



Department for
Business, Energy
& Industrial Strategy

£20M BEIS HYDROGEN SUPPLY PROGRAMME

Details of an upcoming innovation
programme



May 2018

Background

As part of the BEIS £505m Energy Innovation portfolio, we have planned a c£46m suite of programmes on hydrogen. That c£46m addresses three key challenges (a) to ensure hydrogen can be used safely in buildings; (b) to support industry to explore how to switch to hydrogen (and other fuels), away from higher carbon fuels, (c) to understand the potential role of power to gas for energy storage. This complements wider activity by HMG, including the Department for Transport's support for hydrogen in transport; and Ofgem's Innovation funding exploring use of hydrogen in distribution networks.

Low carbon hydrogen could play an important role in decarbonising industry, power, heat and transport. However, for a market to grow, potential users (in any application) need to be confident in supply of a sufficient quantity of low carbon hydrogen at competitive price. A fourth key challenge is to reduce the cost of low carbon hydrogen which is higher than natural gas – a recent report from the Sustainable Gas Institute estimated the cost of hydrogen production to be in the order of 2-5p/kWh for steam methane reformed natural gas with carbon capture and storage and 4-9p/kWh for electrolysis. This compares to the current UK wholesale natural gas price of ~1-2p/kWh¹.

Scope of the Call

This Hydrogen Supply programme provides an additional £20m and aims to address the fourth key challenge by accelerating the development of low carbon bulk hydrogen supply solutions for industry, power, buildings and transport which are currently at a technology readiness level (TRL) between 4 to 7, which could either result in lower capital and operating costs when compared to today's solution for production of bulk low carbon hydrogen or improve the emissions saving potential at a comparable cost.

The programme will take a portfolio approach to funding and aims to fund a range of different solutions which could include fossil fuel reformation with carbon capture, offshore production, electrolysis, biohydrogen, import opportunities, and potentially storage of hydrogen. The programme will be delivered over two phases.

Phase 1 – Feasibility (£5m) This phase will make a number of awards of up to £0.5m to develop hydrogen supply solutions, alongside a supply/production plan, which details the development steps needed for each solution to be deployed at scale. As part of this feasibility study we would expect:-

- An assessment of the market size and export opportunities for the technology for bulk low carbon hydrogen supply.
- A detailed engineering design for each hydrogen supply solution, against which an assessment could be made on a number of metrics which is likely to include; capital

¹ <http://www.sustainablegasinstitute.org/a-greener-gas-grid/>

and operating costs; process risks (reliability); the availability and the impact of variable demand; the hydrogen quality; the potential to mitigate greenhouse gases; the build rate; and how the process could be scaled. Process modelling or small-scale trials may also be required to verify the design.

- A detailed development plan for each solution describing the key development steps to commercialisation, including the key barriers and risks. This should include a detailed focus on the component(s) to be piloted in Phase 2. Each step will be costed.
- A detailed assessment of the business plan on how the process will continue to be developed after the funding for the pilot ends.

Phase 2 – Pilot demonstration (£15m). This phase will consider applications of up to £7.5m to pilot key components or further develop the design of the new hydrogen supply solutions. A pilot demonstration is not limited to a physical demonstration and may only be for part(s) of the process. This could include detailed process modelling or engineering design.

The work being funded must largely be conducted in the UK. Incubation support will be available for successful small and medium sized enterprise (SME) awardees who are the lead partner in receipt of funding.

The below table is an indicative schedule for the programme:

Schedule	Date/duration
Launch of £20m BEIS Hydrogen Supply programme	June 2018
Phase 1 open for applications	June to October 2018
Phase 1 projects start	November 2018
Phase 1 complete, Phase 2 open for applications	May 2019
Phase 2 projects start	June 2019
Projects complete	Before 31 March 2021

Further information

The £20m BEIS Hydrogen Supply programme documentation will be available at

<https://www.gov.uk/guidance/funding-for-low-carbon-industry>

Question can be addressed to the Industry and CCUS Innovation team

(industry.innovation@beis.gov.uk).



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