

# THE SOUTH OF SCOTLAND: NET ZERO STARTS HERE



A guide to investing in the  
Just Transition to Net Zero  
August 2023



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# FOREWORD



Loch Trool in the Galloway Forest Park, Dumfries and Galloway



SOSE is absolutely committed to helping lead the South of Scotland to becoming the UK's first Net Zero region, highlighted by our Five-Year Action Plan which has a key theme of Accelerating Net Zero and nature-positive solutions.

The publication of the South of Scotland Net Zero Investment Guide is a critical document to help achieving this shared ambition, laying out everything our region has to offer to investors.

**Jane Morrison-Ross**  
Chief Executive of South of Scotland Enterprise



I am delighted to see the publication of the South of Scotland's first ever Net Zero Investment Guide.

Alongside our partners in the South of Scotland Regional Economic Partnership, we have a vision to deliver a green, fair and flourishing region. This prospectus will support this ambition by maximising the opportunities our fantastic region offers, at the same time as addressing climate change and biodiversity loss.

**Professor Russel Griggs**  
Chair of South of Scotland Enterprise



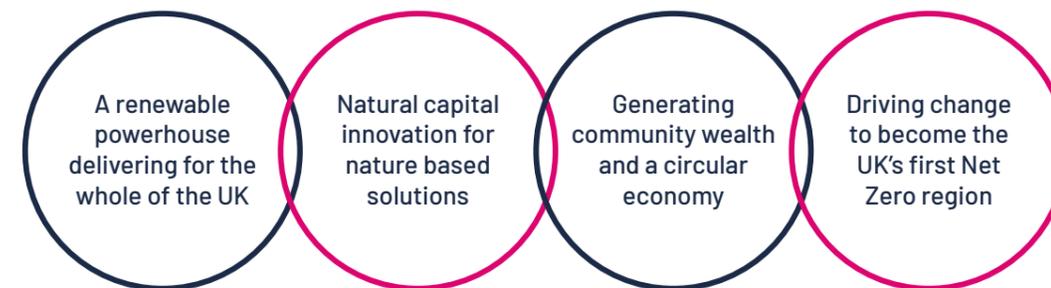
A Just Transition to Net Zero is the greatest challenge of our time and as a progressive society we want to tackle the dual climate & nature crisis whilst developing a fairer and more equal society. We know that doing good is great for businesses and enterprising communities that's why SOSE have set out our clear intentions in this Investment Guide to attract the right kind of investment that works hand-in-hand with nature to help deliver our ambitions!

**Dr Martin Valenti**  
Director of Net Zero of South of Scotland Enterprise

# WELCOME TO THE SOUTH OF SCOTLAND – A REGION OF FIRSTS AND WHERE SCOTLAND'S FUTURE ECONOMY STARTS



Scotland's first medical cannabis production facility. Hilltop Leaf, Dumfries and Galloway



## Innovation is in our DNA

Scotland is well and truly a nation of firsts. From televisions to tidal turbines and telephones to penicillin, Scottish innovation continues to shape the modern world. It is only fitting, then, that the South of Scotland is shaping the world of tomorrow through a just transition to Net Zero.

With rich natural resources, a strong research base and a supportive business environment, the South of Scotland is home to a thriving community of entrepreneurs, start-ups and well-established companies that are meeting the Net Zero challenge in innovative ways.

## Our heritage

The region draws on a proud pioneering tradition, having given the world four Nobel laureates and the literary genius of Robert Burns, Sir Walter Scott, James Hogg and J M Barrie. Today, the region continues to be one of significant opportunities – the perfect intersection between a rich heritage and the innovative thinking shaping the industries of the future.

The strength of the region's pioneering spirits is nowhere more evident than in our ambition to be the UK's first Net Zero region and the activities that are making this a reality.

## A region of firsts

Having attracted world leading innovation for Net Zero, including

the UK's first fully operational carbon capture technology and Europe's first LOOP decarbonising graphene production system, the South of Scotland continues to lead the way as the vanguard of a just transition to Net Zero. The region contributes significantly to the country's renewable energy output, providing a competitive platform for those seeking secure, green electricity for energy intensive manufacturing, synthetic fuels production and data centres. This is complemented by a wealth of opportunities in the blue economy from coast to coast.

## A renewable powerhouse

The South of Scotland is home to a dynamic energy transition sector. The region hosts almost 10% of UK onshore wind production and generates over 15% of all of Scotland's renewable electricity. It should come as no surprise, then, that the region boasts an ideal environment for offshore and onshore wind, community-based renewable heat schemes and hydrogen storage facilities.

The recent high-profile investments in the region outlined later in this document highlight the economic opportunities and the market affinity for Net Zero-linked jobs, made possible through projects such as the [Borderlands Energy Master Plan](#) – with over £1.1 million already awarded towards developing low carbon economic opportunities.

## Our natural capital

As the seat of Scotland's natural capital, the region possesses an abundance and diversity of natural resources that support and shape the region's economy and the businesses operating here.

With a strong agricultural tradition, both arable and dairy, the region's DNA is intertwined with a sector that is constantly innovating. This is enabling the South of Scotland to take the lead on exciting new sectors like agri-tech and regenerative agriculture, made possible through the region's commitment to being green, fair and flourishing and the collaboration of our partners in pursuit of this goal.

The Borderlands Natural Capital Innovation Zone is the first of its kind in the UK and will act as a catalyst for the delivery of natural based solutions to drive the Wellbeing Economy. £5 million will be invested in the Zone, which includes six pilot projects. The programme will harness the region's work on a range of activities, establishing a robust data framework to validate decision making on how land is managed and create a Natural Capital investment prospectus.

## A region of green growth

The South of Scotland has ambitions to become a centre of excellence for innovative green growth and is supported by the Borderlands Inclusive Growth Deal, which draws on the region's outstanding natural resources and invest in low carbon energy.

Local projects such as the [CIVTECH Rethink Carbon platform](#), which looks to discover how technology can help landowners better understand the potential for carbon storage on their land, and the [AIMS](#) project, which provides SMEs with access to advanced

manufacturing technologies through a group of innovation facilities, are helping to create the perfect conditions for enterprising green companies to emerge and excel.

The region is also home to the [Galloway and Southern Ayrshire UNESCO Biosphere](#), a 9800km<sup>2</sup> internationally recognised designation that covers land and sea. Designated in 2012 it works with businesses and communities in collaborative partnerships to deliver sustainability solutions for conservation, learning and the local economy. Galloway and Southern Ayrshire was the first UNESCO Biosphere in Scotland, which is a participatory not regulatory body that brings diverse, multi-sector groups together to work in partnerships for a sustainable future.

## Our talent and skills

Complementing the region's existing low-carbon workforce, the South of Scotland offers excellent educational institutes. The region's academic institutions are already teaching curricula designed to give tomorrow's talent the skills they need to excel and deliver in the economy of the future.

Institutions with a presence in the region include:

- Scotland's Rural College (SRUC)(Barony Campus and Crichton Campus)
- Borders College (multiple campuses)
- Dumfries & Galloway College (Dumfries & Stranraer)
- Edinburgh Napier University (Glentress)
- University of Glasgow (Dumfries)
- Heriot-Watt University (Galashiels)
- University of West of Scotland (Dumfries)
- Open University (established links with colleges and universities in the region)

The South of Scotland is working to develop retrofit and green skills through the development of a Centre of Excellence. This Centre will provide specialist facilities to accelerate the delivery of training programmes and support the acquisition of accreditations by current trades.

## Driving change and enabling investment

Our commitment to offering an unrivalled opportunity to be part of the just transition to Net Zero is reflected in the extensive investment support environment within the South of Scotland, as part of the broader support ecosystem available across Scotland, and investors should take comfort in the expanse of support available at an international, national, regional and local level – including [Scottish Development International](#), helping businesses from around the world to do business in or with Scotland.

Whether it be an established business, a start-up, innovative thinking or a new entrant into the region, South of Scotland Enterprise (SOSE) offers tailored assistance to ensure success – providing dedicated, bespoke business guidance to any enterprise with an interest in Dumfries & Galloway or Scottish Borders, whatever the scale or stage on the enterprise journey.

As well as targeted support from SOSE, the region benefits from larger, strategic initiatives to support economic growth. [The Borderlands Inclusive Growth Deal](#) is set to further develop the region, with significant investment planned. The Deal will see local government, the third sector, businesses and higher and further education work together to enable sustainable economic growth in the South of Scotland. It will deliver sustained, secure economic

and community-wide prosperity and transform the region with a public and private sector cash injection totalling £452 million. This investment will boost the region's potential by improving places, enabling infrastructure, encouraging green growth and supporting business, innovation and skills. In addition, the [Scottish National Investment Bank](#) will provide patient (long term) capital to businesses and projects throughout Scotland to support the development of a fairer, more sustainable economy

## Our future

With a new economic development agency that thinks differently and significant investment through the region's two growth deals, the South of Scotland is rightly confident about its future and the exciting opportunities created by a just transition to Net Zero. The region is blessed with an abundance of opportunities that are making this a reality – and you can be a part of it. No matter the scale of your ambition, the South of Scotland has the space, the natural resources, the people and the expertise to realise and deliver your vision. Something exciting is happening in the South of Scotland – shaped by ambition, led by bold individuals, entrepreneurs, communities and organisations.

To find out more about the investment opportunities available to you, please see the [Invest in South of Scotland website](#).

**The just transition to Net Zero is happening now, and it is happening in the South of Scotland – come join us as we build the economy of the future.**



# SUCCESS STORIES



Natural Power are an international renewable energy consultancy employing 500 specialists, headquartered in beautiful rural Galloway. The South of Scotland is the perfect welcoming environment for a modern business to locate. It has abundant cheap renewable electricity, as well as some of the most secure electrical networks in Europe, suitable for energy intensive business or manufacturing. Colleges and Universities work with business to supply a loyal and reliable work force. Good access to motorways, ports, and airports. This region offers the environment and the infrastructure for any new business looking for a great quality of life in the clean energy future.

**Jeremy Sainsbury**  
Director, Natural Power, Castle Douglas



Agriculture's transition to net zero is critical in the fight against climate change, with livestock production both a major challenge and a huge opportunity. Projects such as Dairy Nexus and the Digital Dairy Chain are multi-million-pound platforms which provide access to international, national and SME companies from across the dairy sector and academia. We are already using these platforms to address the decarbonisation of the dairy sector, using technologies such as digital twins and sensors to accelerate innovation and improve efficiency. The platform underpins opportunities for new projects to enable new technologies to be trialled and brought to market faster.

**Professor Nick Sparks**  
Dean of the South and West Faculty, SRUC,  
Barony Campus, Dumfries



Muirhall Energy are proud of our heritage as a renewable energy company operating in the South of Scotland. We have expanded from a small team in a farm cottage to having over 50 employees across our Muirhall Farm headquarters and our South of Scotland office in Hawick. We have both proposed and operational wind farms within the South of Scotland and have developed relationships with the fantastic communities across this area and see this region as essential to the delivery of net zero and to the realisation of Scotland's just transition ambitions.

**Lesley McNeil**  
Head of Communication & Communities,  
Muirhall Energy, Hawick



Historically businesses developed close raw materials supplies but in today's interconnected, digitally enabled world the selection of Smart Green Shipping's HQ location was driven by working alongside people with shared vision and ambition. The overarching challenge of our times is to address the climate and nature emergencies swiftly and creatively. It's a monumental task and it's vitally important to work with people who embrace the opportunities emerging from the need to reach zero emissions urgently and to reverse the depletion of our shared eco-systems. SOSE are the most enlightened, ambitious, and supportive agency SGS has worked with in its 10+ year history and it was SOSE's worldview that drew us to locate our HQ in the South of Scotland.

**Di Gilpin**  
Founder & CEO, Smart Green Shipping, Dumfries

# OUR CALL TO ACTION – BUILDING THE ECONOMY OF THE FUTURE

## Summary

This guide serves to showcase the character of investment opportunities created by the just transition to Net Zero in the South of Scotland. The South of Scotland is uniquely placed to meet the challenges of the decarbonisation journey through:

- Our renewable economy
- Our natural capital
- Our values-based economy

It is through these pillars that the South of Scotland is delivering our ambition to be the UK's first Net Zero region and building the economy of the future. Our climate and nature roles are enshrined in our founding legislation that sets out our aims to further the sustainable social and economic development of the South and to improve the region's amenity and environment.

## Meeting the Net Zero challenge

The Scottish Government has set ambitious and legally binding targets for Net Zero, including a 75% reduction in emissions by 2030 and ultimately to be a Net Zero economy by 2045. The opportunities for transitioning the economy in the South of Scotland are significant, as we are a region with abundant natural capital, and uniquely located at the heart of the UK. Not only is our region the gateway to Scotland, but its central location makes it a gateway to England, Northern Ireland and the EU too. As a region aspiring to be climate and nature positive, we want to go further and faster than the rest of the UK to decarbonise processes, retrofit buildings, improve industrial infrastructure and more.

## A region of shared ambition

Led by South of Scotland Enterprise, Dumfries and Galloway Council and Scottish Borders Council, the [South of Scotland Regional Economic Partnership](#) brings together the private, public, third and education sectors to focus on the region's success. Aligned behind the South of Scotland Regional Economic Strategy, they are working together to deliver the vision of a "Green, Fair and Flourishing" South of Scotland by 2031. Across the region, there is a shared understanding and ambition that to maximise opportunities in addressing climate change and biodiversity loss we should be able to present a regional perspective on the South of Scotland's impact and potential pathways to net zero.

## A region of opportunity

With an unrivalled geographic location, the South of Scotland is ideally situated to reach North, South and far beyond. It has a population of over a quarter of a million people and is within three hours' drive of 14 million people, giving it a locational advantage unlike any other region in the UK. The region also possesses a number of seaports, including Cairnryan – the only seaport connecting Scotland with Ireland.

## Building the economy of the future

The investment cases outlined in this guide demonstrate the exciting wealth of opportunities to be part of the Net Zero transition in the South of Scotland. From carbon capture to hydrogen, regenerative agriculture to dairy innovation, shared ownership to community wealth building and delivering nature based solutions, the transition to Net Zero is happening now. As the seat of Scotland's natural capital, it's no wonder that the South of Scotland is leading the charge on building the economy of the future – and you can be part of it.

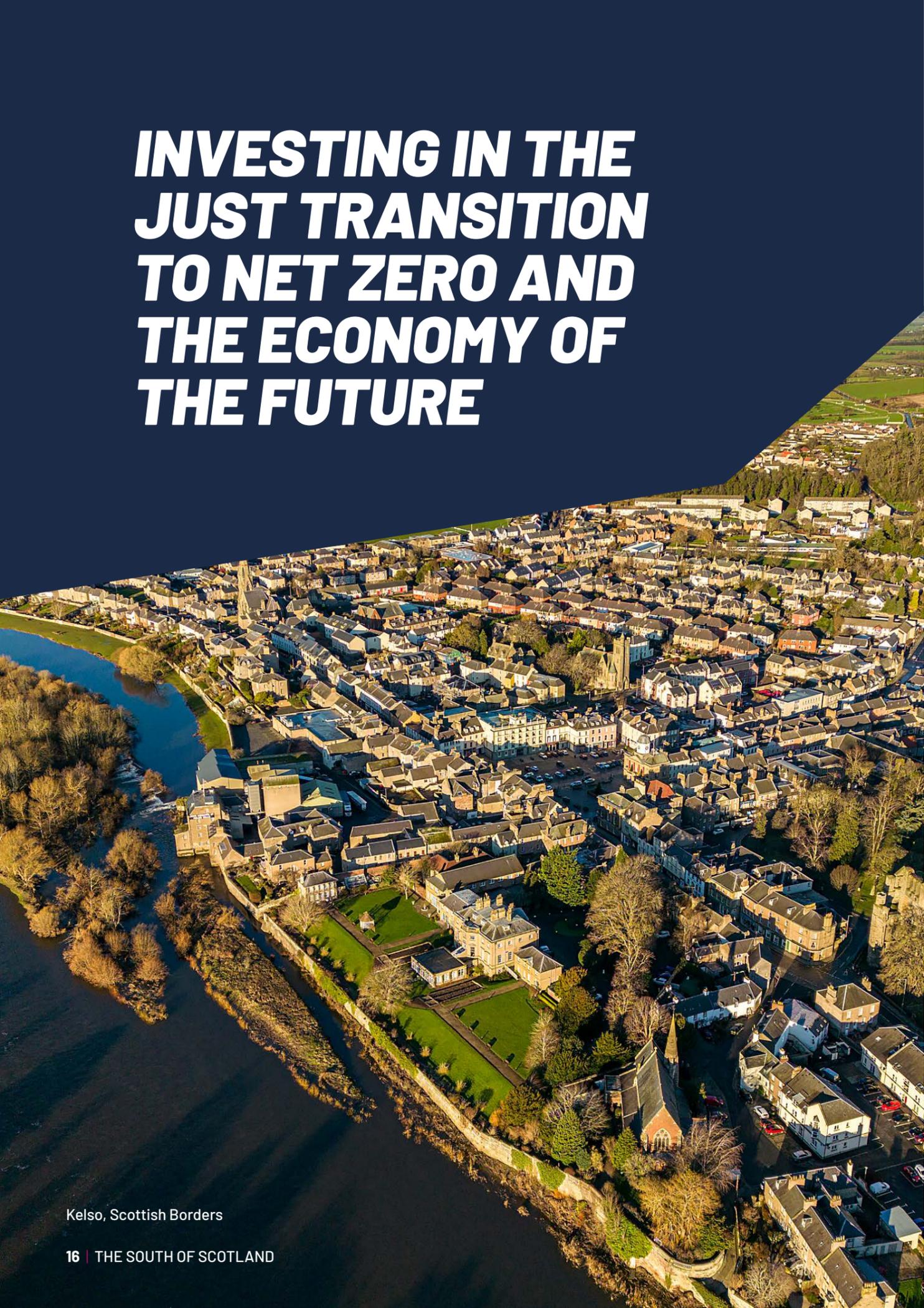
As next steps, we will be taking forward new work to build on the investment cases outlined in this guide to help prospective investors understand the specific opportunities available to them and the value this can create. We will work with investors and our partners to make the objectives for Net Zero outlined in this investment opportunities guide a reality and to fulfil our ambition of being the UK's first Net Zero region.

To find out more about the investment opportunities available to you, please see the [Invest in South of Scotland website](#).

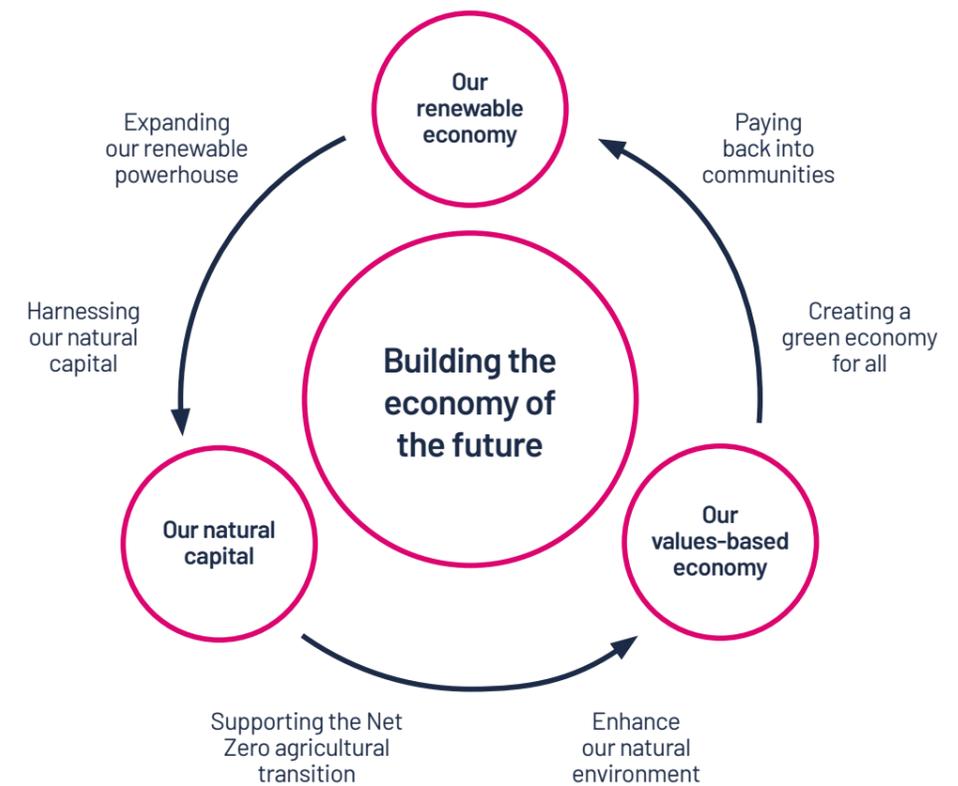
## The Invest in South of Scotland partners:



# INVESTING IN THE JUST TRANSITION TO NET ZERO AND THE ECONOMY OF THE FUTURE



Kelso, Scottish Borders



## Summary

The investment cases outlined in this section seek to showcase the potential opportunities to harness the economic growth effects of the just transition to Net Zero and help build the economy of the future. These are grouped as follows:

### 1. Our renewable economy

The transition to Net Zero in the South of Scotland has no firmer roots than in the production of renewable energy, with the region punching well above its weight with regard to its renewable energy production – accounting for 9.6% and 7.4% of the UK’s onshore wind and hydropower output, respectively.

### 2. Our natural capital

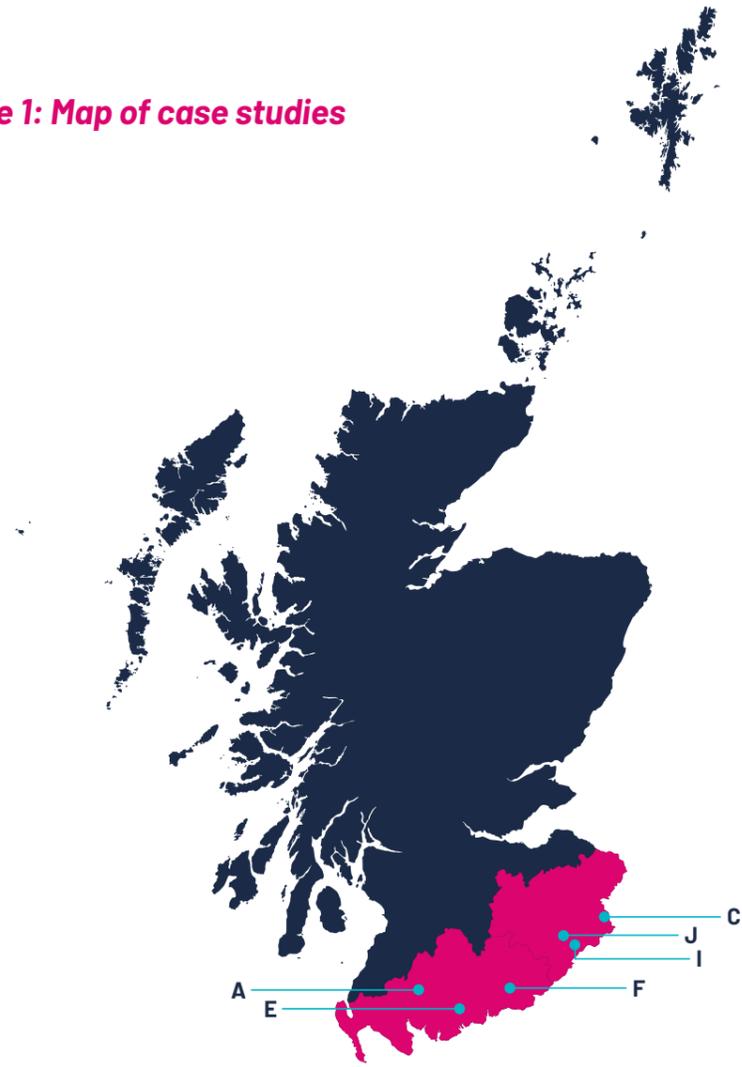
The region’s natural assets are unequalled and provide significant and varied opportunities for nature based solutions to deliver

carbon sequestration, biodiversity enhancement, regenerative agriculture and innovative land management and marine projects. These opportunities will also help to build more resilient communities and economies whilst allowing nature to thrive. With high quality natural assets, a fifth of Scotland’s land mass and a unique geographical location, natural capital is one of the region’s key investment opportunities.

### 3. Our values-based economy

The just transition to Net Zero goes further than simply what we deliver – how we deliver it is as important. The just transition to Net Zero presents an unrivalled opportunity to pay back into the South’s communities by generating shared wealth and economic benefit and harnessing the talent pipelines already anticipating the skills of the future economy.

Figure 1: Map of case studies



<b>1. Our renewable economy</b>
<b>A</b> Glenmuckloch Pumped Storage Hydro scheme
<b>B</b> Future onshore wind opportunities (whole region)
<b>C</b> Eccles Battery Project
<b>D</b> Hydrogen market opportunities (various)
<b>2. Our natural capital</b>
<b>E</b> Carbon Capture Scotland
<b>F</b> Dairy innovation (Digital Dairy Chain and the Dairy Nexus)
<b>G</b> Wild Heart Expansion Project (various)
<b>3. Our values-based economy</b>
<b>H</b> Retrofit market and supply chain development (whole region)
<b>I</b> IndiNature insulation
<b>J</b> Jackson Distillers Limited



# OPPORTUNITY 1: OUR RENEWABLE ECONOMY

Nowhere is the just transition to Net Zero more evident in the South of Scotland than in the region's unrivalled position as a renewable energy powerhouse. The region offers a truly competitive advantage in the race to Net Zero – generating 37.5 MWh of renewable electricity for every household in 2020, compared to 11.9MWh per household in Scotland and 5.0MWh for the rest of the UK. In delivering a just transition to Net Zero, our renewable economy presents a unique opportunity to generate economic growth and jobs like no other region in the UK.

### A renewable powerhouse

The South of Scotland already makes a far greater per capita share of Scotland's renewable energy generation at 16%, with 17% of Scotland's onshore wind output, 20% of plant biomass and 8% of Scotland's hydropower. The South of Scotland produced 4.80 TWh of renewable electricity in 2020, but the region's domestic and non-domestic metered premises consumed just 1.33 TWh of power in that year, indicating that the South already produced approximately the equivalent to 3.6 times as much renewable power than all electricity consumed across the region.

In addition to generating a surplus of energy with region, being at the centre of the UK places the South of Scotland at the heart of electrical transmission across the nation, providing one of the most secure grids in Europe.

Our renewable economy sees its strongest roots in the production of wind power, of which the region was an early adopter.

When commissioned in 2010, the 58 turbine, 174MW [Robin Rigg offshore wind farm](#) was Scotland's first commercial offshore wind farm and the second largest in UK waters. Today, the farm provides enough power for 117,000

households. Project management of the build was undertaken by [Natural Power](#) – an international group headquartered in Castle Douglas which employs over 460 people that have now scaled to operating in over 68 countries.

[Crystal Rig Wind Farm](#) (also managed by Natural Power) is an onshore wind farm located on the Lammermuir Hills in the Scottish Borders. When completed in May 2004, it represented the largest wind farm in Scotland and, as a result of three extension projects, is currently the second largest onshore wind farm in the UK, both in terms of nameplate capacity (250MW) and number of turbines (85).

Away from wind, the region also produces up to 1000 kWh/m<sup>2</sup> per year of solar energy in places – more similar to the South East of England than the rest of Scotland. The South of Scotland's coasts on the Solway Firth and the North Sea also provide unique conditions for tidal power, with Scotland's highest tidal ranges found in the inner Solway Firth (7-8 metres mean spring tidal range).

It is successes like these that have enabled the South of Scotland to be a renewable powerhouse. However, it is new investment into the region that is enabling us to meet the challenges of the just transition to Net Zero.



Glenmuckloch Pumped Storage Hydro, Dumfries and Galloway  
Photo: Tony Marsh

### Case Study A: Glenmuckloch Pumped Storage Hydro (PSH) Scheme

Foresight Energy Infrastructure Partner, Foresight Group's flagship energy transition fund, is investing in a £250 million [Glenmuckloch PSH project](#) located at the disused opencast coal mine near Kirkconnel, in Upper Nithsdale, Dumfries and Galloway.

It will see the construction of a co-located 1,600 MWh capacity PSH plant and a 33.6 MW wind farm with power capable of being transmitted at a rate of 210 MW per hour, providing eight hours of storage capacity. Using two 105 MW reversible hydro-turbines, the site will store power during periods of excess energy supply and release stored energy at times of peak demand. The co-located wind farm will comprise of 8 x 4.2 MW turbines and will have the ability, via a direct connection, to power the PSH plant.

### Case Study B: Future on-shore wind opportunities

As of July 2022, some 28 further consented on-shore wind farms were located in the region with a total of some 875MW of additional capacity yet to be constructed and some 140MW under construction. There were a further 1.6GW in planning and it is estimated that, in total, 2GW or more of onshore wind is likely to be constructed in the region by 2030, if the Scottish Government's draft target of an additional 12 GW of new capacity is to be delivered by that date.

The recent [On-shore Wind Prospectus](#) suggests that approximately 17,000 jobs and the equivalent of £27.8 billion in gross value added could be achieved in Scotland if we are able to deploy an additional 12 GW by 2030. This equates to some £2.32 billion in gross value added per GW installed or 1,416 jobs per GW.



Clatteringshaw Galloway Hydro Scheme, Dumfries and Galloway

Given the anticipated 2GW of projects yet to be built in the South of Scotland region, this is expected to generate some £4.64 billion in annual gross value added or over 2,800 jobs in the region once operational.

### **Building the grid of the future**

In order to build on the successes of the region's existing renewable energy provision, the just transition to Net Zero must truly be futureproof. In the case of the South of Scotland's power provision, the region's capacity to store and supply green energy will be vital to building the economy of the future.

In the realm of road transport, there is great growth potential for electric vehicle (EV) charging infrastructure. The South of Scotland has, on average, better EV charging provision than the rest of the UK, with 85.0 and 55.5 charging devices per 100,000 people in Dumfries and Galloway and Scottish Borders, respectively; the UK average

is 51.6 charging devices per 100,000 people. Despite this, almost 42% of the South's homes do not have access to off-street parking – presenting an immediate opportunity to help build the economy of the future. A number of developers, such as Forev and Ubitricity (Shell), are already showing interest in investing in the region.

### **Case Study C: Eccles Battery Project**

[The Eccles Battery Project](#), by developer Zenobé, are developing a lithium-ion battery storage site. The site's 132 battery units will provide a total 500MW of export capacity. The site will be located close to a key sub-station in Berwickshire astride the electricity interconnector route to England. Zenobé claim, once commissioned and operational by 2026, it would be one of the biggest schemes of its kind in Europe, making a "significant contribution" towards meeting carbon reduction targets, as part of a £750m investment into three sites in Scotland.

### **The hydrogen revolution and future fuels**

Investment in hydrogen, whether it be production, storage or supply, presents a truly unique opportunity to build the economy of the future.

The South of Scotland's abundance of wind, tides and reliable water resources create an ideal support environment for electrolysis – bolstered by an experienced energy sector actively pivoting towards the deployment of hydrogen as part of the just transition to Net Zero.

The South of Scotland's geography offers further advantages to harness the positive economic growth effects of hydrogen. The region offers easy access to existing gas transmission pipelines (including the Scotland to Northern Ireland Pipeline) and future 'Project Union' (National Grid) and 'European Backbone' transmission infrastructure. Today, the region already has an emerging hydrogen supply chain cluster, including hydrogen-enabled industrial boilers and key development sites such as Chapelcross – offering up to 500 acres of development potential for green hydrogen production.

As well as meeting the nation's power needs, decarbonising fuels presents new opportunities to revolutionise the region's road transport. The South of Scotland generates a proportionally high share (5.9%) of Scotland's personal transport-related energy consumption, and 10.6% of Scotland's freight transport (HGV and LGV) energy consumption – the former reflecting rurality and tourism and the latter reflecting the region's strategic role for haulage routes between Scotland, the Island of Ireland and England.

### **Case Study D: Hydrogen market opportunities**

In its [Hydrogen Action Plan](#), the Scottish Government outlined the potential applications of hydrogen and areas of significant market opportunity, with fertilisers (ammonia) and energy exports representing some of the greatest market opportunities.

The South of Scotland is uniquely placed to make a success of these market opportunities due to the region's strong agricultural sector and its ability to furnish the UK and wider Europe – and key players within the South of Scotland are already building the foundations for the region's future hydrogen supply.

The Galloway Hydro-Electric Power Scheme, designed by Scottish civil engineer, Sir Alexander Gibb, is a network of dams and hydro-electric power stations built between 1930 and 1935. Today, the scheme can produce a total peak power of around 106 MW. The site's owners, [Drax](#), are proposing development of up to potentially 24MW of electrolytic hydrogen production capacity and are actively seeking offtakers for the hydrogen.

The [Chapelcross Project](#), one of Scotland's first nuclear decommissioning projects, offers up to 500 acres of developable land for clean energy – paving the way for a potential green hydrogen production site. Over 60 hectares are now available outside the nuclear licensed boundary, expanding to over 160 hectares over the coming years. A huge benefit from its legacy is the existing infrastructure and grid connection, which provides an opportunity for new energy production, storage, and distribution solutions, as well as large-scale mixed-use industrial development. As well as supplying

the region's energy needs, domestic applications for hydrogen include decarbonising the region's transport, such as hydrogen-powered bus fleets and renewable ferry fuels, and fertiliser production from ammonia – vital for the region's agricultural sector.

In addition to domestic opportunities, increasing European demand for alternative energy sources means that the supply of renewable hydrogen will play a major role not just in the just transition to Net Zero but also in enabling security of supply across Europe.

There is an extensive ecosystem of support available for a renewable hydrogen future. [The Emerging Energy Technologies Fund \(EETF\)](#) is a

£180 million package of funding that provides capital support to accelerate low-carbon infrastructure projects and unlock private sector co-investment. Of this amount, £100 million is ring-fenced exclusively for renewable hydrogen projects.

The Scottish Government launched the first tranche of the EETF in July 2022 through the £10 million Hydrogen Innovation Scheme, with the remaining £90 million of the Green Hydrogen Fund to follow in 2023.

To find out more about the investment opportunities available to you, please see the [Invest in South of Scotland website](#).

Case study	Location	Output	Value
<b>A</b> Glenmuckloch Pumped Storage Hydro (PSH) Scheme	Kirkconnel, Upper Nithsdale, Dumfries and Galloway	1,600 MWh capacity PSH plant and a 33.6 MW wind farm, with power capable of being transmitted at a rate of 210 MW per hour.	£250 million
<b>B</b> Future onshore wind opportunities	Whole region	28 further consented onshore wind farms with a total of c. 875MW in energy output to be constructed in the region.	£27.8 billion in gross value added (Scottish market)
<b>C</b> Eccles Battery Project	Berwickshire, Scottish Borders	132 battery units with a nameplate capacity of 500MW.	£750 million across three sites
<b>D</b> Hydrogen market opportunities	Galloway; Chapelcross	<b>Galloway:</b> proposed development of 24MW of electrolytic hydrogen production. <b>Chapelcross:</b> 500 acres available for green hydrogen development.	£100 million committed to development of hydrogen economy; ambition of 5GW by 2030 (15% of Scotland's total energy demand)

Figure 2: Our renewable economy case studies

## OPPORTUNITY 2: OUR NATURAL CAPITAL



Peebles, Scottish Borders

The region's natural assets are unequalled and provide significant and varied opportunities for nature based solutions to deliver carbon sequestration, biodiversity enhancement, regenerative agriculture and innovative land management and marine projects. These opportunities will also help to build more resilient communities and economies whilst allowing nature to thrive. With high quality natural assets, a fifth of Scotland's land mass and a unique geographical location, natural capital is one of the region's key investment opportunities.

**Early successes in carbon capture and sequestration**

The South of Scotland is acting now to safeguard the role of our natural capital in the just transition to Net Zero. Today, this is nowhere more evident than the region's successes in carbon capture and sequestration.

The South of Scotland's abundance of forestry and peatland provides an unrivalled opportunity for the sustainable offsetting and inseting of carbon emissions, while also working with the land to enhance the region's natural environment and deliver benefits for local communities. The large blocks of land and relatively few landowners within the region has made it easier to establish projects at pace.

For example, [the Riverwoods project](#) is a partnership project led by the Scottish Wildlife Trust, representing a portfolio of woodland creation projects under the Riverwoods pillar of [the billion pound challenge](#) fund. These projects involve a number of landowners and communities who are working together to improve the health of the local river and preserve the natural environment, while the

riparian woodland helps lock carbon in trees and soil while improving flood resilience for local communities.

In addition, the [Eskdalemuir Langholm Initiative](#) raised £2.2 million in 2022 to purchase more land from Buccleuch Estates for similar purposes. Having purchased 5,200 acres of moorland last year for £3.8 million, the latest buyout means the community group now owns a total of 10,500 acres, doubling the size of its Tarras Valley Nature Reserve. SOSE contributed £1 million financial support to the Langholm Initiative charity in its venture to purchase part of Langholm Moor from Buccleuch Estates.

Projects such as these provide an opportunity to invest using the woodland carbon code, while also helping to support the development of metrics for other community, economic and biodiversity outputs – reflecting a truly holistic approach to natural capital projects within the region.

The carbon capture challenge, however, also offers opportunities for new, innovative thinking that is shaping the economy of the future.



**Case Study E: Carbon Capture Scotland**

[Carbon Capture Scotland](#) are CO2 capture, utilisation and removal specialists. They currently capture biogenic CO2 from a renewable process in the form of dry ice – used in the pharmaceutical and food transport industries. Commissioned in 2021, the £4 million plant was a world first and has allowed the company to pilot and research novel methods of high-purity biogenic CO2 capture. Future potential applications include the production of e-methanol – a potential opportunity to decarbonise the region's transport.

The future growth strategy is focused on a combination of utilisation and removing carbon through the capture of biogenic CO2 and sequestering via geological storage. New business growth is driven by capturing biogenic

CO2 and sequestering in geological formations, resulting in Carbon Dioxide Removal (CDR) and the sale of CDR Credits. Project Nexus, starting mid-2023, will capture >250,000tpa by 2025, 1,000,000tpa by 2030 and 4,000,000tpa by 2040. CCS intends to lead the development of CO2 Removal in Europe, with 500 jobs targeted for Scotland by 2030 and 2000 jobs targeted by 2040. The total investment planned is £120m by 2030 and c. £500m by 2040 to achieve this.

The UK's second largest producer of dry ice, they currently capture 6,000tpa biogenic CO2 and recycle over 10,000tpa CO2 in their utilisation process. The plant's total combined CO2 capture and recycling capacity is currently 25,000tpa.

## Future food production

As pressures grow to produce food products more efficiently, sustainably, and in ways that enhance human health and biodiversity, the South of Scotland is better placed than ever to continue leading the way. A number of nationally significant projects are working to cement the South of Scotland as the country's 'go to' region for future investment in high-tech, sustainable and regenerative food production systems.

The region's unique microclimate fosters a green, biodiverse landscape. Indeed, it is the bounty of nutrient-rich grass and the longer rearing season that

allows the South of Scotland to excel in its dairy production.

Dumfries & Galloway alone is home to a quarter of Scotland's total cattle and almost half of its dairy herd. There are high concentrations of large herds with an underutilisation of anaerobic digestion facilities. Agriculture represents our region's largest source of emissions and a cornerstone of our economy. This opportunity represents one possibility to reduce our region's emissions, associated challenges with run-off pollution, improve efficiency and reduce operating costs of dairy farms – supporting them to use renewable energy sources and become more resilient.

## Case Study F: Dairy Innovation (Digital Dairy Chain and the Dairy Nexus)

The [Digital Dairy Chain](#) and the [Dairy Nexus](#) projects represent the latest efforts to decarbonise one of the region's predominant sectors: dairy production.

Led by SRUC from its Barony campus near Dumfries, the five-year multi-party Digital Dairy Chain project will see SRUC and academic and industry partners focus on developing a fully integrated and traceable dairy supply chain, including the development of new high-value dairy products. Aligning with the ambitions of [Scotland's National Strategy for Economic Transformation](#), the project is expected to create more than 600 jobs and generate £60 million a year of additional value to the economy of the region by attracting large dairy processors and supporting investment in additional industry-focused research and development.

The Dairy Nexus projects include a state-of-the-art facility at Barony as a catalyst to drive innovation to decarbonise the dairy sector, accelerate productivity growth, enhance animal welfare, and to develop new products from dairy resources. The new space will provide a modern knowledge exchange with co-working facilities, state-of-the-art research and development infrastructure for innovation in biorefinery and milk technology, and a UK-first digital twin of a grass-based dairy farm – boosting investment and employment in the region.

The Digital Dairy Chain received £21 million from the UK Research & Innovation's Strength in Places Fund, while Dairy Nexus will receive £8 million in Scottish and UK Government funding as part of the [Borderlands Inclusive Growth Deal](#). The innovative potential

of these schemes is not bound by this funding, however – new investment can help to deliver the region's regenerative agriculture goals better and faster.

## Meeting tomorrow's agricultural needs

As the region's predominant industry, helping the agricultural sector to transition to Net Zero and meet their needs presents a wealth of potential investment opportunities.

With a strong agricultural tradition, both arable and dairy, the region's DNA is intertwined with a sector that is constantly innovating; it is this backdrop that consistently enables investment in the South of Scotland's agricultural sector.

## Case Study G: Wild Heart Expansion Project

SOSE is working with NatureScot, private bank Hampden & Co. and other partners to pilot an approach for responsible private investment in nature restoration. A feasibility study has just been completed working with facilitators Tweed Forum and global impact firm Palladium, which has identified opportunity areas for native woodland creation in the region expanding from the [Wild Heart of Southern Scotland](#) core area. It is estimated that around 16,000ha of new woodland could be created in the pilot area with potential for up to £300M of private investment and around 6M tonnes of carbon sequestration. Income will also be shared with local communities to deliver community wealth building and drive the aspirations of the Wellbeing Economy.

To find out more about the investment opportunities available to you, please see the [Invest in South of Scotland website](#).

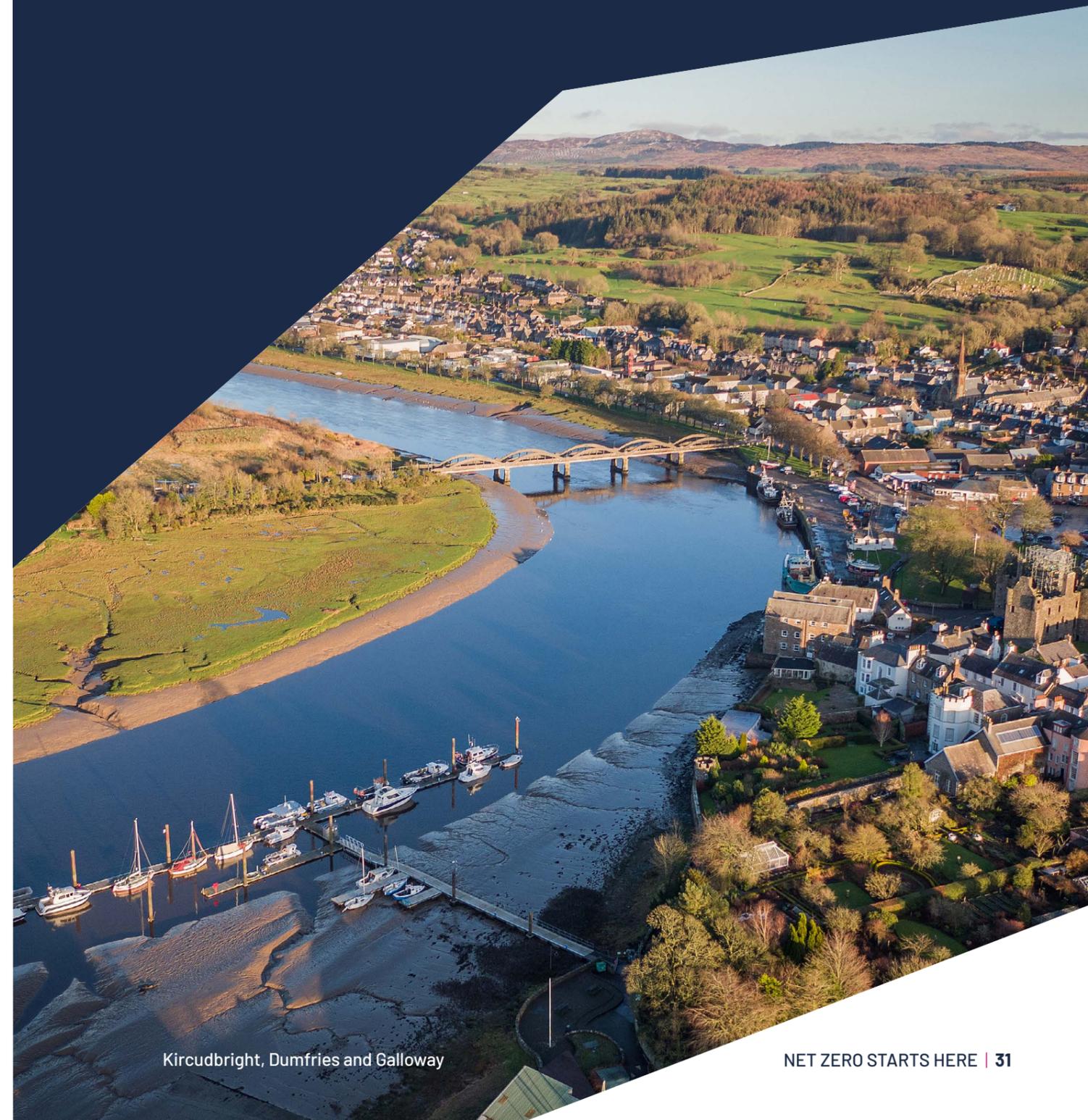


SRUC Barony Campus,  
Dumfries and Galloway

Case study	Location	Output	Value
<b>E</b> Carbon Capture Scotland	Crocketford, Dumfries and Galloway	The UK's 2nd largest producer of dry ice, capturing 6,000tpa of biogenic CO2 and recycling over 10,000tpa CO2, with a total combined CO2 capture and recycling capacity of 25,000tpa	£4 million plant, customers including pharmaceutical and food transport industries
<b>F</b> Dairy innovation (Digital Dairy Chain and the Dairy Nexus)	<b>Digital Dairy Chain:</b> Dumfries and Galloway region <b>Dairy Nexus:</b> Based out of SRUC Barony Campus	<b>Digital Dairy Chain:</b> fully integrated and traceable dairy supply chain, and new high-value dairy products <b>Dairy Nexus:</b> New facilities at SRUC Barony campus for new research, as well as a biorefinery and new milk technology	<b>Digital Dairy Chain:</b> £21 million in collective funding; expected to create 600 jobs and generate £60 million a year in gross value added <b>Dairy Nexus:</b> £8 million in Scottish and UK Government funding
<b>G</b> Wild Heart Expansion Project	Wild Heart of Southern Scotland	Restoration of natural habitats and healthy ecosystems through responsible investment in nature restoration	Potential for creation of around 16,000ha of new woodland, up to £300 million of private investment and around six million tonnes of carbon sequestration

Figure 3: Our natural capital case studies

# OPPORTUNITY 3: OUR VALUES-BASED ECONOMY



Kircudbright, Dumfries and Galloway



Eyemouth, Scottish Borders

Delivering the just transition to Net Zero goes beyond what we deliver – how we deliver it is just as important. We measure success not just as a measure of carbon captured; the value the transition can unlock for the South of Scotland’s communities is near-unlimited in its potential. From generating new revenue for communities to the new business models that are ushering in the Net Zero age, our values-based economy is vital to how we build the economy of the future and reach our goal of being the UK’s first Net Zero region.

### **Paying back into communities**

The region has seen a number of recent projects that are delivering tangible benefits for the region’s communities as well as advancing the region’s Net Zero ambitions.

[Muirhall Energy’s 46MW Crossdykes windfarm](#) in Dumfriesshire was Scotland’s first commercial, subsidy free onshore wind project and it is paying, annually, a generous £7,000 per MW installed capacity in community benefit on top of a ground-breaking 5% shared revenue agreement, which has set a new benchmark for the onshore wind sector.

[Natural Power](#), one of the region’s wind farm operators, expanded their operations within the region to become a key global consultancy. The Castle Douglas-headquartered company operates in over 68 countries to-date and posted a turnover of £18.5 million in 2021 – a success story for the region and a testament to its talent.

Institutions such as [Scotland’s Rural College \(SRUC\)](#) are helping to develop the talent pipelines for a Net Zero future, with their Barony Campus serving as the base for the [Digital Dairy Chain](#) – directly linking our talent to the innovative thinking shaping the economy of the future.

New projects delivering nature based solutions are also helping to pay back into communities. Initiatives such as the [Riverwoods project](#) and the [Tarras Valley Nature Reserve](#) are working to preserve the natural landscape while delivering communal benefits, such as protecting the region’s riverbanks to reduce flooding risks while providing natural capital for carbon capture and offsetting.

Successes like these reflect the holistic nature of the just transition to Net Zero; when the planet benefits, our people benefit.

### **Case Study H: Retrofit market and supply chain development**

[The Scottish Government’s £33 billion Heat in Buildings Strategy](#) will see 1 million homes and 50,000 non-domestic premises retrofitted with energy efficiency measures for the period to 2045 and renewable heat by 2030 – crucial to delivering the transition to Net Zero at a local level.

Registered Social Landlords (RSL) will be a key driver of change given the region’s 24,800 social homes in the region, including many ‘hard-to-treat’ properties. [Research by the Centre for Local Economic Strategies and IPPR](#) reveals that investment in retrofitting activity could create 1,534 and 1,153 direct jobs in Dumfries and Galloway and Scottish Borders respectively (2,687 in total) by 2032 – crucial to delivering an expected investment of £308m across all housing in South of Scotland by 2032.

By 2045, the industry could sustain over 6,500 direct jobs within the region, of which 1,383 could come from social housing, based on IPPR’s assumptions of £168 million of RSL investment and £779m of total investment across all South of Scotland housing units by 2045.

By 2032, retrofitting could generate £135 million in gross value added for the South of Scotland, of which £33 million could come from social housing. By 2045, retrofitting could generate £340 million in gross value added, of which £78 million could come from social housing.



### Creating social value through innovation

In addition to sharing the economic growth benefits of the just transition to Net Zero, the South of Scotland is well-placed to create social value in our communities through new innovative thinking.

[Carbon Capture Scotland](#) has presented a new approach to carbon capture, with its domestic dry ice production subsequently unlocking new value for the region's food transport industry – essential for the region's food production.

The region's potential hydrogen opportunities present a wealth of innovative avenues, such as the decarbonisation of road transport. New hydrogen bus fleets would deliver environmental benefits for the region's population centres, while greater EV infrastructure could reduce haulage emissions along the region's key trade routes. These make clear the communal/regional benefits that will also follow the just transition to Net Zero.

### Case Study I: IndiNature insulation

The Scottish Borders is home to [IndiNature](#), claiming Scotland's first factory to produce carbon-negative insulation for homes and commercial properties. Its natural IndiTherm hemp insulation is breathable while being a net storer of carbon. The insulation is targeted at retrofit projects, extensions, modular off-site construction or new builds. IndiNature's new manufacturing hub at Jedburgh is well placed to benefit from supply chain opportunities arising the Scottish Government's £33 billion Heat in Buildings Strategy, with an estimated whole-economy cost of £17 billion required between 2021 and 2030.

### New approaches for the Net Zero age

As Scotland's businesses prepare for the just transition to Net Zero, the South of Scotland continues to lead the way. The region is already seeing a number of enterprises at the early stages of transition as well as those forging a new path for themselves on the road to

Net Zero (e.g. Galloway Hydro-Electric Scheme hydrogen production).

All enterprises and communities on the Net Zero journey are well-placed to make use of new investment to unlock the innovative thinking that will make the transition a reality.

### Case Study J: Jackson Distillers Limited

One of a small number of new distilleries proposed for our region, [Jackson Distillers Limited \(JDL\)](#) will build a new £55 million grain distillery in the Scottish Borders with the capacity to produce 20 million litres of pure alcohol (LPA) – all while striving for B Corp status.

JDL will be the only producer of single grain whisky spirit (GWS) in the region. This will be Scotland's first grain whisky distillery to be built in over 12 years, and by far the most environmentally friendly – sourcing its ingredients within a tight circle. Using the latest distilling technology and energy supplied from an adjacent anaerobic digestion gas plant, the project aims to take a renewables-focused approach, with a plan to reach net zero carbon emissions and to become a net carbon absorber.

To find out more about the investment opportunities available to you, please see the [Invest in South of Scotland website](#).

Case study	Location	Output	Value
<b>H</b> Retrofit market and supply chain development	Whole region	1 million homes and 50,000 nondomestic premises retrofitted with energy efficiency measures for the period to 2045, sustaining over 6,500 jobs by this time	Retrofitting expected to generate £340 million in gross value added by 2045
<b>I</b> IndiNature insulation	Jedburgh, Scottish Borders	Scotland's first factory to produce carbon-negative insulation for homes	Total supply chain value of £33 billion from the Scottish Government's Heat in Buildings Strategy
<b>J</b> Jackson Distillers Limited	Charlesfield, St Boswells, Scottish Borders	New distillery using environmentally friendly methods, such as energy sourced from an adjacent anaerobic digestion gas plant, and the ambition of being a net carbon absorber.	New distillery valued at £55 million

Figure 4: Our values-based economy case studies

# START YOUR NET ZERO JOURNEY

19 Acre Longpark Windfarm, Scottish Borders

## A region of opportunity

The investment opportunities outlined within this guide demonstrate the ways that the South of Scotland is well placed to meet the challenges of the just transition to Net Zero and build the economy of the future. The economic opportunities to harness on the road to Net Zero are clear through:

- Our renewable economy as a renewable powerhouse
- Our natural capital as the seat of Scotland's nature based solutions
- Our values-based economy putting people, place and planetary wellbeing at the heart of the economy of the future

It is through these pillars that we are delivering **the just transition to Net Zero** and **building the economy of the future**. With the support of a new dedicated economic and community development agency that thinks and acts innovatively, and [the Invest in South of Scotland Partnership](#), the South of Scotland is rightly confident about its future and its ambition of being the UK's first Net Zero region. The catalyst that enables this, however, is the support of the region's investors – the bold thinkers and pioneering minds ready to meet the challenges of the Net Zero transition and shape the economy of tomorrow.

As next steps, [the Invest in South of Scotland partners](#) will be taking forward new work to:

- streamline how prospective investors can access the opportunities available to them in the region; and
- support the region's innovative thinkers in understanding the support available to them and how best to meet their ambition.

## Be part of the transition

The just transition to Net Zero is not possible without the innovative thinking that makes this a reality. Whether you are an investor that wants to be part of the economy of the future or a business wanting to start your Net Zero journey, we are here to help you realise your vision. To find out more about the investment opportunities available to you, please see the [Invest in South of Scotland website](#).

## Support for your Net Zero investment journey

[The South of Scotland Enterprise \(SOSE\)](#) was established as a non-departmental public body of the Scottish Government in April 2020 to support economic and community development for the South of Scotland region (covering both Dumfries & Galloway and Scottish Borders local authority areas).

Our overarching aims are to further the sustainable economic and social development of the South of Scotland; and to improve the amenity and environment of the South of Scotland.

If you are looking to invest in the region, we are here to support your Net Zero journey. Our knowledge and insight of the region and its investment opportunities allows us to provide support like no other, and our team stands ready to provide resources and expertise to help you achieve your vision.

If you are a business, social enterprise or enterprising community group in the South of Scotland, SOSE is here to help. Support is tailored to every situation and stage of the enterprise journey. [Our dedicated Net Zero directorate](#) includes specialists for businesses, communities, and social enterprise.

They will help you to integrate Net Zero into your planning and processes, to ensure that you're well geared up for future sustainability.

If you are a start-up, have an idea, or have thought of a way to innovate, we can provide resources and support to help you get your project off the ground. If you are an established business, we can provide strategic support and expertise to help you grow, develop, and reach new markets. If you are a non-profit or community group keen to make a difference in your area, we can provide specialist support to help you maximise your impact. We can also help if you are interested in succession planning, export markets, or moving your business to the area. In short, SOSE is a one-stop shop for enterprise throughout the South.

Team SOSE can also alert you to emerging opportunities and partnerships to benefit your project. Typical themes may include:

- Circular economy
- Waste reduction
- Skills support
- Energy transition
- Active travel
- Nature based solutions

SOSE exists to:

- Enable and support businesses and enterprises to establish themselves, expand, innovate and compete.
- Do things differently and connect people, places and communities in new ways to drive collaborative change from the bottom up and create fresh opportunities for the South.

- Use data and evidence to influence decisions and secure meaningful investment in the region.
- Continuous engagement with communities and people across the region to understand what they want for the South and how we can go further to support them.

We have made significant progress since launching in 2020, and this has placed us in a strong position to lead the way on critical areas such as the Net Zero transition, fair work and community wealth building – all of which present unique opportunities for prospective investors.

#### **Our aims**

Our aims, as set out in legislation, are to further the sustainable economic and social development of the South of Scotland and to improve the amenity and environment of the South of Scotland.

#### **Our vision**

Our vision is to drive inclusive growth, increase competitiveness and tackle inequality within the region.

#### **Our mission**

Our mission is to work together with people across the South of Scotland to grow its economy in a just and sustainable manner. We will provide investment, expertise and mentoring to people and businesses and by doing so, we will inspire the region to think bigger and unlock the great potential of the South.

#### **Our values**

Our values are at the heart of all we do. We will be: Inclusive; Responsible; Bold; and Striving.

#### **Our board**

Our board has a broad range of knowledge and experience and is

chaired by Professor Russel Griggs OBE, with the organisation led by Jane Morrison-Ross, Chief Executive.

To find out more about the investment opportunities available to you, please see the [Invest in South of Scotland website](#).

### **Scottish Borders Council**

Scottish Borders Council (SBC) is focused upon working together to improve the wellbeing of people, making the Scottish Borders a more sustainable and better place to live, work in and visit.

SBC's Economic Vision for 2033 is to enable the region to fulfil its potential and attract others to live, work, study and visit, built upon strong and effective physical and digital connections and infrastructure, where the benefits of a productive and sustainable economy are widely shared. By 2033, with an increasingly higher skilled and higher paid workforce, the Scottish Borders will be a place which has begun to fully harness the potential of its communities, attracting resources from beyond our region, using new technology, and growing the number of jobs found in renewable energy, healthcare, and our natural resources.

In seeking to realise this vision and support the ambitions of Net Zero Starts Here, SBC is enthusiastic to support investment, business, and innovation opportunities to the region. We will do this through early and proactive engagement, providing advice, guidance, and expertise where necessary, collaborating with our partners, to facilitate what you are looking to achieve.

### **Dumfries and Galloway Council**

Dumfries and Galloway Council has the ambition to be a successful region, with a growing economy, based on fairness, opportunity, and quality public services, where all citizens prosper. Working in partnership, with connected, healthy, and sustainable communities. The region will be the natural place to live, work, visit and invest.

The Council Plan 2023–2028 sets out the vision and strategic outcomes that the Council wants to achieve over the next five years. It will guide activity across the Council and focus on how we will deliver better outcomes for the citizens and communities in Dumfries and Galloway.

On 27 June 2019 Dumfries and Galloway Council declared a Climate Emergency and set out the ambitions as follows:

“We recognise our responsibility to tackle climate change and fully commit to taking effective action to limit the impact on our region and its people. We recognise the challenges ahead to tackle climate change and, whilst we have already made significant strides towards achievement of a regional net zero carbon status, we will seek to achieve this outcome by the year 2025 and, wherever possible embrace opportunities to accelerate our target date”.

“Dumfries and Galloway offers many significant investment opportunities and we are keen to work with our partner agencies to facilitate and support new opportunities which contribute to our net zero economy ambitions”.

