goose population, through disturbance and habitat loss, were development to be planned in this area. The Echoes Project survey data shows that birds regularly roost at the north-west end of Llyn Alaw and use adjacent fields during winter months (refer to Appendix 8.7 and 8.8). It is noted that the Scoping Opinion identifies the need to consider possible impacts on Greenland white-fronted goose.

15.31 An impact assessment has not yet been carried out; there are no detailed proposals for mitigation and enhancement, although both are referred to in principle in the Scoping Report (including the provision of open areas for birds). The Scoping Opinion states that the ES should set out how the proposed development intends to deliver biodiversity enhancements. As a general observation both projects will affect similar farmland habitats on Anglesey, but the possibility of cumulative impacts with other projects will depend on the detail of the design. It is noted that the project description for Maen Hir states that the land within the site boundary has potential to accommodate solar PV development; this implies that not all areas of land within the site boundary will be subject to development, and that the project design will need to take in account constraints and identify areas where enhancements can be incorporated.

15.32 Notwithstanding the absence of available information, this reasoning used above in relation to Carrog Ganol Battery Energy Storage System could also apply to the Maen Hir Solar and Energy Storage Project. Significantly, this assessment of cumulative effects is based on the assumption that, in addition to meeting general policy requirements relevant to biodiversity (i.e. secure improvements to ecological resilience), effects on Greenland white-fronted geese (and other SSSI waterfowl) will be properly considered and avoided through a combination of design and mitigation measures. Given the importance of the local Greenland white-fronted geese population, it is assumed in this cumulative assessment, that any acceptable scheme would be designed to avoid any risk of displacement, habitat loss and disturbance of geese, particularly in the land to the north of Llyn Alaw, which may mean that land parcels in this particular area are unsuitable for development.

Operation

15.33 Any significant cumulative effects from Carrog Ganol Battery Energy Storage System and Maen Hir Solar Energy Storage Project on biodiversity are unlikely to occur at the operation stage, and therefore has been scoped out of the assessment.

Water Environment

Construction

15.34 During the construction phase of these schemes, the main impact would be associated with any increase in surface water runoff during the construction phase. However, any increase in impermeable areas such as a construction compound should be required to implement a drainage system designed and managed to comply with BS6031:198 ‘The British Standard Code of Practice for Earthworks’, which details methods that should be considered for the general control of drainage on construction sites. Further advice is contained within the British Standard Code of Practice for Foundations (BS8004, 1986). Given the distance the cumulative schemes are located from the Site, it is considered unlikely that any increase in surface water runoff during the construction phase will have a cumulative impact with the Development.

15.35 Similarly, given the distance the sites are located, it is considered that the impacts associated with any remobilisation of existing contamination on Site and contamination arising from any general

construction related activities are considered unlikely to have a cumulative impact with the Development. Either way, the implementation of a Construction Environmental Management Plan (CEMP) for the schemes would be required and controlled by IACC to ensure that contamination arising from general construction related activities does not have an adverse impact on surface water or groundwater and therefore will have no cumulative impacts.

Operation

15.36 In line with the current TAN15 guidance, any development should be directed towards suitable land which is not at flood risk, however if any elements of the cumulative schemes are to be sited within flood zone then appropriate mitigation measures are required to ensure that there is no increase in flood risk to adjacent or nearby sites as a result of the Development. With that in mind, it is considered that both cumulative schemes would have to satisfy the above TAN15 guidance and a suitable Flood Consequences Assessment (FCA) will be undertaken and controlled by NRW and the local authority prior to planning permission being granted. Therefore, there would be no cumulative adverse impact as a result of the schemes on flood risk.

15.37 Similarly, in terms of water quality, new or cumulative schemes will have to incorporate appropriate pollution control measures to protect the underlying groundwater and/ or local surface waters through planning conditions enforced by the local authority and/ or discharge consents enforced by NRW.

15.38 It is considered overall that the cumulative effects of the schemes on the water environment during both the construction and operational phase are considered to be negligible and not significant.

Transport

Construction

15.39 The Maen Hir Solar and Energy Project Scoping Report identifies five access routes to the site, as follows:

- Route 1: Access to/from the north, via the A55 - A5153 - A5 - A5025 - Pig Y Rhos - Rhosgoch
- Route 2: Access to/from the south, via the A55 - Junction 5 - B5112 - B5111 - Rhosgoch
- Route 3: Access to/from the west, via the A55 - A5153 - A5 - A5025 - Llanfachraeth Llanddeusant - Llanbabo - Rhosgoch
- Route 4: (Potential Egress Route) - Access from Rhosgoch - Rhosybol - B5111 - A5025
- Route 5: Access to/from the south, via the A55 - A5153 - A5 - Llangefni - Lon Sardis - B5111 – Rhosgoch

15.40 Paragraph 7.5.9 of the Maen Hir Solar and Energy Project Scoping Report states that the feasibility of these routes will be reviewed further as part of the Preliminary Environmental Information Report in consultation with the local highway authorities.

15.41 It is considered likely that Route 1 will be taken forward as the most appropriate route to the Maen Hir Solar and Energy Project Site. The A5025 connects to the A55 and is appropriate for use by HGVs.

15.42 If Route 2 is selected, then there will be overlap with the construction vehicle route for the Alaw Mon Scheme on the B5112. However, it is considered unlikely that this route would be used as it would require vehicles to travel through a number of settlements, including Llannerch-y-medd. This is unlikely to be preferred to Route 1.

15.43 Given the likelihood that Route 1 will be selected, there is not likely to be significant cumulative transport and access effects. Even if Route 2 is selected, and there is overlap between the Alaw Mon and Maen Hir Solar and Energy Project construction vehicle routes, the low level of movement is still unlikely to result in significant transport and access effects.

15.44 The Carrog Ganol Battery Energy Storage System is approximately 6 km to the north of the Development. In the Transport Statement[iii] prepared by Hydrock, it identifies the construction vehicle route via the A5025. Therefore, the proposed construction routes for the BESS site and the Development will not interact with each other, except on the A55.

15.45 The likely effects associated with the Development's proposed cable route in combination with the Maen Hir Solar and Energy Project and the Carrog Ganol Battery Energy Storage System have been scoped out of the cumulative assessment. Effects would be limited to construction, are unlikely to be cumulative and once the cable is buried there would be no impacts.

15.46 Therefore, no likely significant cumulative environmental effects from the Development with the cumulative schemes are anticipated.

Operation

15.47 As solar farms generate very few operational trips, any cumulative effect on accidents and safety, severance, driver delay, pedestrian delay and amenity and hazardous loads will remain negligible. Therefore, there are not expected to be any significant cumulative effects in relation to transport and access as a result of the operation of the schemes identified.

Air Quality

Construction

15.48 The cumulative impacts of vehicle movements during the construction phase of the Maen Hir Solar and Energy Storage Project and the Carrog Ganol Battery Storage Project, in the vicinity of the Y Werthyr Site of Special Scientific Interest (SSSI) have been considered below.

15.49 As stated in Chapter 11 Air Quality of this ES, in order for the JNCC decision-making thresholds to be exceeded within the Y Werthyr SSSI, which is set back 80 m from the B5112, cumulative schemes would need to generate 797 vehicle movements per day (as an AADT). The Maen Hir Solar and Energy Storage Project is a 350 MW PV installation (see Paragraph 15.4), slightly more than two times the scale of the Development (160 MW). If, as a worst-case, it is assumed that the Maen Hir solar farm will generate three times the construction vehicle movements as the Development (120 AADT), this would be equal to 360 AADT, which is less than half of the vehicle movements needed to exceed the JNCC decision making criterion.

15.50 The Carrog Battery Storage System is approximately 9 km from the B4112; it is likely that construction vehicles will travel along the A5025 and minimal traffic will use the B4112. The Carrog Ganol Battery Storage Project will not result in a significant increase in vehicle movements in the vicinity of the Y Werthyr SSSI and the JNCC decision making thresholds will not be exceeded in-combination with the Development and the Maen Hir Solar and Energy Storage Project.

15.51 Furthermore, the likelihood of construction movements from Maen Hir and Carrog Ganol Battery Energy Storage System coinciding with the entire 12-month construction period of the Development, currently targeted to be completed in 2026, is unlikely. The cumulative impacts of the Development in combination with the Maen Hir Solar and Energy Storage Project and the Carrog Battery Storage Project are therefore considered to be negligible.

Operation

15.52 The operational phase of the Development does not have any local emissions to air and vehicle movements to and from the Site for its service and maintenance will be infrequent (two visits per month). Therefore, the air quality effects during operation of the Development, both in isolation or in combination with the Maen Hir Solar Farm and the Carrog Ganol Battery Storage Project, will be not significant.

Noise

Construction

15.53 Construction activities associated with the Development are of a low impact type, which when coupled to the separation distances of approximately 6 km to Carrog Ganol; 3 km to the Maen Hir Solar and Energy Project would give rise to a low likelihood of shared receptors and cumulative noise and vibration impacts.

15.54 Cumulative effects may occur as a result of off-side construction road traffic effects, if/where access routes are shared; however, these would be adequately managed via the implementation of the construction traffic management measures incorporated into each scheme's CTMP. See section above for the analysis and justification related to transport effects.

Operation

15.55 The separation distances of approximately 6 km to Carrog Ganol Battery Energy Storage System; 3 km to the Maen Hir Solar and Energy Project would give rise to a low likelihood of shared receptors and cumulative noise.

15.56 Each scheme would be acoustically governed by its own adjacent receptors, meaning that cumulative noise effects at any distance beyond those receptors would be negligible.

Agricultural Land

Construction

15.57 The Carrog Ganol BESS proposal involves 15 ha of land predicted to be subgrade 3b. The Maen Hir Solar and Energy Storage Project involves 1,234 ha of agricultural land which is a mixture of predictive ALC Grades 2, 3a and 3b.

15.58 The Maen Hir proposal has the potential to affect more than 20 ha of land of BMV quality, depending upon design and, especially, any BESS proposals. If the larger infrastructure can be located on non-BMV land then the effect may be under 20 ha, and therefore not significant.

15.59 No part of the project intersects with the Site, however. Therefore, whilst there may be a cumulative impact on agricultural land use, this is not directly associated with the Site. As such there is no cumulative effect during construction of the Development and the construction of the Maen Hir or Carrog projects.

Operation

15.60 There is no anticipated additional significant harm affecting agricultural land from the operational phase of any of the projects, and consequently no cumulative harm.

Summary/Conclusions

Construction

15.61 There are no significant beneficial cumulative effects have identified during the construction phase of the Development.

15.62 One significant adverse cumulative effect has been identified during the construction phase of the Development:

- Moderate adverse effect on visual receptors using NCR5, PRoW 22/027/1 and 47/038/1 and from Minor Roads near Maen Hir.

Operation

15.63 There are no significant beneficial cumulative effects have identified during the operation phase of the Development.

15.64 One significant adverse cumulative effect has been identified during the operational phase of the Development:

- Moderate adverse effect on receptors using PRoW 47/037/1 due to the Maen Hir Solar and Energy Storage Project.

Table 15.1: Significance Table – Cumulative Effects

Phase	Effect/ Receptor	Mitigation	Residual Significance
Cultural Heritage (Chapter 6)			
Construction	No effect	No additional mitigation proposed	No effect (Not significant)
Operational	Impact on the Scheduled Monuments of Cors y Bol and Y Werthyr	No additional mitigation proposed	Minor adverse (Not significant)
Landscape and Visual Effects (Chapter 7)			
Construction	Impact on a number of visual receptors to include NCR5, Users of PRoW 22/027/1	No additional mitigation proposed	NCR5, PRoW 22/027/1 and 47/038/1 and from Minor Roads near Maen Hir- Moderate Adverse (Significant) All other effects Minor to Neutral (not significant)
Operational	Slight increase in effects resulting from the cumulative Maen Hir scheme	No additional mitigation proposed	PRoW 47/037/1 - Moderate Adverse (Significant) All other effects Moderate – Minor Effects (not significant)
Biodiversity (Chapter 8)			
Construction	No effect	No additional mitigation proposed	No effect (Not significant)
Operational	No effect	No additional mitigation proposed	No effect (Not significant)
Water Environment (Chapter 9)			
Construction	Increase in surface water runoff	No additional mitigation proposed	Negligible (Not significant)
	Remobilisation of existing contamination and contamination arising from general construction activities	No additional mitigation proposed	Negligible (Not significant)
Operational	Impact on flood risk	No additional mitigation proposed	Negligible (Not significant)
	Impact on water quality	No additional mitigation proposed	Negligible (Not significant)
Transport (Chapter 10)			
Construction	Potential overlap of construction vehicle route with Maen Hir	No additional mitigation proposed	No effect (Not significant)
Operational	No effect	No additional mitigation proposed	No effect (Not significant)
Air Quality (Chapter 11)			
Construction	Emissions from additional traffic upon the Y Wethyr SSSI	No additional mitigation proposed	No effect (Not significant)
Operation	No effect	No additional mitigation proposed	No effect (Not significant)
Noise (Chapter 12)			

Table 15.1: Significance Table – Cumulative Effects

Phase	Effect/ Receptor	Mitigation	Residual Significance
Construction	Increase of traffic on shared access routes	Implementation of the construction traffic management measures incorporated in the CEMP	No effect (Not significant)
Operation	No effect	No additional mitigation proposed	No effect (Not significant)
Agricultural Land (Chapter 13)			
Construction	No effect	No additional mitigation proposed	No effect (not significant)
Operation	No effect	No additional mitigation proposed	No effect (not significant)

Table 15.2 Cumulative Landscape Effects Table

Landscape character	Direct	Indirect	Sensitivity	Magnitude of Effect	Significance of Effect Construction	Significance of Effect Year 1	Significance of Effect Year 15 (Residual)	Description of Effects
Character areas								
NLCA2: Central Anglesey	Both schemes within same portion of NLCA	None – due to the scale and location of the proposed schemes within the NLCA	Medium	Small	Minor Adverse	Minor Adverse	Minor Adverse	The Development and Maen Hir scheme are located within the northern part of the NLCA. There are a number of existing renewable schemes – that include both solar and wind. The nature of the proposals are low lying set within an existing landscape framework. The combination of both proposals will result in a limited direct effect on the NLCA. This will directly alter a small proportion of the NLCA as a whole – it will not affect any designated landscapes.
North West Anglesey LCA 5	Elements of both schemes are located within this LCA – the northern part of the Site and the north western and central part of Mean Hir. Context of renewable wind which reduces sensitivity to solar.	The southern part of the Site is located immediately south of the LCA 5 - within LCA 73 West Central Anglesey	Medium	Small	Minor Adverse	Minor Adverse	Minor Adverse	The northern part of the Site is located within the LCA 5 which nis less characteristic of the drumlin field hillocks, comprising a local ridgeline that bounds the Llyn Alaw and Cors-y-bol valley, which is influenced by the reservoir and associated water treatment works and the wind farms to the north of the reservoir. Furthermore, the Landscape Sensitivity and Capacity Assessment states that the presence of wind turbine development within the LCA reduce the landscape's sensitivity to solar farm development which is lower lying and responds to the local landscape structure.
Geological								

Llanerchymedd (YNSMNGL020)	The whole Site and majority of the southern part of the Maen Hir scheme are located within the Aspect Area (AA)	None	Medium	Neutral	Neutral	Neutral	Neutral	The Development and Maen Hir scheme would not change the underlying landform or general topography.
Habitats								
West Anglesey Farmland	The Site is located entirely within this AA, with a limited part of the south eastern section of the central zone of Maen Hir located at the eastern edge with a further part wrapping around the northern edge north of Llyn Alaw adjacent to the northern boundary of the AA.	None	Low	Very Small	Negligible Adverse	Negligible Adverse	Minor Beneficial	The Development would retain and enhance the landscape framework that includes substantial new planting, with new hedgerow, tree and woodland planting. It is considered that the proposals at Maen Hir would also provide similar enhancements and benefits to the landscape structure. During construction the existing features for the majority will be retained, with enhancements through additional planting at year 1, albeit, limited. By year 15 these would have matured and provide a strong more diverse range of habitats.
Cultural								
North-west Drumlins	The northern part of the Site is located within this area with the south eastern extent of the central area of Maen Hir located at the eastern most extent.	The southern area of the Site is located immediately to the south.	Medium	Very Small	Negligible Adverse	Negligible Adverse	Negligible Adverse	Development within the Site and at Maen Hir would retain and enhance the existing landscape structure. However, changes to the landscape character and scenic quality (given the potential for intervisibility) will arise from the solar arrays. This will have an impact on views and sense of place. The nature of the proposals is such that there is a limited influence on the local and wider setting given the low lying nature of the built form which are considered temporary.

Central smooth belt	The southern area and the southern part of Maen Hir are located within this AA.	The northern part of the Site is located immediately adjacent to the AA.	Low	Very Small	Negligible Adverse	Negligible Adverse	Negligible Adverse	Development within the southern part of the Site and the southern part of the Maen Hir would result in changes to the landscape character and scenic quality. However, given the distance there is no potential for intervisibility. Although there are potential for This will have an impact on views and sense of place. The nature of the proposals is such that there is a limited influence on the local and wider setting given the low lying nature of the built form which are considered temporary.
Historic								
Local Historic AA Fieldscape Central Eastern Môn (YNSMNHL016)	The Site is located entirely within this AA, the central and the northern extent of the southern parts of Maen Hir are also included within this AA.	Southern extent of the Southern Part of Maen Hir	Meduim	Very Small	Negligible Adverse	Negligible Adverse	Negligible Adverse	The Development will result in a change in land use to a limited section of the AA, the change is considered temporary and reversible. The Development and Maen Hir scheme would retain the overall fieldscape, landscape pattern and features that contribute to the character. The proposed landscape planting include in both schemes will provide some beneficial aspects.
Visual and Sensory								

North West Drumlins	The northern part of the Site is located within the eastern part of the AA with the eastern part of the central section of Maen Hir extending in the eastern Southern portion is Within same AA north west drumlins. Combined both schemes cover 2.63% of the AA	The southern part of the Site lies directly to the south of the AA with the western extent of the central part of Maen Hir wrapping around Llyn Alaw - there is intervisibility between these and those within the AA.	Low	Very Small	Negligible Adverse	Negligible Adverse	Negligible Adverse	The Development and Maen Hir Scheme would result in there being a change to the views in and around the AA. Although the key features will remain the introduction of the solar panels – being the main component of the proposal - will affect the physical attributes of the land cover, albeit grassland would be retained under the panels. As such the sense of place will change, this will also alter the sense of unity with the AA.
Central Smooth Belt	The southern part of the Site is located within the western part of the AA that also includes the southern section of Maen Hir. Combined both schemes cover 4.73% of the AA	The northern part of the Site lies adjacent to the north of the AA with the eastern extent of the central part of Maen Hir in proximity to the AA - there is potential limited intervisibility between these and those within the AA.	Medium / Low	Very Small	Negligible Adverse	Negligible Adverse	Negligible Adverse	The Development and Maen Hir Scheme would result in there being a change to the views in and around the AA. Although the key features will remain the introduction of the solar panels – being the main component of the proposal - will affect the physical attributes of the land cover, albeit grassland would be retained under the panels. As such the sense of place will change, this will also alter the sense of unity with the AA. The intervisibility between the schemes is lower than within the North West Drumlins AA as a result of the intervening landform and mature vegetation.

Drumlins with Windfarms (YNSMNVS010)	The Site is not located within this AA.	There is a degree of intervisibility between the Site and the AA - VP19	Low	Very Small	Negligible Adverse	Negligible Adverse	Negligible Adverse	Although the Site is not located within this AA, there is potential for indirect effects arising from the intervisibility. The distance between the proposals is approximately 1.76km (1.1 miles). Given the distance between the Site and the AA it is anticipated that the effects would be minimal.

Table 15.3 Cumulative Visual Effects Table

Visual Receptor	Combined / Succession views	Sequential possible	Sensitivity	Magnitude of Effect	Significance of Effect Construction	Significance of Effect Year 1	Significance of Effect Year 15 (Residual)	Description of Effects
SCPs 2,3, 4A, 4B, 5, 6, 14 and 15 Users of the minor road and National Cycle Route 5 (NCR5) within proximity to the Site.	Users of the Minor Road network would have both combined and in-succession views of the Development and the Maen Hir scheme. Albeit where there are views that would be in the long distance.	As users move along the minor roads network within the study area there would be sequential views possible especially from the higher ground to the north and south of Llyn Alaw – SCP 3 and 6	Medium / Low	Small	Minor Adverse	Moderate – Minor Adverse	Minor Adverse	The nature of the views from the local roads within proximity to Site is defined by the falling landform within the immediate setting, Llyn Alaw in the middle distance, beyond which the landform rises - upon which Maen Hir is located. This allows for long distance views towards the Maen Hir scheme. These are likely to be most apparent during construction. At year 1 the Development will provide a level of screening beyond the Site limiting views towards Maen Hir. As the landscape proposals mature within the Development these will not only mitigate the adverse visual effects arising from the Development built also provide further screening towards the Site. This will not only result in restricting views of the proposed development but also restrict the existing views over the wider landscape and as such change the nature of the views.

Visual Receptor	Combined / Succession views	Sequential possible	Sensitivity	Magnitude of Effect	Significance of Effect Construction	Significance of Effect Year 1	Significance of Effect Year 15 (Residual)	Description of Effects
SCP 7, 8 and 9: Users of Minor Road and PRoW 25/024/3, 25/026/1 and 25/023/2	There are possible views form the higher ground to the north east of the Site - SCP 7 and 8. From here views are possible over and along Llyn Alaw. The Development would be visible to the south and Maen Hir to the north west.	Similar to the combined and succession views as users move along the footpaths there would be sequential views possible especially from the higher ground to the north and south of Llyn Alaw – SCP 7 and 8	Medium / Low	Small	Minor Adverse	Minor Adverse	Negligible Adverse	The nature of views from the footpath network is such that there are wider ranging views which allow the users to take in Llyn Alaw and the associated higher ground. Although there would be combined, succession and sequential views the degree of visible development and distance between the user is sufficient to reduce the overall cumulative effects. The nature of the view will not change although the proposals would alter the character of the view.
SCP 10: Receptors using PRoW 47/037/1 adjacent to Water Treatment Works (Photomontage Viewpoints 10a and 10b)	The Site is located to the south east with the Maen Hir scheme located to the north.	The nature of the footpath along the southern edge of Llyn Alaw would allow for sequential views.	Medium / Low	Small	Minor Adverse	Moderate - Minor Adverse	Minor Adverse	The nature of views towards the Site is illustrated by photomontages 10a and 10b. Views towards Maen Hir would be of the development located on the higher ground to the north of Llyn Alaw, approximately 1.77km to the north. The mature vegetation and built form associated within the adjacent water works would reduce the potential for cumulative effects. The proposed mitigation measures that are included within the Development and those likely within Maen Hir would reduce the effects over time.

Visual Receptor	Combined / Succession views	Sequential possible	Sensitivity	Magnitude of Effect	Significance of Effect Construction	Significance of Effect Year 1	Significance of Effect Year 15 (Residual)	Description of Effects
SCP 11: Users of PRoW 22/027/1 (Cumulative Effects Viewpoint)	The Site is located adjacent to the PRoW with the Maen Hir scheme located to the north west.	The nature of the footpath along the southern edge of Llyn Alaw would allow for sequential views.	Medium	Medium	Moderate Adverse	Minor Adverse	Negligible Adverse	During Construction, users will experience oblique views of the development. There is limited structural vegetation along field boundaries so views of construction activity will dominate part of the view. At Year 1, the Development to the north extends to the PRoW. There will be long distance views of the Maen Hir scheme to the north west. However, given the distance between the schemes it is not considered that the effects would not increase beyond Minor Adverse. By Year 15, the proposed landscape planting will provide will screen any views present at Year 1. Furthermore, the establishment of this feature will draw the receptors attention away from the proposed development towards the appreciation of the landscape feature.
SCP 12 and 13: Users of PRoW 25/028/1 (Photomontage Viewpoints 12A & 12B & Cumulative Effects Viewpoint) Distance from the Site (Approx.) 130m south at the closest point	Not visible in combination or succession. Intervening ridgeline and mature vegetation restrict the view.	The PRoW is short and does not go beyond the immediate fieldscape, ending at a field and providing no connection between destinations. Not visible in combination or succession. Intervening ridgeline and mature vegetation restrict the view.	Medium	Neutral	Neutral	Neutral	Neutral	No visual connection

Visual Receptor	Combined / Succession views	Sequential possible	Sensitivity	Magnitude of Effect	Significance of Effect Construction	Significance of Effect Year 1	Significance of Effect Year 15 (Residual)	Description of Effects
SCP 16: Users of PRoW 47/038/1 (Photomontage Viewpoints 16A & 16B) Distance from the Site (approx.) 115m south-west at the closest point	The Site is located at the end of the PRoW with the Maen Hir scheme located within the wider landscape to the north west.	There will be views over and across the Site towards Maen Hir as users move along the PRoW	Medium	Small	Moderate Adverse	Moderate Adverse	Minor Adverse	There are likely to be cumulative effects arising at construction phase as a result of the intervening landform – albeit in the far distance. There would also be views possible at year 1 of the two completed developments in combination. By year 15 the proposed landscape planting will help mitigate and reduce the effects. The PRoW does not provide any connection between destinations and ends at the Sites southern boundary.
SCP 17: Users of PRoW 47/009/2	Not visible in combination or succession. Intervening ridgeline and mature vegetation restrict the view.	The PRoW is short and does not go beyond the immediate fieldscape, ending at a field and providing no connection between destinations. Not visible in combination or succession. Intervening ridgeline and mature vegetation restrict the view.	Medium	Neutral	Neutral	Neutral	Neutral	No visual connection

Visual Receptor	Combined / Succession views	Sequential possible	Sensitivity	Magnitude of Effect	Significance of Effect Construction	Significance of Effect Year 1	Significance of Effect Year 15 (Residual)	Description of Effects
SCP 18 and 19: Users of minor roads near Llywn-yr-Arth and near Penbol Uchaf. (Photomontage Viewpoint) Distance from the Site (approx.) 2 to 2.3km north at the closest point	Users of the Minor Road network would have both combined and successional views of the Development and the Maen Hir scheme. Albeit the nature of effects from these receptors will have a greater effect due to the proximity and scale of the Maen Hir scheme.	As users move along the minor roads network within the study area there would be sequential views possible especially from the higher ground to the north and south of Llyn Alaw – SCP 3 and 6	Medium / Low	Medium	Moderate Adverse	Minor Adverse	Negligible Adverse	The nature of the views from the local roads within proximity to Maen Hir central are defined by the falling landform within the immediate setting, Llyn Alaw in the middle distance, beyond which the landform rises - upon which the Site is located. This allows for long distance views towards the Development. These are likely to be most apparent during construction. At year 1 the Maen Hir Scheme will provide a level of screening towards the Site - SCP 19. As the potential landscape proposals mature within the Maen Hir scheme these will not only mitigate the adverse visual effects arising from the Maen Hir scheme built also provide additional screening towards the Site. This will not only result in restricting views of the proposed development but also restrict the existing views over the wider landscape and as such change the nature of the views.

[i] Maen Hir Project Solar and Energy Storage: Environmental Impact Assessment Scoping Request (2023). Lightsource BP. <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010156/EN010156-000014-MNHR%20-%20Scoping%20Report%20(main%20text%20and%20Appendix%205.1).pdf>

[ii] FPL/2023/218 Documents (2023) Boom Power Ltd < https://90orcsshu4.execute-api.eu-west-2.amazonaws.com/prod/redirector?BASE_URL%3Dhttps://planningdocuments.anglesey.gov.uk/NIM.WebSearch/ExternalEntryPoint.aspx&SEARCH_TYPE=1&DOC_CLASS_CODE=PL&FOLDER1_REF=FPL/2023/218>

[iii] Carrog Battery Energy Storage System Transport Statement (2023) Hydrock <https://planningdocuments.anglesey.gov.uk/NorthgatePublicDocs/00074098.pdf>