

Results of Competition: Energy Catalyst Round 7: Late Stage

Competition Code: 1906_DFID_CRD_CGI_ENCAT_R7_LATE

Total available funding is £32 million across early, mid and late strands

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
GAMOS LIMITED	Development and pilot distribution of innovative, affordable electric pressure cooker in Kenya	£126,080	£56,736
BURN Manufacturing Ltd		£1,299,810	£584,914

Note: you can see all Innovate UK-funded projects here: <https://www.gov.uk/government/publications/innovate-uk-funded-projects>

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Project description - provided by applicants

Awaiting Public Project Summary

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SPARK AFRICA CIC	PAY-N-PUMP	£70,862	£31,888
Aptech Africa Ltd		£125,375	£56,419

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THE OTHER PERSPECTIVE CIC	ESS for combined services	£138,760	£62,442
Aptech Africa Ltd		£3,795,234	£1,707,855

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ARENKO CLEANTECH LIMITED	Increasing Reliability and Security of Energy in Nepal	£3,637,674	£1,636,953
Pact UK		£1,085,747	£1,085,747

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The use of battery storage solutions has increased recently, but has not been widely adopted in developing countries. In 2018, over 3GW energy storage capacity was installed world-wide, 88% of which utilised lithium-ion batteries. Installations in Europe have been led by Germany and the UK. Arenko is at the forefront of this emerging market, having commissioned one of the largest batteries in the UK (41MW/MWh) which is optimised through our automation technology platform. Battery storage promises a range of benefits, including the ability to integrate more renewable energy into the utility grid, reducing the reliance on fossil-fuel based peaker plants. While advanced battery storage utilisation has increased, the real potential for this technology lies in emerging markets, where a lack of grid reliability and energy access has a daily impact on people's lives, and a staggering impact on the economy. In Nepal, load shedding resulted in a \$14.5bn USD loss of GDP from 2008-2016, or more than 6% per year on average. During this period, Nepal was unable to meet 20% of its electricity demand. Energy demand in Nepal is expected to increase by more than 8%/yr, and without solutions such as this, economic development will lag. For those who receive power from small-scale generation like small and micro hydro instead of the national grid, lack of reliability has also proven to be a challenge. Most micro-hydro plants are managed directly by communities. There are over 3,300 micro-hydro plants in Nepal, supplying roughly 30% of the country's power. Demand for energy has increased in isolated communities served by these power plants, putting strain on the ability of the operators to meet demand. Additionally, micro-hydro in Nepal suffers from seasonal variations in water flow as about 80% of the rain occurs during monsoon from June to September, which can lead to severe load shedding, a problem further exacerbated by climate change. Our vision is to extend the life of Nepal's small and micro hydro plants and eliminate load shedding, so everyone can have access to affordable, reliable, and clean electricity, regardless of if they are connected to the national grid. By integrating advanced battery storage solutions with micro-hydro plants and by utilising Arenko's automation technology platform, we will improve reliability, expand access, and reduce costs for rural customers in Nepal, reducing the need for new fossil fuel generation capacity and ensuring communities are able to adapt to climate change.

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INVINITY ENERGY (UK) LIMITED	Project Dragon Power	£4,847,900	£1,696,765
VIPTAM Institute of Technology Application		£150,500	£52,675

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British energy storage infrastructure experts, redT, in partnership with VIPTAM Institute of Technology Application, will deploy an innovative, first of a kind, solar + vanadium redox flow machine distributed energy solution across a number of farming communities in rural Vietnam. These new distributed energy solutions will enable farmers to install and operate 24-hour lighting systems, allowing them to increase fruit yields from 1 to 3 harvests per year.

With funding support from Innovate UK, this project will address the 'Energy Trilemma' faced by rural communities, providing them with access to affordable, low-carbon, accessible and reliable energy infrastructure. This will drive positive socio-economic change within the community and demonstrate the viability of renewable, decentralised energy systems for rural electrification, as an alternative to diesel generators or fossil-fuel-backed national grid networks.

Focusing initially on dragon fruit farms, redT will provide a full energy storage and PV solution to farmers with the help of VIPTAM. This infrastructure will be purchased by the farming communities with the help of commercial agricultural loans, provided by Agribank.

Increased farming productivity will drive prosperity, improve welfare and support gender equality in these communities through the creation of, on average, 60 new jobs for men and women. The energy system will also promote social inclusion by providing a free and universally accessible community point of connection to the network and the provision of numerous new opportunities for personal and professional development for members of the local community.

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RINA CONSULTING LTD	Golomoti, Malawi: Sub-Saharan Africa's first utility-scale solar PV and battery storage project	£60,788	£15,197
Golomoti JCM Solar Corp. Limited		£4,641,600	£2,088,720

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JCM Power and RINA will pilot the first application of a utility-scale battery energy storage systems (BESS) solution into 'Golomoti' -- an existing 20MW solar PV project being developed by JCM Power in Malawi since 2017. The team will assess the feasibility and integration of state-of-the-art lithium ion battery technology into Golomoti. The project will be the first utility-scale solar PV and BESS project in Sub-Saharan Africa. With the inclusion of an innovative BESS solution, Golomoti's potential installed capacity would increase to 28MW and represent approximately a 6% increase in Malawi's total installed capacity. The project's innovation lies in the testing of the first utility-scale BESS solution in the region.

As a Least Developed Country (LDC) -- more than 50% of Malawi's population live below the poverty line and 25% live in extreme poverty. Malawi has one of the lowest electrification rates in the world, where only 11.9% of the population have access to electricity. The team will address the 'energy trilemma' by bringing 1) affordable and reliable energy to Malawi's population and support the Government of Malawi in achieving its national energy goals, and 2) piloting the first utility-scale solar PV and BESS solution in the region that neighbouring countries can replicate.

Traditional on-grid solar PV technology in Sub-Saharan Africa is proven, but the application of BESS at the utility level is not yet proven. Golomoti, with the integration of a BESS solution, will improve the amount, quality and reliability of the energy output to the national grid. Currently, Golomoti has the support from the Government of Malawi and Electricity Supply Commission of Malawi (state utility), but further analysis is needed to assess, acquire and integrate a suitable BESS solution.

Public funding is being sought to mitigate the risk of supporting the analysis, acquisition and integration of BESS technology which is currently not proven in Malawi. Public funding will support the project's viability and ensure a risk-return profile acceptable to private investors to unlock financing not only for Golomoti, but also for Malawi's power sector.

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