Industrial decarbonisation grid: a summary of funds available to decarbonise industry

Scheme	Phases or Lots	Technology Scope	TRL [1]	Timings	Funding Available	Exclusions relevant to our members	Relevant links
Energy Industrial Transformation Fund (IEFT) Designed to help businesses with high energy use, such as energy intensive industries, to cut their energy bills and carbon emissions through investing in energy efficiency and low-carbon technologies	Phase 1 • Round1: Projects deploying technologies that improve the energy efficiency of industrial processes, and • Round 2: Feasibility and engineering studies into energy efficiency, and deep decarbonisation studies Phase 2 will expand the scope of the fund to include deployment of decarbonisation technologies. There will be other phases following phase 2.	Decarbonisation studies (phase 1) Fuel switching: Electrification, heat pumps, retrofits and upgrades to use hydrogen or hydrogen blends, retrofits and upgrades to use gas, or in certain instances biomass (virgin biomass or residues, biogas off the gas grid and waste). Onsite carbon capture. If the site is not on the regional or national gas grid, switches to biogas combustion or biogas combined heat and power projects are permitted for consideration. In this case the biogas must be sourced from a dedicated supply that could not otherwise be injected into the	7+	Phase 1 now closed. Phase 2 expected in the Autumn 2021.	£315 million available up until 2024	*Biomass and biogas:* expressly excluded from the Energy Efficiency Studies and Deployment Projects for fuel switching in the energy efficiency strand. Both eligible under decarbonisation studies scope, but with very restrictive criteria: "The output from the biomass combustion is used in high temperature applications in which the operational temperature of the industrial process or processes being heated is equal to or more than 240 degrees Celsius". 240 degrees C is really high and the vast majority of existing biomass sites would not do this, or be appropriate for the application (we have raised this with BEIS). Projects that are less than 1MWth input excluded. Conversion of biomass to biofuels for later use, or upgrade to biomethane for injection into the gas grid excluded. The IETF will not support the costs of installation, operation or maintenance of equipment related to the production of fuels, including but not limited to: • Hydrogen fuel • Biogas • Biofuel.	Technological Scope for Decarbonisation Studies, and Technological Scope for Energy Efficiency Studies and Deployment Projects. These docs set specific technology criteria that must be met to receive funding.

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		gas grid. The supply must be based onsite or transported to site through fixed infrastructure (for example pipelines). The IETF will not provide financial support towards the costs of installing or maintaining off-site infrastructures, or towards biogas production plants.					
Industrial Fuel Switching Competition Support innovative fuel switching and fuel switching enabling solutions. Innovation projects only.	Phase 1 – Feasibility: Funding for feasibility studies into fuel switch and fuel switch enabling solutions. Minimum funding of £50,000 per project, maximum funding of £300,000 per project. Phase 2 – Demonstration Funding for projects to demonstrate fuel switch and fuel switch enabling solutions. Minimum funding of £1,000,000 per project, maximum funding of £6,000,000 per project.	Hydrogen, electrification and biomass, waste and other net zero compatible fuels	4 to 7	Launch expected in w/c 11 October 2021. EOI by 4 October 2021 HERE.	up to £55 million	BEIS Q&A's document states: 'In most cases, natural gas to biomethane/synthetic methane switches will likely be excluded, as this will require little or no innovation for the end user. However, the proposed exclusion or inclusion of biomethane as an industrial fuel switching solution is under consideration for off (gas) grid sites. For other switches, biogas and liquefied biogases may be eligible if; other low carbon solutions are not suitable, innovation is required for the fuel switch, and the proposals align with net zero objectives and relevant sustainability criteria for biomass sources, which will be provided within the ITT. Additional assurances on the sustainability of the biomass/waste sources will also be required within any applications for funding.' 'The proposed exclusion or inclusion of biomethane as an industrial fuel switching	Further guidance and Q&A document HERE.

						solution is under consideration for off (gas) grid sites.'	
Industry of Future Programme Support industrial sites by awarding funding to develop decarbonisation pathways	The Industry of Future Programme (IFP) aims to increase the range of options available to industry to enable them to decarbonise at a faster rate. The IFP will engage with industry to develop solutions needed for sites to decarbonise.	Technology Agnostic: Fuel switching Electrification, Hydrogen and Sustainable biomass On-site carbon Capture Biomethane and synthetic methane also included.	3-7	Expect to start in December 2021	£400k	Technology agnostic so no exclusions in theory as long as eligibility criteria met 'Following review of the feedback from the engagement event, BEIS have amended the eligibility criteria and exclusions and biomethane and synthetic methane will no longer be an exclusion from the applications for industrial sites.'	Q&A Document
Industrial Energy Efficiency Accelerator (IEEA) This programme will provide funding for the development and demonstration of technologies that could reduce energy consumption, maximise resource efficiency, and cut carbon emissions in industry.	Two phases	innovative energy and/or resource efficiency technologies (either a novel technology or an established technology used in a novel way)	5-8	EOI can already be submitted.	£8 million	The following is out of scope: • Buildings, building fabric, building services (e.g. space heating, cooling and ventilation) • On-grid electricity generation or electricity storage technology • On-site renewables technology (e.g. wind, biomass, PV, solar thermal etc) • Carbon capture and storage • Fuel switching (unless there is also an energy reduction) • Vehicles and reductions in transportation	Further information HERE. Further details on eligibility HERE.

Red diesel replacement competition The £40 million Red Diesel Replacement competition aims to support low carbon fuel and system alternatives to red diesel (construction, mining and quarrying). The competition will support the decarbonisation of these high-impact sectors	A total of £9.2 million in grant funding for Phase 1. Up to £460,000 for projects that develop technologies within any of the three innovation lots at technology readiness level (TRL) 4 and above. Lot 1: Distribution, storage and refuelling systems development Lot 2: Development of vehicle (components/sub-systems) and fleet management infrastructure (facilities for maintaining, hosting and servicing vehicles) Lot 3: Fuel development A total of £30 million in grant funding for Phase 2. p to £15 million for projects at TRL 5-6 that demonstrate a low carbon integrated system that includes elements of all three technology lots from Phase 1 on a construction and	Long-term energy pathways: • direct electricity • battery • hydrogen • e-diesel • e-methanol • e-methane • ammonia as well as transitional technologies / bridging solutions • Compressed/liquefied methane or high-methane-content synthetic natural gas (from syngas derived from gasification/pyrolysis of waste/virgin biomass feedstock for anaerobic digestion) (Bio-methane) • Bio-methanol, from a low-carbon biomass feedstock • Bio-Dimethyl Ether (Bio-DME), from biomass feedstock • Bio-Liquefied Petroleum Gas (Bio-LPG), from waste biomass feedstock	4+	Phase 1 closes 22 November 2021	£40 million	Fatty acid methyl esters (FAME) & hydrotreated vegetable oil (HVO) are not applicable for this competition as these fuels are already supported by other mechanisms.	Scope document

	mining/quarrying site. Projects must demonstrate that the technology is at TRL 7 upon completion.	• Synthetic diesel, From syngas derived from gasification of waste biomass feedstock					
Clean Steel Fund The fund will support the UK steel sector to transition to lower carbon iron and steel production through new technologies. As well as maximise longevity and resilience in the UK steel sector by building on long standing expertise and skills. This will place the sector on a pathway that is consistent with the UK Climate Change Act (net zero)	Not known	Not known	Not known	Fund opens 2023	£250 million	Not known	Consultation Document
Green Distilleries Competition The programme is	Phase 1 provided £1.01 million in funding to complete a feasibility study on their proposed Green	Electrification, hydrogen, biomass/ waste, power generation, fuel transportation/storag	4-7	Closed 5th May 2021	£10 million	CCUS, Energy efficiency (apart from heat pumps which is in scope) and Switching of feedstocks.	Guidance Document

taking a portfolio approach and aims to fund a range of different solutions to help distilleries go green. This includes electrification, hydrogen, biomass or waste.	Distilleries Solution. Projects that are successful for Phase 2 can continue through to demonstration and can further build on Phase 1 studies.	e and Biomethane/Synthetic Methane					
Public Sector Decarbonisation Scheme It provides grants for public sector bodies to fund heat decarbonisation and energy efficiency measures. There are currently 3 phases of the scheme.	Phase 1 of the Public Sector Decarbonisation Scheme provides £1 billion in grants as part of the Chancellor's 'Plan for Jobs 2020' commitment. Phase 2 of the Public Sector Decarbonisation Scheme provides £75 million of grant funding for the financial year 2021/2022. It supports the public sector in taking a 'whole building' approach when decarbonising their estates. Phase 3 PSDS is aimed	Heat pumps, electrification, biomass, energy from waste, AD, solar PV	Unknown	Phase 3 will open for applications on Wednesday 6 October 2021. Phases 1 and 2 are now closed to applications.	£75 million	Gas replacement boilers and combined heat and power technologies that run even partially on fossil fuels.	Phase 1 guidance Phase 2 guidance phase 3 guidance Further info on phase 3 here.

	at taking a 'whole building' approach to heat decarbonisation, combining heat decarbonisation with energy efficiency measures.						
Industrial decarbonisation challenge This challenge supports the development of low-carbon technologies that will contribute to clean growth. It will reduce the carbon footprint of heavy and energy intensive industries in the UK, such as iron and steel, cement, refining and chemicals.	N/A	Carbon capture utilisation and storage (CCUS) and hydrogen fuel switching.	Unknown	Competition winners announced in March 2021	£170 million, matched by £261 million from industry,	N/A	Further information at Industrial Clusters Mission
Carbon Capture, Usage and Storage (CCUS) Innovation 2.0 competition The aim of the programme is	Lot 1, £3m, Mid Stage CCUS innovation. This is for projects developing and piloting mid-stage CCUS innovation currently at ~TRL 3-5. For Lot 1 BEIS will	Carbon capture utilisation and storage (CCUS)	3-8	Submit Lot 1 applications by 23:59pm 29 August 2021 Submit Lot 2 applications by 23:59pm	£19.5 million	N/A	Guidance Document

to support projects that either reduce the cost of CCUS or help industry to understand the opportunity for deploying CCUS. Through two calls for grant funding the programme will fund innovation for CCUS, to increase its TRL & CRL.	consider grant applications of up to £1 million. Lot 2, £10m, Late Stage CCUS innovation. This is for projects developing late stage CCUS innovation currently at~TRL 6-8, particularly demonstrating at intermediate scale or greater at site. For Lot 2 BEIS will consider grant applications of up to £5 million			26 September 2021			

Green Heat Network Fund (GHNF) Transition Scheme
The Green Heat Network Fund (GHNF) is a capital grant fund open to public, private, and third sector applicants in England. It will support the development of low and zero carbon (LZC) heat networks. The GHNF will increase the utilisation of
	Transition Scheme now available, full scheme to start in 2022
	
	The transition scheme will only provide grant funding for commercialisation and will draw from a £10m sum. Projects applying for the Transition funding will still be required to submit the same information as required for the full scheme. The process will be managed by BEIS – ahead of a delivery partner being appointed for the full
		Low carbon heat networks
		In the context of industrial decarbonisation, green networks can provide a source of low-carbon heat to industry and commercial businesses. This includes:
		• Direct combustion with oxidisation;
		• Energy From Waste
		• Waste heat
		• heat pumps
		• Deep
			N/A	Transition scheme deadline 12th August
				Full scheme to start in 2022
					£10m	• Non sustainable biomass
						  ○ Including virgin biomass
						• Tertiary heat distribution systems
						• The Scheme will not fund the cost of buying and installing plant that uses biogas or syngas, with the following exceptions:
						  ○ Where the heat network is rural off gas grid, it may be used for primary, secondary and peaking plant, provided the biogas or syngas is manufactured on site.
						  ○ Where the heat network is located in an urban area on gas grid, biogas and syngas may not be used as a fuel for primary plant; however, it may be used as fuel for secondary and/or peaking plant provided the gas is manufactured on site.
							Full Scheme Information
							Transition Guidance

low-carbon heat.	scheme in early 2022.	geothermal • Fuel cells • Solar thermal				• First of a kind technology (FOAK) • Exclusively agricultural or industrial heat processes	
Green Gas Support Scheme (GGSS) The GGSS will encourage the deployment of new AD biomethane plants by providing support to biomethane producers for biomethane injection. The GGSS will be funded through the Green Gas Levy (GGL), which will be placed on all licenced gas suppliers in Great Britain.	N/A	Biomethane injection from AD only [in the context of industrial decarbonisation, businesses in the food & drinking sector that have effluents / residues available, a demand for process power and heat and have access to the gas gird could benefit from the GGSS]	N/A	The GGSS is expected to launch on 30th November 2021. The scheme will run until 30th November 2025	N/A	Everything but biomethane from AD injected into the gas grid	Consultation Document: Draft Regulations
Direct air capture and greenhouse gas removal programme **(TBC)** The innovation competition seeks to support the development of	Phase 1 is closed to applications. Read details of the successful projects. Phase 2 of the competition will take forward the most promising designs from Phase 1. It will pilot key components	Direct air capture of CO_2, biochar, bioenergy with CCS and removal of CO_2 from seawater via chemical or electrochemical means	4+	Unknown	£100m	N/A	Guidance Document

Greenhouse Gas Removals (GGR) technologies. To meet net zero by 2050 direct air capture and other greenhouse gas removals technologies are necessary to offset emissions.	or further develop the design of the new direct air capture and other technologies.						
Low Carbon Hydrogen Supply 2 Competition The Competition supports innovation in the supply of hydrogen, reducing the costs of supplying hydrogen and bringing new solutions to the market. It follows on from the first Low Carbon Hydrogen Supply Competition.	• Stream 1: Phase 1 will support the development of feasibility studies with technology readiness levels between 4 and 6. Phase 2 will down select projects from Phase 1 and support demonstrations at up to £6 million per project. • Stream 2: Stream 2 will support demonstration of projects that are closer to market with technology readiness levels between 6 and 7. This could support projects with up to £10 million per project to prove the hydrogen	Low Carbon Hydrogen	4-7	Stream 1 closed, Stream 2 closes 31st of August 2021	£30m	Upstream energy production, End-use technologies, Technologies where the core technology has before been operated, Power generation from hydrogen, Gas-grid systems (onshore), Novel CCUS technologies which aren't linked in the hydrogen production process	Guidance Document

	supply opportunities.						
Net Zero Hydrogen Fund The aim of the NZHF is to support the commercial deployment of new low carbon hydrogen production projects during the 2020s. This will ensure the UK has a diverse and secure decarbonised energy system for meeting the 5GW low carbon hydrogen production by 2030 ambition.	• N/A	Low carbon hydrogen	7+	Under consultation (closes 25th of October) Will be delivered between 2022-25	£240m	N/A	Consultation Document