Vertical Aerospace, Eden Project and Versarian: 10 South West businesses leading the green industrial revolution

“The South West, of all the areas in the UK, is really at the forefront of the fight against climate change and also the green industrial revolution”.

That was the assessment of business secretary Kwasi Kwarteng when speaking at the official opening of Airbus’ £40m research facility in Filton near Bristol in June.

Mr Kwarteng was among the decision-makers and business leaders who spent that morning hearing how the aerospace giant would use its new base to help deliver new low-carbon technologies.

Through collaboration with some of its regional neighbours such as Rolls-Royce and GKN, Airbus has been involved in some of the ground-breaking innovations the sector has yielded this year.

These have included the assembly of a prototype ‘eco-wing’ as part of a programme trying to find a more sustainable aircraft wing design. Test flights over the Mediterranean of an Airbus commercial passenger aircraft powered by a Rolls-Royce engine using 100% sustainable aviation fuel (SAF) produced “promising early results”.

In the air closer to home, Rolls-Royce’s battery powered plane, ‘Spirit of Innovation’, smashed the fastest all-electric flight world record after take-off from the Ministry of Defence’s Boscombe Down site in Wiltshire.

A ‘green industrial revolution’ of course has been arguably something of a political gimmick, peppering manifestos of parties of all leanings for some time.

But this year has seen the unveiling of the government’s ‘Net Zero Strategy’, or how it plans to deliver on its commitment to reach net zero emissions by 2050.

Highlights of the plans include secure 440,000 jobs in future industries and the leveraging up to £90bn of private investment by 2030.

Perhaps now the stage has now been set for the revolution to take place – and is the South West where it will happen?

This year *BusinessLive* reported that US carmaker Rivian was rumoured to have visited a site in Somerset for a potential electric car plant, a move that could be worth £1bn to the UK economy and in the South West alone could create 10,000 jobs and another 90,000 indirect roles as part of the supply chain.

As Mr Kwarteng pointed out, not only does the South West have a tradition for “great innovation in aerospace”, its universities are also producing graduates who are very motivated by “green solutions”.

As well as fighting back from the economic impact from the ongoing coronavirus pandemic, 2021 has arguably been a year where environmental sustainability has truly become a top priority for business.

With the fallout from the COP26 UN summit in Glasgow, the launch of a clean air zone in Bath, the confirmation of one arriving in Bristol next year, climate change has well and truly been on the agenda.

Many firms in the region have been queuing up to tell us about how they are trying to reduce their carbon footprint, from introducing all-electric vehicles across their operations,

planting trees, to installing air source heat pumps or solar panels at offices.

But what about those environmentally conscious companies that are actually driving that change?

We thought it would be worth taking a look at some of the innovative South West businesses to watch next year, which are making a greener platform for others to build on – sustainably that is.

So, in no particular order, here they are…

Anaphite, Bristol

Anaphite founders Sam Burrow and Alexander Hewitt.

(Image: Anaphite)
Founded by scientists Sam Burrow and Alexander Hewitt, Anaphite is developing rechargeable battery technology which its backers believe has “exciting” potential to help accelerate the shift towards sustainable forms of transport.

The Bristol-based start-up has developed what it says is an inexpensive and scalable process to incorporate graphene into battery materials on existing cell production lines

Graphene is a material that consists of a single layer of carbon atoms. Anaphite has found that adding it to rechargeable lithium-ion batteries has improved charge time and longevity.

Mr Hewitt, who is Anaphite’s chief operating officer, said: “In order for society to transition to sustainable energy, we need mass adoption of electric transport, meaning batteries need to cost less, charge faster and live longer. We believe our technology truly addresses these critical pain points.”

The company’s work has attracted several backers with it closing a £1.2m funding round in April 2020.

Vertical Aerospace, Bristol

Vertical Aerospace is based in Bristol and is developing an all-electric ‘flying taxi’
(Image: Vertical Aerospace)

While the idea of an electric ‘flying taxi’ may seem pretty space-age, Vertical Aerospace is continuing to develop the technology that could make it a reality sooner than you may think.

The company, set up by Ovo Energy founder Stephen Fitzpatrick in 2016 and based on Chapel St in Bristol, has designed a vertical take off and landing vehicle, which it says will be able carry four passengers for more than 100 miles at a top speed of more than 200mph, while producing minimal noise and zero operating emissions.

Vertical Aerospace is partnering with aviation giants including American Airlines, Avolon and Rolls Royce, which in March said its technology would help power the aircraft.

In December, the company and US special purpose acquisition company Broadstone said they were expecting to complete a business combination, which could see Vertical become a publicly traded company, with a listing on the New York Stock

Exchange.

The companies said the transaction would provide required capital to certify the aircraft, the VA-X4, as well as develop a manufacturing facility and build out Vertical's commercial platform and scale production.

Vertical is targeting the highest global certification for the vehicle, which is expected to achieve the equivalent safety standard of a passenger jet by 2024, based on expected standards from the Civil Aviation Authority and European Union Aviation Safety Agency.

Good Energy, Wiltshire

Good Energy chief executive Nigel Pocklington.
(Image: Tim Gander)

The Chippenham-based renewable energy supplier announced in

November that it was putting its entire 47.5MW generation portfolio of solar and wind farms, valued at £56.8m, up for sale.

The company said it had appointed KPMG as financial advisor regarding the disposal and that it anticipates completion of the process during Q1 2022.

AIM-listed Good Energy said the sale was part of its ongoing shift from towards decentralised energy and mobility services, driven by further investment in its electric vehicle (EV) charging point mapping platform Zap Map.

Good Energy said it intends to participate in an anticipated £7m funding round for Zap Map, to support the platform's expansion in the UK and overseas.

It said the strategy would help it to capitalise on a "rapidly growing market" in decentralised, digitised clean energy and transport services based on 100% renewable power.

The company said the strategic direction had received strong shareholder support, following the lapse of a takeover attempt by Gloucestershire-based rival Ecotricity.

Kelpi, Bath

Kelpi is developing a sustainable solution to single-use plastic film used in food packaging.
(Image: Kelpi)

Alongside researchers at the University of Bath, Kelpi is developing compostable food packaging made from seaweed in a bid to reduce the use of single-use plastics.

The start-up is looking to create a sustainable alternative to thin plastic film, often used in the food industry, which is produced with chemicals derived from fossil fuel, and can take hundreds of years to decompose.

The business says its bioplastic technology is both marine-safe and carbon neutral, and it has received private and public investment to scale its work, including from a pre-seed investment round it closed this year led by Bristol Private Equity Club (BPEC), a group of entrepreneurs in the city,

Versarien, Gloucestershire

Versarien chief executive Neill Ricketts (left) and Superdry chief executive Julian Dunkerton.
(Image: Superdry)

Advanced engineering materials company Versarien is also using graphene – but to create products for the automotive, clothing, biomedical and aerospace sectors.

The company, which was founded in an engineer's garage in Cheltenham, scaled its production capacity with a move to a new dedicated graphene facility in Longhope in the Forest of Dean and the acquisition of manufacturing assets sourced via its Spanish subsidiary.

The business has continued to commercialise its environmentally-focused technology, and in November announced a three-year partnership with fellow Gloucestershire firm

Superdry to make graphene enhanced clothing for the fashion brand.

Both firms have said the garments will have a lower environmental impact on creation and will be “unlike any others on the market.”

Diane Savory, formerly chief operating officer at Superdry and chair of Gloucestershire’s ‘GFirst’ LEP, is set to become Versarien’s non-executive chairman when incumbent James Stewart steps down at the end of the calendar year.

Mr Stewart said Ms Savory’s experience would be “invaluable” during the next stage of Versarien’s development.

Naturbeads, Bath

(From left) Professor Janet Scott, chief executive of Naturbeads Giovanna Laudisio and Professor Davide Mattia. (Image: Nic Delves-Broughton)

Another on our list with ties to the University of Bath, spin-out Naturbeads, is developing biodegradable alternatives to microplastics that are polluting the world’s oceans.

Microplastics are little beads of plastic, less than five

millimetres in length, that are used in products including toothpaste, cosmetics, adhesives and paint to act as sensory agents, structuring agents or emulsifiers.

Naturbeads' substitute is made from cellulose, a naturally occurring substance that gives plants their strength and structure, which the start-up says biodegrade into "harmless sugars".

The company's chief executive and co-founder, Giovanna Laudisio, said that wastewater treatment plants were unable to capture plastic microbeads when they are washed down sinks, leading to them travelling directly into the environment.

Ms Laudisio said: "It's estimated that 250,000 tonnes of microplastics from cosmetics and paints end up in the oceans every year – equivalent to 25 billion plastic bottles.

"We must act now because future generations will not be able to remove microplastics from the environment, they're just too small and too spread out across the globe."

Naturbeads has won a £425,000 grant from Innovate UK to explore industrial scale production of its technology for cosmetics and paints, and also its potential use in the production of lab-grown meat products.

Greenbrick Workshops, Dorset

Greenbrick Workshops co-founders Connor Winter (left) and Ben Gibbons.
(Image: Greenbrick Workshops)
The Wimborne-based start-up was founded by Ben Gibbons and Connor Winter when the pair were forced by the Covid-19 pandemic to return to the UK in March 2020 after volunteering in Nepal.

The entrepreneurs had been working with rural communities in the South Asian country to reduce the damage caused there by plastic pollution.

Greenbrick Workshops is aiming to help developing countries with technology that uses waste plastic to make building materials.

The duo were inspired by an online open source recycling project called Precious Plastic, which provides information and equipment to designers and artisans looking to establish small shops that create products from locally sourced recyclable waste.

The business has been working with non-governmental organisations in Zimbabwe and Mozambique to set up local workshops that can use their technology to build affordable houses.

Greenbrick Workshops wants to establish 1,000 workshops over the next 10 years, which it hopes would prevent around six million tonnes of carbon dioxide being released from plastic burning and during the production of clay bricks and cement.

The business estimates that this would also allow for the recycling of around 800,000 tonnes of plastic that could potentially end up in oceans – around 1% of global ocean plastic leakage.

Electrified Automation, Somerset

Saietta’s vehicle fleet all fitted with their axial flux motor technology.
(Image: Michael Austen)

Bridgwater-based Electrified Automation was founded by Lloyd Ash in April 2020, after he sold his previous electric motor manufacturing venture, Devon-based Ashwoods Electric Motors, to US firm Dana Corporation.

In October the engineering firm announced it had secured a “milestone” contract to help AIM-listed Saietta scale its motor technology for electric vehicles.

Electrified Automation will develop automated machinery and robotics for Saietta Group as it seeks to accelerate production of its axial flux motors, initially for the Asian two and three-wheel vehicle market.

The company, which grew its headcount to 15 this year, has picked up design work with “major aerospace manufacturers” and is working with other automotive companies to find winding machine equipment, while it is also involved in the off-

highway sector as well.

The company's managing director Jim Winchester also told *BusinessLive* was also looking to develop its own "next generation" platform of electric motors manufacturing.

Car Charge Go, Devon

Kate Searl, operations director of Car Charge Go

The Plymouth-based business specialises in charging equipment for electric cars and has signed up with more than 50 dealerships around the UK.

The company was set up to provide a step-by-step guide for people buying accessories for electric and hybrid cars, from purchase to installation

With multiple charger manufacturers to choose from, Car Charge Go aims to help motorists find the right one for their

vehicle, and has products from about eight different producers.

The Government is planning to end the sale of new petrol and diesel cars in the UK by 2030 and make only zero-emission cars available for sale by 2035.

Kate Searl, operations director of Car Charge Go, said at the company's official launch at BMW Ocean dealership in Plymouth in September: "We look forward to spearheading this initiative to protect the planet for future generations without sacrificing the necessity of car ownership."

The Eden Project, Cornwall

The Eden Project in Cornwall

The eco visitor attraction founded in a former clay pit near St Austell announced plans at the COP26 summit in Glasgow to

open its first South American site in Colombia, as one of several around the world.

The education charity also wants to develop “New Edens” in China, Australia, Costa Rica, New Zealand, Africa and the USA, alongside more planned for the UK including in Morecambe, Dundee, Derry-Londonderry, and Portland.

Its ultimate ambition is to build a new Eden on every inhabited continent, as it seeks to continue highlighting the importance of the natural world..

The Eden Project International team has been working alongside the Colombian Ministry of the Environment and the educational Humboldt Institute to establish how an Eden Project in the country’s Meta region might look.

The process will include the early stages of site investigation and vision development, with the first phase expected to be completed by the end of 2021.