

Innovate UK

Results of Competition: Energy Game Changer
Competition Code: 1603_FS_ENRG_EGC

Total available funding for this competition is £2.1M from Innovate UK and up to £500K from NDA

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
Blue Bear Systems Research Ltd Create Technologies Ltd Lloyd's Register EMEA	RISER Tank Inspection	£98,782	£63,076
Project description - provided by applicants			
RISER Tank Inspection is a collaborative project between Blue Bear Systems Research, Createc and Lloyds Register looking at unmanned systems for inspection of large storage tanks onboard ships. This work will address the key technical challenges experienced when flying unmanned systems inside tanks and will demonstrate highly automated bespoke systems for scanning, storage and visualisation of data collected within tanks. This innovation has a number of key benefits including savings to ship owners, reduced cost of shipping oil and gas internationally, improved safety for inspectors and environmental benefits through closer monitoring and storage of oil and gas containers.			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Grid Edge Ltd	Enabling Buildings on the Grid Edge	£95,696	£66,987
Project description - provided by applicants			
Our electricity system is changing towards having a greater proportion of non-flexible generation from either intermittent renewable or nuclear sources and as behaviour in our society change around modern work practices and changing patterns of consumption behaviour. As this transition progresses there is an opportunity for the controlling influence in the energy system to move away from the small group of large powerful incumbent organisations towards the majority of agents within the system, the millions of system users. This project enables those customers to redefine themselves as participants within the energy system. The developments in this project allow building owners to use the dispatchable electrical loads in their buildings to become a dynamic and flexible energy sink, store and buffer asset, continuously pairing off against intermittent renewable generation and providing the system stability needed for the whole system to operate reliably. By unlocking these dispatchable load resources this project opens the path for a 100% zero carbon future electricity system.			

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Cadscan Ltd	A low-cost robotic inspection platform for remote operation in aggressive environments	£94,726	£66,308
Project description - provided by applicants			
<p>Inspection in aggressive environments is time-consuming, dangerous and expensive. We will address this by developing a low-cost, autonomous robot platform based on Cadscan's novel, patent-pending 3D imaging technology. This uses multi-illuminator phase-shifting to capture high resolution imagery inexpensively using just an array of LEDs, a printed mask and a camera. The sensing system will help navigate the robot and to construct a detailed survey of the environment. Making the platform low cost is an important enabler when harsh environments limit operational lifetime. In the Fukushima reactor incident radiation caused the wiring on all 5 clean-up robots to fail (dev cost \$50m.) Lowering costs also means that multiple robots can be deployed simultaneously, cooperating to survey the environment much faster than individual units. We will focus primarily on ground-based platforms, although the sensor is suitable for drones too. We aim to change the game and take inspection to the limit.</p>			

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Hybrid Instruments Ltd Lancaster University	TRIBECA2 (TRItium detection By ElectroChemically Assisted radiometrics 2)	£99,989	£78,992
Project description - provided by applicants			
<p>Tritium (T) is a radioactive isotope of hydrogen made during routine operation of nuclear reactors. This can give rise to waterborne tritium (as tritiated water HTO) in, inter alia, spent fuel (SF) cooling ponds and SF processing & waste treatment facilities – all potential sources of leaks to ground. HTO behaves identically to H₂O and so is highly mobile in the environment and human tissue, with resultant human health risks. Thus, there are pressing safety, environmental & economic needs for fast, accurate & precise measurement of T around nuclear sites and in the waste streams arising from their operation/decommissioning. T emits a soft beta radiation making radiometric detection hard. However, data from successful Hybrid Instruments/Lancaster University projects funded by NERC & InnovateUK provide proof-of-principle that T can be selectively & reversibly gathered by palladium from HTO, this pre-concentrated T then being easily detected by solid scintillation counting. Building on this innovation, we aim to incorporate this technology in automated, fast & interference free monitors at TRL7 for faster testing of groundwater, effluent and materials without human exposure.</p>			

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Inductosense Ltd	Embedded sensors for inspection of corrosion under insulation	£65,095	£45,567
Project description - provided by applicants			
Corrosion under insulation is one of the worst and most expensive problems for the Oil & Gas industry with repair costs, inspection costs, insulation removal costs and plant downtime running into the billions of dollars annually. If corrosion under insulation goes undetected it can lead to forced plant shutdown and in some cases a safety incident. Under this project Inductosense will develop a prototype wireless, battery-free sensor that can be permanently embedded underneath insulation to locate and characterise corrosion on the surface of pipes.			

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Element Energy Ltd	Visualising real-time in-home energy savings opportunities	£97,174	£68,022
Project description - provided by applicants			
<p>Smart meters and in-home displays (IHD) are being rolled out across all GB homes (>27 million) by 2020. IHDs (which display energy consumption and cost in real-time) currently offer limited opportunities to put household energy consumption in context, and as such, fail to deliver the full potential for customer engagement, behavioural change and energy savings that these devices could achieve by leveraging proven consumer drivers. In this project, we will assess the technical feasibility of a new type of IHD which provides real-time comparative consumption, i.e. how real-time consumption compares to the historical consumption of similar households (at that specific time of day and season) with the ability to take into account household occupancy, demographics, building characteristics and appliance ownership. Non real-time comparative consumption feedback has been shown in the US to offer an additional 2-3% energy saving per household. This innovative project will be the first time this is applied in a real-time context with the potential to save GB households as much as £330 million annually on their electricity bills.</p>			

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IS-Instruments Ltd Amec Foster Wheeler Nuclear UK Ltd	Monitoring of Nuclear Waste Using Raman	£83,463	£54,299
Project description - provided by applicants			
The characterisation and monitoring of nuclear waste and the storage facilities (tanks, silos etc) in which they housed is critical both for the industry and wider society. Currently this process is conducted by visual inspections which is both costly and potentially hazardous to the engineer. This project proposes to develop a new remote sensing technique using Raman spectrometry to monitor and characterise the waste material. Specifically to detect corrosion in the storage vessels by identifying changes in the spectral response from these tanks and silos. The system will be able to make observation from a distance of 3 m and is planned to be mounted on a autonomous robot. The design will be targeted at the Nuclear industry examining the environmental issues of operating with the storage warehouse (temperature fluctuations, high level of radiations).			

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10:10 Imperial College London	Renewable Traction Power	£76,071	£60,098
Project description - provided by applicants			
Renweable traction power is testing the feasibility of developing a new model, including bespoke new technology, that will enable railways to run directly off solar power. This new model of power generation and supply on the railways will be a world first.			

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3-Sci Ltd	A fully autonomous, in-situ, moisture monitoring system for corrosion under insulation (CUITEST)	£98,038	£68,627
Project description - provided by applicants			
<p>Mitigating the effects of Corrosion Under Insulation (CUI) has been identified as a significant opportunity for improved efficiencies in North Sea oil fields. Recent studies have confirmed that there is a lack of high performance technologies to combat CUI. 3-Sci's new CUITEST is a novel electromagnetic (EM) path loss measurement technology that monitors approximately 50 metres of pipeline for moisture ingress without requiring regular protrusions into the insulation. Simulations show that this path loss measurement tool could detect moisture content distributed over great lengths, which overcomes the shortcomings of many other CUI monitoring systems. Experimental validation of these results will be obtained within the project, with eventual integration of this CUITEST tool into 3-Sci's explosive atmosphere certified wireless mesh network. This will enable synchronised autonomous measurements to be conducted on pipelines located between any two battery powered CUITEST discrete units.</p>			

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Clicks and Links Ltd	eXperium	£95,200	£66,640
Project description - provided by applicants			
<p>eXperium is an immersive virtual world that brings the power of technology from the world of games to aggregate, present and exercise data about complex infrastructure in an interactive, immersive and collaborative manner. The study will investigate through a proof of concept how this approach can be applied to support the nuclear decommissioning process at Sellafield, making it more efficient and safer. Sites like Sellafield tend to use a wide variety of independent design and modelling tools to process and present data. eXperium will provide a collaborative and time based view of the infrastructure and data in a virtual world by; importing infrastructure descriptions in the form of CAD/BIM, Photogrammetry, laserscan, video and live feeds; accessing live data about assets from databases; creating time based scenarios that can help plan changes to the infrastructure in 4D; presenting infrastructure, data and scenarios using virtual/augmented/mixed reality using VR headsets, Rift and Vive, Google Tango and HoloLens. This will be trialed as a PoC with Sellafield. CL sees opportunities for this product across the nuclear, energy and wider infrastructure industries.</p>			

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Autonomous Surface Vehicles Ltd Sonardyne International Ltd The Natural Environment Research Council	Autonomous pipeline survey system	£99,998	£75,598
Project description - provided by applicants			
ASV, NOC and Sonardyne are working together to deliver an innovative and game changing offshore pipeline survey system. Utilising the benefits of autonomous vehicles on the surface and underwater to make a step change in operational cost and safety. ASV's autonomous surface vehicle C-Enduro will provide navigational updates and mission planning to NOC's Autosub Long Range autonomous underwater vehicle which will be using Sonardyne Solstice sidescan sonar to inspect subsea pipelines. This project will utilise stakeholder engagement to develop a clear project plan to provide a commercial system to provide autonomous survey capabilities and with realtime detection and notification of suspected issues for further investigation.			

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i3d Robotics Ltd The Shadow Robot Company Ltd University of Sheffield	Stereo-Welding: Intelligent Vision for Energy facilities Inspection and Welding (IVEIW)	£92,574	£71,892
Project description - provided by applicants			
<p>There is a strong requirement for information by improved mapping of the internals of buildings, structures and storage vessels of hazardous materials. Currently this process is conducted by manual visual inspections, which is both costly and potentially hazardous to the engineer, or through camera systems, which relies on user interpretation and intervention.</p> <p>This project proposes a new smart inspection system based on i3d robotic's high-resolution 3D stereo-camera technology coupled to robotic manipulators for flexible inspection and potentially autonomous welding repair.</p> <p>This offers a major advantage compared with manual workers as it means 24/7 operation is possible ensuring more efficient work practices leading to direct cost savings, a reduction in low level waste generation (nuclear) and an enhancement of safety due to automated fault detection/repair, all without human intervention.</p>			

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York Instruments Ltd NPL Management Ltd University College London	Corrosion under insulation imaging with atomic magnetometers	£92,913	£65,011
Project description - provided by applicants			
We propose electromagnetic induction imaging (EMII) with atomic magnetometers (AM) to image corrosion under insulation (CUI) on oil and gas pipelines. In fact, current techniques are hazardous, expensive and bulky, such as nuclear backscattering or X-ray, or cannot penetrate insulating layers, such as THz imaging. AM-EMII provides non-destructive conductivity maps and imaging through insulating barriers. Furthermore, it is contactless, non-invasive, safe and cost-effective. We plan to demonstrate the technology and evaluate its performance for CUI assessment in the oil and gas industry. To this purpose, we will identify suitable test structures and case studies. We will realise a system for EMII and demonstrate feasibility of detection and 2D imaging of CUI. A demonstrator, designed in view of 3D imaging, will be deployed at the test facility. Continuous engagement with potential end-users and stakeholders will be pursued and commercialisation routes to market will be in place.			

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The Sustainable Home Survey Company CIC University of Sheffield	Intelligent Air Brick (IAB)	£64,770	£50,661
Project description - provided by applicants			
SHS is an energy advisory organisation that has delivered 15,000 assessments and energy efficiency interventions (~120,000 tCO2 savings) under the ECO scheme and has developed innovative retrofit solutions. Domestic space heating is responsible for 15% of the greenhouse gases. Up to 20% of our homes' heat escapes through the floor. This affects nearly 9 million homes, 20% of which lives in Fuel Poverty. Despite this, floor insulation hasn't become widespread yet, due to the high cost and high disruption. We identified a need for a low-cost high impact passive ventilation to automatically control the air-flow via air-bricks to floor voids, in order to a) reduce floor heat loss; b) improve dwelling airtightness; c) mitigate risk of condensation. The same mechanism can then be adopted to other applications within the home (e.g. trickle vents, bathroom extracts, loft soffits).			

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Sustain Ltd	Creating engaged heat network communities	£114,197	£68,518
Project description - provided by applicants			
Tens of thousands of UK heat networks are operating inefficiently. Our project is to research, develop and user test a solution that engages, empowers and energises heat network owners and operators to make vital efficiency improvements. Our solution combines the visualisation of network component performance with the gamification of peer-to-peer benchmarking to drive behaviour change to improve system efficiency. This solution becomes 'game changing' when it is so cheap, simple to install, easy to use, intuitive and rewarding that it becomes a ubiquitous high volume solution and 'the norm'. A solution that is so compelling that it becomes disruptive when users en-masse stop the way they do things now and switch to it, and in doing so form a whole new community of users getting value from the power of their combined data insight.			

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S & C Thermofluids Ltd Bath Process Consultants Ltd Flexible Process Consultants Ltd	Compact and Energy Efficient Distillation (CEED) for Tritium Recovery	£99,272	£69,489
Project description - provided by applicants			
The Compact and Energy Efficient Distillation for Tritium Recovery (CEED) project is a feasibility study to investigate a game-changing arrangement of water distillation to achieve separation of tritium, a radioactive isotope of hydrogen, from contaminated water. The project team will build an experimental facility to prove the concept on a small scale and develop a simulation to demonstrate the potential to achieve up to 88% energy recovery and a significant reduction in total height compared to traditional techniques. CEED will be led by S & C Thermofluids Ltd in partnership with Bath Process Consultants Ltd and Flexible Process Consultants Ltd.			

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Manik Ventures Ltd Bosch Thermotechnology Ltd	HERU - Home Energy Recovery Unit	£119,982	£69,987
Project description - provided by applicants			
<p>Disposal of domestic waste is a significant issue. It takes energy to collect and most is sent to landfill, incurring costs and resulting in greenhouse gases (e.g. methane & carbon dioxide) and hazardous emissions. This project proposes the development of a process disposing of waste in the home and generating heat for domestic central heating and hot water. Pyrolysis has been used for centuries to produce charcoal. Organic material is heated in the absence of oxygen, producing a combustible gas (syngas) and a solid carbon product (char). Current pyrolysis systems are inefficient as uniform temperatures in the pyrolysis chamber are difficult to achieve and how heat is extracted needs improvement. This project progresses the development of a novel, heat pipe based domestic pyrolysis unit, with combustion of pyrolysis products and high efficiency water heating, all integrated in a novel type of home boiler. The project will design, build and monitor a complete prototype unit in a lab 'virtual home' setting over a period of time and evaluate its impact on waste collection and heating. The goal is a completely new type of energy from waste boiler unit for hot water supply.</p>			

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Legendary Games Ltd University of Nottingham	My House	£99,773	£78,762
Project description - provided by applicants			
<p>My House is essentially a simulation game, using game graphics but played using real world data from smart meters and configured to help the user reduce their energy use. During the course of play users will create a 3D version of their house in a web browser and compete with other players to make it more energy efficient. Legendary Games will lead the project supported by the University of Nottingham and the Centre for Sustainable Energy. This project is a natural extension of two separate pieces of government funded research: Project Aria, a TSB funded feasibility study that proved that gamification of energy data could change user's behaviour and CharloT, an EPSRC funded project to use sensors to reduce the effects of fuel poverty. The concept is highly innovative. There have been games that inform you about how to save energy and there are gadgets that show usage but nobody has yet produced a commercial product that combines the two. The application will be built on a cutting edge, HTML5 framework allowing users to access it from any web browser equipped device.</p>			

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Inspection Technologies Ltd	EIS Board	£73,372	£51,360
Project description - provided by applicants			
<p>A novel system for the detection of corrosion defects under thermal insulation based on Electrical Impedance Spectroscopy (EIS). It addresses the problem of detection of corrosion under thermal insulation especially that covered with thick, heavy lagging and surrounded with an outer metal cladding. Water which enters can collect and be trapped accelerating the corrosion process especially at high temperatures. Most current SoA requires often requires the removal of the underlying insulation, are expensive, slow, highly localised, are usually labour intensive, and often involve shutting down operations. Our approach -</p> <ul style="list-style-type: none">•Does not require the removal of thermal insulation•Can scan the entire surface of very long lengths of insulated pipeline instantaneously•Is quick and relatively inexpensive to install•Can detect both sudden catastrophic leaks and breaches•Provides a complete real-time 24 hour corrosion monitoring system in large, dense pipeline networks.			

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Oliver Crispin Robotics Ltd Chevron North Sea Ltd	Robotic inspection of offshore oil and gas pressure vessels	£99,800	£66,374
Project description - provided by applicants			
<p>Taking “inspection to the limit” this project explores the feasibility of robotic inspection of offshore Oil and Gas pressure vessels by using a snake-arm robot, designed to operate in vessels on land, and considers requirements for offshore deployment. Objectives include adapting the system to be robust and suitable for the restricted access encountered on offshore rigs such as deck layouts, narrow walkways and handrails. Integration of inspection tools, remote operation, and working in harsh offshore conditions will be studied. A world first offshore trial will take place on a Chevron North Sea asset North Sea to assess current capabilities and future needs for long term operation of robotic equipment. This project is innovative in its field deployment of robotic technology in this harsh environment with a strong potential to improve inspection outputs and safety by characterising vessels and assessing their fitness for service without human entry into dangerous and confined spaces.</p>			

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Omnicom Engineering Ltd NPL Management Ltd Ross Robotics Ltd	pvRIS: Pressure Vessel Robotic Inspection System	£81,937	£52,404
Project description - provided by applicants			
pvRIS: Pressure Vessel Robotic Inspection System The cost, safety and downtime involved with pressure vessel asset management is a major issue for all oil & gas operators and for other asset owners where access is hazardous, such as nuclear environments. This project aims to produce a system that can reduce inspection costs, increase operating efficiency and maintain safety. This project aims to extend the successful measurement system, DIFCAM that has been developed in the transport industry to replace manual basic visual inspection of railway track and tunnels. New challenges arise in integrating these measurement systems to vehicles suitable for inspection of pressure vessel and very complex active cells for Nuclear Decommissioning. The project will utilise a modular robot platform to deploy the revised inspection system within the asset and navigate through it			

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SenSat Surveying Ltd Costain Oil, Gas and Process Ltd	Smart Map - Interactive Virtual Engineering	£98,731	£66,960
Project description - provided by applicants			
Autonomous drones are revolutionising the way we perform surveys, allowing us to accurately recreate nuclear sites digitally. Being able to examine nuclear sites digitally enables better, more informed decision making, safer operational practises and more effective planning and communications. Smart Map is a cloud based 3D map that unlocks the potential of drone data for everybody on a nuclear site; it provides a suite of tools to help decommissioning projects interpret collected data, automate repetitive tasks and aid communication. By embedding diverse data sets, such as asset information and real time sensor output into one centralised model, Smart Map replaces the need for organisations to collect data manually and brings a wealth of information to an engineers fingertips.			

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Innovate UK

Results of Competition: Energy Game Changer

Competition Code: 1603_FS_ENRG_EGC

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Stickyworld Ltd STS Defence Ltd	360 Nuclear Knowledge	£99,597	£66,724
Project description - provided by applicants			
<p>Stickyworld and STS Nuclear are collaborating to test the technical and commercial feasibility of media rich communications for engaging staff and supply chain in smarter knowledge sharing around the decommissioning process. Exploring a combination of immersive photography and video providing visual context to data sharing, the team aim to demonstrate the potential for reducing cost in on boarding new staff and teams, and de-risking knowledge from the industry by providing an easy way to share technical know how about complex environments, machines and processes. Traditional methods of project engagement use various communication forms meaning that data is lost, often introducing risks to the project. Stakeholders are also specialists in their area, with reduced knowledge of other specialist skills. This platform will help them break down the barriers to other specialist to ensure everyone is on the same wavelength, and everyone involved is well consulted.</p>			

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Participant organisation names	Project title	Proposed project costs	Proposed project grant
Q-Bot Ltd	Inspection-Bot	£97,358	£68,151
Project description - provided by applicants			
Inspection-Bot will allow accurate remote mapping of infrastructure and hazardous sites and diagnosis (state of pipes, cables, structural support, water ingress, radiation, temperature, insulation etc) to allow for remote assessment, improve the targeting and reduce the cost of decommissioning or maintenance. The method by which multiple 3D scans captured from different positions can be aligned and fused for creating accurate colour and temperature 3D maps of the environment is unique, and was developed in house by Q-Bot. The missing parts in the scan or the gaps due to occlusions/limits in the field of view can be merged with scans from other locations maximising accuracy and reliability. Academic papers covering this technique will be presented at IEEE Conference in the Summer 2016. For this project we intend to supplement our existing inspection system with accurate radiation level and radiation source detection which will be merged into a fully 'walkable' virtual environment.			

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ImiTec Ltd TWI Ltd	INTEGRAL	£89,286	£70,000
Project description - provided by applicants			
<p>Project INTEGRAL aims to combine two innovative technologies for the purpose of making a prototype system that will make a step-change in the characterisation and size reduction of the UK's radioactive waste. We propose to develop an integrated prototype tool that is mounted on a robot arm and combines a miniaturised radiation mapping system with a coincident laser profiler and laser cutter. This device will enable surface radiation mapping of nuclear waste containers to identify hot-spot areas of contamination and selectively cut them out using the coincident laser. This will enable the waste to be more effectively sorted and split into high, intermediate and low classification levels, promising significant savings for the UK tax payer by reducing the overall amount of high activity waste. The project is being delivered by ImiTec Ltd, specialists in radiation mapping technologies working in partnership with the The Welding Institute (TWI), an international leader in welding and laser cutting technologies.</p>			

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COHEAT Ltd	Quality of Service for Heat Networks	£90,000	£63,000
Project description - provided by applicants			
<p>Is it feasible to infer what a consumer requested and a district heating network delivered using high frequency data from existing heat meters? Our feasibility study will process heat meter data from our 24 home smart network to infer what the user requested, then compare the estimate with the actual values from 4 million datapoints it already collects and stores each day. By combining room temperature sensor data and heat meter data we will do the same for a care home, a new heat network, and an apartment building on an existing heat network in London. We will develop metrics for Quality of Service - what the network delivered vs what the consumer requested - and predictive models that allow operators to run more of the network, cooler, for longer, without compromising the user experience.</p> <p>Innovation: securely reading heat meters at high frequency and post-processing this data to quantify "Quality of Service" - not just quantity of service - for heat networks in the UK and throughout Europe.</p>			

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Encraft Ltd CENEX (Centre of Excellence for Low Carbon and Fuel Cell Technologies) Solihull Metropolitan Borough Council Costain Group PLC Aston University	Net-Form	£68,550	£51,856
Project description - provided by applicants			
Net-Form uses data to turn a car park into a large MW-scale battery to provide power on demand to the electricity grid. It is an innovative, secure, data management platform that collects, aggregates and dynamically-optimises large populations of grid-connected electric vehicle batteries at a single location. Net-Form provides a managed service to the network and income to owners, who control access to their vehicles via a secure mobile application. Net-Form is unique in that integrates and analyses diverse sets of data and time-sensitive information to optimise the energy system in a non-invasive way.			

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DuckDuck Ltd Xsilon Ltd	Auxiliary Load Control Switch for Residential Demand Response	£85,479	£59,835
Project description - provided by applicants			
<p>Every winter we have warnings about blackouts, and the energy supply will become more intermittent as more wind and solar come on stream. People are aware of the energy challenge, but don't have many opportunities to really make a difference.</p> <p>Demand Response shifts the electricity consumption of factories, offices and households, who get compensated for doing so. This balances out demand spikes and peaks, and intermittent wind and solar.</p> <p>DuckDuck and Xsilon are building an Auxiliary Load Control Switch for Demand Response, to fit with the UK smart meter architecture. This enables households to contribute to a greener & more robust energy system.</p>			

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Applied Photonics Ltd Sellafield Ltd	Submersible LIBS Probe	£94,206	£64,725
Project description - provided by applicants			
<p>Applied Photonics Ltd (APL) was established in 1998 and specialises in a technique known as Laser-Induced Breakdown Spectroscopy (LIBS) for elemental analysis of materials. LIBS has unique attributes including high speed and the ability to be deployed in hostile environments including high radiation areas. APL has developed a range of LIBS products and services and has customers in more than 30 countries around the world. The objective of this project is to transition APL's submersible LIBS probe technology to nuclear decommissioning and clean-up activities. To date, the submersible LIBS probe has been used in a marine environment to perform in-situ elemental analysis of submerged objects. In principle, it is capable of characterising submerged radioactive materials of the forms expected to be present in various redundant spent-fuel storage ponds at Sellafield and elsewhere, but will require "nuclearisation" so as to make it suitable for deployment in this environment and capable of identifying radioactive waste and other materials of interest to nuclear decommissioning operations.</p>			

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Warwick Analytical Software Ltd	PrOBE - Predictive Obsolete Behaviour Engine	£90,668	£63,467
Project description - provided by applicants			
PrOBE - Predictive Obsolete Behaviour Engine – is a software platform designed for decommissioning of energy assets, particularly in harsh environments where unambiguous information is critical and can slow projects down. The software automatically takes any/all available heterogenous data and continuously mines and structures it so that predictive insight can be quickly gleaned. It can be used to predict and prevent issues, as well as used for building realistic scenarios either for humans or robots to utilise to speed up their work decisively and safely.			

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OpenTRV Ltd Coheat Ltd	HaaS Lite - Heating as a Service Lite	£97,779	£68,446
Project description - provided by applicants			
A feasibility study on the opportunity offered by the smart meter rollout to provide data supporting the financing of energy saving measures and exploring the concept of "Heating as a Service".			

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Axsym Ltd	OptiGen - Optimising community energy generation for real time demand	£92,704	£64,893
Project description - provided by applicants			
<p>The project addresses the challenge of dealing with data for the management of energy supply and demand. There are a number of software tools available for the configuration and sizing of decentralised energy plants, which utilise a wide range of data sources and models. To maximise return on the investment of developing new installations it is necessary to evaluate a wide range of plant configurations. A significant limitation with the available tools is that data transfer between the datasets and models has to be performed manually, resulting in high labour costs and the potential for human error. This project will develop our analytical and data management environment TecLab as a platform for integrating data sources and energy plant design tools to reduce installation costs and improve the prediction of return on investment. No commercial packages offer the flexibility for integrating complex analytical models that TecLab will deliver, owing to its innovative data handling capabilities and graphic programming interface. In this proposal we aim to integrate energy plant design methods and datasets, which has not previously been done.</p>			

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Professional Construction Strategies Group Ltd KnowNow Information Ltd	PCSG - Addressing the Performance Gap	£99,763	£69,799
Project description - provided by applicants			
With the support of Innovate UK funding, PCSG Ltd and KnowNow Information Ltd are collaborating to develop an exciting innovative new tool called ENTelligence. The objective of the project is to leverage the significant savings for major building owner/operators (in particular public sector bodies) that can be achieved by closing the energy performance gap between as-designed and as-built buildings through the design and development of a proposed new tool - ENTelligence. This is a target driven data aggregator combining energy consumption, user comfort, external environmental conditions to optimise performance, achieve targets and benchmark against best in class driving continual engagement. ENTelligence will enable PCSG, KnowNow and consultants to help clients deliver energy targets, drive down costs, increase productivity and satisfaction, providing a working environment able to adapt to the occupants needs. ENTelligence will re-connect building, department and sustainability managers. The project will also develop a cloud based benchmarking club to further drive efficiency and increase reliability of data currently provided by benchmarking sites (eg CarbonBuzz and BPEP).			

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Celerum Ltd ARR Craib Transport Ltd BP Exploration Operating Company Ltd Robert Gordon University	Transforming the offshore oil and gas supply chain	£100,000	£74,889
Project description - provided by applicants			
<p>The transportation of oil and gas cargo is rarely subject to collaboration across the different actors of the supply chain. As a result, companies rely on long-term hired vessels used exclusively for supporting their respective platforms, which often yield inefficient voyages. Moreover the road and sea transportation aspects are handled independently, resulting in delays on road or sea networks to spread to the rest of the supply chain. A solution able to schedule the oil and gas cargo supply chain as a whole using pooled logistic resources in a proactive and reactive way is required to make the best use of the road and sea transportation networks. By evaluating many options and by modelling activities and delays, the solution will be proactive. The solution will also be reactive and will allow quick response to unplanned delays, suggesting adaptations such as the use of alternative vessels or a re-prioritisation of road jobs. The solution will have an impact on the key players' costs by reducing the overall number of vessels in the North Sea; will impact the road transportation management by reducing operational stress and help prioritise urgent jobs; and will reduce overall carbon emissions.</p>			

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Chaddenwyh Services Ltd	Project Plasma	£89,308	£62,516
Project description - provided by applicants			
Chaddenwyh is building a world in which the energy market stakeholders from consumer to supplier are connected and barriers to innovation are removed. For this project Chaddenwyh Services Ltd is working with Australasia's leading independent provider of smart metering services to integrate meter data into a secure platform on which innovative services can be built. With the UK rollout of 53 million gas and electricity meters by 2020 there is a growing opportunity to use this data in novel ways while maintaining transparency and security for homeowners.			

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Applied Works UK Ltd EDF Energy R&D UK Centre Ltd	Efficient Living – making energy usage tangible to deliver highly personalised benefits back to the consumer	£129,223	£69,581
Project description - provided by applicants			
We believe smart homes will drive measurable improvements in energy efficiency, not just by the integrated technology of the household but by the power of the data captured. We want to drive social change on a massive scale through a value-driven ecosystem, giving consumers direct control of their energy data. Our new platform will offer meaningful insights into how our behaviour affects the amount of energy we consume; connecting energy data to different platforms outside the home, far beyond a 'screen on the wall' displaying how many kWh we've consumed. By offering highly personalised benefits back to the consumer, such as a deep level of intelligence to online shopping and product comparison experiences, we'll encourage consumers to become more comfortable sharing aggregated data snapshots with third parties. For example, a household's specific laundry data could provide detailed running costs of washing machines on comparison sites such as Which? or Amazon.			

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