

Innovate UK

Results of Competition: Energy Catalyst - Mid Stage - Round 5

Competition Code: 1703_CRD1_ENRG_ENCATMS5

Total available funding is up to £13M (BEIS, DfID & EPSRC)

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
Big Solar Ltd	Development & demonstration of a unique low cost scalable PV technology	£703,502	£492,451
The Energy & Resources Institute (TERI)		£107,047	£107,047
Unilever PLC		£88,967	£44,484
Newcastle University		£75,174	£75,174
Project description - provided by applicants			
<p>Over 1.2 billion people globally are without access to electricity. The adoption of solar panel (photovoltaic, 'PV') technology has expanded dramatically from 6GW in 2009 to >70GW in 2016 [Greentech Media], but its use in off-grid rural areas, i.e. India, SE Asia and Africa, has been very low, due to prohibitively high cost and weight. BSL has developed a ground-breaking flexible, ultra-lightweight and ultra-low-cost product called PowerRoll. It is a unique PV technology that provides renewable energy at a cost cheaper than any carbon-based technology, and significantly cheaper than current PV products. PR can be manufactured at a fraction of the cost of conventional panels, and can weigh as little as 2% of current PV products, removing the principal barriers to widespread deployment of solar energy solutions in rural areas. BSL has successfully proven the PR concept. This project is focussed on the development and demonstration of applications to address the needs of rural off-grid communities in the Sub Saharan African, Indian and SE Asia. We are working with expert sub-contractors and three partners to support the demonstrators across several test sites in these markets: The Energy and Resources Institute, India (TERI); Unilever; and Newcastle University (JSCE).</p>			

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

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Palliser Engineers Ltd	Optical Transfer of Heat with Electrical and Light Output (OTHELLO)	£338,835	£237,185
Polysolar Limited		£79,973	£55,981
Swansea University		£143,987	£143,987
Project description - provided by applicants			
<p>With demand for clean, reliable and affordable energy rapidly growing, the ability to apply the solar spectrum wherever sunlight is available becomes ever more important. By combining valuable unexploited strengths of thin film Photovoltaics (PV) and solar optics we co-generate electricity and high temperature heat with the part of the spectrum not used by PV, without sacrificing the level of electricity generation for PV alone, unlike existing products. The optics generates high enough temperatures to efficiently drive air conditioning, refrigeration, and even cooking. As the thermal part can be fabricated at little extra cost this approach is economic even without the benefits of increasing useful energy per square metre. High-rise buildings are particularly challenging in this respect but our system can be designed for economic production of energy on walls receiving direct sunlight. This makes it possible to provide cooling in Summer, heating in winter and refrigeration at any time, allowing the panels to be sized for maximum load and offering these services at the point where they are needed in the building, a space efficient and city friendly solution wherever the markets can respond to the relentless demand for better living standards.</p>			

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Orxa Grid Ltd	Transforming electricity access through smart sensors & grid efficiency algorithms	£159,972	£111,980
SCOPE T&M Pvt Ltd		£120,146	£72,088
University of Reading		£109,331	£109,331
Project description - provided by applicants			
Electricity distribution network operators (DNOs) in developing countries are facing significant challenges to address the energy trilemma- offering clean, affordable and secure energy. Increased demand for electricity coupled with the rapid shifting of supply to distributed generation requires DNOs to increase monitoring, analytics and optimisation to continue to provide a cost-effective service. Instead of installing expensive, cumbersome SCADA systems and making costly grid expansions, OrxaGrid provides a smarter, lower cost alternative through retrofitting IoT enabled devices on critical grid nodes and monitoring them for efficiency improvements. In this project, OrxaGrid will collaborate with SCOPE, an established Indian electrical sector company and University of Reading's energy systems team to take the system to the next level. We will develop a unique interoperable gateway and add advanced algorithms that improve grid efficiency by forecasting demand and renewable generation, predicting theft and technical outage locations and identifying spare capacities in the grid. Grid operators can use OrxaGrid's web/mobile dashboard to take active steps at mitigating the energy trilemma.			

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