**Written Evidence Submitted by Paul Davies, Chair, Carbon Capture and Storage Advisory Group**
**(HNZ0006)**

As a long-term infrastructure adviser, I currently Chair the Carbon Capture and Storage Advisory Group – a group of all the major private sector players at our 5 leading industrial clusters, oil and gas majors, BEIS, HM Treasury and Scottish Government – that has submitted the recommended business models which have formed the basis of BEIS's emerging models, including for hydrogen.

I am also an adviser to BEIS on the implementation of CCS and was a member of the Industrial Advisory Committee for the Committee on Climate Change's recent $6^{th}$ Carbon Budget.

I have recently completed a paper for The Infrastructure Forum - a leading infrastructure industry think tank – on the virtuous relationship between an increasing carbon price and infrastructure investment. Essentially, increasing carbon prices will help fund the infrastructure to provide alternatives, at increasingly competitive prices, allowing companies and individuals to migrate away from fossil fuels.

The paper is particularly relevant to the hydrogen market. In most cases, hydrogen will need to replace methane gas– from industrial use and heating, to heating our homes. But currently the most economical method of hydrogen production is 'blue hydrogen' (converting methane to hydrogen and CO2, with the latter getting captured) which by definition includes both the cost of methane and the cost of conversion. So, it cannot compete directly with methane, which will always be cheaper, so companies will have no incentive to convert to hydrogen.

Only as carbon pricing is imposed on methane, but not hydrogen, will hydrogen become increasingly competitive. But currently most methane users do not pay carbon prices (such as ETS or direct tax) so it would be prohibitively expensive to switch to hydrogen. Increasing carbon pricing will therefore need to be part of an integrated policy approach, if we are to incentivise companies to convert and make the rollout of hydrogen a success.

To make the point, my paper includes an annex on the hydrogen business model and how this should work with carbon pricing, which I hope the Committee will find helpful. It describes the business models necessary to underpin investment in hydrogen and the wider carbon pricing policy that needs to be introduced to incentivise and fund conversion.

I attach below the link to the full paper. While the paper is relatively long, it does have short summaries in each section so you can get the gist and focus on those sections that are most relevant to your review. I am happy to provide more context and evidence if that were helpful:

Carbon Pricing and Infrastructure Investment

Paul A T Davies
Chair CCS Advisory Group and BEIS CCS and hydrogen adviser
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