CLEAN FUTURES

Clean Futures Accelerator

Challenge Specification

1. Overview

The West Midlands has huge potential to drive jobs and growth through harnessing the power of innovation. As identified in the West Midlands Plan for Growth, the region is the centre for key growth clusters for advanced manufacturing and home to the 'Green Industrial Revolution'. Two major programmes of work, DIATOMIC and Clean Futures, will build on this foundation, supporting innovators in the region and increasing the West Midlands' overall capability to spark commercial growth and investment.

Clean Futures will support the West Midlands' transport and manufacturing sectors as it transitions away from fossil fuels towards clean tech and drives regional economic growth by accelerating the route to market for SMEs. The programme will attract high growth SMEs from within the West Midlands region, across existing supply chains as well as those looking to move into new sectors. It will support them in developing and scaling clean technology transport solutions, while demonstrating their value to Tier 1 suppliers and OEMs (Original Equipment Manufacturers).

Last year, the first cohort of 20 SMEs were selected and successfully delivered trials through the accelerator. Now, the second round of 20 SMEs will be selected to join a 6-month, challenge-led accelerator where they will receive up to £50K to test or trial their solution, which must be matched in-kind. The challenges that the accelerator is seeking to address are built around rail and automotive manufacturing, along with related supply chains. Crucially, the accelerator will provide bespoke technical and commercial support as well as networking and showcasing events to connect the SMEs with industry and financial partners.

To ensure sustainability and long-term benefits, the programme has established the Clean Futures Catalyst to bring together the wider West Midlands transport community to enhance the region's capacity to integrate clean technology across all sectors. The Catalyst will support the development of a pipeline of ambitious innovators for future accelerator programmes and engage local businesses, industry partners, service providers, and local government bodies in ensuring the West Midlands remains a thought leader in promoting sustainable transport.

We encourage you to attend our Clean Futures Application Support webinar on 15th May 2024. Click here to register for the event!Click here to register for the event!

2. Partners

The programme is a collaborative project bringing together Connected Places Catapult, the Black Country Innovative Manufacturing Organisation, Coventry University and Coventry University Services Limited as well as several partners from the wider ecosystem.

The Connected Places Catapult

Connected Places Catapult is the UK's innovation accelerator for cities, transport, and place leadership. They provide impartial 'innovation as a service' for public bodies, businesses, and infrastructure providers to catalyse step-change improvements in the way people live, work and travel. The Catapult connects businesses and public sector leaders to cutting-edge research to spark innovation and grow new markets and run technology demonstrators and SME accelerators to scale new solutions that drive growth, spread prosperity, and reduce carbon emissions.

The Black Country Innovative Manufacturing Organisation (BCIMO)

The Black Country Innovative Manufacturing Organisation (BCIMO) is a not-for-profit company limited by guarantee and the driving force behind a new state-of-the-art research and development facility based in Dudley in the West Midlands. This £32m multi-purpose centre, situated at the heart of the Black Country, offers a host of unique facilities including a Rail Development and Test Site, Engineering Laboratories, Serviced Offices, and an Events Suite.

Coventry University

Coventry University is a forward-looking, modern university who provides high-quality education with a focus on applied research. The Clean Futures programme provides SMEs with access to the facilities, skills and experience of the Institute for Advanced Manufacturing and Engineering (AME) and Centre for Advanced Low Carbon Propulsion Systems (C-ALPS).

AME, the UK's first 'Faculty on the Factory Floor', supports businesses and education using a combination of academia and industry and innovative research in a factory setting, to ensure that participants are industry-ready and future proofed in latest

manufacturing technologies; and support businesses in commercialising research to meet industrial challenges.

C-ALPS is a £50m centre that combines academic expertise and state-of-the-art facilities in battery and supercapacitor cells, hydrogen fuel cells, e-motors and drives. Researchers and Clean Futures SMEs can collaborate on next generation electrified propulsion systems for the automotive, aerospace, marine and rail industries.

Coventry University Services Limited

CU Services is part of the Coventry University Group of companies and is where the enterprise, innovation and commercial-related activities that are undertaken across the group of companies is managed. With over 25 years of experience in delivering support to businesses in innovation, growth, and internationalisation; CUS delivers over 500 business assists a year, from proof of concept through to commercialisation stages and is a delivery partner in Innovate UK Edge, with around 20 Senior Business advisors.

3. Challenges

The Clean Futures Accelerator invites applications promoting innovative solutions that could address three specific challenge areas. In addition, applicants can apply for the programme under the open challenge. To be considered for the Clean Futures Accelerator, your technology, solution, product, or service should align with at least one of these challenge areas (further details provided below). These challenges are chosen to correspond with the West Midlands 2041 Plan for the years 2021 to 2026, which aims for a regional goal of Net Zero by 2041.

Challenge 1 | Clean and Efficient Vehicle Manufacturing and Assembly

The focus areas of this challenge are as follows.

- Minimising scope 3 emissions in the production of sustainable vehicles
- Improving the integration of sustainable vehicles into the circular economy
- Addressing a major barrier in the adoption of clean transport technologies: the cost of acquisition and operation.

By integrating sustainability with affordability, we aim to bolster the public's inclination towards choosing eco-friendly transportation options. Currently, the West Midlands is home to over 3 million cars, with projections indicating an

increase to 4 million by 2030. The region witnessed a 50% growth in electric vehicle (EV) adoption from 2021 to 2022.

Under this challenge, we are inviting applicants to propose innovations in the manufacturing processes of electric vehicles (EVs), ranging from micro-mobility solutions and traditional road vehicles to public transport and heavy goods vehicles (HGVs). We are also encouraging applications to improve repurposing, recycling and second life of EV components, such as batteries. In addition, this challenge will facilitate the transition of traditional manufacturing and supply chains in the West Midlands towards the electric vehicle sector. Particularly, companies engaged in the production of components for conventional transportation systems are well-positioned to tackle this challenge by adapting their processes, or by opting for alternative materials or components.

Example innovation areas may include (but are not limited to):

- Innovations aiming to reduce waste in manufacturing and assembly processes, including by optimizing energy efficiency or reducing waste.
- Innovations aiming to increase the sustainability of producing materials used for vehicles, such as steel, iron, and mineral products and/or chemicals.
- Innovations aiming to optimize or increase the sustainability of industrial heating, including through retrofit.
- The production of components for traditional vehicles which could be adapted to EVs.
- Use of alternative materials which are more sustainable or cost-effective.
- Lightweighting solutions or components for EVs.
- Adaption of traditional vehicle components for EVs or manufacturing these components in a way which will become more cost effective than existing solutions at scale.
- Designing or manufacturing EV components more efficiently (in terms of cost and/or emissions).
- Solutions to improve in-life serviceability of battery packs, even in cases where a single cell fails.
- Solutions to increase the circular economy in transport, especially reusing or recycling EV batteries.

Challenge 2 | Design or production of cost-effective solutions for a clean transportation infrastructure

Under challenge 2, our objective is to contribute to the development of mass rail-based transit systems that are accessible to everyone, fostering a unified public transport network that is clean, reliable, and sustainable. Our aspiration is to reduce

air pollution and emissions, enhance connectivity, and position the West Midlands as a leader in mass transit systems, showcasing our innovations on a national scale.

We are seeking rail solutions that either introduce a brand-new infrastructure approach or centre on retrofitting existing infrastructures to make them greener. For new approaches, a key success factor should lie in enhancing affordability, with (for example) an aim to keep construction costs for Very Light Rail below £10 million per kilometre of track. In the case of refurbishment and maintenance of existing infrastructure, sustainability is paramount, and projects should demonstrate a clear pathway towards net zero while presenting a significant commercial opportunity.

Example innovation areas may include (but are not limited to):

- Solutions designed to refurbish or retrofit existing rail infrastructure and increase its sustainability.
- Solutions designed to increase the sustainability of maintenance of existing rail infrastructure.
- Reducing destruction and disruption of utilities.
- Use of sustainable construction materials or methods.
- Reduction of building and operating infrastructure system requirements, such as onboard signalling, control systems, turnouts, infrastructure required to produce cycling safety schemes, communication systems and/or drainage systems.

Challenge 3 | Future Fuels: Produce, transport, or store alternative fuels such as hydrogen or biofuels

As the transition to electrification progresses, alternative sustainable fuels remain a pertinent choice for specific uses. For instance, in scenarios such as rural transportation and agri-tech, where long distances and sparse charging infrastructure pose challenges, alternative fuels like hydrogen or biofuels become particularly relevant. Furthermore, biofuels offer the added advantage of reducing the impact of waste from crops that would otherwise decompose into methane. We are in search of applicants that are actively involved in the production, transportation, or storage of biofuels or hydrogen within the West Midlands. These efforts should aim to make alternative fuels readily available to end-users, thereby supporting the region's sustainable energy ecosystem.

Example innovations may include (but are not limited to):

- Local production and transportation to increase the affordability of hydrogen fuels in the West Midlands, as well as reduce waste fuels.

- Solutions with a focus on electrification challenges, such as fitting them onto larger vehicles and machines (e.g. combine harvesters, HGVs, tractors, refuse trucks and other maintenance vehicles).
- Solutions to retrofit long-life vehicles (such as HGVs and heavy rail rolling stock) to make them compatible with alternative fuels.
- Applying alternative fuels for EV charging infrastructure, especially in places where charging infrastructure may be less accessible.
- Increasing the accessibility of the supply of alternative fuels for consumers and operators, for both on-highway and off-highway vehicles.
- Efficient storage and transportation of alternative fuels, with reduced waste, space utilization and lower emissions.
- Adapting alternative fuels from aircraft and maritime to automotive and rail applications.

Challenge 4 | Open Challenge

The Open Challenge is designed to foster a wide array of sustainable solutions that support our collective vision for a greener future. Beyond the accelerator's main three challenges, the Clean Futures programme welcomes applications which contribute to sustainable transport and clean manufacturing in general. We encourage applications from innovators dedicated to developing sustainable innovations that will yield significant advantages for the West Midlands, and those currently located or operating within the region will be prioritised. Additionally, proposed solutions and innovations should align closely with the goals of the West Midlands 2041 Plan.

4. Benefits

Connected Places Catapult have been running accelerator programmes since 2018 and have a refined delivery methodology that leverages maximum impact for SMEs and industry partners. Participation in the Clean Futures Accelerator will provide successful applicants with a range of benefits as outlined below.

Funding for Testing

Applicants can apply for up to £50k of funding, which must be matched in-kind (e.g. labour, materials), to design a testing and development project. Testing and development could include trialling a solution on partner facilities, conducting a pilot project or testing a prototype. During the first two months of the programme (Aug - Sep 2024), SMEs will design a project to be carried out during the testing phase. Providing funding for testing through the accelerator enables us to de-risk innovation through giving the cohort access to facilities and end-users to develop, test and showcase their technology and solutions.

Technical Expertise

We will link successful applicants with the right technical experts within partner organisations to help shape and evaluate their trial or test project proposals.

Coaching and Mentoring

During the 6-month programme, the cohort will receive bespoke coaching and mentoring from a variety of trusted experts, based on an initial assessment of your unique business development needs. For example, we could link you up with a marketing coach to develop a bespoke marketing plan, or you could work with our investment advisors who will help you get investor-ready and make meaningful introductions with relevant investors.

Clean Futures Catalyst

By joining the Clean Futures Accelerator, the cohort will automatically be involved in the wider Clean Futures Catalyst. This will bring together the wider West Midlands transport community, encouraging networking and knowledge sharing between innovators, local businesses, industry partners, service providers, and local government bodies.

Showcasing

At the end of the programme, the Clean Futures Accelerator will run a 'Demo Day' event where the cohort will be able to showcase their solutions and results of their trials in front of a tailored audience of end-users and investors. There will be a focus on celebrating the success of the accelerator and building valuable connections for the cohort.

5. Eligibility

The Clean Futures Accelerator is open to all business, including micro, small and medium-sized enterprises in existing supply chains as well as those looking to move into new sectors. Clean Futures also welcomes bids from consortiums of partners, with a lead applicant who will be the funding recipient.

<u>Required:</u>

- A UK company address.

- An innovative technology or solution at TRL 5 or above.
- Demonstrable alignment to one of the challenges being addressed by this programme.
- A willingness to travel on occasion to face-to-face meetings and events in the West Midlands.
- A willingness to complete a development, testing or a demonstration of your solution in a real or relevant environment, using the BCIMO or Coventry University test sites.
- An additional £50k will need to be contributed by the applicants as in-kind match funding (e.g. labour, materials).

Encouraged:

- A UK company address, based within the West Midlands Combined Authority region.

Ideally, applicants will already have an operational presence in the West Midlands, and we emphasise that most successful applicants will have a registered office there (although this need not be the HQ).

Applicants not currently operating in the region must;

a) aspire to deploy their resulting technology or solution in the region
and
b) expect regional impact from this deployment, in the way of future jobs or investment opportunities.

Applicants based and/or operating outside of the West Midlands with aspirations to conduct technology development testing in the region as part of the accelerator, but with no intention of creating an on-going presence, would not meet the eligibility criteria.

Please note that by applying, you accept that any resulting offer of a place on the programme shall be subject to the provisions of this guidance document and the terms outlined in the Terms and Conditions.

6. Further Information

If you are still unsure about whether your company and solution would fit the programme scope, please contact the Clean Futures support team for assistance:
Hannah.Fortune@cp.catapult.org.uk
Harriet.Muscroft@cp.catapult.org.uk

Please also join our Clean Futures Application Support webinar on 15th May 2024.
Click here to register for the event!Click here to register for the event!