

# HyBont Green Hydrogen Project

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## Welcome

Welcome to our public information event on proposals for the HyBont Green Hydrogen Project.

We are consulting on proposals for a green hydrogen production facility that could produce approximately 445 tonnes of hydrogen a year. This is the equivalent of providing enough clean fuel to power a single bus travelling around 1,800,000 miles per year.

## About Us

**Marubeni Europower** is a leading investor in renewable energy, developing and operating power projects worldwide.

Operating in Europe for more than 50 years, we have invested more than £1.5bn in renewable energy projects and employ over 2,000 people in the UK.

Marubeni is committed to contributing to the transition towards a low-carbon society by delivering a mix of renewables projects, including hydrogen.

## Have Your Say

These events have been organised as part of the pre-application consultation, to enable residents to discuss the project with members of the project team and provide feedback before the proposals are finalised and a planning application is submitted.

You can find out more and see all the draft planning documents on the project website:

[www.hybont.co.uk](http://www.hybont.co.uk)

## Indicative Timeline

We anticipate submitting a planning application to Bridgend County Borough Council early next year. Further consultation will take place then.

Subject to planning permission being granted, it will take 22 months to construct, and could be producing green hydrogen by Autumn 2025.

## Site Location Plan



©2022 Google Earth

**Board 1.**



# HyBont Green Hydrogen Project

## The Need For Hydrogen

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### Tackling Climate Emergency

To tackle the climate emergency, green hydrogen will have an important role to play in helping reduce our carbon footprint. This includes its use as a low carbon fuel for transport and heating buildings as well as within industrial processes.

The Welsh Government has highlighted the importance of delivering new green hydrogen facilities in its latest Net Zero plan<sup>1</sup>, which sets out its target for a 37% average reduction in carbon emissions ahead of 2025.

The scheme would also help support Bridgend County Borough Council reach its net zero targets, having consulted on the 'Bridgend 2030 Strategy' - part of its Climate Emergency Response Programme - earlier this year.

<sup>1</sup>Carbon Budget 2 (2021 – 2025)



### About Hydrogen

Hydrogen is the simplest and most abundant element in the universe, and although we are currently seeing a rapid growth within this industry, hydrogen is not a new technology.

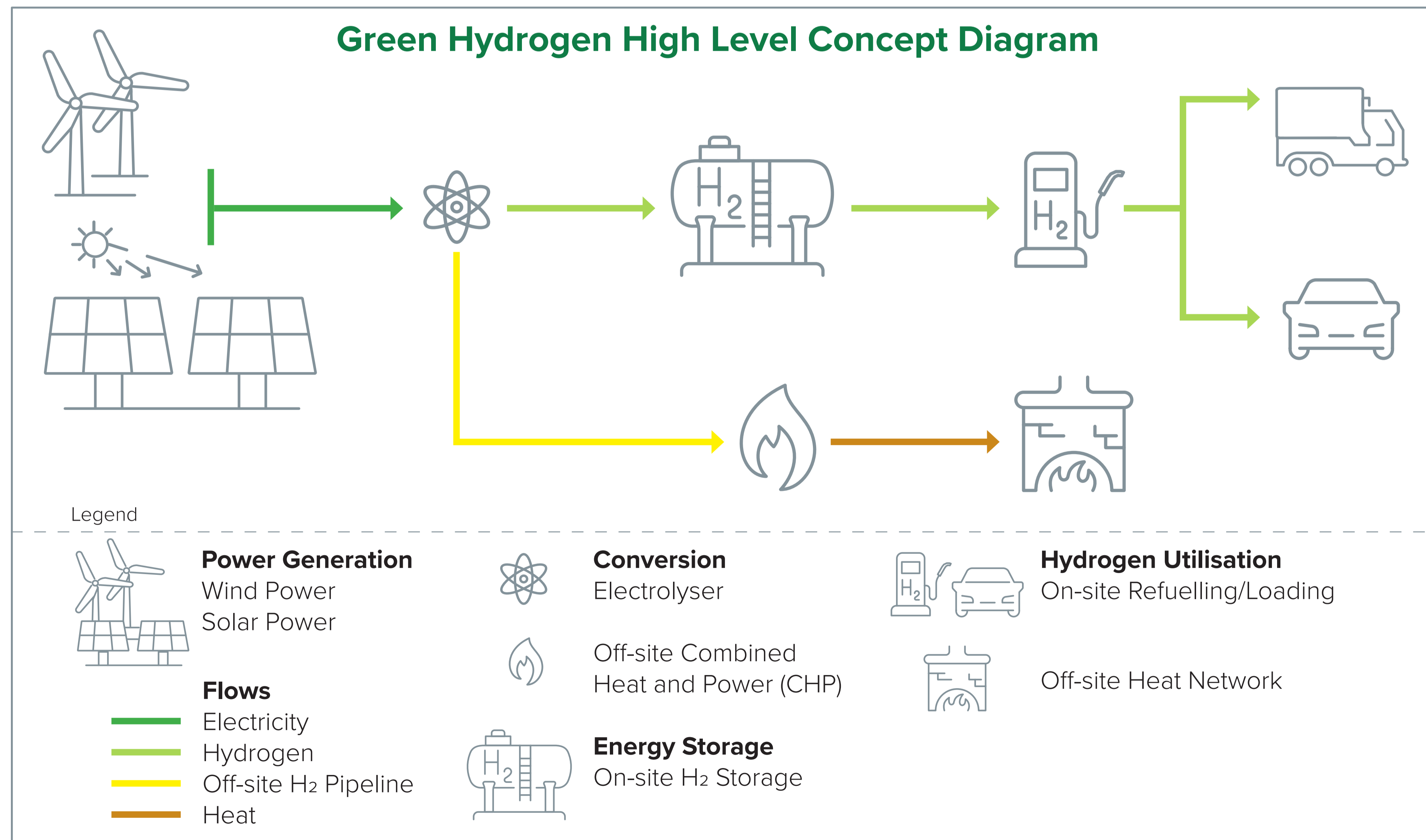
Currently, more than 70 million tonnes of hydrogen is produced globally each year (the majority from fossil fuels), and **the UK has been producing and distributing hydrogen for over a century.**

**Green hydrogen** is produced by splitting water into hydrogen and oxygen using renewable electricity. The use of renewable energy is key, as this ensures the production process has a very low carbon footprint.

Hydrogen is colourless, odourless and non toxic. When the hydrogen is used it turns back to liquid water or water vapour.



### Green Hydrogen High Level Concept Diagram





# HyBont Green Hydrogen Project

## The Proposals

H<sub>2</sub>

Hydrogen H<sub>2</sub>

zero emission

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## Green Hydrogen Production Facility

The Brynmenyn site is identified for development in Bridgend County Borough Council's Local Development Plan (LDP)

Green hydrogen production needs to be close to future users and this has been chosen due to its proximity to the existing industrial estate and the Ynysawdre cluster of community buildings.

The facility will generate up to 6MW of green hydrogen, which could be used for:

### • Transport:

Including waste collection vehicles, buses and light vehicles – with refuelling station dispensers at the Brynmenyn site.

### • Heating:

For community buildings such as Ynysawdre cluster - Ysgol Gynradd Brynmenyn Primary School, Coleg Cymunedol Y Dderwen and Halo Ynysawdre Swimming Pool and Fitness Centre – connected through a hydrogen pipeline.

### • Industry:

Existing and new businesses within the industrial estate could potentially use the green hydrogen produced.

## Design

The project will be designed and built with safety at its core.

The water for the project will be supplied by Welsh Water.

Key equipment in the green hydrogen production facility is expected to be primarily contained within prefabricated containerised units delivered to site. The new substation and admin building are likely to be built from concrete blocks and/or brick.

There will be two types of storage on site:

- 30 bar storage\* consisting of conventional horizontal carbon steel storage vessels - mainly to provide hydrogen storage for the pipeline.

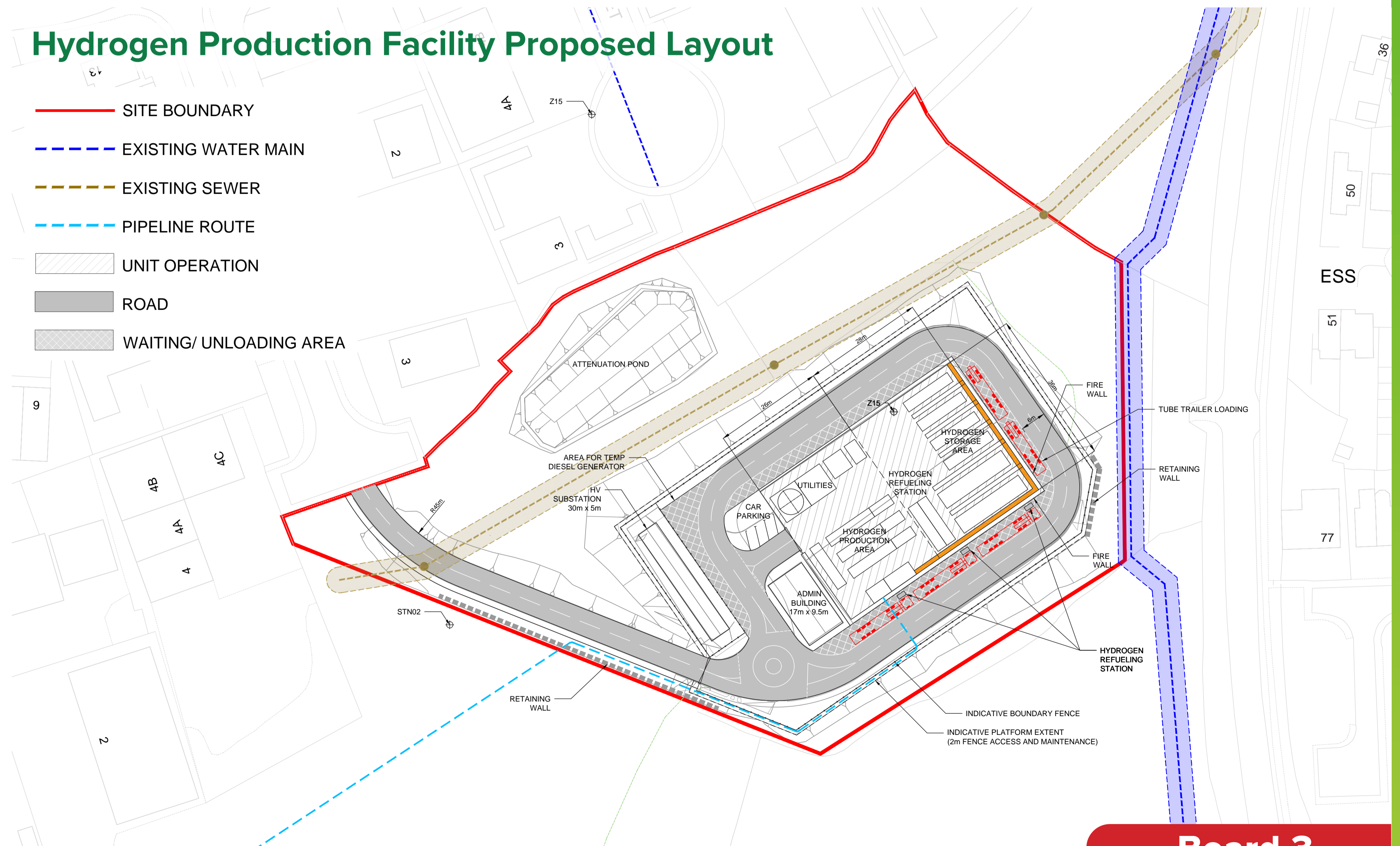
\* This is the pressure level of the storage. For example, a bike tyre can be about 5 bar pressure.

- 300 bar storage consisting of containerised high strength storage units - similar in appearance to a standard shipping container.

Hydrogen refuelling stations will be located adjacent to both the hydrogen production area and the hydrogen storage areas to permit compact and efficient vehicle refuelling at the facility. Approximately 28 large vehicles are estimated to require refuelling once a day - such as buses, HGVs and waste collection vehicles.

The proposed green hydrogen pipeline would run from the facility to Coleg Cymunwedol Y Dderwen, where Bridgend County Borough Council is assessing the potential for an energy centre to send hot water to heat the college and other community buildings.

## Hydrogen Production Facility Proposed Layout









# HyBont Green Hydrogen Project

## The Proposals

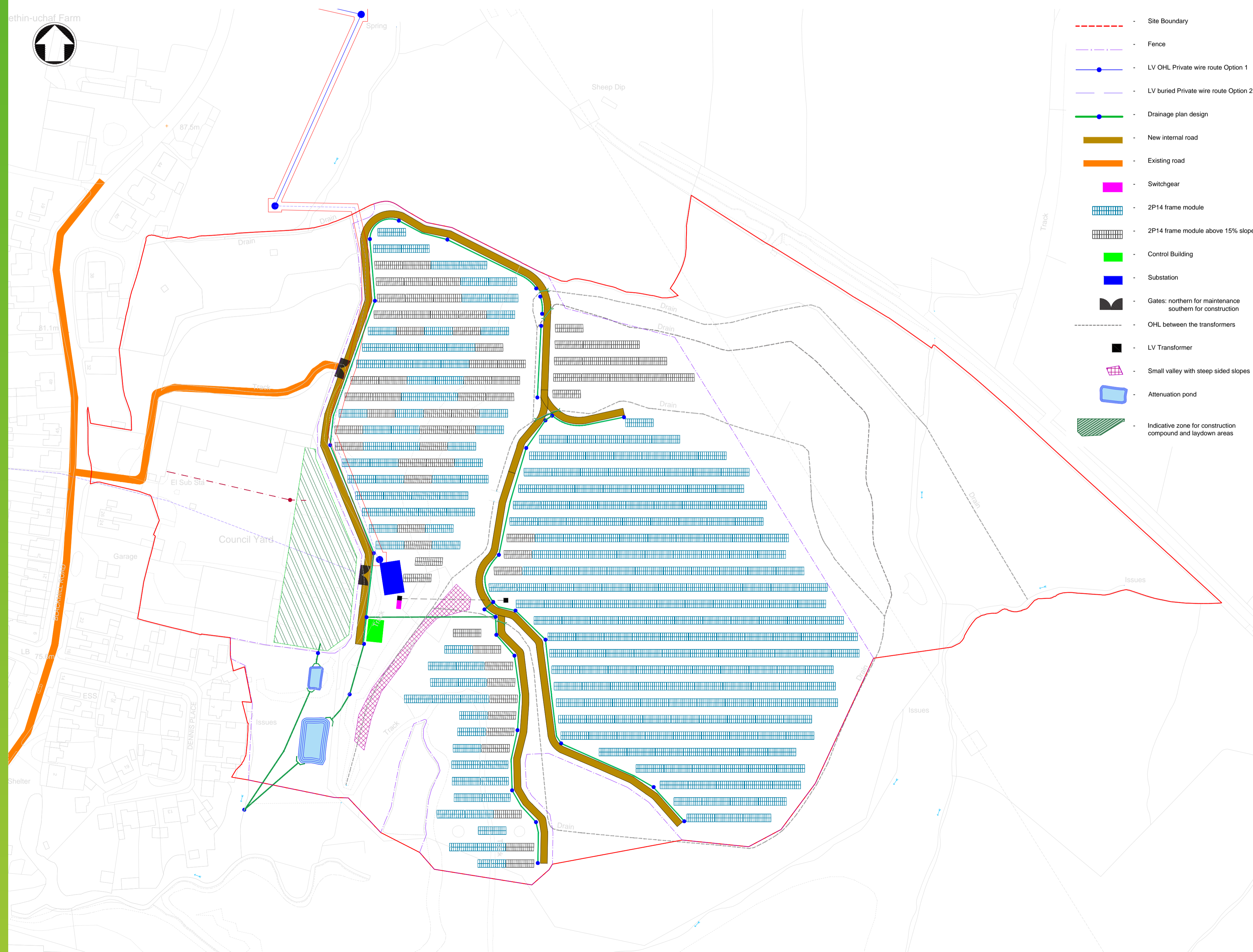
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Hydrogen H<sub>2</sub>

zero emission

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### Solar Proposed Layout



### Solar Farm

A solar array site at Bryncethin will generate up to 5.5MW of electricity and is close to the site of the proposed green hydrogen production facility to enable a direct connection.

Power generated by the solar farm will meet approximately a quarter of the total annual electricity needs of the green hydrogen facility, with the remaining renewable energy being sourced from the grid.

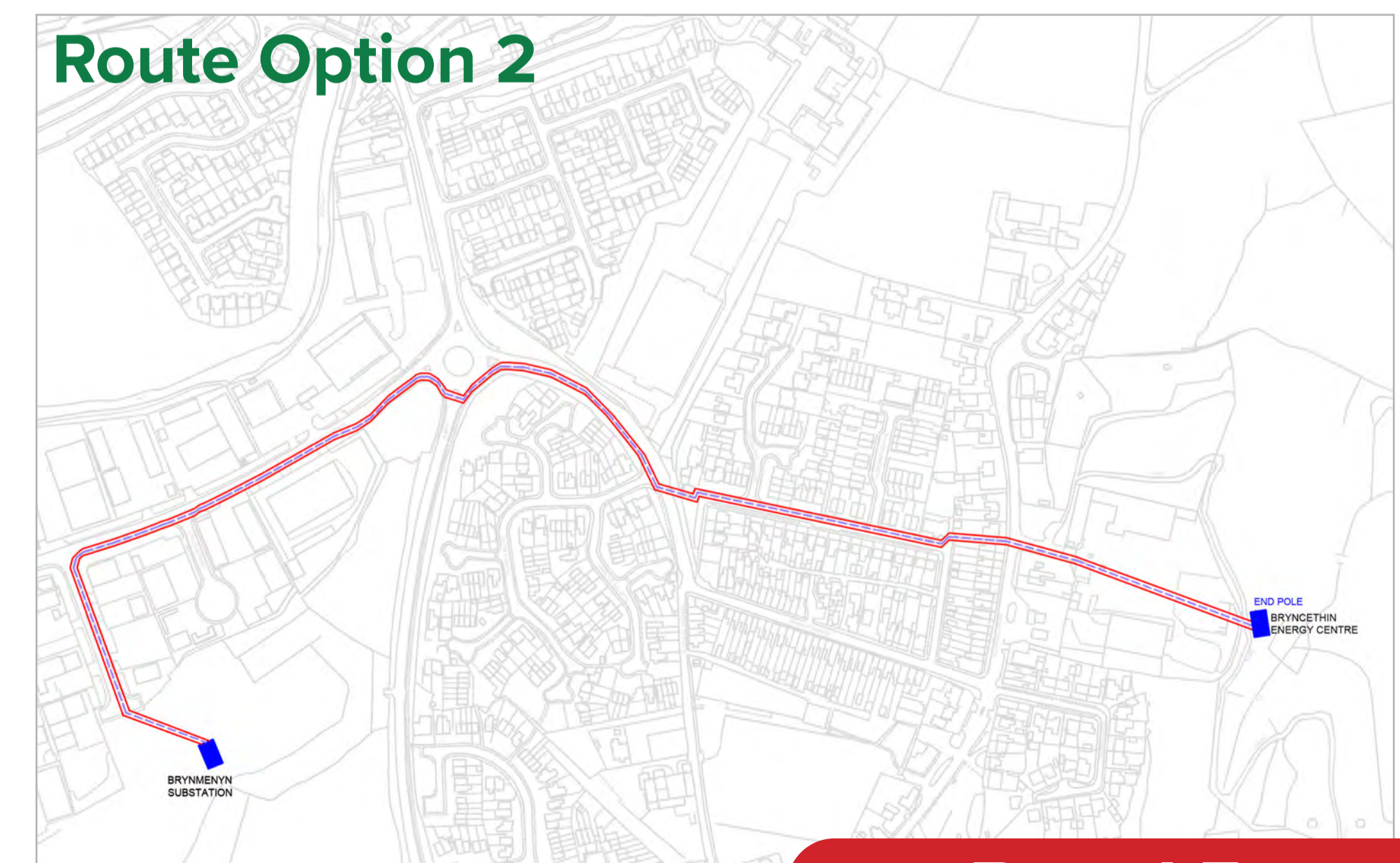
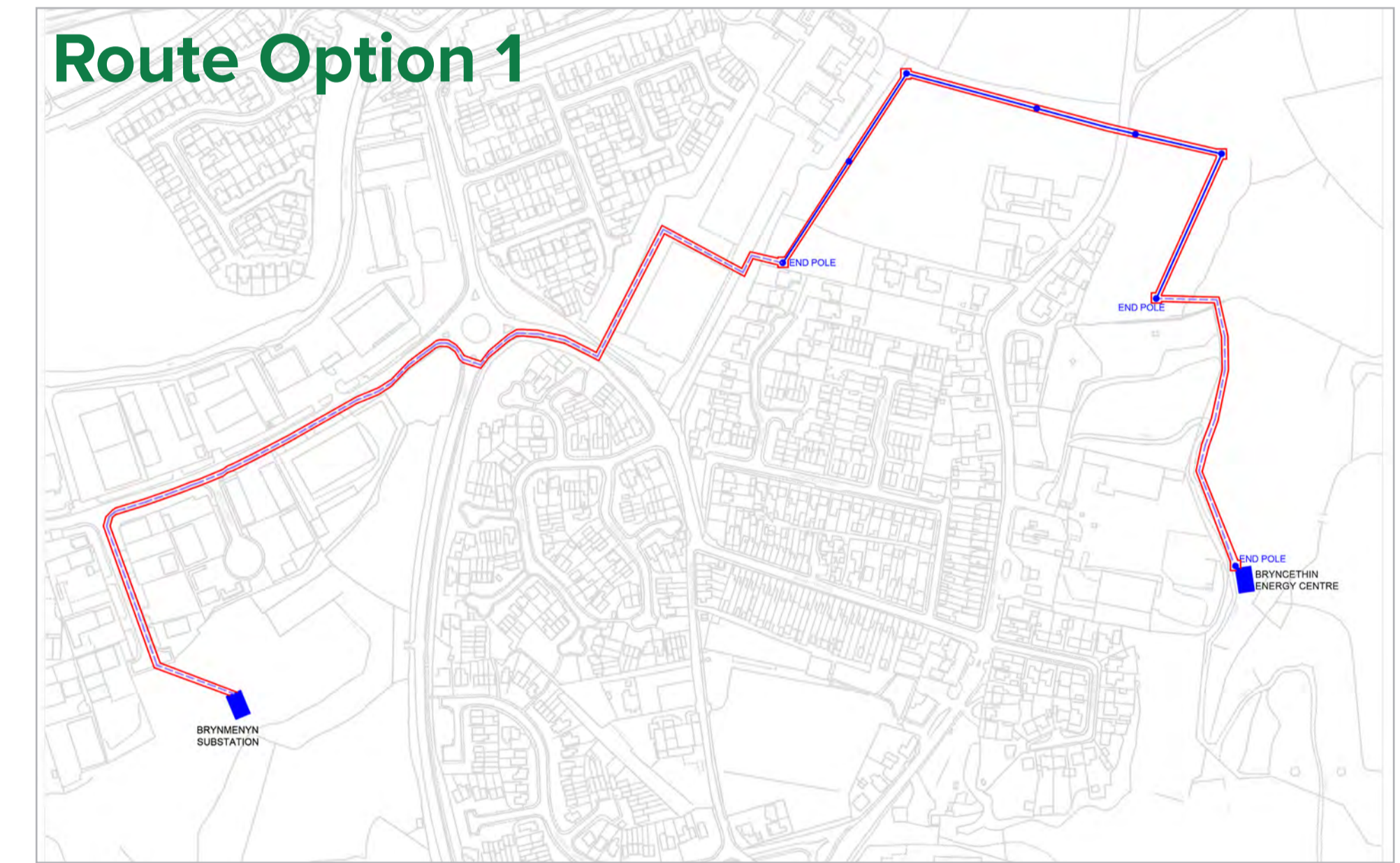
### Cable Connection

Electricity generated by the solar array will be connected to the green hydrogen facility via a high voltage private wire connection (3-phase 11kV).

Two route options are being considered:

- Option 1: an undergrounded section to the northern boundary of solar farm, then a pole mounted overhead line (circa 35% of the route), followed by a second undergrounded section to the green hydrogen facility.
- Option 2: a fully undergrounded route.

In both options the design guidance from National Grid Electricity Distribution will be used to ensure best practice installation.





# HyBont Green Hydrogen Project

## Key Considerations

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### Safety

As with any other fuel production facilities, safety in production, storage and transportation is of paramount importance both in terms of the design and operation. Risks identified will have appropriate safeguards put in place to satisfy stringent regulatory safety measures and legislation, as well as planning and permitting requirements.

Hydrogen has been used within the UK for a range of purposes for decades, and the UK has a strong track record in the safe storage and distribution of combustion gases.

Safety measures on site will be designed in consultation with emergency service providers (both fire and health) so that in the unlikely event of an incident onsite the impact would be minimised and contained. This includes fire and gas detectors across the site, fire water and firefighting facilities, as well fire walls and screening.

An uninterruptible power supply (UPS) system will be provided to back-up the site control and emergency systems.

### Ground Conditions

Site investigation work is currently taking place to assess the suitability of the ground conditions at the Brynmenyn site for the proposed green hydrogen production facility. This includes drilling several boreholes and digging trenches. This work is due to be completed by 23 December 2022. Similar site investigations start at the proposed Bryncethin solar farm site in the new year.

### Transport and Access

The green hydrogen production facility would be accessed from the A4065, via Millers Avenue and Squire Drive. The new solar farm would be accessed from the A4061 Blackmill Road.

During operation, it is anticipated that there would be up to 28 large hydrogen vehicles (including buses, HGVs and waste collection vehicles) using the new facility to refuel (at different times of the day). Some of these vehicles could be based at new and existing depots on the industrial estate. With staff cars and maintenance vehicles, it is anticipated the production facility would generate approximately 33 return vehicle movements each day.

### Construction

The draft Construction Environmental Management Plan sets out the management of impacts on the local community during construction, including identifying vehicle routes and hours of work.

It is currently anticipated that works will take place between 8am-6pm Monday-Friday and 8am-1pm Saturdays, with no working on Sundays or Bank Holidays unless otherwise agreed with Bridgend County Borough Council. Full transport management plans will be submitted as part of the planning application.

### Environment

The project will help support the Council's net zero ambition, with the scheme able to provide clean energy to local community buildings, as well as having the potential to help power the Council's vehicle fleet and local buses.

### Visual Impact

Due to the site location and context, we do not anticipate the scheme will have any significant adverse visual impacts. The majority of equipment and buildings would be less than 4m in height, with the tallest structure, the atmospheric vents, typically being less than 10m in height.

### Ecology

A preliminary ecological appraisal has been undertaken to understand potential impacts and mitigation that might be required during the construction and operation of the project. Following desktop research and walk-over phase 1 habitat surveys, a number of further surveys are anticipated to inform the proposed development and an impact assessment and mitigation strategy. This includes trees, grassland and heathland, and breeding birds.

### Air Quality

An air quality assessment has been undertaken that shows no significant adverse impacts or harm arising in relation to air quality. Oxygen is produced as a by-product during the electrolysis process, and this will be released back into the atmosphere to disperse. There should be no odour produced at the site.

### Noise

A baseline noise assessment has been undertaken, including a week-long survey at eight locations around the two sites to record and understand the current background noise environment. The results will feed into a noise assessment for the proposed facility, which will also identify if any mitigation measures are required.

### Local Benefits

The project will see a strategic employment site brought into productive use, and approximately 130 jobs will be created during the construction phase and 4/5 specialist jobs to maintain and operate the facility. The project could also attract other specialist businesses to the area looking to use the hydrogen produced as part of this growing sector.

The location also offers the opportunity for the Ynysawdre cluster network to utilise electrolyser waste heat as well as hydrogen through a district heating system.