



Powering Change

Calling the South of Scotland to Action



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Purpose

Energy enables. Enables our well-being, our economic success and our transport and communication. Without it much of what we take for granted in our daily lives would not be possible. If we want to retain that, we need to balance our demands with protecting the environment in which we live as well.

In the South of Scotland, we have an abundance of energy.

Working together, with an agreed vision of what we as a population want to see, our call to action sets out collective actions required to unlock the opportunities for our region, contributing to our future sustainable success and well being.

All of us are responsible for making the significant changes required to meet climate change targets, decarbonise heat and travel. Pace is vital and we are embracing that and the social and economic benefits that can bring. Through our work, we are defining the clear and immediate action required, effectively planning for the transition ahead, preparing for the re-electrification of the countryside as well as looking to the needs of others in our rural communities that are off-grid.

The transition needs to be a Just Transition. Ensuring that the South of Scotland can benefit from the cheapest power in the UK. Looking to the well-being of our communities, ensuring affordable energy and effective heating.

The Scottish Government published its Energy Strategy Position Statement on 16 March providing an overview of its energy policies as we move towards Net Zero. That statement recognises the potential for local economies to reap the social, economic and well-being benefits. **The South of Scotland is responding.**

Working in partnership remains vital and in the South of Scotland we are good at that.

Six months ago, SOSE established our Energy Transition Group which brought together diverse partners - across the public, private, education and third sectors - to explore the opportunities and challenges and identify actions required. Collaborative discussion, drawing in a diversity of expertise, has been central. Participants have shaped this framework and are committed to working together to deliver on the detail now necessary.

Our work has focused on the circumstances of a rural area. Those circumstances are different from those in other areas, looking at our economy and our natural advantages. Throughout we have viewed energy as an enabler.

Our call to action captures the results of the group's activity, setting out what needs to be done to capitalise our energy resources and to create the good jobs we all want to see. Of course, this is not work in isolation, but as a key contribution to wider activity setting the future ambitions for our region as we respond to the climate emergency. Work that includes the development of our first ever Regional Economic Strategy, our Regional Spatial Strategy and our Borderlands Inclusive Growth Deal. A momentum driving us forward. Enabling us to respond to the challenge.

In our call to action, we set out our vision, our initial findings and what we, with our partners, intend to drive forward collectively now. We have focused on the immediate actions required to create a foundation on which we can all continue to build. **We call on organisations across the region to work with us to turn this plan into the reality we all want. It is an opportunity for the South of Scotland to lead the way.**

Our Vision - What we expect to see

By 2045, our ambition is for the South of Scotland to be a carbon negative region, powered by affordable sustainable energy and our work has focused on the role energy plays to contribute to that ambition.

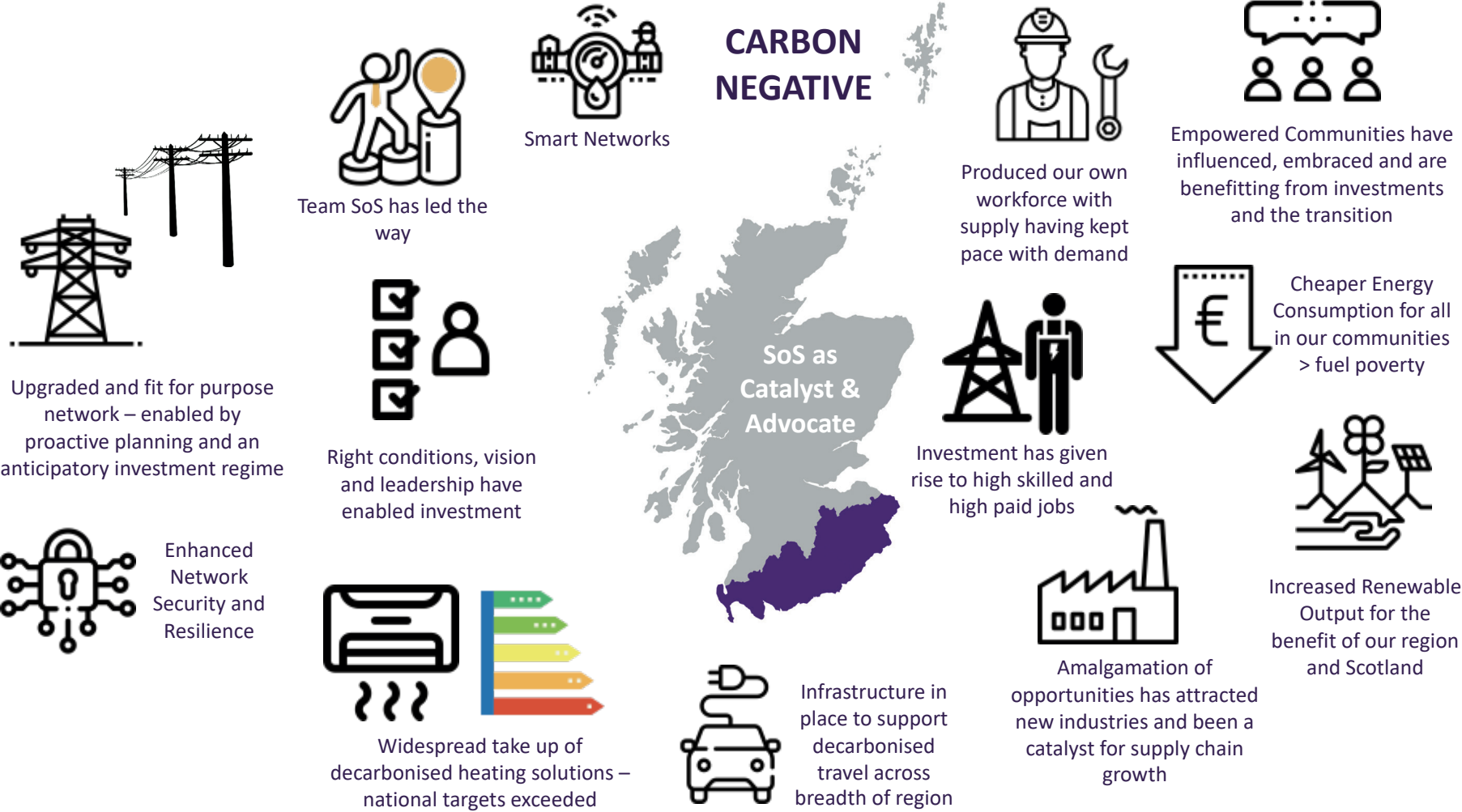
To deliver on that ambition will require change. Our energy networks will be upgraded, fit for purpose, enabled by proactive local planning and an anticipatory investment regime, secure and resilient, operating smartly. That will support a widespread uptake of decarbonised heating solutions and of transport fuelled differently, supported by the right charging infrastructure. Output from renewables will increase, across all technologies, delivering more affordable energy.

Our communities will have benefitted from the transition and people will have taken the action required. We will have a workforce with the right skills working in the many good jobs created from this change. We will have led the way, be seen as an exemplar region, with strong leadership delivering agreed action in an aligned way.



Photo credit: Glenkens Community & Arts Trust

Our Vision in pictures - By 2045...



Icons courtesy of <https://www.flaticon.com/>



Scale of the Opportunity and Challenge

What if – modelling the demand

1. What would the impact be on the electricity system of a 1 to 1 conversion of the existing car fleet to battery Electric Vehicles (EVs) and a continuation of current travel patterns?

- This could lead to an additional electricity demand of approximately 250 GWh per year, or 18% of the current electricity demand for the region.
- The peak-charging demand for EVs in this scenario is likely to lie within the range of 30 – 190 MW or between 8% and 45% of the current electricity peak demand for the area.

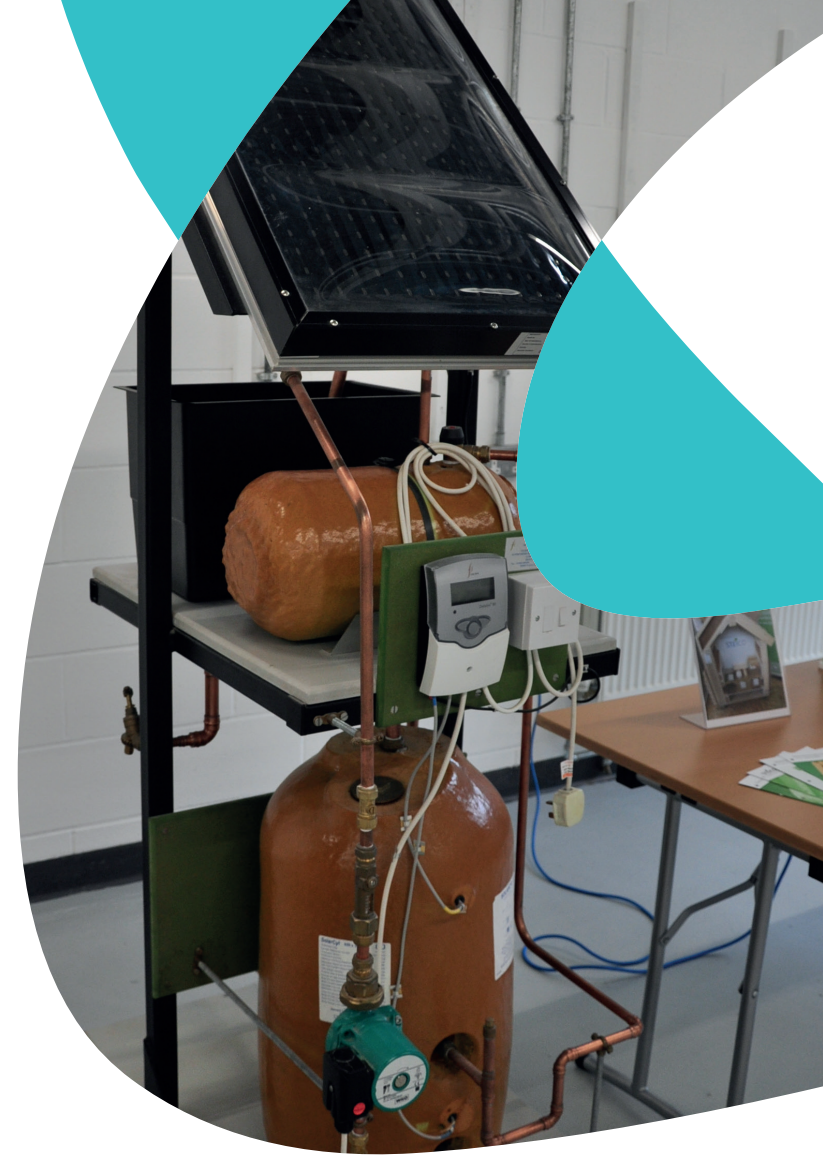
2. What would be the impact on the electricity system of a wholesale conversion of the off-gas grid housing stock to electric heating?

- This would lead to the conversion of around 34,000 houses from high carbon fuels to heat pumps. If underlying heat demand for buildings in this sector stayed the same this could result in an additional electricity demand of 240 GWh and an installed electricity capacity of 226 MW.
- The energy delivered from the electricity system will be substantially lower than the underlying demand because heat pumps use some electricity energy to draw heat from the local surroundings. The estimates below are based on a “Seasonal Coefficient of Performance” (SCoP) of 3 meaning that 1 unit of electrical energy is needed to meet three units of heat demand.
- However it is expected that in the process of decarbonising heating the energy efficiency of the building stock will be improved substantially, reducing total energy demand. Similarly, diversity will reduce the overall peak demand of the heat pump fleet to well below its installed capacity.
- It is likely that the impact would be in the range 120 GWh – 240 GWh with a peak demand contribution of between 30 – 60 MW.
- **This would represent between 9% and 18% of current electricity demand for the area and between 8% and 16% of current peak demand.**



3. What would be the impact on the electricity system of a wholesale conversion of social house housing stock to electric heating?

- This would lead the conversion of around 22,300 houses from high carbon fuels to heat pumps. If underlying heat demand for buildings in this sector stayed the same this would result in an additional electricity demand of 75 GWh and an installed electricity capacity of 98 MW.
- However it is expected that energy efficiency of the building stock will be improved substantially, reducing total energy demand. Similarly, diversity will reduce the overall peak demand of the heat pump fleet to well below its installed capacity.
- It is likely that the impact would be in the range 38 GWh – 75 GWh with a peak demand contribution of between 22 – 45 MW.
- **This would represent between 3% and 5% of current electricity demand for the area and between 6% and 11% of current peak demand.**



What Needs to be Done

The South of Scotland already has many advantages that give us a competitive edge.

We have a large number of existing on and off-shore renewable energy installations and are already a net exporter of green power – producing roughly three times more electricity from renewable sources than we consume as a region overall – with extensive land, coastal and natural assets offering further opportunities. We have a solid transmission and distribution network. Our education institutions are working on developing green skills. And our partnerships have never been stronger. But we know we need to think and do things differently.

Demand for charging points –

Building the South of Scotland as a top visitor attraction requires us to have in place the infrastructure to meet visitors' expectations and travel requirements. Work done by the South of Scotland Destination Alliance (SSDA), estimates that 40% of visitor journeys will be by electric vehicles in 2026 and 70% by 2031. That suggests around 5,500 charging points will be required across 1,000 sites by 2026 and 9,500 by 2031. There are currently less than 100 across serviced and non-serviced accommodation.

Our Initial Findings and Actions

Throughout this process, participants in the Energy Transition Group have recognised the need for immediate and sustained action to ensure that the region remains competitive and benefits from the opportunities that come from green growth, while tackling the impact of changes it brings. Energy in all its forms and uses is a central theme to our region's growth deal, the Borderlands Inclusive Growth Deal and it will be a theme for our Regional Economic Strategy.

The group's work to date has tackled six core and interlinked themes, identifying and taking actions across the themes:

- leadership and an aligned vision;
- decarbonising heat and travel;
- transmission and distribution infrastructure;
- education and skills;
- green jobs and supply chains; and
- community and a just transition.

Our call to action provides an overview of our activity and sets out some key principles to ensure the South seizes its opportunities.

This is a framework for the more detailed work that will be taken forward developed, agreed and driven forward by partners.



Our Key Findings and Actions

We have summarised and present over the ensuing pages our key findings and the actions we intend to take:

1. Leadership and Alignment

Findings...

A strong vision, committed national and local leadership and greater co-ordination is more important than ever before, so the actions we take are aligned and complementary. We need to act in a co-ordinated way recognising the links between finance and investment, opportunity for the supply chain, education and skills and planning not operating in silos.

Partners across the South of Scotland are committed to working together to make the difference and agree our vision and the actions we need to take to get there. We will ensure that this is a key theme of our Regional Economic Strategy and take action to look at ways to ensure, where possible, how power generated locally can be consumed locally to create economic opportunity.

We will feed this into the work that Scottish Government is doing to develop the National Planning Framework 4 ensuring that our infrastructure supports inclusive growth. We will also embrace the opportunity the NPF4 presents, as well as our regional and local spatial plans, to tie down collective goals, creating enhanced certainty and enabling a plan led approach to prevail across the South of Scotland.

Specific Actions...

- Maximise the opportunities offered to the South of Scotland that come from the investment in the Borderlands Energy Masterplan¹
- Develop alignment with Local Heat and Energy Efficiency strategies
- Ensure energy is considered as part of the new Regional Economic Strategy² being developed for the South of Scotland, looking at the industrial strategy for the region
- Influence Scottish Government policy, ensuring that we shape projects that will deliver energy policy goals and bring investment to the region

¹ <https://www.borderlandsgrowth.com/>

² <https://sosrep.dumgal.gov.uk/>

2. Decarbonising Heat and Travel Together

Findings...

Transitioning to Net Zero will lead to significantly increased demand for energy and our initial “what if” modelling begins to capture the scale of the potential future demand.

While the roll out of electric vehicles and decarbonised heating are running to different timescales, we need to look at these together, to minimise future disruption and costs and to see whether the timetables can be better aligned. We are determined that the upgrade to our infrastructure is future proofed, taking account of best estimate of demand.

Electric vehicles and electrified heat could add more than half again to the existing peak electricity demand in the region with the consequential need to grow the capacity of the electricity networks. It will be important to ensure that different decarbonisation options, flexible technologies such as energy storage, and network investment are considered together.

Our ambition must be to “touch the grid” only once to minimise disruption and ensure the best return on investment. It is no exaggeration to suggest that few homes will be untouched by the changes to come and we need to ensure that we have the infrastructure to meet the demand. We want to enable consumers and businesses to make the most of local cheap energy.

Action...

- Build on initial modelling to develop understanding of future demand and the upgrade necessary to our infrastructure
- Take forward geographic pilot projects to model future demand (reflecting heat and electric vehicles) and grid capacity enhancement – focused on Dumfries, Peebles and Wigtown
- Work with other providers, including telecommunications companies like BT, to future proof upgrades – working to ensure smart infrastructure

3. Transmission and Distribution

Findings...

The practicalities of implementing the required enhancements of the transmission and distribution network in rural areas need to be better understood. Households currently use a mix of energy sources – oil, gas, diesel and petrol as well as electricity. The network in the South of Scotland needs to be able to cope with a threefold increase if households use electricity for all their power needs.

As demonstrated by initial demand modelling, the distribution networks will be at the forefront of the changes needed to support Net Zero with significant upgrades required for the infrastructure to meet future demands. Current planned network updates take account of previously contracted generation load growth and there needs to be a robust plan to continue beyond the projected rate balancing against the projected load growth. The change is significant, locally 60% of our towns domestic electrical supplies are service and loops and to facilitate future technologies all properties will require individual services to be installed.

Consumers in the SOS should be able to benefit from new approaches to packaging the use of power, revolutionising the way that power is used, benefiting from innovation and access. We need to take learning from demonstrator projects to test and refine approaches to ensure smooth and effective decision making and implementation.

The strategic development of the transmission network needs to be harmonised with the distribution networks. Integrating our plans for new capacity is key looking at creating opportunities for storage, hydrogen, education and establishing centres of excellence. There is opportunity in clustering developments.

Action...

- Explore planning and regulation processes to streamline grid upgrades based on the understanding of likely scale and nature of those upgrades
- Continue to lobby for anticipatory investment in upgrades and enhancements to infrastructure and for regional variations – building on our response to the OFGEM RII0-ED2 SSM consultation³
- Councils to work with Scottish Power Energy Networks to plan the approach to the scale, nature and phasing of potential up-grades

³ <https://www.ofgem.gov.uk/publications-and-updates/riio-ed2-sector-specific-methodology-decision>

4. Green Jobs and Supply Chains

Findings...

There is a massive opportunity ahead of us and we want to ensure that our businesses are aware of that opportunity and able to benefit from it.

Rural Scotland has an opportunity to drive the change and develop businesses that can then operate elsewhere. We are ideally placed to sell and supply expertise to the central belt as well as the rest of the UK.

There is an opportunity to aggregate opportunities to attract and maximise inward investment and create the confidence for supply chain growth. We will look with others at building aggregated portfolios of potential projects of a scale to unlock green finance.

Action...

- Demonstrate the scale of opportunity to attract private sector investment and local businesses
- Ensure that the investable opportunities identified through the Borderlands Energy Masterplan, and the more detailed local area plans, are promoted to both businesses and communities.
- Ensure full alignment between the Borderlands Energy Investment Programme and the wider South of Scotland partnerships
- Commit to the redevelopment of the Chapelcross site to stimulate investment in green growth and link into active supply chain development opportunities to ensure maximum return on the investment through the creation of high-value jobs.
- Take action to “wake up” the supply chain to the opportunities, mapping the aggregated opportunities and the longevity of those opportunities
- Support the development of the supply chain, providing the confidence to invest now so that they can benefit from future but imminent opportunities and take the action now to develop the skilled workforce they will require
- Engage with sectors where decarbonisation may prove more difficult due to existing processes where further research and development and/or support to overcome the challenges may be required
- Explore opportunities for transitional jobs – moving from sectors negatively impacted

5. Education and Skills

Findings...

Major upskilling will be required to support the volume roll out of heat pumps and of EV related infrastructure.

There is a need to accelerate the training and readiness of an expanded workforce, identifying the increased demand. Providing skills ahead of need will be critical if we are to be in a position to capitalise on opportunities and not miss out. We recognise that heat pumps will not be the solution for all properties and a mixed approach will be necessary.

We want to build on the offer already provided by our colleges which offer a range of green energy courses, capitalising on their willingness and supporting them to work together to deliver a wider range of courses across our region and plans for the Green Skills Academy.

The Climate Emergency Skills Action Plan sets the national context and we are committed to supporting that in the South of Scotland. We can lead the way for other parts of Scotland and skills developed here can be used in other locations. We should promote the career pathways to parents and young people within the energy sector, demonstrating the future long term opportunities.

We also need to support retraining for those looking for a career change or a new opportunity and will work to define the retraining required. There is also value in helping everyone to understand the implications of the climate change targets and what this means for us all.

Action...

- Continue to highlight the skills needs and look to maximise government funding sources that support green skills, jobs and growth. Few businesses in the South of Scotland are authorised with the Office for Zero Emission Vehicles under the Electric Vehicle Homecharge Scheme.⁴
- Work with partners to understand the skills gaps, taking forward work to identify gaps and future needs, building on the survey work being taken forward by Borders College working with industry ensuring a clear understanding of potential demand
- Align skills development needs with the investment available to support skills infrastructure through the Borderlands Inclusive Growth Deal
- Develop options for new qualifications for those installing heat pumps with SDS the colleges and SNIPEF working together to explore accelerated heat pump engineer training pathways and qualifications. These qualifications need to be practical and focused on the requirements of the job.
- Work with manufacturers to help shape clear and required standards for qualifications
- Embracing the opportunity presented by the COVID-19 pandemic to sustain and improve digital connectivity as a means of supporting remote initial training and re-training

⁴ <https://www.gov.uk/government/organisations/office-for-zero-emission-vehicles>

6. Communities

Findings...

Communities are central and we need collective, co-ordinated and sustained effort to build on the opportunities available.

Change is coming and working with communities to understand what this could mean for them and the benefits it can bring is vital.

As we look to the future, we will all need to change the way we think about energy, becoming active prosumers and savvy consumers. This needs to be supported with honest, clear and consistent information.

There are diverse opportunities for communities to get involved in this agenda and drive change, maximising the different approaches to decarbonisation and finding ways to address fuel poverty.

There is an opportunity to look at how to support and share learning from community energy projects to encourage the development of transferable models that enable communities to develop their own projects. Community groups can often be best placed to engage and raise awareness, deliver education and share learning with their wider communities.

We want to support local control. We want to support community involvement in the LHEES process, community ownership of assets, community benefit and shared ownership in developer led projects.

Action...

- Ensure communities have a clear picture of the energy opportunity for the region and the benefits that could bring, with a clear communication campaign
- Look to establish community champions, able to demonstrate benefits to others, helping everyone make the most of new technologies
- Signpost communities to sources of information and support to help inform decisions and behaviour change
- Through SOSE and Local Energy Scotland, scope pilot projects in the region that trial different approaches
- Explore options with Registered Social Landlords to support them in the work they are already looking around piloting different approaches to heating seeking funding opportunities such as the Scottish Government's Social Housing Net Zero Heat Fund
- Ensure that the place based approach to economic development across the region has energy opportunities and challenges as an integral part of the process

What Next

Over the past few months, our focus has been on understanding the issues and then creating and articulating our vision and identifying the immediate, specific and practical activity we want to take to ensure we make the most of the known future opportunities around heat and transport. But that is only the start of our ambition.

This is a catalyst for other action – building the innovation, skills and expertise required. Action is already flowing from the group with councils discussing approaches with the distribution networks and Skills Development Scotland and the colleges looking at training courses. It will be important to ensure the South of Scotland benefits from national activity and investment and we can lead the way.

The potential for the South of Scotland is immense and we are developing our understanding of the magnitude of the task and the opportunities it can bring. As we move forward we want to explore how we ensure the South of Scotland contributes to Scotland becoming a leading hydrogen nation. We want to explore the contribution we can make to other forms of renewable generation. Hydrogen for large vehicle, replacement of LPG and oil boilers and further off-shore potential. How we support research and development in the south of Scotland to respond to the needs of our rural economy.

Our group will continue as we support partners to deliver agreed action and as we look to other actions we need to take. We are not exclusive and we encourage those with an interest to engage with us as we move forward. Change is coming and we want to be at the forefront of that change, managing, shaping and directing the way forward, to benefit our communities and businesses.

Together we can ensure that the South of Scotland will not miss its opportunity.



Participants in the Group



Contact us

Find out more at

www.southofscotlandenterprise.com

Or get in touch to find out how we can tailor our support to your individual needs and circumstances

www.southofscotlandenterprise.com/contact-us

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