



Bute Energy
Aberedw Energy Park

Appendix 4.3:

**High-level Appraisal of the Abnormal Load
Routes to Site**

Aberedw Energy Park Limited

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High-level Appraisal of the Abnormal Load Routes to Site

A4.6.1 Introduction

- A.4.6.1.1 This appendix provides a high-level environmental appraisal of the two proposed access routes currently being considered to deliver Abnormal Indivisible Loads (AIL) to the Aberedw Energy Park (the Proposed Development). The Site of the Proposed Development is located within the local planning authority of Powys County Council (PCC), approximately three km east of Builth Wells.
- A.4.6.3.1 The proposed route to Site including any offsite works required to facilitate the movement of abnormal loads does not form part of this Development of National Significance (DNS) application for the Proposed Development. The route will be confirmed by the Applicant once the turbine supply contract is agreed and following further discussions with consultees, landowners, utility providers and roads agencies.
- A.4.6.1.2 Any planning permission and/or highways consent(s) required for the AIL route will be sought at that time, with the DNS for the Proposed Development providing part of the need case for the works. The AIL route will extend across several local authority boundaries (including in England) however, planning permission and/or highways consent(s) may only be necessary for partial sections of the route.
- A.4.6.1.3 To assist in the assessment and determination of the AIL routes at that time, a Route Survey Report (RSR) will be prepared to identify all constraints along the route. Constraints identified by such RSRs are considered to comprise either overrun or oversail beyond the carriageway. A blade lifter may be required in which case there may be a requirement to cut back some tree canopy. Where overrun or oversail is identified, a swept path assessment (SPA) drawing will be provided. The RSR will be accompanied by an assessment of environmental effects identified, and mitigation proposed where required.
- A.4.6.1.4 Two separate Ports of Entry (PoE) are currently being considered for the delivery of AIL: Swansea Docks and Birkenhead Docks. This appendix sets out the proposed access route to Site from each of these PoE, provides desk-based information on environmental considerations associated with these routes and presents a high-level environmental appraisal of each route. Based on information available, the appraisal indicates that delivery of AIL to the Site is feasible.
- A.4.6.1.5 **ES Chapter 4: Development Description** states that as abnormal loads for the Proposed Development would come primarily from the north regardless of the PoE selected, with the site access junction coming off the A481 along the northern edge of the Site. A secondary site access has been included in the ES in relation to AIL for the substation. Consent is being sought within the DNS application for both of these options, however only the primary access will be utilised for turbine delivery once the PoE has been determined. The site access junction is shown on **Figures 4.9, Volume 3 of the ES**.

A4.6.2 Proposed Access Routes

- A.4.6.2.1 It is anticipated by the Applicant that the Site will be directly accessed via one of two PoE routes currently under consideration:

- Swansea Docks; and
- Birkenhead Docks.

Swansea Docks PoE Access Route

- A.4.6.2.2 The proposed access route from Swansea Docks is as follows:

- The route departs from Swansea Docks, following the A483. The route would then proceed eastbound and join the M4 at Junction 42, continuing to Junction 43 where the route departs the motorway to join the A465 through to Merthyr Tydfil.
- The AIL would then turn left onto the A470 and travel north towards Brecon before joining the A40 heading east at Brecon and then rejoining the A470 heading northeast at Brynich Roundabout.
- The route then continues along the A438 and onto the A4111 heading north before joining the A481 heading southwest at the A44/A481 junction.

- The route then turns left at the junction southwest of Hundred House onto the C1336 heading southeast before turning right into the proposed Site access.

Birkenhead Docks PoE Access Route

A.4.6.2.3 The proposed access route from Birkenhead Docks is as follows:

- The route departs Birkenhead Docks and proceeds west on Dock Road and the A5139 before entering the M53 at Bidston Junction heading southbound.
- The route exits the M53 at Hoole Island Junction and joins the A55 southbound.
- The AIL would exit the A55 at Wrexham Road Interchange and join the A483 southwest bound.
- The route then proceeds on the A483 southbound to the Sarn Bryn Caled Roundabout, and on to the A483 westbound.
- The route then follows the Newtown Bypass before continuing on the A483 to the Crossgates Roundabout
- The AIL would exit the A483 at Crossgates Roundabout then follow the A44 eastbound, and onto the A481 southwest.
- The route follows the C1336 southeast, before turning right into the proposed access junction.

A4.6.3 Environmental Appraisal of Route Options

Methodology

A.4.6.3.2 A high-level review of desk-based information has been carried out to consider each route against environmental topics. The approach taken to the consideration of each topic, the reason for its inclusion and data used is set out below.

Landscape and Visual

- A.4.6.3.3 Tree, hedgerow and vegetation removal can lead to changes in the landscape and views which could be perceived as a negative change. A desk-based review of potential locations along the two proposed access routes where it is considered possible that tree, hedgerow and vegetation removal could be required to accommodate the AIL was undertaken. The review also considered the proximity of National Parks and Special Landscape Areas (SLAs).
- A.4.6.3.4 This desk-based assessment reviewed DataMapWales, aerial mapping and Google Street View.
- A.4.6.3.5 National Character Areas (NCAs) and LANDMAP were not considered due to the transient and temporary nature of effects and due to the high-level nature of the appraisal.

Cultural Heritage

- A.4.6.3.6 The delivery of AIL has the potential to indirectly and temporarily affect heritage assets as a consequence of vibration or a temporary change to their setting. A review of heritage assets along or in the vicinity of the two proposed access routes was undertaken. This desk-based assessment considered Listed Buildings (within 20m of the route), Conservation Areas (within 20m of the route), Historic Landscape Areas (within 50m), World Heritage Sites, Registered Parks and Gardens and Scheduled Monuments (all within 100m of the route).
- A.4.6.3.7 Data was obtained from the National Heritage List for England (NHLE), the CADW Historic Environment dataset and DataMapWales.
- A.4.6.3.8 Undesignated heritage assets were not considered due to the transient and temporary nature of effects.

Ecology

- A.4.6.3.9 Tree, hedgerow and vegetation removal can lead to habitat loss and fragmentation, disturbance, displacement, injury or death to Important Ecological Features (IEF), such as faunal species, bats, badger, great crested newt and dormouse. A review of ecological receptors along or in the vicinity of the two proposed access routes was undertaken. This desk-based assessment considered Ramsar Sites, Special Protection Areas (SPA), Special Areas

of Conservation (SAC), Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR) and Local Nature Reserves (LNR). The presence of Ancient Woodland and other woodland was also noted.

- A.4.6.3.10 Datasets reviewed were: Multi-Agency Geographic Information for the Countryside (MAGIC) website (Magic.gov.uk) for locations of protected sites; DataMapWales for protected sites and Phase 1 habitats (Wales); Data.gov website for protected sites (England); Natural Resources Wales website; Ordnance Survey (OS) mapping; and Google Maps, including aerial photography and street view imaging.
- A.4.6.3.11 Records of protected and priority species and Local Wildlife Sites were not requested from Local Ecological Record Centres due to the high-level nature of the appraisal. However, these records will be obtained to inform the ecological assessments that will be prepared to inform any planning application(s) for the AIL route.

Hydrology and Drainage

- A.4.6.3.12 The delivery of AIL has the potential to indirectly and temporarily affect water quality through potential pollution events or directly causing damage to existing roadside drainage. A review of water resources along or in the vicinity of the two proposed access routes was undertaken. This desk-based assessment considered any lakes, springs, watercourses and drainage. Flood risk has not been considered as the AIL would not be delivered during times of flood.
- A.4.6.3.13 This desk-based assessment reviewed OS mapping, aerial mapping and Google Street View.

Traffic and Transport

- A.4.6.3.14 The delivery of AIL to the Site will potentially temporarily affect traffic flows causing delay to other road users and affect users of Public Rights of Way (PRoW) that intersect the routes. A review of National Cycle Network (NCN) routes, PRoW and lay-bys along or in the vicinity of the two proposed access routes was undertaken.
- A.4.6.3.15 This desk-based assessment reviewed aerial mapping and Google Street View. PCC datasets were used to identify the locations of PRoW.
- A.4.6.3.16 Potential effects on the amenity of other road users and pedestrians would be considered as part of the planning and/or highways consent(s) required and secured in an AIL Traffic Management Plan (TMP).

Air Quality

- A.4.6.3.17 Additional traffic resulting from the AIL deliveries will contribute to emissions and therefore have the potential to temporarily adversely affect Air Quality Management Areas (AQMA) if present. A review was undertaken to determine if the two proposed access routes pass through any AQMA. This review considered the UK AQMA interactive map.

Noise

- A.4.6.3.18 The potential for noise effects has not been reviewed for locations along the route. Control mechanisms for noise will be secured and managed through an AIL TMP– see the section on ‘Proposed Mitigation’ below.

Socio-Economics, Recreation and Tourism

- A.4.6.3.19 This topic is not considered further as any mitigation for effects arising from the AIL deliveries on socio-economics, recreation and tourism, such as parking restrictions and consideration of any key events such as the Royal Welsh Show or access to tourism facilities etc will be secured and managed through the TMP.

Assessment of the Routes

- A.4.6.3.20 **Tables 4.1 and 4.2** below outline the environmental considerations identified through the desk-based review associated with the Swansea Docks (1) and Birkenhead Docks (2) proposed access route options being considered.

Table 4.1 Potential environmental considerations associated with Swansea Docks proposed access route

Topic	Potential considerations
Landscape and Visual	At a number of locations along the route, some removal or cutting back of existing trees, vegetation and hedgerow is likely to be required to accommodate the AIL deliveries. This is most

Topic	Potential considerations
	often the case with the delivery of AIL, and detailed effects of which would be considered through the planning and/or highways consent(s) required. If planning permission is required, any tree removal will be mitigated with replacement planting in accordance with relevant planting ratios. A short section passes through the Bannau Brycheiniog National Park, the visual effect of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route.
Cultural Heritage	There are no heritage assets immediately adjacent to the proposed access route. Heritage assets along the route include: ■ Registered Park and Gardens (within 100m): Cefn Coed Cemetery and Jewish Burial; Bronllys Hospital. ■ Historic Landscape Areas (within 50m): Middle Usk Valley: Brecon and Llangorse; Middle Wye Valley. ■ Grade I and II Listed Buildings, including (not exhaustive) (within 20m): Dan-y-graig Farm (Grade II); Barn at Grawen Farm (Grade II); Aberllynfi House (Grade II); Church of St Mark Magdalene (Grade I); Grade II Listed Barn north-west of Eardisley Wooton Farmhouse; Listed Kington Cemetery and Summerfield Lodge (Grade II); Kington Laundry and Border Cleaners & Olde Tavern (Grade II); Barn and Shelter Shed about 50 yards north-west of Upper House Farm (Grade II); Rodds Farmhouse (Grade II); Maesllwch Castle (Grade II). ■ Scheduled Monuments (within 100m): Clyro Court chambered tomb, Three Roman Camps, Knapp Farm Mound, Hundred House round barrow, and Colwyn Castle. ■ Conservation Areas (within 20m): Glynneath Woolen Mill Conservation Area, Clyro Conservation Area and New Radnor Conservation Area. There are no World Heritage Sites along this route. In terms of the setting of the heritage assets lying adjacent or within 100m of the route, the effect of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route. However, as the AILs will be travelling lawfully on public roads, this is not materially different to the baseline condition, and there is no mechanism to control such movements unless the highway is closed off, which is not proposed. In relation to the physical effect of AIL through potential direct damage or vibration effects, this would be considered and controlled through the AIL TMP associated with the planning and/or highways consent(s) required.
Ecology	At some locations along the route, impacts could arise as a result of removal or cutting back of existing trees, tree canopies, vegetation, and hedgerow to accommodate the AIL deliveries. There could also be the potential for air quality and/or noise affecting the integrity of an ecological designation. There are some ecological designated sites along the route or in proximity to the route, including: ■ SSSI/SAC/NNR/Ramsar: Crymlyn Burrows. ■ SSSI/SAC: River Wye. ■ SSSI: Cors Bryn-y-Gaer; Upper River Wye; Daren Fach; Afon Wysg (Isafonydd) River Usk tributaries; Afon Llynfi; Questmoor Meadow; Quebb Meadow; Birches. ■ Nant Frwyrd RIGS. ■ Ancient Woodland, ancient semi-natural woodland and orchard that could be affected by the removal or cutting back of existing trees, vegetation and hedgerow. There may be some ecological effects of the delivery of AIL where tree, hedgerow and vegetation removal are required. Further ecological assessment will be undertaken for the planning and/or highways consent required, which will include consultation with NRW and local authorities where required. Habitat loss could be mitigated and enhanced through Net Benefit for Biodiversity, replacement habitat creation and/or enhancement of retained habitats. Protected species licences may be required.
Hydrology and Drainage	At some locations the proposed access route is within proximity to some water features such as inland rivers at some locations, and the Lwyn-on reservoir. Given that AILs will be travelling lawfully on roads routinely used by HGVs, no new drainage or culvert works are anticipated

Topic	Potential considerations
	under normal circumstances. However, should swept path analysis or detailed access design indicate the need for localised overrun areas or temporary works outside the existing carriageway that could interact with verge drains or ditches, proportionate mitigation measures would be identified in consultation with the highway authority. Any new drainage required or upgrades to existing drainage will be considered through the planning and/or highways consent(s) and drainage consent. Mitigation for any pollution incidents will be secured as part of these consents.
Traffic and Transport	At some locations along the route, NCN, PRow and lay-bys are present which may require some temporary stopping-up or diversion during AIL delivery. Traffic and transport effects of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route. Measures to manage and/or mitigate these effects will be secured through the Construction Transport Management Plan (CTMP) and an AIL TMP (see Proposed Further Work and Mitigation section below).
Air Quality	The appraisal confirmed that the route from Swansea Docks is located outside of any AQMAs, indicating no anticipated conflicts with designated air quality protection zones and no regulatory air quality concerns along either of the access routes. Air quality effects of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route.
Noise	For the route from Swansea Docks, those activities that may give rise to audible noise at surrounding properties will generally be limited to the hours 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays. However, AIL deliveries may take place outside these times, when the roads are quieter, but only with the prior consent of PCC and the Police. Noise effects of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route.

Table 4.2 Environmental considerations associated with Birkenhead Docks proposed access route

Topic	Potential considerations
Landscape and Visual	At locations along the route, some removal or cutting back of existing trees, vegetation and hedgerow is likely to be required to accommodate the AIL deliveries. If planning permission is required, any tree removal will be mitigated with replacement planting in accordance with relevant planting ratios. This is most often the case with the delivery of AIL, and detailed effects of which would be considered through the planning and/or highways consent(s) required.
Cultural Heritage	There are no heritage assets directly on the proposed access route. Further assessment could be required for assets adjacent to the route. Heritage assets along the route include: ■ Grade I and II Listed Buildings, including (not exhaustive) (within 20m): : Gabled Outbuilding Range Forward on Right of Maesyfed (Grade II); Maesyfed (Grade II). ■ Scheduled Monuments (within 100m): Lime kilns, associated tramways, structures and other buildings at Llanymynech; Railway Transfer Dock at Welshpool; Domen Castell Mound and Bailey Castle, Hundred House Round Barrow, and Colwyn Castle. ■ Conservation Areas (within 20m): Llanymynech Village and Heritage Area Conservation Area and Welshpool Conservation Area. There are no Registered Park and Gardens, Historic Landscape Areas or World Heritage Sites along this route. In terms of the setting of the heritage assets lying adjacent or within 100m of the route, the effect of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route. However, as the AILs will be travelling lawfully on public roads, this is not materially different to the baseline condition, and there is no mechanism to control such movements unless the highway is closed off, which is not proposed. In relation to the physical effect of AIL through

Topic	Potential considerations
	potential direct damage or vibration effects, this would be considered and controlled through the AIL TMP associated with the planning and/or highways consent(s) required.
Ecology	At some locations along the route, impacts could arise as a result of removal or cutting back of existing trees, tree canopies, vegetation, and hedgerow to accommodate the AIL deliveries. There could also be the potential for air quality and/or noise affecting the integrity of an ecological designation. There are some ecological designated sites along the route or in proximity to the route, including: ■ SAC: River Wye. ■ SAC/SSSI: River Wye. ■ SSSI/SAC: Montgomery Canal. ■ SSSI: Llanymynech & Llyncllys Hills; Esgairdraenllwyn Pastures; River Ithon. ■ Ancient Woodland, ancient semi-natural woodland and orchard that could be affected by the removal or cutting back of existing trees, vegetation and hedgerow. ■ Local Nature Reserves: Bidston Moss LNR and Llanymynech Heritage Area LNR. There may be some ecological effects of the delivery of AIL where tree, hedgerow and vegetation removal are required. Further ecological assessment will be undertaken for the planning and/or highways consent required, which will include consultation with NRW and local authorities where required. Habitat loss could be mitigated and enhanced through Net Benefit for Biodiversity, replacement habitat creation and/or enhancement of retained habitats. Protected species licences may be required.
Hydrology and Drainage	At some locations the proposed access route is within proximity to some water features such as inland rivers including the Rivers (Athon) Dee, Ceiriog, Vyrnwy, Ieithon, Edw, the Montgomery Canal and Gillbrook Basin. Given that AILs will be travelling lawfully on roads routinely used by HGVs, no new drainage or culvert works are anticipated under normal circumstances. However, should swept path analysis or detailed access design indicate the need for localised overrun areas or temporary works outside the existing carriageway that could interact with verge drains or ditches, proportionate mitigation measures would be identified in consultation with the highway authority. Any new drainage required or upgrades to existing drainage will be considered through the planning and/or highways consent(s) and drainage consent. Mitigation for any pollution incidents will be secured as part of these consents.
Traffic and Transport	At some locations along the route, NCN, PRow and lay-bys are present which may require some temporary stopping-up or diversion during AIL delivery. Traffic and transport effects of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route. Measures to manage and/or mitigate these effects will be secured through the CTMP and an AIL TMP (see Proposed Further Work and Mitigation section below).
Air Quality	The appraisal confirmed that the route from Birkenhead Docks is located outside of any AQMAs, indicating no anticipated conflicts with designated air quality protection zones and no regulatory air quality concerns along either of the access routes. Air quality effects of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route.
Noise	For the route from Birkenhead Docks, those activities and deliveries that may give rise to audible noise at the surrounding properties will generally be limited to the hours 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 on Saturdays. However, AIL deliveries may take place outside these times, when the roads are quieter, but only with the prior consent of PCC and the Police. Noise effects of the delivery of AIL will be a short lived, temporary effect as the vehicles move along the route.

A4.6.4 Proposed Further Work and Mitigation

- A4.6.4.1 As stated in the Introduction, the AIL delivery route will be confirmed by the Applicant once the turbine supply contract is agreed and on further discussions with the relevant parties. Any planning and/or highways consent(s) required for the AIL route will be sought at that time and will be subject to separate application(s). As part of the AIL routing and consenting process, a RSR will be prepared which will include SPA drawings where overrun or oversail is identified. The RSR will be accompanied by an assessment of environmental effects identified, and mitigation proposed where required.
- A4.6.4.2 **Chapter 11: Transport and Access** of the ES provides an outline of both the CTMP and a framework AIL TMP which provide details on mitigation that will be implemented to cater for all construction traffic and AIL movements to and from the Proposed Development.
- A4.6.4.3 These management plans will be secured by a planning condition for the Proposed Development, which states that no AIL deliveries can be made until all consents for the AIL deliveries have been obtained. This will require agreement with PCC Highway Authority and other Highway Authorities through which the route will pass, depending on the final option chosen.
- A4.6.4.4 Measures within the outline AIL TMP for the Proposed Development that are relevant to the AIL deliveries are:
- Agree AIL route modifications and improvements with PCC, North and Mid Wales Trunk Road Agency (NMWTRA), South Wales Trunk Road Agency (SWTRA) and other relevant stakeholders (depending on final route option chosen).
 - Information regarding AIL deliveries.
 - Unless otherwise agreed with the roads authorities, normal site working hours will be limited to between 07:00 and 19:00 Monday to Friday and 07:00 and 13:00 Saturday though component delivery, foundation pours, and turbine erection may take place outside these hours. No work is proposed on Sundays and public holidays unless otherwise agreed with the local planning authorities.
 - Appropriate traffic management measures, which will include temporary traffic lights, will be provided along the A44 at the Site access to avoid conflict with general traffic, subject to the agreement of the roads authority.
 - Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the Site.
 - All drivers will be required to attend an induction to include:
 - A tool box talk safety briefing;
 - The need for appropriate care and speed control;
 - A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations through the villages); and
 - Identification of the required access routes and the controls to ensure no departure from these routes.
 - Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route will be recorded to provide a baseline of the condition of the road prior to any construction work commencing. This baseline will inform any change in the road condition during the construction phase. Any necessary repairs will be coordinated with the relevant authority. Any damage caused by traffic associated with the Proposed Development during the construction period that will be hazardous to public traffic will be repaired as soon as practicable.
 - Street furniture that is removed on a temporary basis will be fully reinstated.
 - Before the AIL traverse the chosen transport route, the following tasks will be undertaken to ensure load and road user safety:
 - Ensure any vegetation that may foul the loads is trimmed back to allow passage;
 - Confirm there are no roadworks or closures that could affect the passage of the loads;
 - Check no new or diverted underground services on the proposed route are at risk from the abnormal loads; and

- Confirm the police are satisfied with the proposed movement strategy.

A4.6.4.5 Measures that are relevant to the AIL deliveries that will be provided in the AIL TMP submitted for the Proposed Development are:

- Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking.
- A diary of proposed delivery movements will be used to liaise with the communities to avoid key dates, such as the Royal Welsh Show and other local events that could be affected.
- A protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries, normal business traffic or school traffic.
- Proposals to establish a construction liaison committee to ensure the smooth management of the project/public interface with the Applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee will form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

A4.6.4.6 Following completion of the RSR, where any land take and/or vegetation removal will be required to enable the AIL delivery, an ecological assessment will be carried out to identify whether field surveys will be required regarding Protected Sites, Ancient Woodland or Protected Species (including badger, bats and dormouse). Depending on the results of the survey work, appropriate mitigation will be proposed and implemented.

A4.6.5 Summary

A4.6.5.1 This appendix provides an overview of potential environmental effects that could arise from the proposed access routes being considered to deliver AIL to the Proposed Development. Overall, it has been demonstrated that potential effects will mostly be temporary and short-lived due to the transient and intermittent nature of AIL deliveries. The mitigation measures identified in this appraisal demonstrate that appropriate controls and mitigation can be implemented to ensure that any potential significant environmental effects can be managed and that there are no environmental impediments to the delivery of the AIL.