Results of Competition: Cleaner, more efficient conventional fuels CRD

Competition Code: 1503_CRD2_ENRG_CF

Total available funding for this competition was £5M from Innovate UK and NERC

Note: These proposals have succeeded in the assessment stage of this competition. All are subject to grant offer and conditions being met.

Participant organisation names	Project title	Proposed project costs	Proposed project grant
Innovative Technology and Science Ltd Brunel University Plant Integrity Ltd Cedar Metals Ltd Jackweld Ltd	High Temperature Inspection & Cleaning by Advanced Ultrasonics for Effective Maintenance and Management of Oil&Gas Offshore Production subsea & topside operating pipelines and vessels	£1,304,411	£1,020,081
	(HiTClean)		

Project description - provided by applicants

HiTClean addresses a number of related safety critical, security of energy supply, production economic andmaintenance challenges in the life cycle of Oil&Gas offshore production installations (e.g. platforms and FPSOs)subsea assets including pipelines and production pressure components. The project will develop novel guidedwave ultrasonic technology for subsea pipelines to be deployed by diver or a Remote Operating Vehicle (ROV):(A) Condition Monitoring (CM) for the early detection of in-service defects, e.g. corrosion - using Long RangeGuided Wave Ultrasonic (LR-GWU) Pulse Echo (PE) technology, Teletest Focus electronic instrument, encirclingultrasonic sensors and signal processing for the on-line (in-production) innovative inspection of subsea pipescarrying hydrocarbons, (B) Innovative High Power - Continuous Wave (CW) LR-GWU electronic instrument andtransmitters to dislodge and remove accumulated debris fouling in subsea & topside pipelines at temperatures of up to 400°C, (C) for pipe regions susceptible to fouling - innovative Moderate Power CW LR-GWU electronicinstrumentation and transmitters for fouling prevention in subsea pipelines at temperatures of up to 400°C.

https://www.gov.uk/government/publications/innovate-uk-funded-projects Use the Competition Code given above to search for this competition's results

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Greenbank Terotech Ltd	Intelligent Flow Control System	£537,036	£356,709
University of Nottingham			
Drax Power Ltd			
Argenta Ltd			

Project description - provided by applicants

A collaborative project led by Greenbank Group (GB) will develop an Integrated Flow Control System (IFCS) forCoal Fired Power Stations (CFPS) which is fully automated & adjusts to suit modulation in flow performance ofmill, fuel types, quality, wear & load, providing flow feedback allowing burners to achieve optimumstochiometric conditions thereby increasing efficiency & reducing emissions. The Objective of this project is tobuild & integrate a prototype system at DRAX, the largest CFPS in the UK to verify efficiency & effectivenessthrough long term testing. GB consortium partners DRAX (DX), University of Nottingham (UoN) & ArgentaConsulting (AGC) will address challenges in developing IFCS. A successful project will help create major business& employment opportunities for the UK. This will address carbon abatement 'increasing efficiency & flexibilitywithin UK CFPS.

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Silicon Microgravity Ltd	Improving reservoir management	£1,000,110	£706,255	
University of Cambridge				
BP PLC				
Project description - provided by applicants				
Awaiting Public Project Summary				

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Landfill Systems Maintenance Ltd	Enhanced onshore oil recovery through novel combine heat and power stirling technology	£361,518	£191,963

Project description - provided by applicants

Island Gas Ltd (IGas) and Landfill Systems Maintenance Ltd (LSL) have developed a novel process to generateheat & power at onshore conventional oil wellsites. The process utilises low volume gas flows common to UKonshore extraction sites to power a novel combined heat and power (CHP) stirling engine. This will eliminateneed for grid electricity for pumping oil, with the heat used to separate oil & water at the wellhead (currentlytransported, collated and de-watered at remote processing centres). Gas utilisation will reduce back pressureat the well bore allowing for increased flow rates, enhancing production and extending reservoir life. This lowcost enhanced oil recovery process provides timely benefits for the operator and the environment in reducingmethane gas vented to atmosphere. Technology integration and validation will be carried out at IGas'sScampton wellsite, with engine modifications and monitoring being undertaken by specialist gas extraction andmangement firm, LSL. Demonstration of the system is scheduled 2016 with commercial deployment likely tocommence end-2017.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Plant Integrity Ltd	iWave	£1,043,664	£558,355
Cambridge Design Partnership LLP			
J+S Ltd			
The Micha Design Company Ltd			

Project description - provided by applicants

Corrosion in pipelines costs the Oil & Gas sector millions of pounds in clean-up, maintenance and litigation. Guided Wave systems are used to conduct long range inspections of pipelines to detect corrosion remotely, particularly in inaccessible areas. There is a requirement from the industry to monitor the health of pipelineinfrastructure and a trend towards ascertaining holistic coverage whilst increasing the probability of detection. In order to achieve this, a new generation of Guided Wave monitoring systems needs to be created. Previousgenerations of Guided Wave systems are inspection orientated, with the need for service engineers makingscheduled inspections and manually assessing the data. This collaborative R&D project aims to develop amodularised Guided Wave monitoring sub assembly part containing on-board power and communications, which could be synchronised to produce a distributed monitoring network. This would provide more frequentinformation regarding the health of the infrastructure and flag up incipient corrosion and the appropriatelocations for further targeted labour-intensive inspection.

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Underwater Cutting Solutions Ltd	SubSeaLase – Underwater laser	£1,444,551	£1,062,326
I VVI Eta	cutting for high-speed and lower		
TAleron Subsea Ltd	cost decommissioning of off-shore structures		
McDermott Marine Construction Ltd	oli dollaroo		

Project description - provided by applicants

Oil & Gas UK forecasts the market value of decommissioning the North Sea to be ~£30Bn by 2040. Approximately £1.8Bn of this is related directly to subsea cutting activities, with Main Operators requiringcutting technologies which are flexible, fast, reliable, deployable remotely and safe. As such, there is anindustrial need and market opportunity for a significantly quicker approach to lower cost decommissioning indeep and hazardous waters than exisiting solutions. The SubSeaLase project will address this need by developing and demonstrating a novel underwaterlaser cutting system which can be initially used for cutting industrial relevant structures at depths up to 100m. The system will consist of an underwater laser cutting head, with the laser source and gas compressorremaining topside, deployed on a modified ROV. We expect our approach to be 4 times faster than conventional cutting approaches; significantly reducing deployment costs and increasing the competitiveness of the UK decomissioning supply-chain.

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	VICTOR:Valorising Industrial	£665,504	£374,358
MOL Energy UK Ltd	Carbon Through Oil Recovery		

Project description - provided by applicants

The project involves advancing innovative CO2 capture technology on a steel works and CO2 storage inassociation with CO2-EOR in an offshore oil field and linking them to form a viable full chain CCS demonstrationProject. The objectives are to reduce CCS costs by developing further and commercialising a low cost CO2 capture option, which was shown to be feasible in aprevious TSB study, to decarbonise carbon intensive works arising gases from steel works. developing a process configuration for clean power generation from works arising gases which has theflexibility to remain viable if the steel works is non-operational or closes, overcoming the challengingcounterparty risk associated with financing industrial capture. establish an oil field storage option funded by the production of otherwise unrecoverable oil (CO2-EOR) and integrate these innovations into a viable, full chain, exemplar CCS demonstration Project

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