

Global Infrastructure Investor Association

Hydrogen Business Model Consultation

Monday 25th October 2021

1. Introduction

Global Infrastructure Investor Association (GIIA) is the membership body for the world's leading investors in infrastructure, and advisors to the sector, who collectively represent nearly US\$1 trillion of infrastructure assets under management across 66 countries. Our members are investing today to provide the smart, sustainable, and innovative infrastructure needed for our communities and economies to thrive.

The investor member base of GIIA is diverse and ranges from fund managers, pension funds, insurers, corporate investors and sovereign wealth funds (a list of GIIA members can be found at <http://giiainc.net/membership>).

In the UK, GIIA members are responsible for:

- £27bn invested in 158 assets consisting of traditional energy and renewables.
- 16.2GW of installed capacity across a 210,000 km electricity and gas distribution network.
- £19bn invested in 12 water and wastewater assets servicing 33m UK customers.
- Responsible for 94.4% of total air passengers in the UK through investment in 19 UK airports worth £15bn.
- Supporting almost 120,000 jobs in the nation's privately owned ports.
- £10bn invested in telecoms providing 14m households with full fibre internet.

In addition to these vital sources of foreign direct investment, our research shows that more than 8.5 million UK pension pots are invested in UK national infrastructure via specialist infrastructure funds, helping to deliver a stable return for UK citizens in their retirement. In transport, renewables, utilities, digital and social infrastructure, GIIA members are investing across the UK to deliver the infrastructure needs of UK citizens and supporting the wider economy.

2. Infrastructure investment gap

The UK, along with many of the world's leading developed economies, faces a growing infrastructure gap, exacerbated by years of underinvestment by successive governments and an absence of attention paid to the role that private investment can play in relieving the pressure on the public balance sheet, to ensure that the UK gets the infrastructure that it needs for future generations.¹

The investment gap in economic infrastructure will amount to \$5.5tn (£4.4tn) globally between 2017 and 2035, according to the McKinsey Global Institute. Other estimates suggest that the gap is even starker. Oxford Economics forecasts a cumulative shortfall of \$15tn (£11.9bn) between 2016 and 2040. The Green Alliance estimates that a £11.4bn investment gap currently exists in the UK and will rise to £13.5bn in 2022.

The scale of the finance required highlights the critical role that private investment will have to play if this gap is to be filled. The UK Government Infrastructure Finance Review also states that over the next 10 years around half of the £600bn infrastructure pipeline is forecast to

¹ World Economic Forum, The world is facing a \$15tn infrastructure gap, (2019) [URL](#)

come from the private sector through electricity networks, digital infrastructure, airports and water and waste.² Furthermore, Boris Johnson acknowledged the need and value of private capital to further the UK green agenda during the Global Investment Summit and that private investment needs to “join hands with the government” after COP, so that the government is able to leverage the trillions of the market.

Research by PwC in partnership with the Global Infrastructure Investor Association and separately by the Committee on Climate Change (CCC) have indicated that the UK needs to spend an additional GBP40-50bn per annum through the 2020’s to meet Net Zero commitments, half of which is not currently covered by existing policy and regulation.³

Importantly, the announcement of the Government’s hydrogen strategy was welcomed by GIIA investors as around 90% see hydrogen playing a big role in the transition to NetZero, however, in order to unlock this vast pool of capital, investors need to see policy and regulatory frameworks evolve quickly to allow investment to flow.⁴

3. Hydrogen Business Model

The consultation highlights the need for investment in hydrogen and a strong model for support in order to kickstart hydrogen production to drive prices down and help towards the realisation of the Government’s long-term ambition of achieving NetZero by 2050. However, there are a number of questions which will need to be addressed if the business model is to create the impact and levels of support that are intended:

- a) Hydrogen should not be limited to only one level of support and should be sustained by numerous Government support schemes. The consultation does refer to revenue stacking, however, there needs to be clarity on the ruling on permitted combinations of hydrogen support schemes, particularly when the business model that is purely designed for hydrogen production projects is not eligible for CCUS cluster funding.
- b) Mechanism needs to be simple and adaptable for future administration. The consultation does not provide a position on how to index the strike price and what duration of support will be provided for eligible projects. Furthermore, the Government has proposed 7 different pricing options for calculating the reference price and mentioned, without detail, a gainshare mechanism and periodic payments. This needs to be clarified as introducing so many variables into a system can make an already complicated reference price mechanism difficult to administer.
- c) There is limited explanation for hydrogen application - the consultation suggests that Hydrogen for use in feedstock may not be eligible for support.⁵ Hydrogen as feedstock has a low marginal cost of abatement and represents the harder-to-abate application and should be included in the scope to help decarbonise industry.
- d) A significant portion of carbon intensive hydrogen is produced as feedstock and it is important to balance the desire to find applications of Hydrogen in areas where it can have the greatest impact such as transport or heating, with the need to ensure that hydrogen producers can find the demand. The application of exclusions needs to be refined as hydrogen can change hands multiple times before reaching the end user. Furthermore, in the early stages, producers need dependable offtake which industry can provide, transport and heating however are less certain since the market is not yet developed and as a result the growth is uncertain.

² HMG Infrastructure Finance Review (2019) [URL](#)

³ PwC, Unblocking Capital for NetZero Infrastructure, (2020) [URL](#)

⁴ GIIA&Arup, Catalysing hydrogen investment, (2021) [URL](#)

⁵ CMS, UK Hydrogen Business Model (2021), [URL](#)

- e) Infrastructure is severely lacking in transportation and storage of hydrogen to support the scale of hydrogen production that is necessary. The approach should not be one size fits all, as there is no specific support mentioned for smaller scale projects with limited ability to tailor support for different methods to manufacture hydrogen. Furthermore, the consultation does not consider a business model to support large scale infrastructure at this stage. The absence of infrastructure and support for various methods of producing hydrogen is a bottleneck to hydrogen production which limits the appetite and incentives to invest.
- f) Hydrogen support needs to go beyond a subsidy mechanism and should gain increased Government support in the form of strong policy and regulatory frameworks which incentivise innovation. Currently, there is an absence of policy frameworks which are dedicated to low-carbon hydrogen or carbon intensive hydrogen. In order to scale hydrogen at pace, legislative intervention is paramount to removing the barriers to investment and ensuring that all innovative producers are gaining the support and capital that they need.

4. Reform of regulation

Recently, positive steps have been taken by the Government to reform the system of economic regulation and signal to the market that the UK is open to international private capital investment. For example, it is encouraging to see that the National Infrastructure Strategy sets out a clear pathway to delivering Net Zero through infrastructure investment and clearly recognises the role of the private sector in achieving that. The UK's regulatory framework needs to prioritize incentivizing hydrogen production at scale in order to catalyze the investment required.

Regulators and Government should work to ensure the frameworks for investment are consistent across the economy. This would improve predictability and help investors, particularly those operating internationally, to navigate the market. We are not calling for all regulators to use identical approaches, rather that they should draw from similar principles that parties across all sectors have bought into. The strategic policy statement process is core to this and will help improve the long-term predictability and stability of the regime.

In order to ensure the hydrogen business model is able to attract the required private investment in order to be able to scale production and use in the economy, Government should take the following actions:

- a) Clarify the boundary between Government and regulators to ensure that there is a more direct link between Government's overarching ambition for UK infrastructure and delivery of regulation on the ground. There is also an opportunity to make greater use of strategic policy guidance to ensure that regulators know how to manage and prioritise their respective duties on behalf of current and future consumers. This is particularly pressing in the energy market.
- b) Strive for intergenerational equity in the costs of infrastructure, ensuring that consumers get the best possible value for money in the short-term and benefit from high-quality service delivery and that future consumers are protected from future price rises. Future customers' interests must be protected through the delivery of new capital investment and long-term projects as part of the transition to NetZero.
- c) Guard against retrospective policy making where investors investing over long-term time horizons are protected from changes in the political cycle and associated changes

in policy priorities that could impact agreements reached in the past. To provide certainty when making decisions about where to allocate capital, investors need to be confident that the rules of the game cannot be retroactively changed by policy makers part of the way into projects. This will apply to investors in hydrogen who will be investing over long term time horizons.

- d) Incentivise innovation over the long-term and streamline regulation as far as possible with incentives for efficiency structured in such a way as to drive innovation in service delivery over multiple price control periods. Moreover, regulators should also strike a better balance between risk and reward. Allowed returns should be set at a level which reflects a realistic assessment of risk and one that is capable of incentivizing innovation to ensure investment is delivered at pace. Particularly at the early stages of the market when risks are higher.

5. Attractiveness of the UK market

Notwithstanding the need for a support mechanism and regulation, UK hydrogen should be able to benefit from the opportunities provided by inward foreign direct investment. Of great importance, the Government should pay due regards to the ways in which regulatory measure can affect FDI inflows by impacting the near-term perception of the UK as an attractive market. The recent determinations within the water sector are a good indicator of negative impacts as over time regulatory changes increase the revenue volatility and risk exposures which will increase the cost of capital. These types of decisions will have major impacts on nascent technologies such as hydrogen which rely on the access to this kind of capital.

Studies have shown that countries with high performing physical and digital infrastructure receive higher levels of FDI. The UK has a strong track record of attracting FDI within the infrastructure sector, in part due to the UK's system of economic regulation following privatisation. This has brought many benefits to the UK economy and has acted as a catalyst for investment. However, FDI levels have been on a down trend in the UK for several years. The House of Commons library shows that in 2019 FDI had fallen for the third year running whilst global flows of FDI increased by 3%.⁶ This can be due to a number of attributing factors such as the perceived politicisation of economic regulators and increased levels of risk due to UK leaving the European Union.

Furthermore, whilst GIIA agrees with the underlying principles of the National Security and Investment Act, there are numerous concerns which relate directly to FDI. Nominally the broad sector definitions which will manifest in large volumes of mandatory and voluntary notifications, and the resources available for these to be dealt with efficiently in the 30-day screening period. Importance must be placed on ensuring that the notification process is simple to avoid lengthy discussion. Although there is focus on the infrastructure and energy sectors, balance must be struck between scrutinising transactions involving critical infrastructure and avoiding blocking much needed investment.

6. Summary

The UK is facing an ever-burgeoning infrastructure gap which has been amplified by the pressures on public finances through Government borrowing during the pandemic to support the economy. The recently announced Hydrogen Strategy is a welcome first step to enabling hydrogen to scale at pace to the levels required to meet our climate goals. However, the 7 different proposed options for calculating reference price and additional mechanism and

⁶ House of Commons Library, FDI statistics, (December 2020), [URL](#)

periodic payments could make an already complex reference price mechanism even more complicated to administer in future situations.

Importantly, it is imperative to ensure there is stable regulation which incentivises innovation to attract investment and private capital to nascent technologies in order to make the valuable contribution needed for small scale hydrogen producers to deliver on the Government's Net Zero agenda. Furthermore, regulation plays a large part in attracting foreign investors, increased stability will bolster confidence in the UK system of economic regulation and encourage foreign private capital to make the difference.

7. Contact details

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