

Innovate UK

Results of Competition: Infrastructure Systems Round 3 - 25-36 Months

Competition Code: 1707_INFRA_R3_36M

Total available funding is £5,948,553

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
N.D.T. CONSULTANTS LIMITED	CleanWinTur – An ultrasonic system for anti-fouling and condition monitoring of offshore wind turbines	£507,219	£355,053
3-SCI LTD		£283,088	£198,162
Brunel University London		£500,017	£500,017
E.ON CLIMATE & RENEWABLES UK LIMITED		£5,064	£0
INNOVATIVE TECHNOLOGY AND SCIENCE LIMITED		£495,904	£347,133
REECE INNOVATION CENTRE LIMITED		£241,780	£120,890
THE EUROPEAN MARINE ENERGY CENTRE LIMITED		£130,398	£130,398

Project description - provided by applicants

Offshore wind energy has been instrumental in reducing greenhouse gas emissions and rendering the UK less dependent on imports to cover its energy needs. As such, large investment programmes and favourable legislation have been driving growth in the sector with overall capacity doubling every five years, a trend that is set to continue by 2030\ . However, offshore wind energy costs remain high and the increasing depth and distance from the shore continue to drive maintenance costs up, particularly those associated to the substructure, limiting the sector's growth potential. In particular, dealing with marine growth and corrosion through traditional means (i.e. divers) becomes increasingly costly, challenging, dangerous, and ineffective. CleanWintur will automate this process with a permanently installed system that uses ultrasound to prevent marine growth on the substructure while periodically monitoring the integrity of the structure. This way manual inspection and maintenance will be cut to half, reducing respective costs and dangers. This will eventually translate to a 7% decrease on energy costs, helping to boost offshore wind growth, while the project will generate £38.7m in profits for the consortium and create 387 jobs 5 years post-commercialisation.

Note: you can see all Innovate UK-funded projects here

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VIVACITY LABS LIMITED	Using Artificial Intelligence & simulations to optimise traffic networks	£1,075,931	£753,152
DYNNIQ UK LTD		£3,454,367	£1,727,184
IMMENSE SIMULATIONS LIMITED		£399,970	£279,979
Project description - provided by applicants			
This project looks to develop more intelligent traffic signal control systems. Through collaboration between an innovative, VC-backed startup, a Transport Systems Catapult spin-out, and an established industry expert, we will deliver traffic control based on artificial intelligence. The project will explore use of a range of simulation techniques, integration with existing urban traffic management systems, and ultimately test and deploy this new capability.			

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CAMMELL LAIRD SHIPREPAIRERS & SHIPBUILDERS LIMITED	EBManPower - Cost effective fabrication of Nuclear Micro-Reactors	£834,588	£417,294
CAMBRIDGE VACUUM ENGINEERING LIMITED		£1,184,969	£710,981
TWI LIMITED		£408,310	£408,310

Project description - provided by applicants

Globally 79% of electricity is generated by thermal processes, in which conventional power plants provide over 62% of global electricity supply and the remaining 17% is by nuclear fusion processes and this is expected to increase (IEA, 2015). Thermal power plants make use of a large number of thick section (>20mm) components for many parts of the primary circuit; pump and valve bodies, ancillary systems and other safety critical components. Furthermore, off-shore wind demand in the UK requires >1,000 structures (towers and foundations) or 1m tonnes of steel p.a. to be cost-effectively fabricated. **_The demand for 'thick section' steel structures in power generation is strong & growing._** The ability to fabricate these thick section structures cost-effectively is (in part) limited by the welding time and associated cost; to produce a typical 40m long monopile (60mm thick) takes ~6,000 hrs of 'arc-on' welding time. **_To reduce cost this manufacturing time needs to be significantly reduced._** Aquasium technology has developed the 'EBFlow' system, based on high productivity electron beam welding which can reduce this welding time to <200 hrs, equivalent to a reduction in cost of over 85%. **_The EBManPower project will implement and validate the first EBFlow system within a large-scale fabrication facility to enable cost-effective manufacture of large scale power generation infrastructure._** Cammell Laird is one of the UKs last heavy fabrication ship yards and is the manufacturing partner for the U-Battery micro modular reactor (MMR) system. This project will focus on using the EBFlow system deployed at our site in Birkenhead to demonstrate the viability to fabricate MMRs in a cost-effective manner. Being able to achieve this will be critical to drive widespread deployment of new, cost-effective, nuclear fission solutions to meet low-carbon energy needs both within the UK and across the globe. Through this project our partnership believe we can increase revenues, grow exports and secure high value jobs in manufacturing and low-carbon energy sectors.

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