



Is Brexit Britain still taking the lead in the fight against climate change?

Jim Totty, Earth Capital

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The strength of UK innovation means it will continue to lead the world in climate action post-Brexit, argues Earth Capital's Jim Totty

Despite Brexit uncertainty, the UK remains at the forefront of the fight against climate change. Its key strengths are its demand for sustainability, and its sustainable entrepreneurship. The UK excels at many key sectors combatting climate change such as renewables, energy efficiency, energy storage, mobility, and food and agriculture.

UK Position on the World Stage

In 2019, the UK continues to be at the forefront of the global fight against climate change. The UK government's Clean Growth Strategy shows that of the G7 countries, the UK has reduced emissions per person fastest since 1990. It has the most productive science base in the G7 and is the third most innovative country in the world.

In commercial markets, we have seen the collapse of UK coal-fired power generation as renewable energy takes an ever-increasing market share. In May 2019, the UK achieved eighteen consecutive days without coal-fired generation, with the expectation this record will soon be broken again. Offshore wind CfD contract prices have fallen as low as £57.50/MWh.

There are already 430,000 jobs in UK low-carbon businesses, and the UK provides an attractive environment and jurisdiction for sustainable entrepreneurs and technology developers.

Opportunities to deploy industrial products and services are numerous and the UK offers a well-developed base to build businesses before expanding into global, high growth markets. There is a strong and well-respected legal jurisdiction to attract investors and commercial counterparties, and a **long-standing culture of corporate governance**.

Finally, the UK offers unrivalled thought leadership in winning hearts and minds for sustainability. David Attenborough has yet again taken the lead globally in setting out the urgency to act. All these incredible strengths combine to put Brexit Britain at the forefront of the fight against climate change.

Threats to UK funding

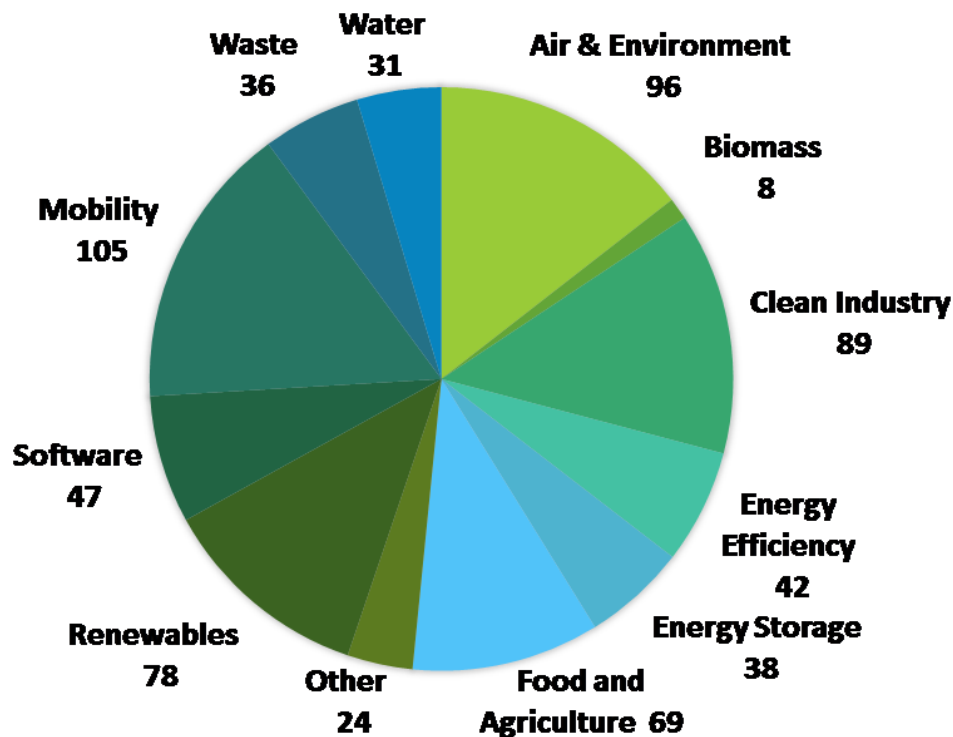
Significant concerns have been raised about the availability of capital, after European Investment Fund investments in the UK fell 91 per cent after the Brexit vote. The Green and Sustainability investment sector is more vulnerable than others in venture capital and private equity, as it has neither the well parameterised venture funding food chain of life science, nor the capital light business models of digital and software. UK sustainable start-ups must now make their case for funding in a global investment marketplace.

UK Sustainable Entrepreneurship

However UK entrepreneurs are making this case strongly, by building the new technologies and services needed to transform global industries into sustainable business models. Despite Brexit uncertainty, levels of entrepreneurial activity have never been higher as measured by the numbers of sustainability start-ups we are seeing.

In 2018 we reviewed over 400 incoming sustainable impact technology and services businesses, a record year, yet in 2019 we are on course to beat this record again. The number of UK sustainable investment opportunities we have reviewed has already passed 250 before the end of June 2019.

UK SUSTAINABLE STARTUPS BY SECTOR 2018 AND 2019



This level of start-ups originates from an active network in UK sustainable investment covering Corporate Finance and Professional Services firms, Fund Managers, invited engagements at conferences, Management teams, and government. This network is at the heart of our successful private equity track record in UK sustainable impact investing.

Stability and Growth for UK Green Industries post Brexit

The UK leads the word in the fight against climate change in investment in a range of sustainability technology and services.

In **renewable energy**, there are many ground-breaking technologies aiming to increase the output of solar and wind generation. Novel coatings for silicon cells are being developed which allow more of the solar spectrum to be harvested. The UK also leads in pioneering off-grid solar solutions for both developed and developing markets. In wind, developments include new magnetic technologies for turbine generation to avoid dependence on rare earth materials and new turbine blade technologies to increase efficiency and capacity factor.

Although Lithium-ion batteries have become the dominant technology in **Electrical storage**, to play a full part in the fight against climate change they need to answer many questions. Lithium and cobalt chemistries have major supply-chain issues with adverse environmental and social impacts. Safety concerns have arisen as the technology has been pushed to its limits. Can they address long duration storage needs, and can costs be reduced below \$100/kWh? Can degradation become better understood and can battery management systems solve lifetime issues?

But the UK is full of storage innovation. New chemistries are being developed to reduce the reliance on expensive and scarce lithium and cobalt. UK Hydrogen electrolyzers and fuel cells are already in global markets. It is leading in flow battery technology whose scalability offers a solution to long duration demands. Flywheels, gravitational energy storage and liquid and compressed air storage are also under development.

Mobility is one of the most exciting sectors in sustainability as all 20th century concepts of vehicle ownership, driving and fuelling are set to be overturned in the next 20 years. The global automobile industry is facing existential threats from electrification and autonomisation. Yet again it's the UK that leads in global innovation. Drones are offering technology and services in environmental monitoring, agriculture and green logistics. Larger electric aircraft are now in the early stages of testing, but as battery weight and cost continues to decline, and UK start-ups and major manufacturers such as Rolls Royce are now developing electric short-haul aviation.

On the ground, electric vehicles are demanding many solutions in charging and batteries. The UK is ahead in the rollout of charging infrastructure and the smart grid services required to support it. Our start-ups are also addressing the even greater disruption on the horizon from autonomous vehicles. Sustainable logistics, both long distance and last mile, are also being developed by many UK businesses.

Food and Agriculture is one of the fastest growing sectors in sustainable innovation and again the UK is a pioneering force. Flying drones for crop diagnostics are saving water and fertiliser, and ground-based drones for precision weeding eliminating the need for blanket spraying of herbicide. There are many indoor fish farms, and artificial protein is a very 'hot' segment of the market. Vertical farming and hydroponics are transforming how high-value herbs and vegetables are grown. Finally, 'farm to fork' supply chain management is helping shrink the wastage in the food supply chain.

Yes, Brexit Britain continues to be at the forefront of the global fight against climate change. Join us in the sustainable investment opportunities it offers!

*Jim Totty is managing partner at **Earth Capital***