HyBont Bridgend
Green Hydrogen Project

Marubeni Europower

Public Information Event – 9 March 2023
Preview for local businesses

Marubeni Europower

Marubeni Europower is a subsidiary of the Marubeni Corporation.

Founded in 1991, the company is the development vehicle for all Marubeni's power related business in Europe.

Our expertise ranges from developing new generation and transmission assets through to operation and maintenance activities

Tackling the climate emergency in Wales

The Welsh Government has highlighted the importance of hydrogen in its latest **Carbon Budget 2 (2021–2025),** which set out its target for a 37% reduction in carbon emissions by 2025.

This is because of the important role green hydrogen can have in helping decarbonise:

- heavy industry (such as steel production)
- heavy goods vehicles
- buses and trains
- aviation and shipping
- heating buildings to replace natural gas
- as a storage medium for renewable electricity

Bridgend Net Zero ambition

Bridgend County Borough Council declared a **climate emergency** in June 2020 and set up a Climate Emergency Response programme.

In December 2022 the Council adopted its **Bridgend 2030 Net Zero Carbon Strategy**, following a public consultation. This sets out the actions that will be taken to achieve its 2030 net zero commitment.

As part of the strategy, the Council has committed to actively engage with innovation projects to help shape the ultra low emissions vehicle market, specifically hydrogen-powered vehicles.

History of hydrogen

Hydrogen is the simplest and most abundant element in the universe, and the production and use of hydrogen is by no means a new technology.

In fact, the first fuel cell was invented **here in Wales** by William Grove in 1842.

Hydrogen today

Currently more than **70 million tonnes** of hydrogen produced globally each year.

The UK has been producing and distributing hydrogen for **over a century**.

What is green hydrogen?

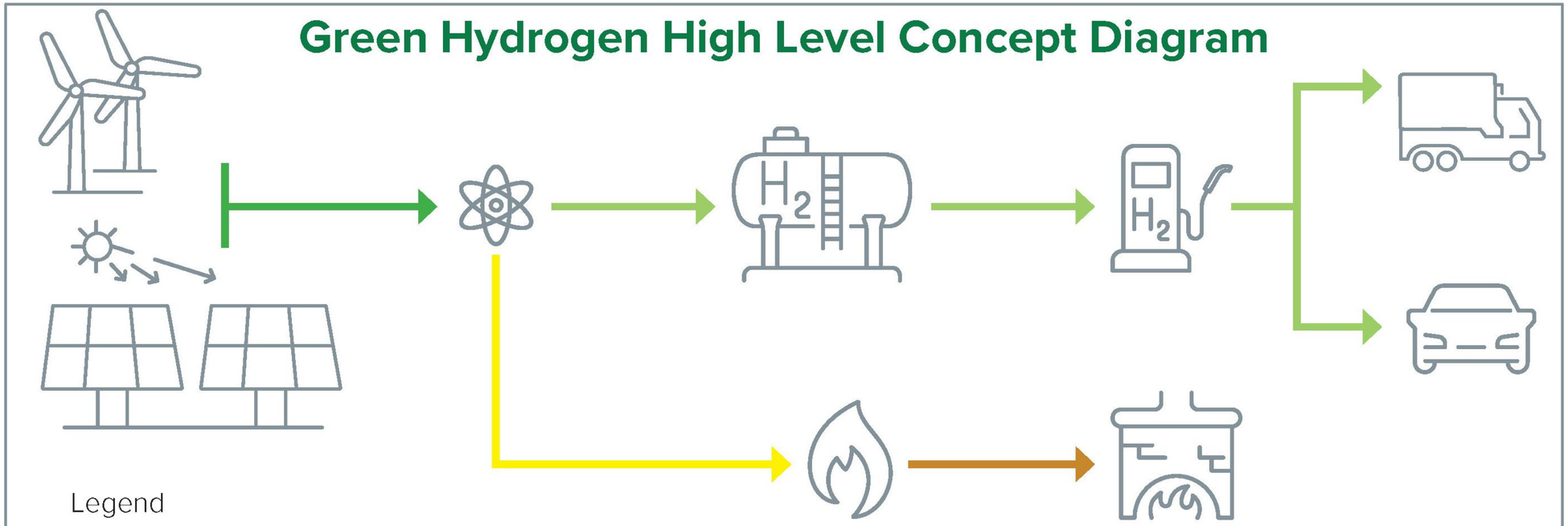
Hydrogen can be produced in a number of ways. It can only be described as ‘green hydrogen’ if it is **“produced by splitting water into hydrogen and oxygen using renewable electricity.”**

The use of renewable energy is key, as this ensures the production process has a very **low carbon footprint**.

This project is therefore made up to **two parts**:

- the green hydrogen production facility on Brynmenyn Industrial Estate,
- linked to a solar farm to provide renewable energy at nearby Bryncethin.

Green Hydrogen High Level Concept Diagram



Legend

Power Generation
Wind Power
Solar Power

Flows
Electricity
Hydrogen
Off-site H_2 Pipeline
Heat

Conversion
Electrolyser

Off-site Combined Heat and Power (CHP)

Energy Storage
On-site H_2 Storage

Hydrogen Utilisation

On-site Refuelling/Loading

Off-site Heat Network

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What will the green hydrogen be used for?

The HyBont facility will generate up to 6MW (HHV) of green hydrogen which could be used for:

Transport

Such as for waste collection vehicles and buses.

Heating

Community buildings in the **Ynysawdre cluster** (Ysgol Gynradd Brynmenyn Primary School, Coleg Cymunedol Y Dderwen and Halo Ynysawdre Swimming Pool). The potential for a heating network is being assessed by Bridgend County Borough Council.

Industry

Including existing and new businesses within the Brynmenyn Industrial Estate.

HyBont Bridgend proposals

Marubeni Europower is bringing forward proposals for a **green hydrogen production and refuelling facility** on Brynmenyn Industrial Estate, with site access via Squire Drive.

The facility will be **powered by a solar site** at Bryncethin and from renewable energy from the national grid.

Hydrogen from the site will be used to provide a **green clean fuel source** for refuse vehicles and potentially to heat community buildings (using heat produced as a by-product), which is currently being assessed by Bridgend County Borough Council.

Pre-application consultation

The PAC on the proposals took place November/December 2022, with local residents, businesses and stakeholders able to submit comments until 6 January 2023.

Key themes raised were:

- Site location and layout
- Hydrogen safety
- Environmental considerations
- Transport
- Social benefits

Please see factsheets for more information.

over 1,200 letters/leaflets sent to residential and business addresses

2 public exhibition drop in events attended by **over 130 people**

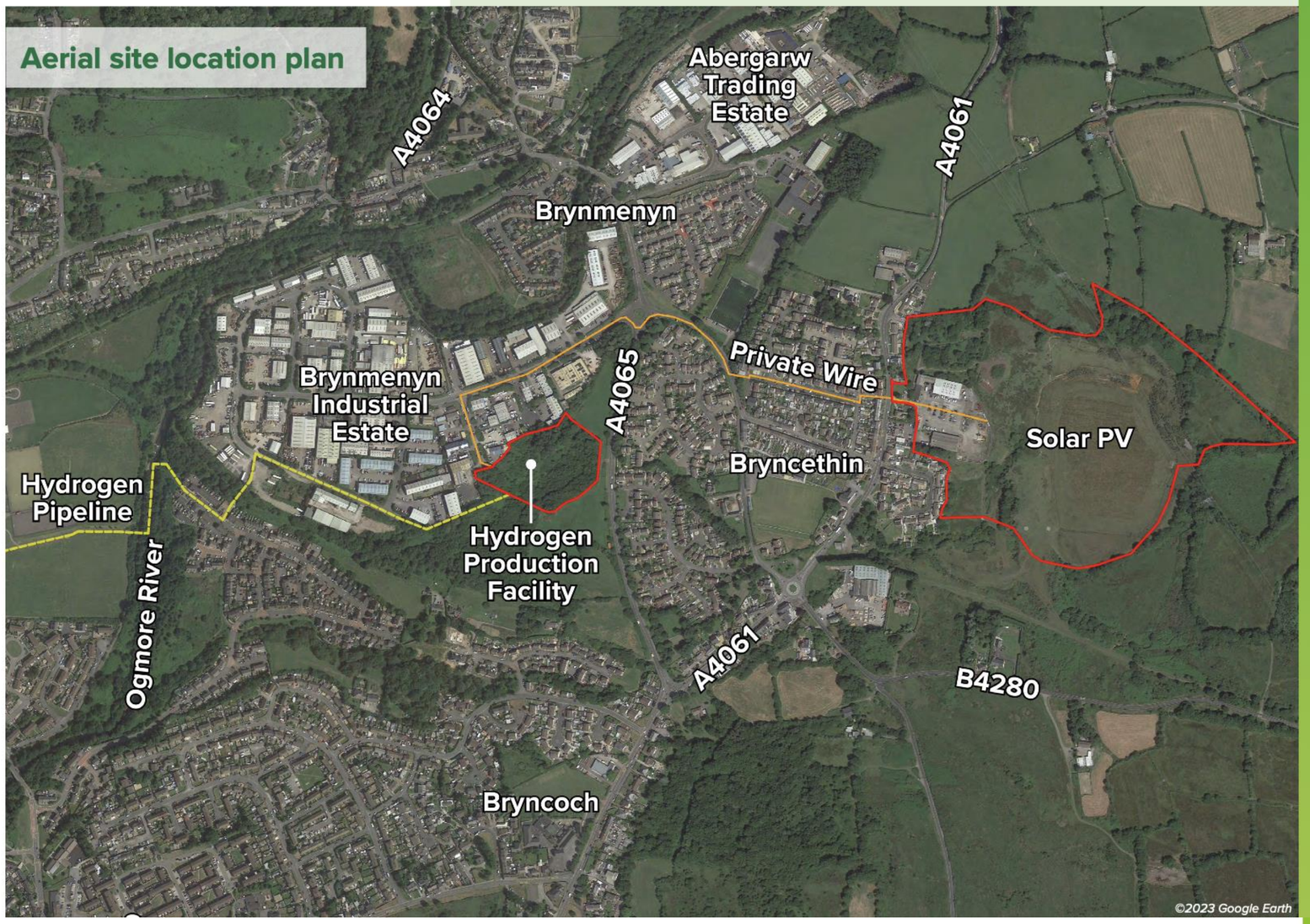
over 700 unique visitors to the project website

over 100 people provided feedback

Site selection

- Close to potential end users.
- Opportunities for a district heat network.
- Proximity to the solar farm.
- On a site allocated for industrial uses.

Following feedback received from the community, the preferred private wire connection has been identified.



Site layout:
Green hydrogen facility

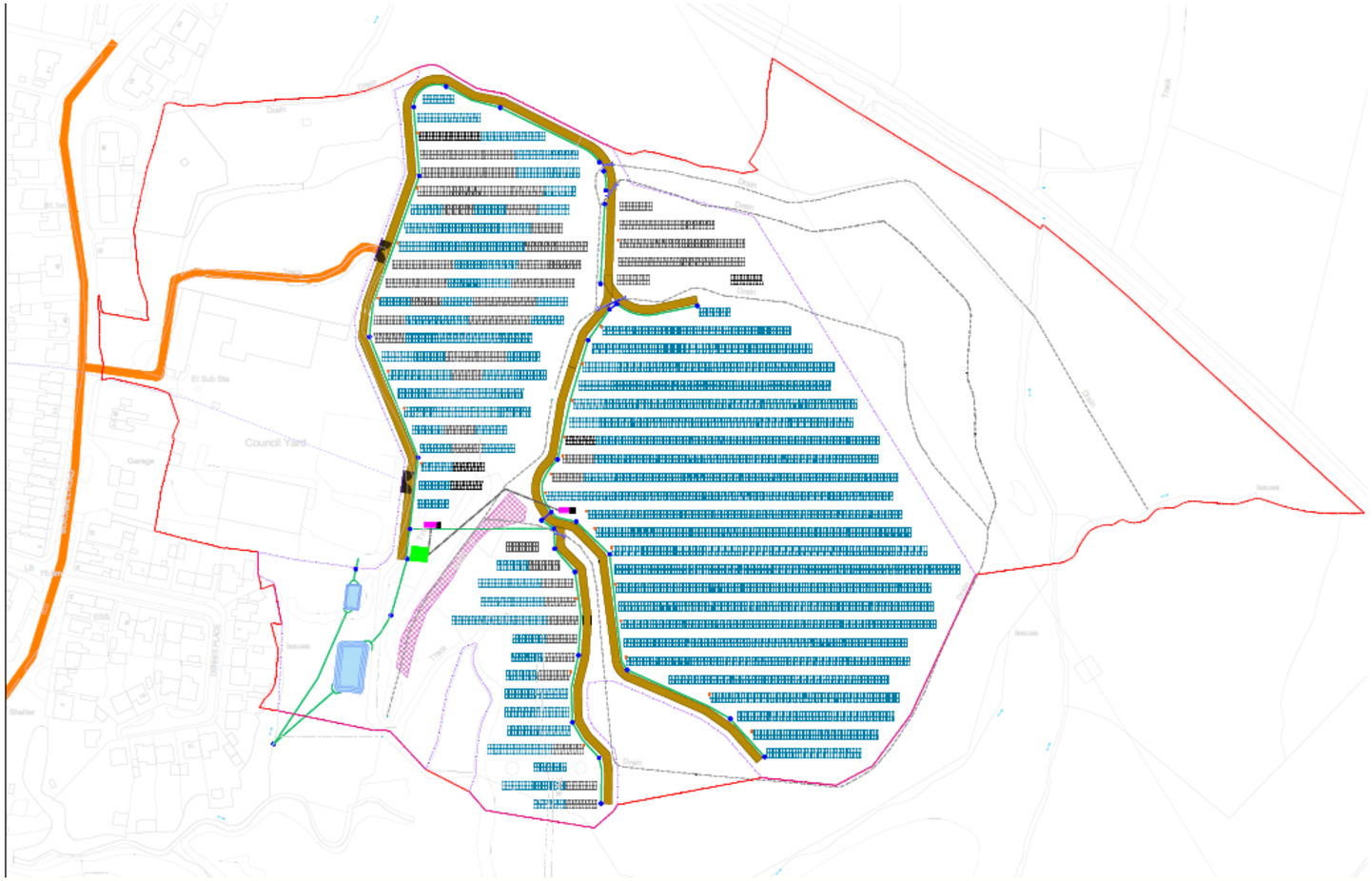
Key project elements

- 2 or 3 electrolyser units
- Approximately 3 days of hydrogen storage (above ground tanks)
- Hydrogen refuelling station
- Hydrogen Compression
- Hydrogen pipeline ‘off-take’ to local buildings
- Substation

Site layout: Solar farm

Key project elements

- Ground-mounted solar panels
- String Inverters
- Switch gear and a electrical substation
- Access, parking, lighting and security fencing



Safety

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

Hydrogen, in line with hydrocarbons such as petrol and natural gas, is covered by international codes, regulations and standards to ensure its safe production, storage, transportation and use.

The facility at Brynmenyn is a small-scale hydrogen production site, similar in scale to a petrol station and other hydrogen production facilities operating in urban environments in the UK and Europe with no reported safety incidents.

Safety is of paramount importance and will be built into the design of the HyBont green hydrogen project. To ensure the safety of the design, industry recognised safety reviews will be carried out throughout the facility design, construction and operation.

Environmental considerations

A range of environmental considerations were raised. These include:

Landscape and visual impact

- Character
- Views
- Glare from solar farm

- Ecology
- Air quality
- Oxygen dispersion
- Flood risk

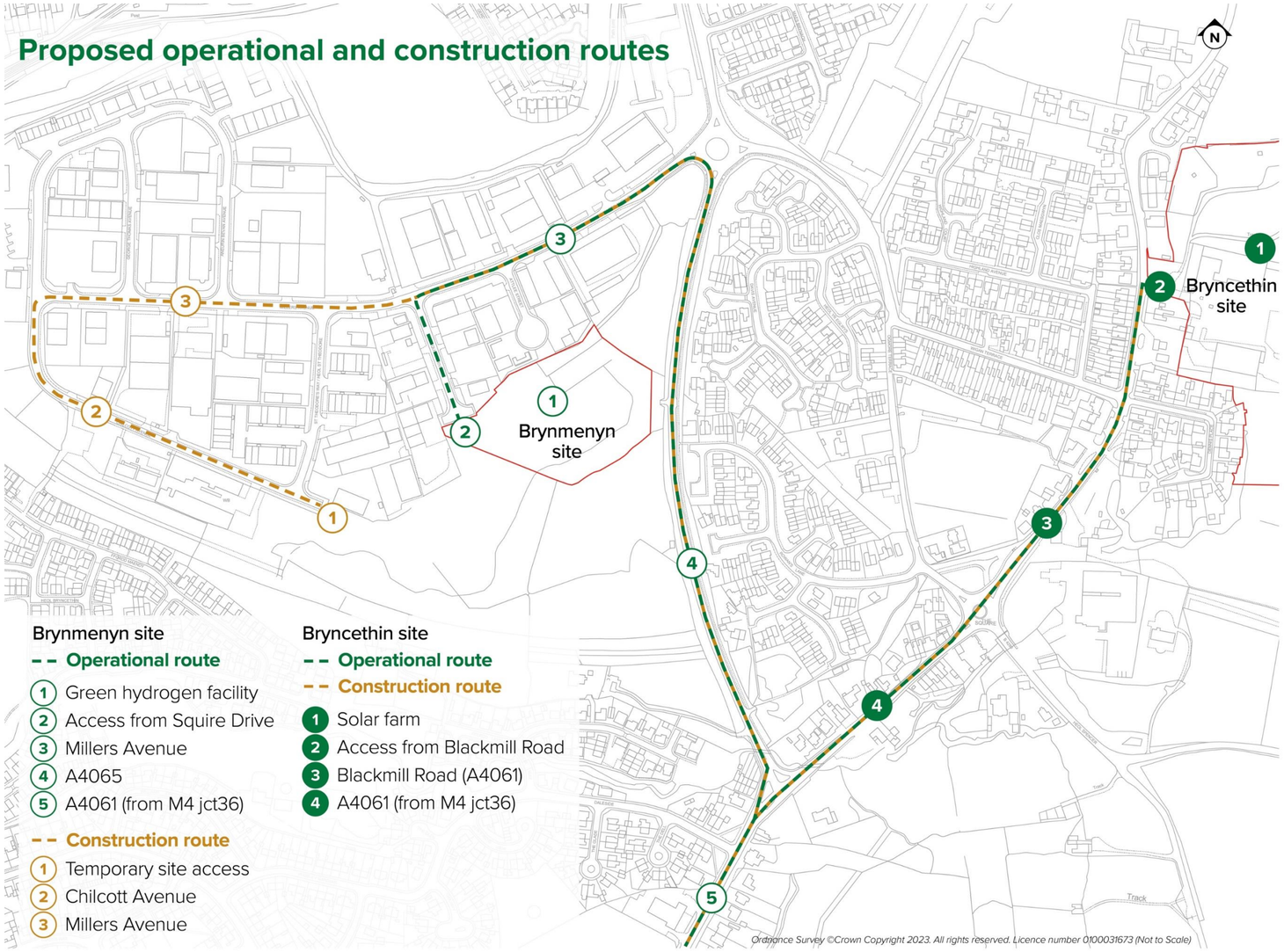
A range of detailed surveys and assessments have been carried out to identify potential impact and appropriate mitigation measures.

Transport

Traffic Impact Assessments have been carried out for the sites, with potential impacts during construction and operation assessed and mitigation measures identified, where appropriate.

Access to the Brynmenyn site during construction will initially be via Chilcott Avenue, until the site access off Squire Drive is constructed. A full swept path analysis has confirmed Squire Drive is suitable for vehicles associated with the development.

Onsite parking at the green hydrogen facility will be provided to meet the needs of staff and visitors. There are currently no proposals to amend the on street parking available on Squire Drive.



Social benefits

Tackling climate change: Green hydrogen will have an important role to play in reducing the carbon footprint of transport, building heating and replacing natural gas in industry.

Local employment opportunities: Approximately 130 people will be employed during the construction phase with supply chain opportunities for local businesses. 4/5 permanent specialist jobs will be created once the site is operational.

Reducing carbon emissions: The site will give the opportunity for a number of large diesel vehicles to be replaced with hydrogen fuel celled vehicles, improving air quality in the local area.

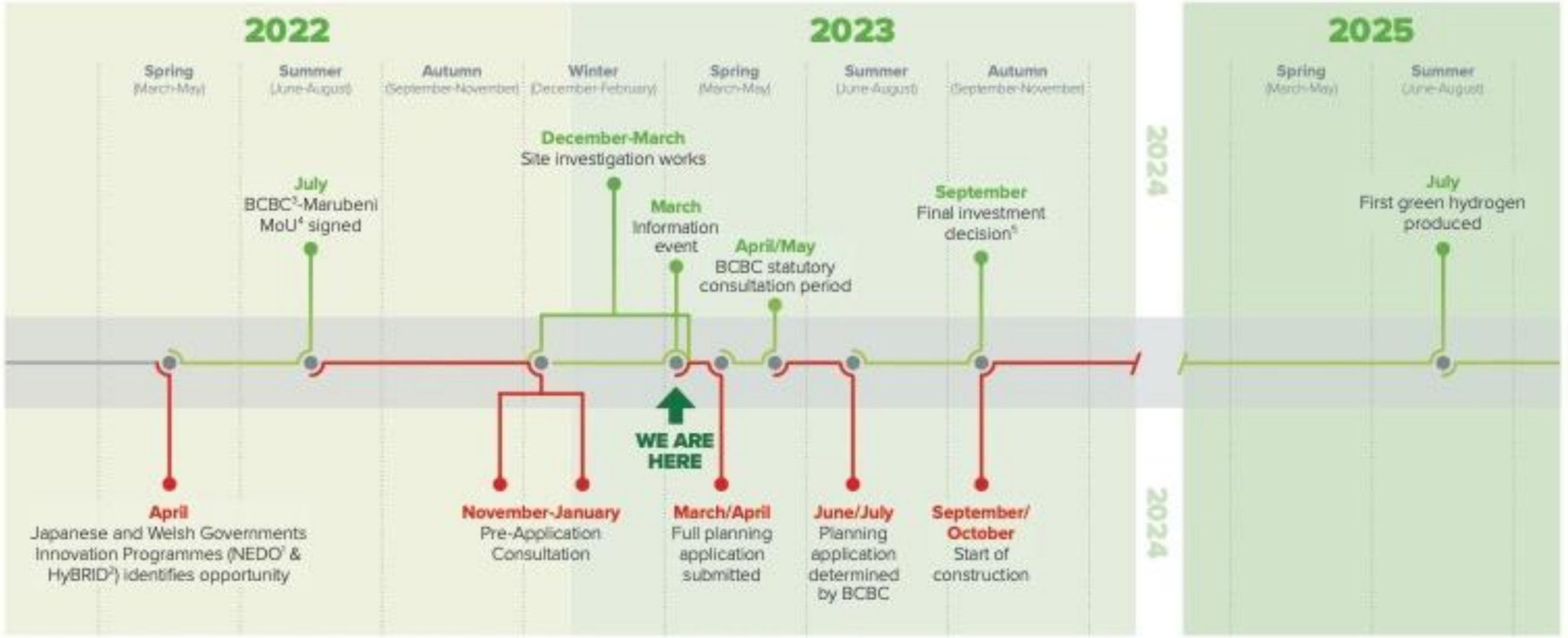
Local heat network: Waste heat from the production site can be used to heat local community buildings, in addition to hydrogen providing a direct fuel source.

Fuel security: Locally produced fuel for local services will help protect BCBC from potential future supply chain disruption and increasing fossil fuel costs.

Catalyst for change: The need to decarbonise transport and reduce the use of fossil fuels in industry means Green Hydrogen is a growth sector and a key part of the South Wales Industrial Cluster (SWIC).

Local businesses could potentially use the hydrogen produced onsite for their own purposes.

Indicative project timeline



[1] New Energy and Industrial Technology Development Organization (NEDO)
[2] Hydrogen Business Research & Innovation for Decarbonisation (HyBRID)
[3] Bridgend County Borough Council (BCBC)
[4] Memorandum of Understanding (MoU)
[5] Subject to planning permission being granted