

## Written evidence submitted by the Hydrogen Taskforce (PEG0246)

### Executive Summary

The Hydrogen Taskforce welcomes the opportunity to submit evidence to the Business, Energy and Industrial Strategy Committee's inquiry into post-pandemic economic growth.

It is the Taskforce's view that:

- Due to its various applications, hydrogen is critical for the UK to reach net zero by 2050;
- The UK holds world-class advantages in hydrogen production, distribution and application;
- Other economies are moving ahead in the development of this sector and the UK must respond;
- The post pandemic economic recovery planning should reflect the need to achieve deep decarbonisation and support wider objectives such as achieving net zero and levelling up the economy; and
- The hydrogen sector is well-placed to play a key role in the UK's economic recovery, with the right policies and financial structures in place.

The Taskforce has defined a set of policy recommendations for Government, which are designed to ensure that hydrogen can scale to meet the future demands of a net zero energy system:

- Development of a cross departmental UK Hydrogen Strategy within UK Government;
- Commit £1bn of capex funding over the next spending review period to hydrogen production, storage and distribution projects;
- Develop a financial support scheme for the production of hydrogen in blending, industry, power and transport;
- Amend Gas Safety Management Regulations (GSMR) to enable hydrogen blending and take the next steps towards 100 per cent hydrogen heating through supporting public trials and mandating 100 per cent hydrogen-ready boilers by 2025; and
- Commit to the support of 100 Hydrogen Refuelling Stations (HRS) by 2025 to support the roll-out of hydrogen transport.

1. The Hydrogen Taskforce is a coalition of UK-based firms that operate and innovate in the hydrogen sector. Members include Arup, Baker McKenzie, Baxi Heating, BNP Paribas and Arval, BOC, BP, Cadent, DBD International, ITM Power, Northern Gas Networks, SGN, Shell and Storengy.
2. The Taskforce aims to enable the UK to become a world leader in the international application and service of hydrogen, to deliver excellence throughout the supply chain and create a globally attractive export. It has elected to submit evidence to this inquiry as it has a significant interest in the UK realising its full potential in the hydrogen market.

### **Responses to the questions asked by the Committee**

#### ***What core/guiding principles should the Government adopt/prioritise in its recovery package, and why?***

3. The Government should prioritise investment in sectors with significant decarbonisation potential in its recovery package. The recovery package should look to invest in sectors and technologies with the potential to grow rapidly in future, and sectors and technologies which can accelerate decarbonisation have substantial growth potential. Hydrogen production, storage, distribution and use technologies are among those with significant potential to achieve both decarbonisation and economic growth.
4. It should be noted that the hydrogen sector has a strong pipeline of projects that could deliver many highly skilled jobs in the short term. The hydrogen sector also has strong growth potential, both domestically and internationally. The Hydrogen Council estimates that the value of hydrogen markets could be as much as \$2.5tn by 2050.<sup>1</sup>

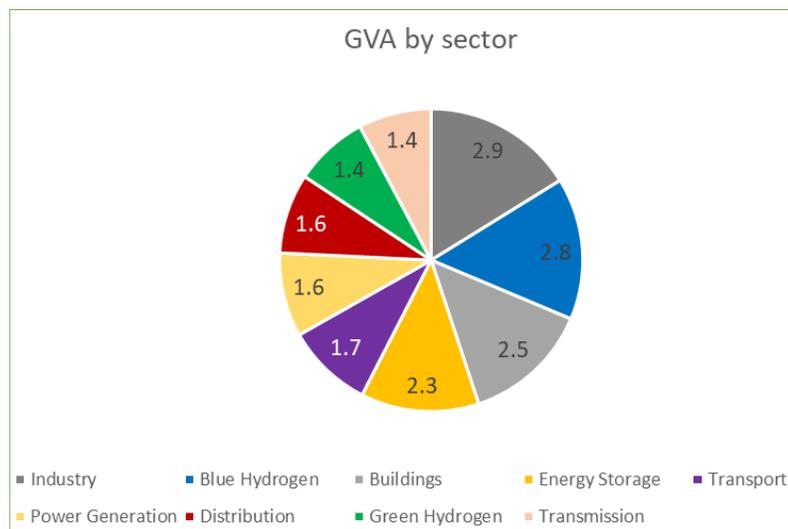
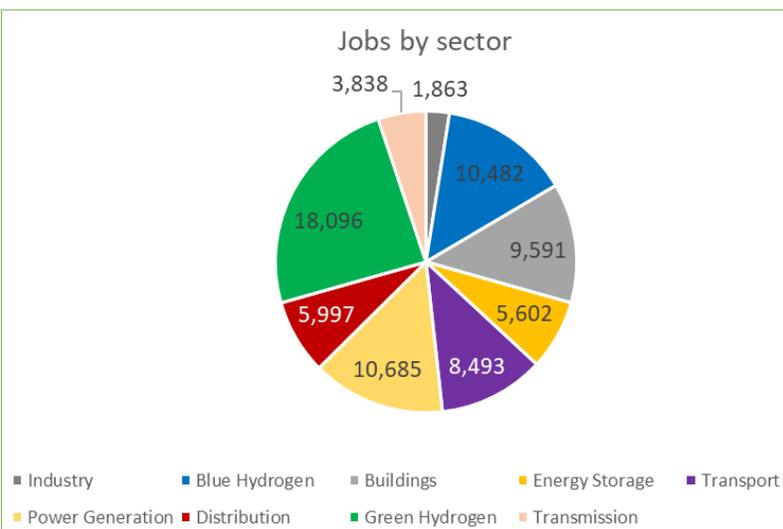
#### ***What measures and support will businesses need to rebuild consumer confidence and stimulate growth that is sustainable, both economically and environmentally?***

5. Certainty and consistency will be key in rebuilding confidence and stimulating growth. The UK is well placed to take advantage of hydrogen to create high-value jobs, export benefits and cost-effective decarbonisation in key sectors of its economy. UK firms currently lead in hydrogen sector niches; R&D and university expertise; transferable skills from the oil and gas, and offshore wind, sectors; and developing services for hydrogen. This growth will only occur if the Government is clear about its ambition to deliver hydrogen solutions in the UK.
6. To build confidence within the industry, the Government should prioritise the development of a UK hydrogen strategy. This strategy would give industry confidence in both the scale of the UK Government's ambition in hydrogen and the areas that the UK considers to be of the highest priority. This will help to unlock investment within the industry and enable hydrogen to begin to scale in the UK. Industry is ready to invest in large-scale hydrogen production, storage and distribution projects to decarbonise critical areas of the UK energy system with Government support.

---

<sup>1</sup> Hydrogen: Scaling Up – [Hydrogen Council](#)

7. The Hydrogen Taskforce has recently published an economic impact assessment (EIA) that outlines the contribution that the sector could deliver in the UK by 2035, including estimated output.<sup>2</sup> According to the EIA, investing across the hydrogen value chain has the potential to unlock £18 billion in economic growth and support 75,000 jobs by 2035.<sup>3</sup> Around 80 per cent of the jobs supported by 2035 are likely to be deployed in upstream (production) and downstream (transport, industry, building and power generation) sectors. The remaining 20 per cent of jobs are likely to be deployed to support midstream activities in transmission, distribution and energy storage.



Source: GVA and jobs by sector by 2035 – Hydrogen Taskforce (EIA)

8. The hydrogen strategy developed by the Government should be ambitious in nature and reflect the key part that hydrogen must play if the UK is to meet its net-zero target. The Hydrogen Taskforce is committed to working with the Government to deliver this strategy and has made several recommendations as to the steps that industry and Government should take together to scale hydrogen over the coming decade. These recommendations can be found in its report, titled 'The Role of Hydrogen in Delivering Net Zero', and in the executive summary of this submission.<sup>4</sup>
9. The Hydrogen Taskforce welcomes the recent establishment of the Government's [Hydrogen Advisory Council](#), which will work to identify and promote the concrete actions required to enable the supply of low-carbon hydrogen at scale for use across the energy system.
10. It is the Taskforce's view that the UK Government's approach to hydrogen should be holistic and consider its midstream and downstream uses, alongside production. Only a comprehensive approach to this resource will ensure that the UK can take full advantage of its benefits to our economy, as we recover from COVID-19, identify new export markets and decarbonise our industries, homes and transport networks.

<sup>2</sup> Economic Impact Assessment – [Hydrogen Taskforce](#)

<sup>3</sup> Economic Impact Assessment – [Hydrogen Taskforce](#)

<sup>4</sup> The Role of Hydrogen in Delivering Net Zero – [Hydrogen Taskforce](#)

11. It is evident that hydrogen and its applications have the potential to stimulate growth that is sustainable, both economically and environmentally, for the UK, and provide opportunities for our country to decarbonise and create jobs.

***Whether the government should give a higher priority to environmental goals in future support? Whether the Government should prioritise certain sectors within its recovery package, and if so, what criteria should it use when making such decisions? What conditions, if any, should it attach to future support?***

12. Environmental goals should be given a high priority in developing future support policies. We have a moral duty to protect and improve our environment. Furthermore, as COVID-19 has demonstrated, non-economic factors can have devastating economic consequences. Climate change and its associated impacts will have an even larger impact and, as such, any recovery which does not have environmental sustainability built into it will reduce our resilience over time. Moreover, those sectors or resources which can play a critical role in achieving decarbonisation, such as hydrogen, are those with the greatest long-term growth potential, due to the growing international demand for such technologies.

13. Therefore, we support prioritisation of those sectors with both significant growth potential and which can play a key role in decarbonisation, one of which is hydrogen. In supporting wider industry, conditions for future support should require recipients to develop clear and realistic plans to decarbonise their operations wherever possible.

14. Many other nations are prioritising hydrogen in their economic recovery plans. For example, Germany has committed EUR9bn for green hydrogen projects to deliver 5GW by 2030 and a further 5GW by 2040. The UK is at serious risk of being left behind if it does not deliver similar ambition and investment.

***How can the Government best retain key skills and reskill and upskill the UK workforce to support the recovery and sustainable growth?***

15. The Government can help retain and expand the skills base of the UK workforce by making investments in sectors which benefit from transferable skills from other industries. The hydrogen sector offers many opportunities for workers in the oil and gas sectors, who often have transferable skills applicable across hydrogen production, storage and distribution.

16. The Government should seek to identify growth sectors which can build on these existing skills in the workforce, where possible, as well as investing in the development of skills needed by the sectors of the future. Government must act decisively and ambitiously if hydrogen is to deliver green jobs in the UK and if the UK is not to be left behind.

***What opportunities does this provide to reset the economy to drive forward progress on broader Government priorities, including (but not limited to) Net Zero, the UK outside of the EU and the 'levelling up' agenda? What should the Government do to ensure that delivering on these priorities does not exacerbate the vulnerability of businesses, consumers and communities/workers that have been impacted by COVID-19?***

17. Planning for a green recovery offers an excellent opportunity to position the UK economy to take the lead in sectors with high growth potential, but also to drive forward the net zero and levelling up agendas. Investment in hydrogen production, storage and distribution, for example, would help to unlock the use of hydrogen on a wider scale in heating and transport, essential for reducing emissions and hitting net zero.
18. Hydrogen offers a cost-effective decarbonisation solution that brings many broader benefits, including improving energy security and minimising the risk of increasing fuel poverty. These will be key issues over the coming years and hydrogen can help minimise the impact on vulnerable customers by keeping the cost of energy as low as possible during the energy transition.
19. Hydrogen can also enhance the levelling up agenda to address regional disparities in economic performance. The Hydrogen Taskforce has published an economic impact assessment (EIA), which analyses the overall economic benefit hydrogen could generate for the UK by 2035.<sup>5</sup> The EIA found that investment in hydrogen could unlock £18 billion in gross value added (GVA) to the UK economy by 2035. This investment would support around 75,000 jobs over the same period. While regional analysis does not form part of the report, we know that much of the economic benefit will be located outside of south-east England, particularly in the north-east.
20. The prospective sites for blue hydrogen, which is produced through steam-methane reforming or autothermal reforming, are located with proposed carbon capture usage and storage (CCUS) facilities in proposed CCUS clusters, likely to be located in Teesside, Humberside, Merseyside or in Scotland. Similarly, green hydrogen, generated by electrolyzers powered by renewable sources, will be located near to those sources of electricity, which are mostly based outside of the south-east.

***What lessons should the Government learn from the pandemic about actions required to improve the UK's resilience to future external shocks (including – but not limited to – health, financial, domestic and global supply chains and climate crises)?***

21. The COVID-19 pandemic has demonstrated the catastrophic impact that external shocks can have, and thereby underlined the importance of building resilience. Climate change is a major source of external shocks, through its direct impacts on climate, such as flooding and drought, and its indirect impacts on people and the global economy. Building a more resilient economy will require achieving deep decarbonisation, not only to reduce dependence on imported fossil fuels, but also to mitigate the impact of shocks arising from climate change.
22. Hydrogen can play an essential role in building this more resilient economy, due to its potential application as a low-carbon solution across many sectors of the economy, especially in heat and transport. Hydrogen offers an opportunity to diversify our energy sector, mitigating the risk of creating an energy system which is heavily dependent on a single source of energy (such as a wholly electrified system), which would be at greater risk of external shocks.

---

<sup>5</sup> Economic Impact Assessment – [Hydrogen Taskforce](#)

23. The scale and demand profile of domestic, commercial and industrial heat means that, although other technologies such as heat pumps and district heating have a key role to play, decarbonisation at the scale required to meet net zero targets will require hydrogen to make a significant contribution. Various schemes, such as HyNet, H21, H100 and the HyDeploy programmes, are clearly demonstrating the applicability of hydrogen in the gas grid. Hydrogen can be immediately utilised in blending, industrial decarbonisation and transport, providing early markets for hydrogen, developing infrastructure and allowing the upstream supply chain to mature. The Taskforce's EIA found that investing across the entire hydrogen value chain has the potential to unlock £18 billion in economic growth and support 75,000 jobs by 2035.
24. For transport applications, the timeline for mass deployment of hydrogen is dependent on several factors, including industry investment in R&D, the development of supportive policy frameworks, and the cost and availability of clean hydrogen. For technologies that have reached higher levels of maturity, such as buses, there is an opportunity to ramp up deployment over the next decade as costs decrease and technology is more readily available.
25. The widespread use of hydrogen in heating and transport would enhance the UK's resilience to external shocks, as the required volume could, with the right policies and infrastructure, be generated in the UK, eliminating the need for imports. As a low-carbon solution, hydrogen can also help mitigate climate change and thereby reduce impacts from climate change.

***What opportunities exist for the UK economy post Brexit and the pandemic for export growth?***

26. Hydrogen offers considerable potential opportunities for export growth. The Hydrogen Taskforce's EIA found that UK export opportunities were estimated to be ~£900m by 2035.<sup>6</sup> This will only increase as the scale of investment and deployment in hydrogen infrastructure increases.

*September 2020*

---

<sup>6</sup> Economic Impact Assessment – [Hydrogen Taskforce](#)