HyBont Bridgend
Green Hydrogen Project

HYGEN

Environmental considerations
Fact Sheet

Landscape and visual impact

A Landscape and Visual Impact Assessment (LVIA) has been carried out for the Brynmenyn (green hydrogen production facility) and Bryncethin (solar farm) sites to assess the likelihood of significant landscape or visual effects from the proposal, as well as identify appropriate mitigation measures.

The study area extends to 5km from the outer edge of the sites and includes sensitive landscape and visual receptors within this area. Given the location and nature of development, no significant visual effects are anticipated beyond the study area.

Character:

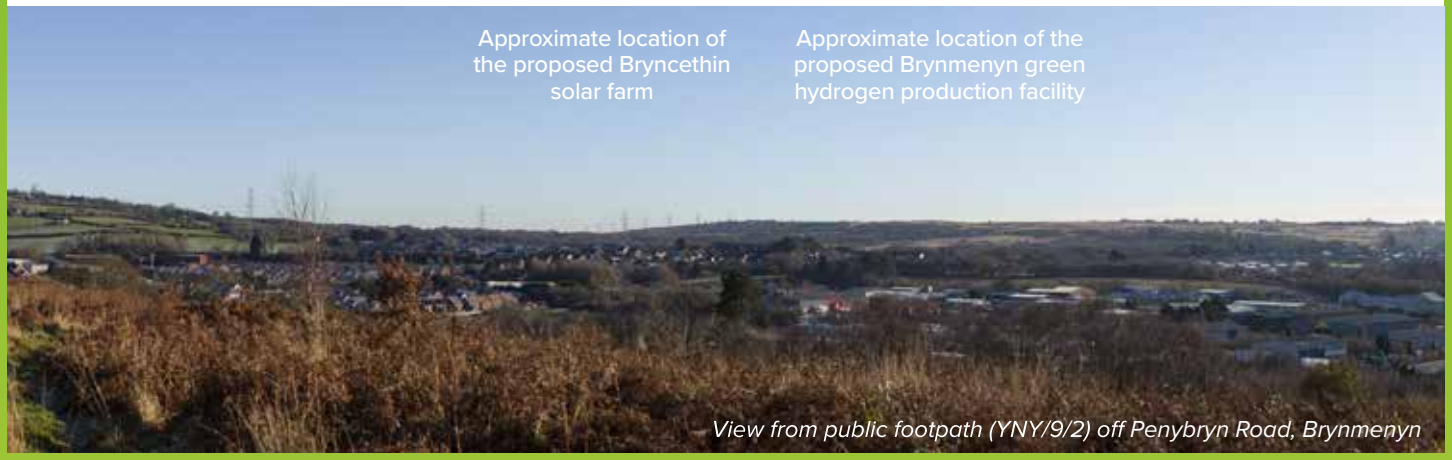
Given the large existing electricity pylons and overhead cables within the local landscape as well as wind turbines and solar arrays in the wider area, the site's containment, the temporary nature of the solar farm and its close proximity to the existing urban area of Bryncethin, particularly the existing Brynmenyn Industrial Estate and large scale industrial buildings, potential effects upon the character of the local, district and the national landscape as a result of the proposed development would not be significant.

Views:

With respect to effects upon views, the nature of the proposed development would be low-lying with the maximum height of the hydrogen plant at 6m and the solar at 3m. As such, the proposed development would cause some localised obstruction to near distance views which would be mitigated through proposed planting and the management of existing retained vegetation. Over time, the potential visual effects would diminish, but it would remain visible so there will be some residual and local adverse effects, however, these would not be significant.

The nature of views, beyond the immediate vicinity to the proposed developments, with layered vegetation and topographical variation would partially or entirely obstruct views to much of the proposed development, although it would still be visible.

Overall, the quality and character of the landscape and visual resources would be largely maintained for the lifetime of the proposed development. It is considered that the local landscape would have the capacity to accommodate the proposed development without significant landscape and / or visual effects.



View from public footpath (YNY/9/2) off Penybryn Road, Brynmenyn

Glare from solar farm:

Due to the inclusion of a ground mounted solar array in the proposal, a Glint and Glare Assessment has been carried out to inform the LVIA.

As a result of the angle of the solar arrays and significant screening, no significant impacts are predicted on any dwellings or local road users, therefore no mitigation requirements are proposed.

Ecology

A Preliminary Ecological Appraisal (PEA), involving a Phase 1 Habitat Survey has been undertaken for both sites.

A programme of Phase 2 Habitat Surveys are being carried and the findings will support the final planning application.

Badger survey	Walkover survey/s
Bat – Roosts	Daytime ground based assessment
Botanical survey / enhancement potential	Walkover, quadrats (3 site visits)
Grassland fungi survey	Walkover surveys x 4
Great Crested Newts	eDNA testing of each suitable / accessible pond
Hazel dormouse	Nest tube survey
Invasive Non-native species	Walkover survey
Invertebrates	Transects and sampling
Otter Survey	Walkover, 3-4 survey visits
Woodland and hedgerow survey	Walkover

Further surveys will be carried out in response to feedback from statutory consultees throughout the planning process, as required.

Air quality

The Air Quality Assessment considers the air quality impacts during construction and operation of the proposed green hydrogen facility.

For the construction phase, the most important consideration is dust. The mitigation measures set out in the Assessment including a Dust Management Plan, Construction Logistics Plan and site and plant management, together with regular monitoring, mean the risk of adverse dust effects is reduced to a level categorised as ‘not significant’.

During operation, the number, type and speed of vehicles using the local road network may change. Changes in vehicle emissions are the most important consideration during this phase of the development.

Detailed atmospheric dispersion modelling has been undertaken for 2025; the first year the development is expected to be fully operational. Pollutant concentrations are predicted to be well within the relevant health-based air quality objectives at existing receptors and the operational air quality effects are considered to be ‘not significant’ overall.

In terms of air quality, the green hydrogen project complies with local and national policies, as well as measures set out in Bridgend County Borough Council’s Air Quality Action Plan. Air quality will be improved by providing cleaner, hydrogen powered vehicles that do not produce emissions associated with fossil fuels.

Oxygen dispersion

Since the pre-application consultation, modelling of the dispersion of oxygen has been carried out. The scope of the work is to determine the impact of the continuous vent release of oxygen and the interaction with the relief vent release of hydrogen.

Dispersion modelling using PHAST software was used to indicate the extent of the ranges for oxygen and hydrogen releases from vent.[1]

Based on the model and assessment, the vent dispersion is not expected to extend beyond the site boundary, so it is not deemed credible for the vented oxygen to have any toxic effects to human health, either on or off site.

In addition, the oxygen dispersion is not expected to increase the risk of ignition when vented from the facility.

Full details will be provided in the Oxygen Dispersion Modelling Assessment.

Noise

A Noise Impact Assessment (NIA) has been carried out in accordance with the industry standard methodology for the assessment of commercial and industrial sound.

Baseline sound conditions were established at the nearest noise sensitive receptors and a 3D sound model was built to calculate noise impacts associated with the different elements of the proposed development during operation. These are summarised, with details given of the assumed power level of each noise source and how they have been modelled in the Assessment.

Findings to date indicated that the levels of sound arising from the operation of the facility will not result in significant adverse impacts at any of the nearby noise sensitive receptors. Full details will be provided in the Noise Impact Assessment, which will be completed before the planning application is submitted.

Flood risk

In line with national policies, a surface water drainage (attenuation) pond has been included to the north of the proposed green hydrogen facility to prevent site flooding and it is located at the lowest point on the site. The pond is proposed to be discharged into the surface drainage manhole off Squire Drive, as requested by Welsh Water and subject to their consent.

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[1] PHAST is an industry accepted software package for modelling these types of releases.

HYGEN

Hygen is already delivering low-carbon hydrogen from its Tyseley Energy Park in Birmingham, using proven, real-world experience to support the energy transition. Backed by the HydraB Group, it operates across the full hydrogen value chain, from production to end use through partners such as Wrightbus and Ryze Power. With projects including the DESNZ-approved Bradford Low Carbon Hydrogen facility, Hygen aims to scale low-carbon hydrogen to support industry, transport, and the UK's 2050 net-zero goals.

You can view all the fact sheets, background information and plans for the project online by visiting:

www.hybont.co.uk