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| <b>Meeting of:</b>                                   | <b>CABINET</b>  |
| <b>Date of Meeting:</b>                              | <b>19 SEPTEMBER 2023</b>  |
| <b>Report Title:</b>                                 | <b>HYBONT PROJECT GATEWAY REVIEW</b>  |
| <b>Report Owner /<br/>Corporate Director:</b>        | <b>CORPORATE DIRECTOR COMMUNITIES</b>   |
| <b>Responsible<br/>Officer:</b>                      | <b>ZAK SHELL<br/>HEAD OF OPERATIONS - COMMUNITY SERVICES</b>  |
| <b>Policy Framework<br/>and Procedure<br/>Rules:</b> | <b>There are no implications for policy framework or<br/>procedure rules, resulting from this report.</b>   |
| <b>Executive<br/>Summary:</b>                        | <b>This report summarises the current position of the HyBont<br/>project and sets out the next steps required to continue<br/>project development. Significant financial resources, both<br/>capital and revenue, are required in the current and future<br/>financial years to complete due diligence activities and<br/>produce a business case to enable BCBC to assess that the<br/>project is viable and will deliver the benefits identified.<br/>The report sets out a recommendation as to the future<br/>direction of the project that the Cabinet may wish to<br/>consider.</b> |

## **1. Purpose of Report**

- 1.1 The report will provide a review on the HyBont Project to date and ask Cabinet to determine the way forward. It outlines what are currently considered to be the next steps and estimated associated costs if Cabinet agree for the Council to continue in its current role in the project.
- 1.2 This report does not include a full risk analysis, as this would require further due diligence and legal advice. Therefore, at this stage the review only relates to the financial implications of continuing with the project.

## **2. Background**

- 2.1 In 2021 Welsh Government were approached by the Japanese Consortium Marubeni, global specialist in renewables and hydrogen projects, to ask if they were interested in an investment opportunity for a Hydrogen Demonstrator Project in Wales. Welsh Government then asked BCBC if they would consider being part of the implementation of this project. The Japanese Government's New Energy and Industrial Technology Development Organisation (NEDO) has pledged £13m to co-

fund Hydrogen Power Demonstrator Projects with the Marubeni Corporation in the UK. The key to this project was the supply of Green Hydrogen power for heat and transportation using green energy sources.

- 2.2 Whilst the project was classed as a demonstrator, it was not demonstrating the hydrogen production itself, i.e. using an electrolyser to produce hydrogen. This is not new technology and is currently being used across 16 other locations in the UK, in addition to a wide application in Europe and Worldwide. Examples of hydrogen production and uses already in existence in the UK including Aberdeen City Council and their bus fleet, Wright Bus in Northern Ireland. Also, HydroFLEX in Birmingham, which is a ground breaking partnership between the University of Birmingham and Porterbrook which is supported by a £750,000 grant from UK Government. This is to develop a hydrogen powered application to retrofit from 2023 into current in service diesel trains, to help decarbonise the rail network. With the Hybont project the demonstrator component is the software that is planned to be used. Put simply, this will work to assess demand for hydrogen and match it to the times when it is cheapest to produce, so both lowering the costs of production and reducing waste and making the process more efficient. This is what is being funded for demonstration via the proposed Hybont Project and not the production of the hydrogen or its application.
- 2.3 The technical solution proposed by Marubeni Europower Ltd (MEL) for Hybont comprises a hydrogen production facility with electrolysers that generate hydrogen from electrical power, by splitting water, hydrogen storage, and a hydrogen refuelling station at Brynmenyn Industrial Estate. Hydrogen is intended to be supplied for transport users (Refuse Collection Vehicles (RCVs), buses and light vehicles) at the Brynmenyn site refuelling station, and for heat users at the Ynysawdre Heat Cluster (secondary, primary school, and leisure centre) through a *circa* 1.2km hydrogen pipeline. Power will be provided, in part, by direct connection to a 5.5MWp solar PV farm at St Brides Minor, Bryncethin, on land adjacent to the BCBC Highways Depot. Figure 1 shows the location of these sites and infrastructure.

Figure 1 HyBont location plan



- 2.4 MEL and BCBC are operating currently under a Memorandum of Understanding (MOU), signed on the 8<sup>th</sup> of July 2022, that sets out working arrangements and next steps towards completion of a legally binding Joint Development Agreement between the parties. This remains dependent upon Cabinet, Section 151 Officer and Monitoring Officer agreement to the procurement exemptions being developed by BCBC external legal advisors, Blake Morgan. Cardiff Capital Region (CCR) is also involved as a potential share holder in the operational project.
- 2.5 In March 2023, the Department for Energy Security and Net Zero (DESNZ) notified MEL that the bid for the low carbon hydrogen Net Zero Hydrogen Business Case (NZHBC) fund to request a subsidy to support non-transport hydrogen uses (e.g. heat) in the business case, had successfully reached the final stage of funding assessment. Notification of funding award will be in the last quarter of 2023 and this will enable the generation of hydrogen to supply the potential heat network at cost parity with the lowest cost zero carbon heating counterfactual.
- 2.6 Due diligence contractors (except for BCBC legal advisors) have been engaged by CCR, with Ove Arup appointed to complete the Engineering, Procurement, and Construction (EPC) Contract technical review and ongoing technical due diligence. There are some due diligence activities that cannot be shared with CCR and will need to be directly commissioned by BCBC, as this is to protect the Council's best interests.
- 2.7 MEL has submitted a formal planning application for the hydrogen production facility at Brynmenyn Industrial Estate and the Solar PV farm at Bryncethin site (P/23/218/FUL). This planning application can only determine if the proposed land use is appropriate for the location and nothing further. All matters of site safety and operation will be subject to a Control of Hazardous Substances Licence application, which is a separate statutory process. BCBC are the Local Planning Authority (LPA) and planning officers are currently assessing the application as submitted. Welsh Government had reserved the right to call in the planning application, subject to seeing the LPA's planning officers report and recommendations. A Development Control Committee date cannot be set until that process has been undertaken with Welsh Government. To date, the Control of Hazardous Substances Licence has not been submitted by MEL. Whilst it is for BCBC to grant that licence through its Development Control Committee, it may only do so upon completion of consultation with statutory regulators including Natural Resources Wales and the Health and Safety Executive. It is only if they deem the licence application appropriate can the Development Control Committee consider granting the licence.
- 2.8 The proposed ownership structure of the HyBont project is to form a Special Purpose Vehicle (SPV), in the form of a Joint Venture Company (JVCo) to deliver and operate the Hydrogen Demonstrator. In this scenario BCBC would take a small stake in the JVCo as a shareholder, the Council's contribution being the supply of land. The Council would then also be a customer via the purchase of hydrogen through offtake agreements.
- 2.9 Any commercial model will need to undergo financial due diligence and specialist commercial advisors will be required. As a direct co-investor, CCR are considering the same and a joint contractor is being considered for this work.

### 3. Current situation / proposal

- 3.1 The Council is not the developer for this project, Marubeni Europower Limited (MEL) is, and as such it is MEL's responsibility to take forward the planning application, detailed design and project financing. BCBC would be a customer, with offtake agreements in place for hydrogen to fuel Refuse Collection Vehicles and the potential heat network and could also be a shareholder in the JVCo. Therefore, the Council needs to undertake an appropriate level of due diligence before being able to sign the required commercial agreements. Technical due diligence is required to verify that the solution designed by MEL is effective, deliverable, and will produce the benefits proposed.
- 3.2 BCBC does not have a core budget to support the development of this project. To date any funding required has been identified either through grants as/when they have become available, or Communities Directorate in-year underspend, or via an allocation for Net Zero Carbon Projects. Given the size, scale and potential significance of the project this is an ongoing risk for BCBC and the current project timetable. That is why it is imperative that a review is undertaken at this stage to recognise the financial commitment to BCBC of continuing the project.
- 3.3 Legal work has been undertaken to progress draft versions of the following legal agreements, none of which have been finalised or executed:
- **Joint Development Agreement** – between BCBC and MEL, to demonstrate the Parties' wish to work together and commitment to undertake their respective ongoing due diligence in relation to the delivery of the HyBont Project. As such, the Joint Development Agreement sets out the proposed organisational and governance arrangements as well as the Parties' aim and direction of travel in respect of the HyBont Project.
  - **Hydrogen Supply Agreement** – between BCBC and JVCo to set out the terms and conditions for the sale and purchase of hydrogen from the green hydrogen production facility, to power a fleet of refuse collection vehicles and to be used for the proposed heat network.
  - **Share Holders Agreement** – between BCBC, MEL, and CCR to form an SPV to deliver and operate the HyBont plant.
- 3.4 BCBC was awarded grant funding by the Heat Network Development Unit to develop the Detailed Project Design (DPD) which is ongoing and will assess the viability of the heat network concept and produce an Outline Business Case (OBC). This will enable BCBC to decide whether to submit a planning application and applications for other necessary consents, and to complete the commercialisation activities needed to appoint a contractor to construct the heat network.
- 3.5 In-vehicle monitoring of the Refuse Collection Vehicle (RCV) routes was conducted in August 2022 and analysis of the data collected showed that five routes could not be serviced by battery electric vehicles and would therefore be suited to hydrogen fuel cell vehicles. Further technical work is required to develop the business and commercial case to fully understand which type of Ultra Low Emission Vehicles

(ULEV) will be the most effective long-term solution for the authority. Further examination of the developing electric recycling vehicle solutions is required, along with analysis of the impact of varying travelling distance to waste disposal points with the RCVs.

- 3.6 At this time there is no dedicated project management for this project. If the project continues a project manager will need to be recruited or commissioned which will create a pause in delivery and impact continuity.
- 3.7 Marubeni has devised their work programme with assistance from advisors and this has been funded via grants from WG (HyBRID). This has enabled them to continue with technical feasibility (site investigations and planning). After notification of the DESNZ NZHBC fund for the operational subsidy in March 2023 clarifications will take place until Autumn 2023, with final decision by DESNZ by December 2023.
- 3.8 The table below outlines the work that has been completed to date as well as the work that is needed in the coming months for the project to continue in line with its current programme. Without the funding to undertake future milestones, BCBC will need to discuss the current project partner arrangements with all stakeholders and advise that an alternative model of delivery is required, should the overall project continue. The same would be required if a lengthy period is required for BCBC to secure resources for the milestones.

In considering the table 1 below, it is important to note the following:

- The future milestones and their timing are based on information available currently and are subject to change.
- The work involved with the milestones is required to enable BCBC to be better informed in relation to its potential involvement in the project.
- As such, completion of the milestones would enable BCBC to undertake a future gateway review and consider options available at that time relating to any involvement.
- The milestones relate to pre-development activity, not direct delivery of any potential capital phase of the project.

Table 1. Project milestones

| Timing                      | Item                     | Committed | Source                          |
|-----------------------------|--------------------------|-----------|---------------------------------|
| Ongoing to September 2023   | Legal support            | Yes       | Communities Directorate         |
| September 2023-January 2024 | Heat network DPD         | Yes       | Communities Directorate & Grant |
| Ongoing to September 2023   | Project management       | Yes       | Communities Directorate         |
| September 2023-July 2025    | Project management       | No        | Unknown                         |
| September 2023-July 2025    | Legal support            | No        | Unknown                         |
| October 2023-March 2024     | Commercial Due Diligence | No        | Unknown                         |
| October 2023-March 2024     | Technical Due Diligence  | No        | Unknown                         |

|                                     |  |    |         |
|-------------------------------------|--|----|---------|
| <b>October 2023-<br/>March 2024</b> | Refuse fleet analysis                            | No | Unknown |
| <b>October 2023-<br/>March 2024</b> | Business case preparation                        | No | Unknown |
| <b>March 2024-July<br/>2025</b>     | Heat network consenting<br>and commercialisation | No | Unknown |

- 3.9 The timing of the milestones relates to a decision by BCBC about whether to enter into any proposed Hydrogen Supply Agreements in early 2024. It was proposed to address Cabinet at this point when business cases and the commercial case could be finalised. This currently aligns with CCR’s decision making timeframe and the overall project timetable.
- 3.10 What is clear at this point is that this innovative project does have benefits in terms of carbon savings and will contribute to our 2030 net Zero Carbon Agenda. These are detailed in section 6 below. However, when BCBC were approached by Welsh Government in 2021, to ask if we were interested in an investment opportunity for a Hydrogen Demonstrator Project in Wales, it was not clear at that point the substantial revenue and capital implications, that would need to be invested by BCBC, and that are now known. The reliance on external funding and grant sources to assist with the project was also a financial risk that was set out in a Cabinet Report in July 2022. Therefore, to continue the project as proposed equity shareholders and to undertake the necessary due diligence and project management, is now estimated to cost an additional £525,000 over and above the revenue funding that has already been committed. There will also be significant capital implications, not only to fund new hydrogen RCVs, but to install any proposed heat network. These are set out in detail in section 8 below.
- 3.11 So at this critical point in the project, Cabinet is asked to decide on the way forward, taking into account the potential benefits that could be derived from the project, set against the funding required and the challenging Medium Term Financial Strategy (MTFS) budget situation that the Council is now facing.
- 3.12 Taking account of all the information above, the options for consideration at this stage are as follows:

**Option A** – that Cabinet agrees to identify the necessary financial resources required, as set out in detail in section 8, that the Council continues to work with all key stakeholders, including MEL, CCR and Welsh Government and continues to undertake due diligence activities on the project until the next proposed Gateway Review.

**Option B** - that, due to the challenging budget and MTFS issues, Cabinet makes the decision for BCBC to withdraw its involvement in the project, due to its inability to meet the significant financial commitments required and the timescales of the project. However, that dialogue should continue with partners including MEL, CCR and Welsh Government to identify an alternative route forward.

#### 4. **Equality implications (including Socio-economic Duty and Welsh Language)**

- 4.1 The protected characteristics identified within the Equality Act, Socio-economic Duty and the impact on the use of the Welsh Language have been considered in the preparation of this report. As a public body in Wales the Council must consider the impact of strategic decisions, such as the development or the review of policies, strategies, services and functions. It is considered that there will be no significant or unacceptable equality impacts as a result of this report.

## 5. **Well-being of Future Generations implications and connection to Corporate Well-being Objectives**

- 5.1 The Well-being of Future Generations (Wales) Act 2015 Assessment based on the 5 ways of working and any requisite mitigating measures have been set out below: -

- *Long-term:* The proposed Hybont project was intended to test a new green hydrogen technology for delivering net zero carbon energy and heat, as a key part of the Council's 2030 Net Zero Carbon Strategy. It is also part of the UK and Welsh Government vision for a hydrogen energy economy and would contribute to the Government target of producing 5GW of hydrogen by 2030. The project can still contribute to this national agenda.
- *Prevention:* The project would deliver carbon footprint reductions, preventing further harm to the environment and protecting the environment for future generations. The 2030 strategy will now be reviewed to assess the impact of this decision.
- *Integration:* The project would enable a switch of Refuse Collection Vehicles to an ultra-low emission source of energy, i.e., green hydrogen. This could ensure that future waste services and their implementation integrates with current and future 2030 Net Zero Carbon Targets of the Council and its environmental objectives.
- *Collaboration:* The project would be undertaken through a partnership approach between BCBC, CCR, Welsh Government and partners at Marubeni and Japanese Government, through its NEDO funding stream. It is now intended that the project will be reshaped, and future options assessed of BCBC can no longer be involved.
- *Involvement:* The long-term future direction of the project will be dependent on the continued collaboration of Welsh Government and CCR with MEL, now that BCBC can no longer be involved.

## 6. **Climate Change Implications**

- 6.1 There is no doubt that the project will contribute to a carbon saving and our 2030 Net Zero Carbon Agenda, however it is the magnitude of that benefit that must be understood. The feasibility work carried out to date suggest the proposed heat network would result in carbon savings of 9,541 tCO<sub>2e</sub> over the 40-year life of the heat network element of the project (circa 238 tCO<sub>2e</sub> a year) essentially removing almost 100% of emissions associated with heating the three buildings supplied. Assuming a capital cost of £4.0m, this is a cost of £419 per tonne of carbon saved. Exact figures for the decarbonisation of the waste fleet are not available at this time as the due diligence has not been completed. The overall carbon footprint for BCBC

in 2021/22 was 83,914 tCO<sub>2</sub>e and carbon footprint figures for 2022/23 are currently being finalised.

- 6.2 MEL estimate that the proposed Hydrogen Production Facility will displace approximately 5,087 tCO<sub>2</sub>e per annum, and 127,161 tCO<sub>2</sub>e over the facility's lifetime as a total, overall, carbon reduction impact within Wales.

## 7. Safeguarding and Corporate Parent Implications

- 7.1 There are no safeguarding or corporate parent implications arising from this report.

## 8. Financial Implications

- 8.1 To date, over the past two years, BCBC has committed £293,408 on the delivery of specified milestones on the Hybont Project. That is made up of £187,500 on legal support, £62,000 as match funding to the £151,000 HNDU grant to explore the feasibility of the heat network and £43,908 for project Management resource via our Redstart agreement. Actual spend incurred against this commitment to date is £149,552. This is made up of £105,644 on legal support and £43,908 for project management resource.

- 8.2 For BCBC to complete the required forthcoming milestones it is currently considered that a revenue budget in the region of circa £525,000 is required between now and July 2025 (£215,000 in 2023/24 and £310,000 in 2024/25). The breakdown of these estimated revenue costs is shown in Table 2 below. Currently, there is no revenue funding secured to meet these milestones.

Table 2 – Estimated revenue cost

| Timing                       | Item  | BCBC cost | Committed | Source                  |
|------------------------------|---|-----------|-----------|-------------------------|
| <b>SECURED FUNDING</b>       |   |           |           |                         |
| Ongoing to December 2023     | Legal support                                 | £187,500  | Yes       | Communities Directorate |
| September 2023-January 2024  | Heat network Detailed Project Design (DPD)    | £62,000   | Yes       | Communities Directorate |
| Ongoing to September 2023    | Project management                            | £43,908   | Yes       | Communities Directorate |
| <b>NON - SECURED FUNDING</b> |   |           |           |                         |
| September 2023-July 2025     | Project management                            | £130,000  | No        | Unknown                 |
| September 2023-December 2023 | Legal support                                 | £60,000   | No        | Unknown                 |
| October 2023-March 2024      | Commercial and Financial DD                   | £50,000   | No        | Unknown                 |
| October 2023-March 2024      | Technical DD                                  | £35,000   | No        | Unknown                 |
| October 2023-March 2024      | Refuse fleet analysis                         | £40,000   | No        | Unknown                 |
| October 2023-March 2024      | Business case preparation                     | £30,000   | No        | Unknown                 |
| March 2024-July 2025         | Heat network consenting and commercialisation | £180,000  | No        | Unknown                 |



- 8.3 Should the project enter the delivery phase, the funding route identified for supplementing the cost of the Hydrogen fuel cell Refuse Collection Vehicles (RCV's) is likely to be from the WG Circular Economy Fund. In this fund WG could contribute towards the additional cost of affording a low emission vehicle such as electric or hydrogen for waste related operations, over the diesel alternative. The costs are currently estimated to be in the region of £1.5m capital from BCBC and £1.5m from WG circular Economy fund, however this will be subject to detailed feasibility and a formal funding application.
- 8.5 Similarly, the capital requirement and funding options for the heat network will be refined in the DPD, however it is currently estimated to be £4.0m-£4.5m. Funding for the heat network is expected to be made up of grant funding from the Welsh Government Low Carbon Heat Grant (an expression of interest has been made), and BCBC capital. There is no capital allocation currently agreed for this work within the Council's Capital Programme. Revenue will also be required following the Outline Business Case to achieve planning consent and commercialisation for the heat network. No external funding opportunities have been identified at this time for this additional work.
- 8.6 It is clear, that set against the backdrop of the Council's current financial situation and budget challenges, the significant resourcing, both revenue (circa 525K) and capital (circa £6m), for this project will be extremely difficult to resolve.

## **9. Recommendations**

### **9.1.1 It is recommended that Cabinet:**

1. Notes this report and the detailed work undertaken to date on this project.
2. Agrees to pursue Option B and withdraw from the project at this stage, due to the Council's inability to meet the significant financial commitments required and the timescales of the project. However, it is also recommended that the Council has a dialogue with partners, including Welsh Government and for them to identify an alternative route forward with MEL.
3. Delegates authority to the Corporate Director – Communities, in consultation with the Section 151 Officer and Monitoring Officer, to give notice to MEL of the intention to withdraw from the Memorandum of Understanding dated 8th July 2022.

## **Background documents**

8<sup>th</sup> March 2022 Cabinet Paper – Bridgend 2030 Net Zero Carbon Strategy

14<sup>th</sup> June 2022 Cabinet Paper – Bridgend Net Zero Carbon – Hydrogen Technology Demonstrator