

INNOVATION CRITICAL SUMMARY

SCOTLAND'S NET ZERO MISSION AND
CLIMATE TECH OPPORTUNITY



SUMMARY

Net Zero: our greatest innovation challenge

Achieving global net zero will be humankind's greatest innovation challenge. We will need to rapidly and radically transform and decarbonise our economy and our society. We will need to collaborate and innovate better and faster than ever before.

As we look ahead to COP26, the global climate summit in November in Glasgow, the momentum behind net zero is strong and growing. The number of commitments globally to net zero by countries, regions, places, businesses and sectors doubled last year.

Scotland's target for net zero by 2045 is ambitious and world leading. The Scottish Government was the first government in the world to declare a Climate Emergency. But now rhetoric needs to be turned into reality, pledges into action and challenges into solutions.

Governments will need to work together with academia, business and industry as well as citizens, consumers and communities to develop, test and adopt 'Climate Tech' – digital technologies like Artificial Intelligence (AI), data analytics or the Internet of Things which can be used to support climate action.

Innovation will be critical to achieving our net zero mission. We do not yet have all the Climate Tech we will need to achieve net zero. Up to 75% of the emissions reductions we need to achieve net zero are

dependent on technologies which are immature, have not been deployed at scale or have not even been invented yet. But together we can do it.

Defining Climate Tech

Climate Tech refers to digital technologies and their applications which support or enable climate action by businesses, citizens, communities, governments, households or organisations to reduce greenhouse gas emissions or address the impacts of climate change

Climate Tech: Scotland's strategic opportunity

Climate Tech is a global market with huge growth potential. Globally, billions of pounds of investment is being directed into this nascent sector as demand snowballs for solutions to net zero challenges. However, in Scotland there are issues around access to finance as well as the pace of innovation and adoption, skills, diversity and regulation.

Climate Tech represents a major strategic opportunity for the Scottish economy. Scotland is home to a growing ecosystem of Climate Tech businesses, organisations and partnerships across the public, private and third sectors.

Our engagement with businesses and start-ups suggests that Scotland has major strengths in Climate Tech in the Built Environment and Waste & Circular

Economy due to expertise in data analytics, as well as major opportunities in Agriculture and Land Use, Land Use Change & Forestry due to our natural capital assets.

From harnessing the power of AI and blockchain to eliminate food waste or improve energy efficiency, to using data analytics and the Internet of Things to enhance biodiversity or monitor pollution, Scottish entrepreneurs, innovators and researchers are delivering affordable, effective and scalable solutions to the challenges of achieving net zero.

Scotland has produced three tech 'unicorns' (start-ups now worth over \$1bn), but none yet in the Climate Tech sector. Hosting COP26 gives Scotland one of the biggest shop windows in the world and an unparalleled opportunity to attract inward investment which can grow our Climate Tech sector.

This report identifies significant assets and capabilities which can be leveraged to realise its huge growth potential. Our tech sector is the second fastest growing sector of the Scottish economy and has more new start-ups in the UK than anywhere outside London and the South East of England. More than 1 in 3 jobs in Edinburgh are tech jobs.

Scotland's enterprise, innovation and skills agencies offer a wide range of business and innovation support, from accelerator programmes to innovation centres. Our world-class colleges and universities possess leading research expertise in key sectors and technologies for climate adaptation and mitigation and can play a key role in educating the next generation.

Scotland is also home to one of the most developed angel investment communities in Europe, as well as one of the continent's leading financial centres as a significant hub for fund management and a hotspot for innovation in FinTech.

Our ambition, therefore, must be to strengthen and expand our ecosystem to establish Scotland as a leading innovator and exporter of Climate Tech, where entrepreneurs, innovators and investors choose to develop, test, produce and roll out new digital technologies for climate action.

Climate Tech is vital for the future of our economy and our planet. Growing Scotland's Climate Tech sector will be essential to deliver a just transition to net zero by 2045 and will create green jobs, boost exports, innovation and productivity and support global economic and environmental prosperity.

Realising our growth potential

Investment in Scotland's Climate Tech sector grew by 35% in 2020. Current projections suggest it could hit £123m by 2025.

We are calling for a 'Climate Tech Moonshot' with two new and ambitious national targets:

- ➔ at least one Climate Tech unicorn worth over \$1bn in Scotland by 2025
- ➔ increase investment in Climate Tech sector to £250m by 2025

Voices of Business

Our full report includes case studies of 14 innovative Climate Tech start-ups, businesses and partnerships in Scotland and their digital technologies:

- [arbnco](#)
- [Bellrock Technology](#)
- [BT and University of Stirling](#)
- [Cascade Water Products](#)
- [Dunelm Energy](#)
- [HappyPorch](#)
- [Iceni Earth](#)
- [Integrated Environmental Solutions](#)
- [IntelliDigest](#)
- [Pawprint](#)
- [QloTech](#)
- [Reath](#)
- [Space Intelligence](#)
- [Wyoming Interactive](#)

What is to be done? Our recommendations

In this report, we identify 7 major challenges to achieving our ambitious vision for Climate Tech in Scotland – and offer 10 recommendations to deliver change:

Challenge #1

How can we deliver an ambitious vision and strategy for Scotland's Climate Tech sector?

- ➔ Launch Scotland's 'Climate Tech Moonshot' before COP26 to inspire and coalesce ambition, action and collaboration around a national innovation mission and achieve at least one Climate Tech unicorn in Scotland by 2025

Challenge #2

How can we close the Scottish start-up funding gap?

- ➔ Strengthen investment in early-stage innovation and the 'missing middle' of Climate Tech businesses with new public grant funding and targeted patient capital

Challenge #3

How can we accelerate the pace of Climate Tech innovation and adoption?

- ➔ Pioneer and roll out new innovation models which accelerate financing, co-design markets and boost scaling by bringing together partnerships of innovators, investors and industry to create or co-design new markets and commercial opportunities

Challenge #4

How can we nurture and grow Scotland's Climate Tech ecosystem?

- ➔ Launch ClimateTech Scotland to establish, manage and grow a new Climate Tech Accelerator and Cluster, a new organisation based on the FinTech Scotland model providing enhanced and integrated funding and support for Climate Tech start-ups

Challenge #5

How can we close Scotland's green and digital skills gaps?

- ➔ Recognise carbon and digital literacy as essential skills for the 21st century and embed them across education and learning including early years, primary, secondary and tertiary education, professional learning and work-based learning
- ➔ Empower everyone to reskill or upskill at any stage of their life or career with an equal share of a new Reskilling and Upskilling Fund open to every Scottish adult

Challenge #6

How can we increase diversity and open up opportunity in Climate Tech?

- ➔ Strategic priority for diversity across Climate Tech sector with commitment to accessibility, inclusivity and fairness from all businesses, organisations and leaders

Challenge #7

How can Scotland be a Living Lab for Climate Tech Innovation?

- ➔ Increase open data sharing and invest in key infrastructure like digital connectivity and green data centres
- ➔ Transform procurement and scale-up CivTech across Scotland's public sector
- ➔ Establish a Centre of Future Regulation to inform and advise government, parliament, industry and society on emerging regulatory issues from new innovations and sectors



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