

The Industrial Energy Transformation Fund: Decarbonised Gas Alliance response

November 2019

NB: Please note that we limit our response to the questions concerning deep decarbonisation, although we are also supportive of efforts to improve industrial energy efficiency.

Consultation questions

Q7. Please give us your views on our proposals for eligibility for deep decarbonisation projects.

We agree that private sector organisations from any sector and of any size should be eligible to apply, including as part of a wider consortium. We also agree that any consortium should have at least one private sector member.

We are, however, concerned that the requirement that the investment must be made on a manufacturing site is too narrow. Ultimately, the *outcome* should be to decarbonise manufacturing sites, and this will require wider enabling investment. For example:

- If the project involves carbon capture on a manufacturing site, then the pipeline transporting CO₂ away from the manufacturing site, and the offshore CO₂ storage, should be eligible. More broadly, CO₂ transport and storage infrastructure that enables deep decarbonisation of an industrial cluster should qualify, given its potential to reduce emissions substantially.
- If the project involves fuel switching to hydrogen, with the hydrogen produced from electrolysis, then the works to construct electrolyzers and couple them to an offshore wind terminal should be eligible.
- If hydrogen is produced in one location for use in a number of manufacturing facilities in the cluster, this should also be eligible. It is worth noting that, with respect to hydrogen production from natural gas, a larger centralised hydrogen production facility will be more cost-effective than a number of smaller facilities – smaller units at multiple sites may leave uneconomic assets in the future.

We would therefore recommend not being too prescriptive, to ensure that the wider enabling locations are in scope for the Industrial Energy Transformation Fund (IETF), which, ultimately, will deliver greater industrial emissions reductions.

Q10. Do you agree with the kind of deep decarbonisation activities the IETF is looking to support?

We agree that FEED studies and demonstration/deployment at higher Technology Readiness Levels are appropriate activities for the IETF to fund, especially given the need to decarbonise all the UK's industrial clusters – together with non-clustered industry – to meet net zero.

However, as per our answer to Question 7, we are concerned that excluding hydrogen production and wider transport/infrastructure projects may be limiting. For instance, if an industrial site is located beside an existing hydrogen grid, then fuel switching to hydrogen would appear to be in scope. But if the hydrogen grid required expanding to allow a manufacturing facility slightly further away to switch, then it is not clear that this project would be in scope.

We therefore disagree that standalone hydrogen production and wider transport/infrastructure projects should be out of scope. Projects should be able to include them if they are a) linked to decarbonisation of one or more industrial facilities, or b) part of a wider cluster decarbonisation enabling project. It is important to note that establishing hydrogen production and hydrogen/CO₂ transport infrastructure will allow faster replication of industrial decarbonisation projects in a cluster.

Q11. Please give us your views on our approach towards deep decarbonisation technologies.

Firstly, we believe there should be a clearer definition of “deep decarbonisation”, and would propose that it should require emissions to be at least halved on the unit that is being decarbonised. This would help ensure applications are appropriate. As stated in our answer to Question 10, we also support enabling technologies and infrastructure, including hydrogen production and transport, and CO₂ transport and storage.

Secondly, projects may rely on other funding sources in addition to the IETF, for instance the Industrial Decarbonisation Challenge within the Industrial Strategy Challenge Fund, and the Low Carbon Hydrogen Production (LCHP) Fund. If applications for these sources of funding are not successful, then the project overall may not progress. Taking the example in the consultation document (p.54), of the LCHP Fund supporting low carbon hydrogen production, while the IETF supports the use of low carbon hydrogen in industrial processes, a project could clearly not progress unless it obtained funding from both schemes.

We would therefore recommend that the LCHP Fund and Industrial Decarbonisation Challenge should align with the IETF, including application and decision dates. This would help to ensure that projects can plan appropriately, and reduce risks of a project obtaining funding for one portion, only to see funding for a subsequent portion not granted. In practice, this would mean bringing forward the LCHP Fund to 2020.

In addition, commonality between funding mechanisms, particularly the IETF and subsequent phases of the Industrial Decarbonisation Challenge, will be essential, as both will assess applications for feasibility and FEED studies. Common eligibility and assessment criteria and a shared template will make the funds easy to apply for, provided the template is not too prescriptive. Funds which are accessible and have consistent criteria will ensure a high-quality pipeline of projects will apply for funding.

Q12. Do you agree with the proposal to support feasibility studies and FEED studies into energy efficiency and deep decarbonisation technologies?

Yes, as this will help to ensure that all clusters can progress towards deep decarbonisation. If projects have already completed FEED studies, then they should be able to bid straight into capital funding support.

Q13. Do you agree with the proposed maximum feasibility study duration?

Yes, a 12-month feasibility study is a reasonable timeframe to ensure a high quality piece of work, and equally to ensure that a project moves ahead in a timely fashion.

Q14. Do you agree with the proposed maximum FEED study duration?

Yes, although there should be an exception granted for FEED studies that include planning and regulatory approval. For instance, a Development Consent Order, required for certain major projects, takes around 3 years to obtain, including the pre-application process,¹ and Town and Country Planning Applications are likely to take at least a year, including public consultation and environmental studies. Projects are also likely to require environmental permits from the Environment Agency, and may require approval from the Health and Safety Executive.

We would propose that any extension to the 24-month timeframe for FEED studies should be for the purposes of obtaining planning and regulatory consent only. We would also propose that the costs of obtaining planning and regulatory permission should be counted as match funding.

Q15. Do you agree with the proposed assessment criteria for feasibility and FEED study applications?

We have several comments on the proposed assessment criteria:

- **Replicability for the sector:** The key point is that it should be the *technology* that is replicable as much as the project. Projects will differ by cluster and by manufacturing facility, and it is the technology used to decarbonise facilities that will be most relevant. Existing infrastructure, availability of utilities and the plot of land available will make big differences to a specific project. Modularisation is key, but it is not feasible to expect that a whole plant can simply be designed once and then replicated multiple times.
- **Technical feasibility:** As well as being scientifically sound, the proposal should be capable of being engineered.
- **Project costs:** Benchmarking of costs for first-of-a-kind projects is difficult. The lifecycle cost, including operational expenditure, is as important as the capital cost – and for many technologies, the operational expenditure will be greater than the capital expenditure. In addition, the cost reduction potential is key. In other sectors, technologies such as offshore wind have started off very high cost, but have demonstrated rapid cost reduction.

We would also recommend that a criterion be added setting out that projects must meet a definition of “deep decarbonisation”, as set out in our answer to Question 11.

18. Which of the funding mechanisms above do you prefer for deep decarbonisation projects?

Our preference is for grant funding, for the reasons set out in the consultation document.

19. Would you like us to consider other potential funding mechanisms for deep decarbonisation projects?

It is worth noting that while energy efficiency projects will reduce operational costs, deep decarbonisation projects are likely to increase operational costs. Consideration of how operational expenditure for deep decarbonisation will be supported, alongside IETF capital funding, is therefore

¹ See <https://infrastructure.planninginspectorate.gov.uk/document/3168533>

critical. Otherwise it will be extremely difficult for industries operating in globally competitive markets with thin margins to roll out decarbonisation technologies, and the risk of offshoring of emissions is increased.

It is worth reiterating that the UK is one of the largest net importers of CO₂ per capita in the world, and that we import 80 million tonnes of CO₂ each year from China.² To achieve net zero in a credible manner, we cannot continue to offshore emissions to such a large extent. And therefore, how industrial decarbonisation technology is rolled out, and not just demonstrated, is critical.

It is important to note that policy to provide an investment framework for industrial decarbonisation is not limited to CCUS, but should encompass all technologies that achieve this goal:

- The summer consultation on business models for CCUS (and earlier-stage thinking on hydrogen business models) was very welcome, and we would urge that a response to the consultation is provided as soon as possible – indeed, the timelines for IETF funding and the development of CCUS business models should be closely aligned, as projects will need to have sight of how operation costs will be covered.
- Wider industrial decarbonisation options should also be addressed through policy, including non-CCUS hydrogen production and the potential of biogases in industry.

Q22. Do you agree with the proposal for Phase 1 to fund energy efficiency projects and feasibility/FEED studies for both energy efficiency and deep decarbonisation?

We are not convinced of the need for a separate Phase 1 and Phase 2. Although feasibility and FEED studies should be eligible for IETF support, projects that are ready to deploy should not need to wait another year to apply for funding.

Q23. Do you support the proposal to have an Application Development Service to provide potential applicants with detailed advice and support? Please outline your reasons for your answer and, if you agree, outline specific issues on which you think potential applicants would require such support.

Yes – any assistance to applicants is helpful, including on the following issues:

- Advice on how projects can best meet the assessment criteria;
- Advice on how projects should navigate the various funding schemes available, including the Industrial Decarbonisation Challenge within the Industrial Strategy Challenge Fund, and the Low Carbon Hydrogen Production Fund.

The one caveat we would have is on the cost of the Application Development Service, which we assume would be funded out of the IETF budget, and hence would reduce the total available for projects. It is essential that the cost of the Service is limited.

² See

<https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/compendium/economicreview/october2019/thedecouplingofeconomicgrowthfromcarbonemissionsukevidence>

Q24. Do you support Phase 2 having a single application window or multiple application windows?

Decarbonised Gas Alliance signatories have different views on whether a single Phase 2 application window or multiple windows would be preferable. There is, however, agreement that there should be no more than two Phase 2 application windows.

Q25. If you support multiple application windows, how long do you think each window should be, and why?

Although Decarbonised Gas Alliance signatories have different views on the merits of multiple application windows, if there are multiple windows, it was felt that a 9 month window may be most appropriate.

Q27. Do you agree with the proposed assessment criteria for deep decarbonisation projects?

We would re-emphasise our answer to Question 15, specifically:

- **Additionality and cost-effectiveness:** The cost reduction potential is also key. In other sectors, technologies such as offshore wind have started off very high cost, but have demonstrated rapid cost reduction.
- **Technical concept and feasibility AND Transformational:** The key point is that it should be the *technology* that is replicable as much as the project. Projects will differ by cluster and by manufacturing facility, and it is the technology used to decarbonise facilities that will be most relevant.

Q28. Please suggest the types of evidence that would help to prove the additionality of a given project at application stage.

Individual projects are likely to be able to answer this question in more detail, but we would suggest that evidence on the cost of the project compared with the project's ability to raise revenue from existing policies, including current and expected future carbon prices, Climate Change Levy etc, and any market premium for low carbon industrial products, would be sufficient to show whether the project would have gone ahead without intervention.

In addition, jobs created and learning for future deployment are relevant measures to capture. This would include projects that have multiple uses – for example, a hydrogen project where the hydrogen is used in industry, home heating, transport and to help balance the electricity grid.

Q29. What topics would you find it useful for BEIS to investigate through any monitoring and evaluation, to develop more effective policy to deliver the objectives of the IETF?

The following is by no means an exhaustive list, but a few key areas would include:

- Ability of projects to raise match-funding;
- Technology types supported, to understand whether different interventions are needed for specific technologies;

- Whether projects are *linked* to one manufacturing facility only, or can *expand* to decarbonise multiple facilities, or can *enable* wider industrial decarbonisation;
- The percentage decarbonisation of the units being worked on;
- Production performance of the manufacturing facilities pre- and post-decarbonisation, including the size of the order book, and whether decarbonised products are more attractive to buyers;
- Reduction in emissions of non-CO2 pollutants, including SOx, NOx, and particulates.

Q30. Do you have any views on how the IETF can encourage the sharing of knowledge of energy efficiency and deep decarbonisation measures between organisations?

The Industrial Decarbonisation challenge within the Industrial Strategy Challenge Fund will use a portion of the funding to set up a “Sustainable industrial clusters knowledge creation and sharing function”.³ This function will ensure that learnings from different clusters and projects are shared effectively.

We would recommend that the IETF work with this function, ensuring that energy efficiency is also covered, rather than seek to set up a separate centre or knowledge-sharing function. Ideally, duplication should be avoided.

Q31. Do you agree with the proposed interactions between other decarbonisation policies and the IETF?

Yes, with the following comments:

- **Industrial Decarbonisation Challenge:** We strongly support the principal that the Industrial Decarbonisation Challenge and the IETF could jointly fund significant decarbonisation projects. In addition, projects that are not successful in attracting Industrial Decarbonisation Challenge funding should be eligible for IETF funding, to help ensure that projects are developed in all major clusters. As per our answer to Question 30, we also think that the “Sustainable industrial clusters knowledge creation and sharing function”, set up as part of the Industrial Decarbonisation Challenge, could be used by the IETF to avoid duplication.
- **Hydrogen and Carbon Capture Usage and Storage (CCUS) Business Models:** As per our answer to Question 19, it is vital that a response to the business models consultation is provided as soon as possible to provide clarity to deep decarbonisation projects on how operation costs will be covered. This should also include a development of options for business models for hydrogen production, including from electrolysis as well as from natural gas or bioenergy with CCUS.
- **Low Carbon Hydrogen Production (LCHP) Fund:** As per our answer to Question 11, projects may rely on other funding sources in addition to the IETF, including the LCHP Fund. If applications for these sources of funding are not successful, then the project overall may not progress. We would therefore recommend that the LCHP Fund should align with the IETF, including application and decision dates. This would help to ensure that projects can plan appropriately and reduce risks of a project obtaining funding for one portion, only to see funding for a subsequent portion not granted. Taking the example in the consultation document, of the LCHP Fund supporting low carbon hydrogen production, while the IETF supports the use of low carbon hydrogen in industrial processes, a project could clearly not progress unless it obtained funding from both schemes. In practice, this would mean bringing forward the LCHP Fund to 2020.

³ See <https://www.ukri.org/innovation/industrial-strategy-challenge-fund/industrial-decarbonisation/#pagecontentid-0>



Q32. Is your organisation affected by any decarbonisation policies not covered here? If so, what policies?

- The UK's Carbon Price Floor is relevant alongside the EU's Emissions Trading System.
- The Renewable Heat Incentive (RHI) is mentioned in the consultation document on p.53, but the RHI is scheduled to close in 2021, and so its replacement will need to be considered.
- The Renewable Transport Fuel Obligation (RTFO) is relevant for hydrogen produced from electrolysis, although there are questions over its effectiveness in supporting electrolysis production. The RTFO should also be extended to include hydrogen produced from natural gas with CCUS, and other low carbon methods.
- Contracts for Difference that fund the production of renewable and low carbon electricity also have an impact on electrolysis hydrogen production.
- The Industrial Decarbonisation Challenge is no longer in the design phase but launched on October 28th. Coordination between this challenge and the IETF needs to happen in a timely fashion.

Appendix: About the Decarbonised Gas Alliance

The Decarbonised Gas Alliance (DGA) is an alliance of almost 50 gas producers, transporters, suppliers and users, hydrogen and carbon capture experts, alongside R&D, supply chain, trade union and local government specialists whose knowledge and expertise will be vital in decarbonising the UK's gas system and improving poor air quality.

Our aim is to work with all levels of government and with other expert organisations to use the gas system as a whole to help deliver our emission reduction and air quality goals. We believe that decarbonising gas – including biogases and hydrogen from a variety of low carbon methods – would make best use of our existing infrastructure and lower the overall costs of decarbonisation.

The DGA is a broad-based alliance, established in late 2016, and has now expanded to 49 signatory organisations, which are listed in full in the diagram below. The DGA secretariat is managed by DNV GL, a global specialist firm which provides advisory, certification and other technical assurance solutions covering a range of energy sources.

We welcome the opportunity to provide our views on the design of the Industrial Energy Transformation Fund, and we are happy to provide further detail, if this would be useful to BEIS.

Decarbonised Gas Alliance

Hydrogen, inc. Transport & End Use

Industrial & Scientific

CCUS

Pale Blue Dot.

Worcester Bosch Group

Ulemco

Clarke Energy

Cambridge Carbon Capture

SUMMIT POWER

CALOR

BOC

CIA Chemical Industry Association

Materials Processing Institute

INEOS THE WORD FOR CHEMICALS

JM Johnson Matthey Inspiring science, enhancing life

PROVIDENCE POLICY

ITM POWER Energy Storage | Clean Fuel

CCS Carbon Capture & Storage Association

PEEL

kiwa Partner for progress

Decarbonised Gas Alliance

Academia & Research

POWERFUL WOMEN

UNIVERSITY OF STRATHCLYDE OIL & GAS INSTITUTE

GERG granular expansion de methanes gazelles pour expansion gaz naturel - greg

WSP

Gas Networks & Trade Associations

EUA

Northern Gas Networks

UKOOG

OIL & GAS UK

WALES & WEST UTILITIES

EEEGR THE UK OF ENERGY REGULATORY GROUP

SGN THE GAS NETWORKS

nationalgrid

Energy UK

ena energy networks association

Engineering, Standards & Consulting

MECHANICAL ENGINEERS

COSTAIN

IGEM Institution of Gas Engineers & Managers

DNV-GL

ARUP

Energy Companies

Advanced Plasma Power

TOTAL

SPIRIT ENERGY

equinor

Local Government

TEES VALLEY COMBINED AUTHORITY

Trade Unions

GMB UNION