FUTURE FORWARD

Responding to the Energy Crisis

Meet the pitching businesses

UKBAA
UK Business Angels Association

SETsquared PARTNERSHIP
Universities of Bath, Bristol, Cardiff, Exeter, Southampton & Surrey

Albion Technologies are a manufacturer of Smart Battery Energy Storage Systems, looking to disrupt the market by outperforming unchallenged competitors

Funding required:
£500,000

Funding received to date:
£825,000

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Albion Technologies

The problem with energy is that it doesn't matter how much is created if it cannot be stored and distributed. The solution is to store the energy and redistribute it when necessary. This is compounded by the unpredictability of renewable energy sources. Our solution is a Smart BESS which will balance the grid when needed in a convenient and fully monitored container. Our Advanced Battery Management System (BMS) ensures that our system can run for 35% longer than our competitors. The Smart BESS will reduce the amount of batteries needed over the lifetime of the BESS which in turn will help achieve carbon neutrality

The project is currently at TRL 3. The prototype has been designed and is ready to be made, it just requires an investment to complete the project. This will the proof of concept which will be the catalyst to the current orderbook from Solos Power which stands at 200MW Per Annum. The proposed assembly plant will be able to manufacture 300MW a year leaving space for other commercial agreements. Other owners are keen to commit to an agreements but need to see the pilot in operation first.

GT GREEN TECHNOLOGIES
WIND PROPULSION EXPERTS

GT Green Technologies are developing a novel wind propulsion system for commercial shipping capable of reducing a vessels fuel consumption and carbon emissions by 10%-30%.

Funding required:
£650,000

Funding received to date:
£155,000

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GT Green Technologies

The shipping industry accounts for around 3% of global carbon emissions and shipowners are being forced to reduce their carbon emissions by increasing increments under new efficiency measures adopted by the International Maritime Organisation. Ultimately if shipowners/operators do not meet the targets they will be forced to cease operation.

In addition, the cost of marine fuel has greatly increased and new carbon tax measures are to be imposed under the Emissions Trading Scheme, again adding operational costs to vessel owners and operators.

GT Green Tech is developing a novel wind propulsion system capable of directly reducing a vessels fuel consumption by 10%-30%, maintaining vessel compliance and greatly reducing the vessel operational costs.

Other wind propulsion systems exist in this newly emerging market. GT's Wingsail offers greatly improved thrust benefit from a smaller unit due to the novel way it controls the flow around the device, thus minimising the size of the required installation and critically minimising the impact on vessel cargo operations. The wingsail is able to fold into a low profile stowage option.

A patent has been filed to cover the novel aspects of the design in June 2022.
In July we secured a letter of intent from our first potential client Carisbrooke Shipping, a UK based ship owner and operator with over thirty 100-150m bulk carrier vessels. We are currently in discussions around fitting two prototype 20m span wingsail units to their 130m Vectis class vessel.

Shortly after GT signed a contractual partnership with PEI TECH LLC, a US based Biofuels sales company with 10 years in operation and many ship owners and operator clients based in the UK and around the world. We are currently finalising our strategy and marketing material to engage these companies in the next few weeks.

In September GT secured grant funding under the Clean Maritime Demonstration competition with partners MTC (Manufacturing Technology Centre – manufacturing catapult) and a contractor working for GT – SABE Fluid Dynamics, Formula 1 and Americas cup fluid dynamics experts. The project is a feasibility study to provide proof of concept and will greatly develop and optimise the design as well as gain some legwork in design for manufacture and development of a UK/Global supply chain for detailed quotation.

Mykor is a biotechnology and advanced materials company developing commercially viable and sustainable building materials made from waste and fungi.

Funding required:
£400,000

Funding received to date:
£280,000

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Mykor

11% of worldwide carbon emissions come from the manufacturing of construction materials. In the UK, from 2025, the current materials on the market will struggle to meet new legislation like the Future Homes Standard and the Embodied Carbon Bill making traditional materials obsolete. Our solution is to create highly performative building materials made from biomass waste with a carbon-negative manufacturing process. Our fabrication technique involves the use of mycology to propagate mycelium on cellulosic waste from our partner, The Navigator Company, a paper giant producing 1.6M tonnes of waste each year. Mycelium is the "root" of mushrooms and functions as a natural adhesive. We have an edge over competitors because we deliver a fire-safe product with negative embodied carbon at a competitive price point. Most other sustainable alternatives are prohibitively expensive for mass adoption: we are 35% cheaper than other green insulation products.

- 2 manufacturing partners
- 1 waste biomass supplier (1.6M tons per year)
- £420k funded project with Innovate UK
- £220k soft committed for this round with Sustainable Ventures as a lead investor
- 1 distribution partner
- 3 R&D partners to date
- 5 letters of intent + 7 contract leads
- 38M£ worth of projects in customer pipeline
- Unique IP and know-how with patent pending at end of 18-month runway

We have been featured in multiple press outlets like Elle Decoration, Global Construction Review and The Manufacturer. We have won the Innovate UK Young Innovators Award and were runner-ups at the COINS Grand Challenge and UN Young Champions of the Earth Award.

Plastic-i

Solving marine plastic pollution with satellites & AI.

Funding required:
£350,000

Funding received to date:
£55,000

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Plastic-i

We are living through a plastic crisis. Around 14 million tonnes of plastic pour into the ocean each year, wreaking havoc with natural ecosystems and placing 700 marine species in danger of extinction. The economic cost to marine natural capital is estimated to be £30,000 per ton of plastic per year. Macroplastics degrade into microplastics and enter the food chain: a recent study has found that 80% of humans have harmful microplastics in their blood.

Plastic-i generates maps of marine plastic pollution. Our software platform combines high-resolution satellite imagery and AI algorithms to detect, measure, and track marine debris on a global scale. These insights are used by key decision makers to define evidence-based policies, plan high-impact interventions, and boost clean-up efficiency. This data-driven approach will drastically reduce the volume of plastic entering water systems, resulting in huge environmental and economic gains.

Plastic-i is an award-winning start-up: the company won Hack the Planet Competition 2021, hosted by the Commonwealth Secretariat and Satellite Applications Catapult, and the Open University Entrepreneurship Competition 2022. Plastic-i is participating in multiple high-profile accelerators, including ESA Business Incubation Centre UK, Creative Destruction Lab, and SETsquared Scale-up Programme.

Plastic-i has developed a prototype platform, which it has exhibited to international audiences, including The World Bank, Global Research & Innovation in Plastics Sustainability, TMA BlueTech, and at UK Earth Observation Week. The company has scoped out a funded pilot project with an international NGO, which will accelerate development and testing of a minimum viable product across multiple geographies. In the coming period, Plastic-i will grow its technical team and evolve its core IP to capitalise on an exciting market opportunity with global impact.

ZUMEE are designing inspirational and lightweight Pedelec E-vehicles that are both affordable and easy to use..

Funding required:
£50,000

Funding received to date:
£20,000

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Zumee

There are currently limited options for consumers seeking to be more environmentally friendly or choose a bike for short trips to the shop in adverse weather. Using an expensive E-Bike, there is still nowhere to put your shopping, and you risk getting drenched if it is raining. There do exist some cargo-bike style e-bikes, but these are still open to the elements, and the designs are more functional looking.

Our solution is a stylish and lightweight trike that has the range of an E-bike, but offers more protection from rain and is more stable to ride.

With the Autonomous Driving kit that we have, we are also planning other vehicles that can be provided with this built in, or as a subscriber option to unlock.

We have recently published a Conference paper with CEMET titled: An Autonomous Vehicle prototype for Off-Road Applications based on Deep Convolutional Neural Network. This paper can be supplied upon request.