



REPORT TO THE NORTH WALES ECONOMIC AMBITION BOARD
29 April 2022

TITLE: Transport Decarbonisation (Hydrogen) Project Update
AUTHORS: Henry Aron, Energy Programme Manager

1. PURPOSE OF THE REPORT

- 1.1. To seek agreement for the preferred way forward for the project as recommended by the Project Board and Energy Programme Board and to prepare and publish a Prior Information Notice.

2. DECISION SOUGHT

- 2.1. That the Board endorse the preferred way forward for the project and,
- 2.2. Authorise the Portfolio Director, in consultation with the Programme Board, to prepare and issue a Prior Information Notice in accordance with the report.

3. REASONS FOR THE DECISION

- 3.1. The Project Board and Programme Board have agreed a preferred way forward which has been endorsed by the Portfolio Board for consideration by the Economic Ambition Board. This report seeks the support of the Board for the preferred way forward and to progress with the first stage of delivery. This involves publishing a Prior Information Notice (PIN) to test the market, gauge interest and collate intelligence to inform a competitive process for bringing on board a commercial partner to complete the business case and deliver the project.
- 3.2. Subject to the North Wales Economic Ambition Board approving the preferred way forward, the aim is to publish the PIN following the elections in May 2022. Its development will require input from procurement, legal and industry professionals. In order to make the best use of time it is being drafted through the pre-election period with the intention of publishing it following the elections.
- 3.3. The purpose of the Prior Information Notice is to engage with the private sector to establish interest from potential partners to invest, develop and operate the Hydrogen Hub and to gather intelligence to help shape the size, scope and location of the proposed Hydrogen Hub.
- 3.4. Progress to the next stage of the preferred way forward (competitive dialogue) would be subject to a separate Board decision. This will include a proposal for a new name for the project.

4. BACKGROUND AND RELEVANT CONSIDERATIONS

- 4.1. The use of hydrogen is seen as a significant method of decarbonising parts of the economy ranging from transport, industrial processes and manufacturing through to domestic heating. The UK Hydrogen Strategy recognises these opportunities and further policy announcements are expected to be unveiled this summer.
- 4.2. The Transport Decarbonisation (Hydrogen) Project is one of five projects within the North Wales Growth Deal's Low Carbon Energy Programme. The Project was at concept stage when the Growth Deal was signed and aimed to utilise green hydrogen to help decarbonise regional transport networks. In 2019, Welsh Government funding enabled research, conducted by Jacobs, into Strategic Hydrogen Opportunities in North Wales. The work identified the Deeside area as a potential location for the hub. Additional Welsh Government funding enabled more detailed research into this potential location.
- 4.3. The research was undertaken by Jacobs between February and December 2021. The Project Board considered the recommendations of the business case and proposed a way forward. The Project Board have identified a need to change the name of the project to more accurately reflect the nature of the project and improve our ability to engage with the market. The PIN would be published under the name 'Ambition North Wales – Hydrogen Hub' with a formal name change proposal to be made to the Board ahead of the next phase of work.

5. THE PREFERRED WAY FORWARD

- 5.1. The preferred way forward would see £11.4m earmarked from the North Wales Growth Deal being apportioned across two overlapping workstreams (the exact proportion will be determined during the business case development). The remaining funding estimated at £17.2m would need to be secured from public/private sources split across the two workstreams.

Workstream 1 – Develop the business case and deliver a green hydrogen production hub

- 5.2. This phase starts with a Prior Information Notice to test the market, gauge interest and collate intelligence to inform a competitive process. This would be followed by a competitive process to bring onboard a commercial partner to help progress the project. The process could follow a similar model to that applied by other regions/cities, such as Aberdeen, that have similar projects.
- 5.3. The commercial partner will support the project in determining the business case for a commercial green hydrogen production hub. Plans for the specific location / site of the hub will be developed in partnership with the commercial partner and we will consider options for making public sector land available to maximise the investment potential and attract interest. The partnership will also explore potential demand for all viable hydrogen applications. This could include transport, industrial, heating or as a contingency / augmentation for projects such as HyNet. If a business case can be made, the commercial partner would lead the development and delivery of the project.

- 5.4. Alongside the Holyhead Hydrogen Hub and other planned projects, workstream 1 will support initial growth of the regional hydrogen economy and allow the region to learn lessons. It is expected that the cost of hydrogen fuel cell vehicles will reduce during this period to the point where they become viable for fuller adoption in the transport sector. This also allows time for local authorities to evaluate their optimal fleet mix, trial hydrogen vehicles and learn from the experience of other hydrogen vehicle customers.

Workstream 2 – Regionalisation and Decarbonisation

- 5.5. This will build on workstream 1 by regionalising the distribution and use of hydrogen across north Wales. This could include the development of a hub and spoke model, with hydrogen being distributed to refuelling stations in other areas. It could also involve the development of additional production hubs or increasing demand for hydrogen through the procurement of hydrogen vehicles. The need for a regional strategy for the growth of the hydrogen economy in north Wales will also be considered, as will the links with existing initiatives such as Grŵp Llandrillo Menai’s Hydrogen Strategy and the Enhanced Engineering & Optics Centre’s hydrogen work. The appropriate funding split between workstream 1 and 2 will be considered by the NWEAB as we progress through the procurement process.
- 5.6. An overview of the key risks & opportunities and the rationale for the preferred way forward are set out within Appendix 1.

Next Steps

- 5.7. The first stage will involve testing the market through a Prior Information Notice (PIN). The PIN will not include any form of down-selection or competition. It will be used to enable early market engagement by; explaining our ambitions for the project, explaining our intention to procure a partner and seeking feedback from the market on our proposals. It could provide insight into a number of factors, including:
- Project costs and the level of funding / guaranteed hydrogen demand that a partner may require to proceed
 - The best locations / sites for the hub
 - The potential for expansion including additional facilities across the region
 - The potential commercial structure of the partnership
 - Existing market intentions that could be complementary or competitive in nature.
- 5.8. Subject to the North Wales Economic Ambition Board approving the preferred way forward in March 2022, the aim is to publish the PIN following the elections in May 2022. Having assessed the information gained through the PIN notice, we will then design a formal tendering process, subject to approval from the Ambition Board.
- 5.9. The table below shows an indicative timeline for procuring a commercial partner.

Milestone	Target Date
Programme Board consulted on preferred way forward	01-Mar-22
Portfolio Board consulted on preferred way forward	04-Mar-22
NWEAB approve preferred way forward	29-Apr-22
Issue Prior Information Notice	May-22
Commence tender process	Oct-22
Award contract	Feb-23



6. CONSULTATION UNDERTAKEN

- 27th Jan – Energy Programme Board briefed on preferred way forward
- 4th Feb – Portfolio Board briefed on preferred way forward
- 1st March – Programme Board endorsed preferred way forward
- 4th March – Portfolio Board endorsed preferred way forward
- 10th March – NWEAB Strategic Group and Transport Sub-committee consulted on the preferred way forward.

7. FINANCIAL IMPLICATIONS

- 7.1. There are no new financial implications arising directly from approving the decision sought in this report. There is already budget provision for project development within the Portfolio Management Office and any costs incurred in the development of the PIN will be from existing resources.

8. LEGAL IMPLICATIONS

- 8.1. A Prior Information Notice is a procedure whereby a public body can give formal notice of its intention to undertake a particular procurement. It notifies the market of the proposed procurement. It can also be a mechanism by which market information can be sought in order to shape and better inform the procurement process. It is not a tender nor does it commit the publisher to take any particular actions or steps.

APPENDICES:

- Appendix 1** Rationale for Preferred Way Forward & Overview of Risks & Opportunities
-

STATUTORY OFFICERS RESPONSE:

i. Monitoring Officer – Host Authority:

I have contributed legal comments in the report. It is a logical and appropriate step to undertake a PIN exercise which should be a means of strengthening the feasibility of the model and the procurement process.

ii. Statutory Finance Officer (the Host Authority's Section 151 Officer):

I can confirm the accuracy of Part 6 of the report, and that there are no new financial implications arising directly from approving the decision sought in this report. The decision sought is reasonable way of progressing to the next phase of the project.



Appendix 1 – Rationale for Preferred Way Forward & Overview of Risks / Opportunities

Rationale for Preferred Way Forward

The Project has been developing the business case for a hydrogen hub for a number of months. The work was supported by consultants who undertook their research between February and December 2021. During this time, the hydrogen picture in north Wales- and globally- has continued to emerge. This means that the work to date presents a snapshot in time relating to the period when the evidence was gathered.

The findings of the research indicate that:

- Hydrogen is currently the optimal zero emission solution for some heavy duty/ long range trucks and buses and for the decarbonisation of other key sectors (e.g. fuel source for industry).
- The optimal means of producing hydrogen is by water electrolysis, using renewable energy (green hydrogen).
- Hydrogen fuel cell vehicles will become more widely available in the UK but costs will be high relative to other options.
- Based on market engagement, there is limited public sector demand for hydrogen in north Wales until 2026. Plans to incorporate hydrogen vehicles into fleet strategies are at an early stage for most public sector bodies.
- Based on market engagement, there is no committed private sector demand for green hydrogen for transport in the near term. However, there is potential for this to change as transport fleet operators continue to review their options and availability of hydrogen vehicles increases.
- Based on market engagement, there are currently no hydrogen refuelling stations in north Wales and with the exception of the Holyhead Hydrogen Hub project, there are no plans to build any.
- With the exception of the Holyhead project, the private sector has no confirmed plans to develop green hydrogen production or distribution in north Wales in the next 5 years.
- Public sector intervention is required to stimulate the demand for and production of green hydrogen, thereby stimulating the growth of the regional hydrogen economy and associated benefits.
- It is expected to take 2 to 3 years to develop a project involving hydrogen production and distribution systems.

The pace of change means that industry will soon begin to make implementation decisions for decarbonisation. Commercial decisions are expected to be grounded in considerations such as technical applicability, legislative compliance, affordability, shareholder and public pressure- and long-term financial viability. They are business decisions made by business leaders. They will therefore not necessarily align perfectly with the North Wales Growth Deal objectives. There will however be an overlap of interests where the project will be able to negotiate and influence decisions that better reflect its objectives.

The project needs to be closely linked or embedded with industry, whilst promoting its values and maintaining its integrity. The evolving nature of the hydrogen market means that observing the unfolding events will lead to a reactive and ineffective project. The project aims to help shape the hydrogen economy, generate a revenue stream for regional reinvestment, and ensure that all of north Wales is able to benefit from the new technologies. This is best achieved by being a participant inside the industry.

Recent changes

Since Jacobs gathered their evidence between February and December 2021, significant changes have happened which have a direct bearing on the project.

- The UK Hydrogen Investor Roadmap has been published [Hydrogen Investor Roadmap](#). This includes:
 - The target for hydrogen production by 2030 has now been doubled to 10 GW.
 - Green hydrogen now has its first separate target of at least 50% of the new hydrogen target.
 - Up to £100 million has been allocated specifically for electrolytic hydrogen projects- such as this one.
- The production of diesel cars must stop in 2030, medium sized diesel goods vehicle production will stop in 2035, and *all* diesel vehicle production will cease in 2040. This leaves very few propulsion options. The two mainstream zero-emission options are BEV and hydrogen. Hydrogen is likely to become highly competitive for heavy and long distance uses.
- The UK now has its first Hydrogen Strategy and this clearly sets out that hydrogen will play a significant part in the decarbonisation of the UK's economy. The production of hydrogen will be subsidised by government and there is a wide range of initiatives to promote research and development.
- The project has been approached by some large companies in North Wales who potentially have a need for large volumes of green hydrogen for a mixture of uses, but they would like it sooner than the market is currently scheduled to deliver.
- At COP26, the UK government announced that their policy is moving towards requiring larger companies to publish their [net zero plans](#). These plans are likely to include supply chain emissions and a key part of many supply chains is road transport. Companies may therefore be required to carry out detailed analyses of their fleets and those of their suppliers. It is expected that this will reveal more vehicles that should be transitioned to hydrogen.
- Wholesale gas prices have increased by 400% since the data was gathered. Longer term, it is likely that this will continue to have a bearing on the energy market and thus hydrogen market. It therefore has a bearing on this project as well.
- The design elements of a UK standard for low carbon hydrogen are expected soon. This will make it clear what is and what isn't eligible for government support. That will influence the market and it could therefore influence potential partners for this project as well.
- The UK Energy Security Strategy has been published in response to the war in Ukraine, which is disrupting the global oil and gas markets. This evolving situation should be monitored and considered.

Key Risks & Opportunities

Risks	
Description	Mitigation
Currently no regional vision or strategy for growing the north Wales hydrogen economy. This could lead to unrealised potential and competition between publicly funded projects.	Regional coordination to be addressed by an appropriate regional forum.
Project team is not currently resourced with the required technical, legal, or procurement specialists. This could result in a poorly executed project.	Review the composition of the project board and develop a plan to ensure that suitable legal, commercial and technical specialists form part of the project team. Seek a commercial partner to lead the delivery of the hydrogen hub.
There could be insufficient commercial interest from the market	Progress Prior Information Notice procedure to ascertain market interest
There is a lack of intelligence about potential competition in the north Wales hydrogen market. This could lead to public money being spent on interventions that would be provided anyway by the private sector.	Progress Prior Information Notice procedure to ascertain market intentions
Opportunities	
Decarbonising industry and transport	Procure commercial partner to produce green hydrogen and identify early demand. Progress workstream 2 to identify opportunities for decarbonisation of public sector fleets and the wider regional economy
Address market failures and supporting the growth of regional hydrogen economy	Through the two workstreams, the project will explore both demand and supply side interventions with support from a commercial partner
Activities directly linked to the Hydrogen Hub and wider supply chain linkages will result in both direct and indirect jobs. The project could also safeguard jobs and skills relevant to market opportunities where hydrogen could replace existing fuels	The Programme Spending Objective on jobs will be considered as part of the procurement process and subsequent business case development.