

An aerial view of Glasgow, Scotland, at sunset. The city's dense urban landscape is visible, featuring numerous buildings with dark roofs and several prominent church spires. In the background, rolling hills are silhouetted against a sky filled with dramatic, golden clouds. Several wind turbines are visible on the horizon, symbolizing the city's transition to renewable energy.

# Glasgow Just Transition Skills Action Plan

A fairer, greener future  
for all Glaswegians

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## Leader Foreword

Glasgow knows only too well why an economic transition must be just. To this day, our city bears the scars of 20th century deindustrialisation. This was an unjust transition. For decades Glaswegians have weathered a legacy of generational exclusion and inequality.

Glasgow accounts for a disproportionate share of Scotland's working age economically inactive population. We have major challenges associated with multiple deprivation. The economic transition needed to tackle the climate crisis is an opportunity to tackle the root causes of poverty, building on the capability of people by increasing skills and employability. This has never been more important as we confront a cost of living and energy crisis that threatens to weaken the fabric of communities and households.

At the same time, the city has demonstrated remarkable resilience. Communities have regenerated, the economy has diversified, and we have returned to the world stage as a leader in innovation. Today, Glasgow has a thriving college sector, five world class higher education institutions, and year on year record numbers of school leavers move into positive destinations.

This gives us reason to be optimistic. Whilst the journey to net zero is challenging, we have a strong track record of being able to reduce carbon emissions whilst improving social, economic and health outcomes for our communities.

In Glasgow, a cross-party Just Transition Working Group was established to address one of the most extraordinary challenges which Glasgow faces: how does our city shift away from fossil fuels in ways which both protect our communities and businesses and enhance opportunities for them?

Our Just Transition Working Group Report has drawn upon a wealth of economic and social insight and it provides a framework for a fairer and greener future for all Glaswegians. This plan supports the recommendations of that report, mapping out the actions required to ensure that every person is able to reskill and upskill to participate in the just transition to a net zero, and climate resilient economy in Glasgow. In doing that we will also generate a sustainable supply of skilled workers to help local businesses grow and make the transition to net zero, as well as ensuring that Glasgow is a great place for investors.

As the leader of the city, I am proud to present Glasgow's first Just Transition Skills Action Plan. This document demonstrates how our workforce can adapt and grow as we face the future with confidence.

## Foreword from the Green Economy Lead, Glasgow Economic Leadership

Glasgow businesses have, in the main, already started the transition to net zero and the challenge of skills to deliver that future is already apparent. Writing as the Chair of Sustainable Glasgow's Green Economy Hub and a Board member of Glasgow Economic Leadership (GEL) I am able to speak on behalf of many businesses and organisations who recognise the need for a close partnership with the public sector to not only define and develop these skills, but also recognise that they are primarily market orientated and without public sector partnership and direction there is a risk that we will not deliver against some of the genuine commitments we have for a just transition in the rush we all face to get the net zero job done.

Not only is it good business to have a diverse and inclusive workforce trained with appropriate skills, our customers and stakeholders demand it. As an example, over 88% of stakeholders and customers surveyed by my business, SP Energy Networks, back these principles.

I support the actions outlined in this report and believe that if this plan is to be effective then the involvement of Glasgow businesses will be an absolutely essential element of success.

Guy Jefferson

Chief Operating Officer, Scottish Power Energy Networks

## Executive Summary

We know that the transition to a net zero and climate resilient economy is a significant opportunity for Glasgow. Properly managed it will stimulate inclusive growth and enhance productivity whilst addressing the climate emergency. Considering the fact that pay is higher for green jobs than non-green jobs in Scotland, we have a unique chance to drive forward high-quality fair work, and workforce diversity across the labour market.

If poorly planned, the transition will not be just. A disorderly transition would hit all sectors - not just carbon intensive heavy industries. It would have far-reaching economic and social implications, affecting the livelihoods of individuals and disrupting labour markets.

A shift to a greener economy will result in new jobs being created, some jobs being substituted for others, some being redefined, and others being eliminated completely. This means we need to take a triple focus on new skills, re-skilling, and up-skilling.

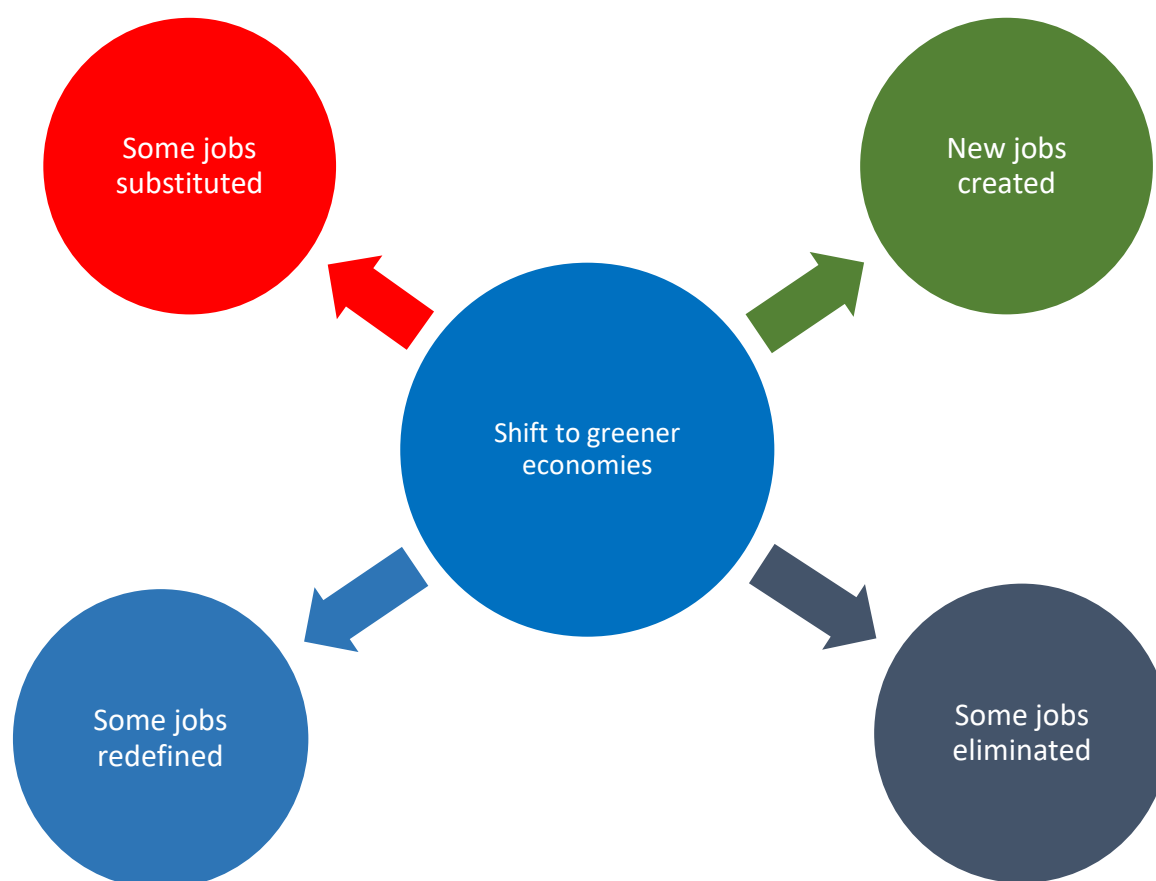


Figure 1 - Conceptual model of the labour market impacts of the transition to a net zero, climate resilient economy. Source: ILO

A systemic response is required to ensure that all people are protected, and those who could be disproportionately affected by the transition can access the new opportunities that will come from it. This is fully aligned with the No One Left Behind agenda, which seeks to ensure that tailored employment and skills support is available for all-ages. It means focusing on those at risk of unemployment or in-work poverty, and it advances equality of opportunity between people who share a protected characteristic and those who don't.

We want every Glaswegian to be able to reskill and upskill to participate in the just transition to a net zero and climate resilient economy.

This vision is underpinned by the need for a joined-up skills and employment offer that meets the future needs of Glaswegians and the local economy. The plan is set around three key objectives:

- Objective 1 - Strengthening the green skills ecosystem
- Objective 2 – Facilitating and meeting future demand
- Objective 3 - Promoting equity and equality through the delivery of the skills system.

When looking at activity required to meet the green skills needs of our city, we need to plan according to two horizons. This means addressing the short-term green skills gaps facing industry in the context of current economic trends. It also requires an understanding of the workforce of the future, and how we can ensure the supply of a skilled labour market that will meet the city's needs.

Green skills is an umbrella term for the knowledge, behaviours, capabilities and technical skills required to tackle the environmental challenges we face and to unlock new opportunities for growth.

However, for us to make a full transition to net zero, all jobs need to be green jobs, not just those that have a direct focus on restoring the natural environment. Green jobs will not be niche. Sustainability and climate change will touch every career. We must therefore consider all sectors.

Whilst the actions outlined in this plan are bold and ambitious, they will be delivered through an incremental approach that focuses on:

- The sectors that face immediate skills shortages, including energy, construction, transport, manufacturing, and waste.
- The higher carbon sectors that need to decarbonise.
- The key sectors in Glasgow that have the best prospects for future growth.
- Providing investor confidence for the creation of new green jobs.

The table below summarises our 25 actions.

<b>OBJECTIVE 1 Strengthening the Green Skills Ecosystem</b>	
<b>Action</b>	
1	Launch a Glasgow Just Transition Jobs Fund to support reskilling and upskilling across all sectors.
2	Develop and deliver additional low carbon and climate resilient modules to existing FE and HE courses.
3	Develop a series of green skills bootcamps for heat decarbonisation, housing retrofit and transport, that focus on early skills pathways / accreditations that recognise

	unskilled/voluntary work as a series of credits which contribute to entry to further formal qualifications
4	Extend the Step Up to Net Zero project to support the development of specialist skills.
5	Scale up a city-wide green apprenticeship scheme in a range of areas, such as retrofit, construction, and renewables.
6	Continue to engage with national organisations (SFC, SDS) to blend national funding with local employability and skills funding to support an all age offering.
7	Ensure comprehensive climate justice impact assessments undertaken in skills policy and climate planning.
<b>OBJECTIVE 2 Facilitating and Meeting Future Demand</b>	
8	Develop a Developing the Young Workforce 2.0 Strategy, that maps out how we will inspire our young people and prepare them for green jobs.
9	Promote opportunities to unlock additional investment in learning for sustainability where it supports climate literacy and environmental stewardship for all learners from early years through to school leavers.
10	Develop a challenge-led approach to engaging 16 to 25 year olds in solving sustainability problems for businesses in Glasgow and wider Scotland, with a particular focus on those individuals furthest from the labour market or most at risk from the transition
11	Develop a Glasgow retrofit academy to upskill and reskill construction specialists
12	Establish an innovation skills alliance to capitalise on investment in innovation, ensuring it stimulates the supply of high-end green skills.
13	Secure a green jobs guarantee for the city.
14	Implement a green-skills passport that covers through from early years to retirement.
15	Scale up the SMART STEM programme in primary and secondary schools to inspire the next generation about Science, Technology, Engineering and Maths.
16	Publish a Glasgow City Climate Infrastructure pipeline with associated job creation potential to provide market stimulus.
17	Publish industry estimates of the size of Glasgow's future Low Carbon Goods and Environmental Services and adaptation sectors, and skills needs for this
18	Work with investors and partners to extend the pipeline to scale market demand.
<b>OBJECTIVE 3 Promoting equity and equality through the delivery of the skills system.</b>	
19	Embed green skills in all employability provision, to ensure the support to those furthest from the market is delivered in line with the economic transition.
20	Launch a package of support specifically for older workers that includes funding support and job coaching.
21	Engage with the Sustainable Glasgow Green Economy Hub and the Chamber of Commerce Skills and Employment Board to ensure strong partnership focus on this agenda.
22	Establish a training support fund for individuals with protected characteristics that can be used to address the practical barriers that prevent individuals accessing training opportunities.
23	Work with FE and HE to scale up the funded green skills opportunities that are available for individuals with protected characteristics.
24	Work with industry and trade unions to promote the funded and accessible opportunities that are available for retraining and upskilling of employees, particularly in instances where formal qualifications are lacking.

25	Utilitise international networks including the Resilient Cities Network, Eurocities, and the OECD Jobs and Skills Network to share and learn from peer cities from across the globe on managing an equitable transition.
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This plan has been jointly prepared by Glasgow City Council and Skills Development Scotland. It has been developed through a process of coproduction and its delivery is dependent on strong partnership working. We are well experienced in developing synergies by combining resources, expertise and ideas from different agencies and authorities.

There are two principal partnerships that provide strategic guidance and leadership to this agenda: the Glasgow Local Employability and Skills Partnership (LEP); and the Sustainable Glasgow Partnership.

The green economy is a key area of interest for the Sustainable Glasgow Partnership. We will work with its Green Economy Hub to ensure strong partnership focus on this agenda.

The LEP consists of key strategic employability partners and is chaired by the Council. Given the rapidly changing funding landscape and policy context, the LEP is committed to implementing and monitoring this action plan. It will be reviewed and updated annually to account for emerging developments and opportunities.

The LEP will work with the Scottish Government to ensure efforts are coordinated and aligned with the Scottish Government’s emerging Just Transition Planning Framework.

If properly managed, the transition provides us with a unique opportunity to delivery on the grand challenges of the Glasgow Economic Strategy. A transition that is truly just will stimulate inclusive growth and enhance productivity whilst addressing the climate emergency.



## 1 Introduction

Climate change is the most significant challenge of our lifetime, with potentially devastating implications for all sectors of society if we do not act quickly. Thus, the need for decarbonising our economy has never been more urgent. Glasgow City Council declared a climate and ecological emergency in 2019, and subsequently committed to achieving net zero carbon emissions by 2030.

The transition to a net zero, climate resilient economy will impact on existing jobs. It will also create thousands of new jobs for Glasgow.

However, if poorly planned the transition will not be just. A disorderly transition would hit all sectors - not just carbon intensive heavy industries. If poorly managed, the transition will be uneven, with differential impacts from job losses in higher carbon industries if they fail to decarbonise, or through impacts of a changing climate. There is a real risk that the transition could have far-reaching economic and social implications, disrupting labour markets and affecting the livelihoods of thousands of people.

It is no secret that post-industrial districts in the west of Scotland have some of the worst health profiles in the country. Glasgow is amongst those areas that have suffered profoundly from high levels of socio-economic deprivation that are a consequence of post-industrial decline. Deindustrialisation is a phenomenon we, in Glasgow, associate with material deprivation and high levels of inequality in health and wealth terms.

Our challenges are well known. We have a high proportion of working age people who are economically inactive due to ill health. Large numbers of the population have no qualification, and communities in the city are over-represented in Scotland's most deprived areas.

This action plan is about people's lives. We all require an income, and quality of life is inextricably linked to quality of work. At a time when the cost of living is so high being out of work or in low-quality work can make you ill. But high-quality, well-paid employment keeps you well.

We are a reflective and resourceful city and we have learnt from the past. We must ensure that history does not repeat itself. We are designing robust and flexible systems that facilitate progression from a post-industrial to a post-carbon city in ways which prioritise and benefit our people and the environment. This is the ethos of the Glasgow Climate Plan and underpins all of our strategies for achieving net zero targets.

The power to create change, to face great challenge, rests with our people. This is a principle of climate resilience. To weather the impacts of climate change, people need to be connected, supported, and confident. And addressing the climate emergency requires us to accept our share of risk, act with urgency, and build the capacity of our people.

In all cases, people need extra support to reskill or upskill whether they move into new jobs or move away from jobs that are impacted by the transition. What matters the most is ensuring that extra support is available for those who will be disproportionately impacted, so that no-one is left behind.

## 2 Our Vision and Objectives

The purpose of the Just Transition Action Plan is to define and steer the role that skills will play in securing a just transition to a net zero and climate resilient economy. The focus is on what needs to happen in Glasgow to enable this transition.

A successful transition is not only important to our future economic, environmental and social outcomes, it is essential for the wider region and Scotland as a whole given the role we play as an economic powerhouse.

This Action Plan is about creating a fairer, greener future for all Glaswegians. We want every Glaswegian to be able to reskill and upskill to participate in the just transition to a net zero and climate resilient economy. This our vision.

In support of this vision, there are 3 objectives:

1. Strengthening the Skills Ecosystem
2. Facilitating and Meeting Future Demand
3. Promoting equity and equality through the delivery of the skills system.

These objectives are our priorities. They support the Scottish Government's National Just Transition Outcomes and are wholly aligned with the broader policy context for our city. This action plan has been designed to provide a leverage point for wider change towards net zero.

## 3. Methodology

This action plan has been jointly prepared by Glasgow City Council and Skills Development Scotland. It has been developed through a process of collaboration with a range of local, regional and national stakeholders.

The plan is based on the outputs of a review by the University of Glasgow and Cambridge Policy Consultants which examined opportunities and challenges associated with the green skills system. This included a review of literature and a consultation exercise with academia, public bodies, private sector partners, and third sector stakeholders. A number of key organisations input into this process including the Glasgow Council for the Voluntary Sector, Glasgow Social Enterprise Network, Community Enterprise in Scotland, the Federation of Small Businesses, the Chamber of Commerce, the Scottish Trades Union Congress (STUC) and the city's universities and colleges.

Further support was provided by K-Matrix who provided trends and insights on the low carbon goods and environmental services sector. This market intelligence related to spatial distribution as well as the pace and scale of the transition based on varying net zero and adaptation targets.

Partners were able to use this data to refine actions from a long list of opportunities. Through a process of co-production, actions were assessed in terms of their ability trigger change in multiple systems to support value chain transformation

#### 4. The Importance of Skills

Learning, training and education is arguably the most important factor in successfully managing the economic transition. Having the right skills is not a nice-to-have. It is vital and without proper investment and coordination we will not be able to face the future with confidence.

There are a number of reasons why skills are such an important entry point for wider action on the just transition.

Glasgow will not accept another economic transition that worsens living standards and exacerbates inequality. Diversity and inclusion go hand in hand with the climate resilience agenda. An equitable approach to skills development will facilitate a transition that is fair and just.

Without appropriate direction from the public sector on skills development, a market led transition risks widening the economic divide. It could increase what is known as failure demand, where the public sector pays to fix the things that are broken through wider economic choices.

Effective skills development interventions to deliver a climate resilient city can also create a more inclusive and productive economy.

A lack of skilled labour is likely to be the biggest practical barrier to delivering projects and programmes associated with the just transition. This is on top of a tight labour market and widespread skills shortages in key industries needed for net zero.

Robust and proactive approaches to reskilling and redeployment will reduce physical climate risks facing the city. The Climate Plan sets a strong, clear framework for achieving net zero and adapting to the impacts of climate change. This is supported by a recognised need for skilling and redeployment, as well as on wider green finance and social impact investment.

The time lag in the skills system for reskilling and upskilling means that work must start now to fully deliver the just transition. Whilst the pace of change will be more gradual than the abrupt economic disruption that characterised deindustrialisation, the development of new skills takes time.

## Case Study: City Building Training College

Earlier this year, City Building opened a new training college in Springburn to meet the future demands of its craft apprenticeship programme and continuous upskilling of its workforce. The college was designed and built by City Building staff using timber kit infill panels manufactured onsite at the Royal Strathclyde Blindcraft Industries (RSBi) factory, and is powered entirely by solar energy and air-source heat pumps with surplus energy routed to the adjacent RSBi factory. Alongside modern skills within renewable and technology sectors, a range of traditional trades from stone masonry to brickwork will be taught at the college, enabling the next generation to restore and maintain historic buildings across the country and providing upskilling opportunities which will support building retrofit and renewable energy installation in Glasgow.



Image source: [Urban Realm](#)

## 5. Green Opportunities for All

The just transition will not affect everybody in the same way. Individual experiences will be influenced by a range of factors. Some of these are person specific, relating to protected characteristics, household income, or educational attainment.

Emerging evidence shows that young people today will be more burdened by the impacts of climate change throughout their lifetime, as the effects of global warming are projected to intensify, with an increase in the frequency and severity of extreme weather events in the future. Indeed, climate anxiety amongst younger generations is a growing phenomenon. This is something that must be addressed, and the future needs of our young people must be safeguarded.

This action plan has an acute focus on the development of green literacy during the earliest years of life. We want all children in Glasgow to develop an understanding of the world and the natural environment, starting from birth. Nature based learning and the encouragement of environmental stewardship are already embedded across the full Curriculum for Excellence, which helps young people and children from 3-18 gain the knowledge, attributes, and skills needed to thrive in the 21st century. Indeed, we already have a well-established framework in learning for sustainability which is a whole school approach to life and learning that enables learners, educators, schools, and their wider communities to build a just, sustainable, and equitable society. We want to enhance this further, harnessing young people’s passion and interest in climate change and sustainability to enable them to have the knowledge and skills, in science, technology, engineering, arts and maths and other key subjects, required for future green jobs.

This is not to say that we don’t need to pay attention to older workers for whom retraining and reskilling is naturally more of a challenge – especially where individuals lack formal education. Long-term unemployment has always been a trend seen in older workers who have been affected by redundancies. Older workers are certainly at greater risk in the event their jobs are changed or eliminated.

Therefore, whilst we have taken an all-age approach to skills provision, we have also developed specific interventions that offer a tailored package of support to older workers. This will include access to training opportunities and the provision of wraparound employability support for those impacted by the transition to net zero.

Age is not the only consideration. With climate change comes inequality, and those who already face marginalisation are especially vulnerable. This includes:

- Women
- Minority ethnic communities
- People with disabilities
- LGBTQIA+ communities

Poverty is more common within each of these communities. The reasons are complex, but we can say with certainty that individuals with protected characteristics face significant discrimination in employment, provision of goods and services and access to services such as education and health.

The unemployment rate for women, people from minority ethnic communities, people with disabilities and LGBTQIA+ is higher than the rest of the general population. It is higher still in instances where multiple protected characteristics intersect. Such individuals are more likely to be underemployed, in low pay jobs, or in insecure employment.

Still, diversity is one of our city’s great strengths. Embracing diversity widens access to the best talent and increases productivity. Thus, we must dedicate resources to supporting those who are marginalised and furthest from the labour market to be able to access the employment opportunities afforded by the transition to net zero. The economic and social benefits of this approach will set a long-term context for a more just and equal city

In addition, people from lower-income backgrounds or with lower levels of education tend to lack the available means or transferrable skills required to adjust to changes in the labour market. It can be more difficult to meet the higher short-term costs from net zero or climate impacts. Therefore, we will promote a dedicated training support fund that can be used to address the practical barriers that prevent individuals accessing training opportunities. We will also work with industry and trade unions to promote the funded and accessible opportunities that are available for retraining and upskilling of employees, particularly in instances where formal qualifications are lacking.

## 6. The Policy Context

The concept of a just transition is not new. The term was coined in the 1980s in the USA at a time when new environmental regulations were impacting on industrial practices and products. But the notion has existed for a long time, and as we have already described, it resonates with Glaswegians, particularly those who were never able to work again following the closure of heavy industry.

Ensuring this transition is just is a firm commitment of local strategy. The [Strategic Council Plan](#) and the [Glasgow Economic Strategy](#) both describe climate change as a pressing priority for the city, mapping out the measures required to ensure that the benefits and costs of the sustainable transition on the city's economy are fairly distributed.

In 2023, Glasgow City Council published a [Just Transition Working Group Report](#). This report was developed by a cross-party working group with input from industry and community representatives. The report considers a number of key themes around the role of local and national government, the responsibilities of the private sector, and the implications of the transition for citizens, communities and workers. This action plan supplements and progresses the recommendations of the report, which call for structural adjustment through training and skills support.

All of this is underpinned by the Glasgow Climate Plan, which is our principal strategy for achieving net zero. It aligns local policy with regional, national and international targets. [The Glasgow Climate Plan](#) is enhanced by the [Glasgow Green Deal](#), which looks to establish new models for mobilising finance and climate resilient investment.

The figure below provides a snapshot of just some of the relevant policies, all of which identify skills as a key area of intervention in responding to the climate emergency.

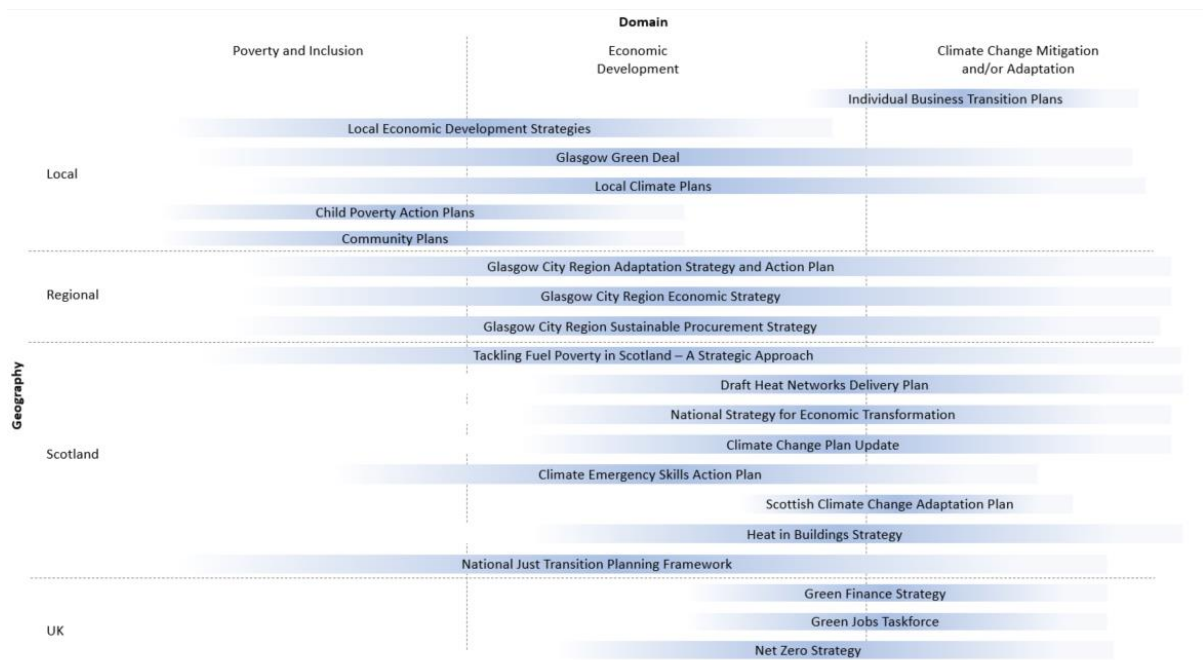


Figure 2 - Policy mapping for a just transition by geography and domain.

These policies commit to the delivery of major sustainable infrastructure investment programmes, including the completion of the [Glasgow City Region City Deal](#), as well as delivery of the City Region Investment Zone, Clyde Mission, and the regional housing retrofit programme. Such programmes, which straddle climate mitigation and adaptation, are designed to bring about long-term strategic approaches to improving the local economy, creating new low-carbon jobs through direct and follow-on investment.

The national [Skills Development Scotland Climate Emergency Skills Action Plan](#) advocates for alignment across post-school learning, and the [Just Transition Commission](#) raises the issue of skills underutilisation in the higher education sector. Furthermore, the [Withers Review](#) calls for a restructuring of the national skills system to ensure the most efficient deployment of Scotland’s post-school education and skills investment in a way that results in parity of esteem for all types of learning and achievement. This is an important consideration when planning for an equitable and fair transition.

## 7. The Economic Context

The composition of the local economy has a huge influence on how people will interact with the transition. The extent to which Glasgow’s key sectors and supply chains comprise high emitting industries or climate vulnerable business – particularly those with international supply chains – determines the skills interventions that are required.

At a UK level, the transition is projected to create a net increase of 300,000 jobs. There will be opportunities in renewable energy, heat networks, sustainable construction and retrofit, and energy efficiency. Utilities will see the greatest increase in output as a sector, generating up to 35% more jobs compared to now. At any rate, upward of 20,000 new jobs are estimated to be created for the city of Glasgow alone by 2050.

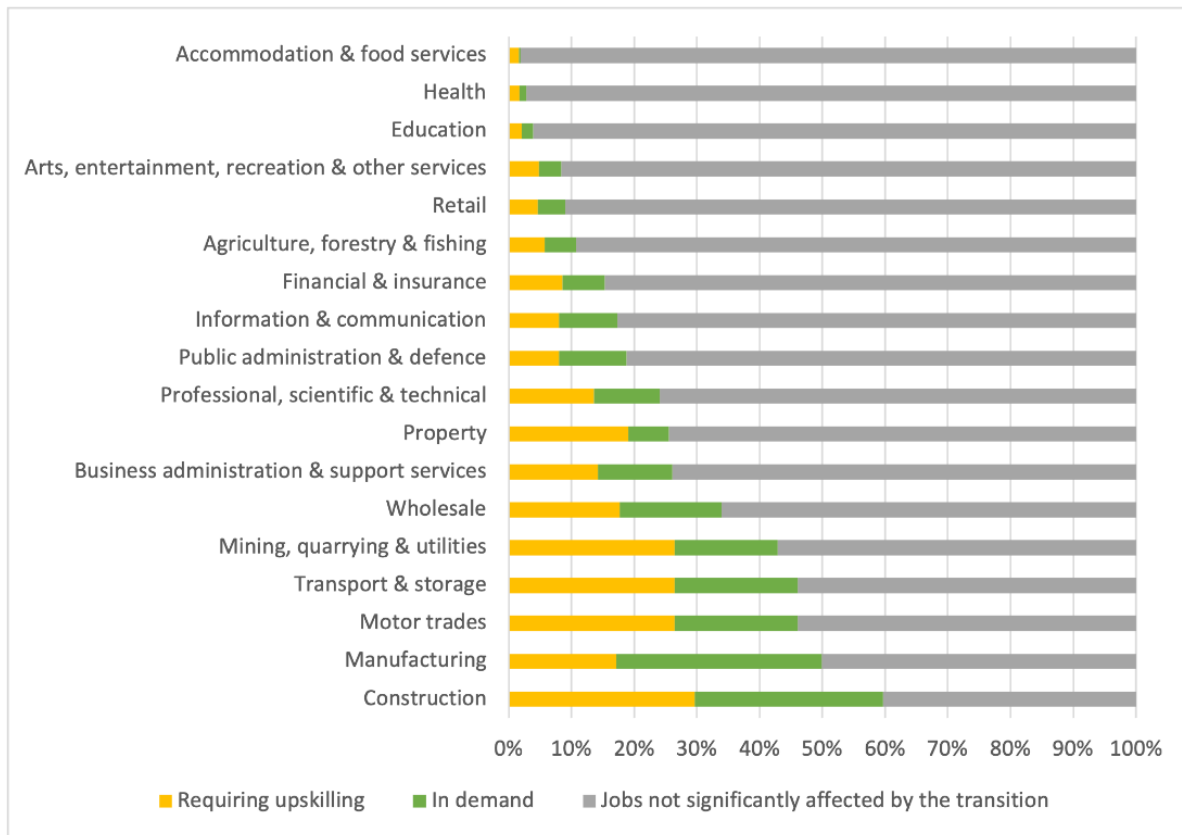


Figure 3 - Jobs requiring upskilling, jobs in demand, and jobs not significantly affected by the transition, by sector. Source: PCAN, 2021.

Other sectors will be largely unaffected in terms of output or the number of jobs created. The image above outlines jobs requiring upskilling, jobs in demand, and jobs not significantly affected by the transition, by sector. Nonetheless, the jobs required of these sectors will be very different. For example, we will see a shift in the demands on goods, products and services relating to manufacturing, motor trades, and transport and storage. New innovative technologies, digitisation and automation have long been shaping the nature of these industries. They will continue to do so in the context of a greener future, and the jobs required will be very different.



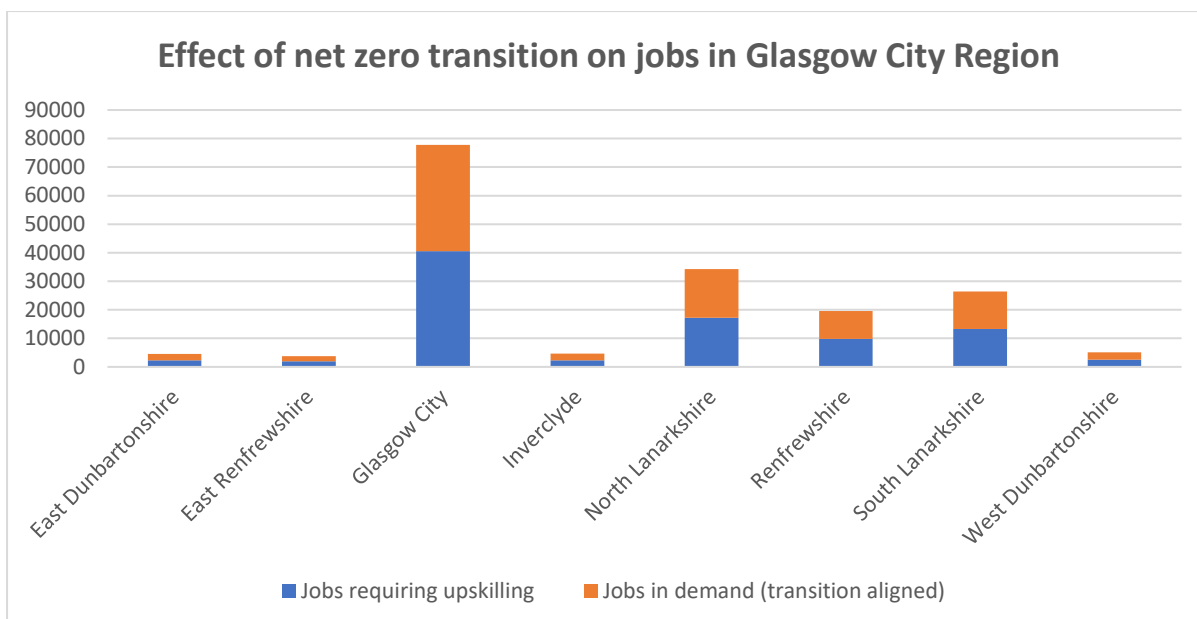


Figure 4 - Effect of net zero transition on jobs in Glasgow and the wider City Region. Source: PCAN, 2021

At the city region level, it is estimated that 89,000 jobs will require reskilling or upskilling. This represents 10% of all existing jobs, the greatest proportion of which are concentrated in the city of Glasgow itself as outlined in the table above. However, given the nature of the regional labour market and the inability to separate people who live and work in different parts of the region, we must consider the composition of the economy across the extended urban area when looking at green skills.

What we do know is that jobs that will change relate, in the main, to transport, buildings, energy, manufacturing and industry and waste, with the skills shortages that relate to each of these sectors outlined in the table below.

Sector	Skills Shortages
Energy	Engineering, technical roles, supply chain
Buildings	Building envelope specialists, project managers, electricians, plumbers, plasterers
Transport	Zero emission vehicle maintenance, senior, executive, and business process managers, other construction process managers, non-construction professionals, technical, IT, and other office-based staff (excluding managers), specialist building operatives, plant mechanics/fitters, specialist electricians (EV, smart meters, batteries)
Manufacturing and industry	Re-manufacturing and digitalisation
Waste	Repair, maintenance, and remanufacturing
Agriculture and land use	Organic agriculture and horticulture, forest management and planting, peatland restoration

Figure 5 - STUC identified skills shortages relevant to the transition.

For Glasgow, transport is by far the biggest sector where the transition will have to happen as detailed in the chart below. Regionally there are over 16,000 jobs in this sector, associated with the manufacturing and maintenance of motor vehicles, ship building, air and space, and railway and airport operations. These are areas where jobs will undoubtedly change or be replaced.

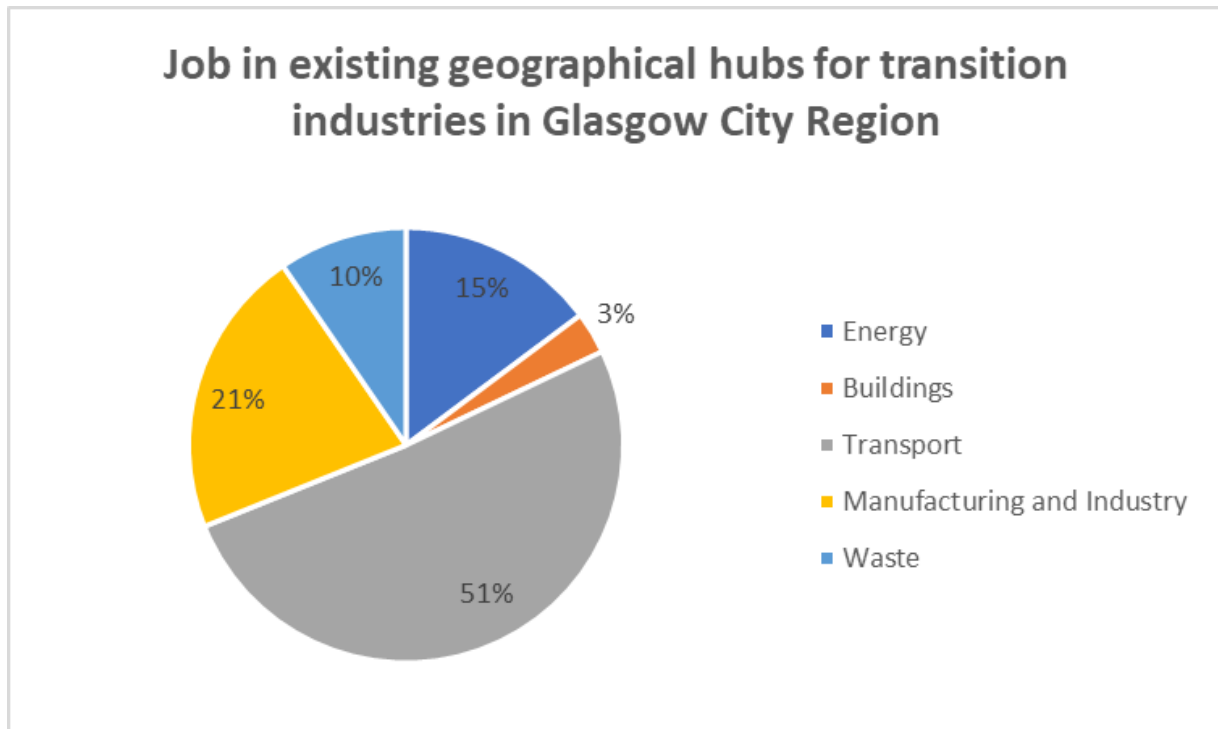


Figure 6 - Share of jobs in existing geographical hubs for transition industries in Glasgow City Region. Source: STUC (2021)

Mitigation and adaptation programmes are high job creators with a strong benefit to cost ratio as shown in the table below.

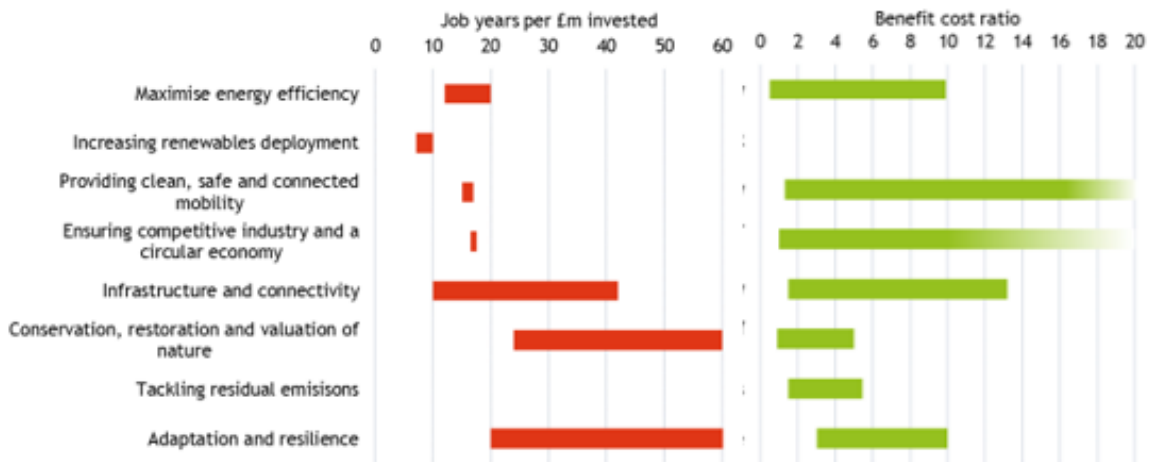


Figure 7 - Job years per £m invested (left), and benefit cost ratios (right), of key mitigation and adaptation investments. Source: Pengwern Associates for Glasgow City Council, 2022

Estimates show that 9% of jobs in the city region are transition aligned. This means that they are operating in sectors and businesses that are already providing skills that are likely to be in high demand and so benefit quickly from a shift to the low carbon economy.

What’s more, a recent study into our green economy quantified the overall size of existing low carbon and environmental goods and services. It showed that the region has a growing green economy with over 30,000 already directly employed across relevant industries, with the breakdown per sector shown below.

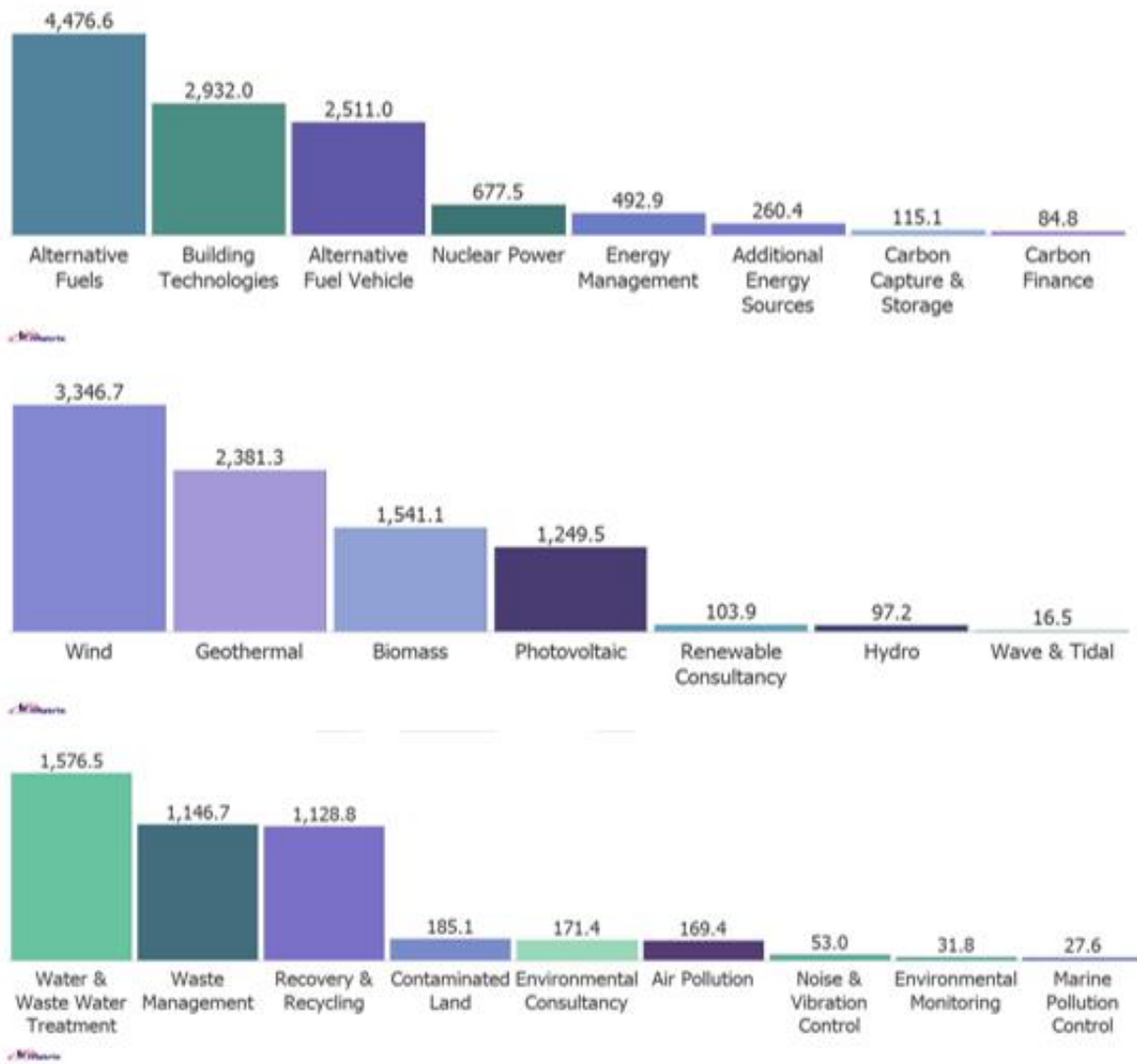


Figure 8 - Employees working in the low carbon (top), renewables (middle) and environment (bottom) subsectors in Glasgow City Region. Source: kMatrix Data Services

Forecasts have also estimated that up to 46,000 employees are required for these sectors to achieve net zero by 2030, and up to 110,000 required by 2045. Current employment in the low carbon economy has recovered well from a sharp contraction due to the pandemic, and findings indicate that up to 85,000 new jobs will be generated by 2045.

Glasgow has a history of excellence in all aspects of engineering, and there is an opportunity to build on our manufacturing and high-end engineering base. Based on our strengths, a number of specific opportunities have been identified relating to air source heat pumps, photovoltaics, and semiconductors. An analysis of sectors for the Glasgow City Region innovation agenda has also indicated that net zero is one of the largest in the metropolitan area and directly connected to a range of innovative local businesses.

Focusing on these areas would not only create new jobs and upskilling opportunities for Glasgow, it would begin to address the current energy crisis through local production of low carbon and renewable energy and heating solutions.

One would be forgiven for thinking, based on this data, that all green jobs are going to be good jobs. Whilst this is true in broad terms, there will be an impact on less obvious sectors such as retail, hospitality and the foundational economy. There is a real risk that the transition will disrupt low paid workers as employers seek to accommodate increasing costs and changing consumer preferences. Therefore, efforts are required to ensure that low paid workers benefit from jobs in higher paid sectors, with the development of new skills being the passport to opportunity in tandem with the delivery of fair work principles where all employers must, as a minimum, commit to paying all staff the real living wage.

## 8. The Skills System

In addition to the individuals and sectors at risk, there are several wider challenges that must be considered as we plan a strong skills pipeline.

1. There is a risk of that the skills supply system is not stable enough to meet market needs. The Covid pandemic, Brexit, and the cost-of-living crisis are amongst factors that continue to deal heavy blows to the economy. Industry, as a result, has experienced profound people and skills shortages.
2. Net zero and climate resilience can only be achieved if behaviours and production methods change.
3. The skills system must simultaneously reduce skills underutilisation and shortages. There is scope for significant improvement in both areas.
4. Periods of significant economic change tend to result in younger people, deprived households, and disadvantaged groups falling behind.
5. Growth is most likely to occur in sectors that currently employ relatively people with protected characteristics (such as energy efficiency, electricity grid infrastructure, installing, repairing, and maintaining EV charging points, flood risk management, and a range of infrastructure works).
6. Recent economic turbulence has also impacted on the post-school education and training system, which has been significantly impacted by public funding cuts.
7. Employability and skills interventions need to be aligned to reduce inequality and increase fair work. This includes ensuring those with protected characteristics have equity of participation.
8. A particular challenge is aligning timescales for skills development to meet the requirements of future net zero and adaptation interventions.

## CASE STUDY: LOW CARBON LEARNING – SKILLS FOR HOUSING RETROFIT

Launched in April 2021, Built Environment – Smarter Transformation’s **Low Carbon Learning** programme offers valuable training for people in the construction sector looking to upskill and reskill to help meet the growing demand for green, energy efficiency expertise that will aid Scotland’s transition to zero carbon.

The programme is the first of its kind in Scotland to cover Passivhaus and EnerPHit, the globally recognised approaches for the design, construction and retrofit of highly energy-efficient buildings. Training is free-to-attend and includes a mix of online and in-person courses, workshops and webinars focused on core areas deemed to be critical to the future of the sector.

A fabric-first module was recently added to the offering, with guidance and support for construction professionals on how design decisions can influence energy consumption, as well as a carbon accounting module to highlight the need for environmental data to be calculated for each project.

To date, more than 500 people have attended face-to-face training workshops at BE-ST’s Innovation Factory, with a further 1,600 completing online programmes in retrofit and Passivhaus standards. As part of the initiative, 45 individuals have also received accreditation from the Passivhaus Trust and BE-ST has engaged with more than 70 businesses and 40 education providers.

**Low Carbon Learning** is supported by Skills Development Scotland, the Scottish Funding Council and the National Transition Training Fund.



## 9. The Action Plan

25 strategic actions have been identified according to the three key objectives outlined earlier. These actions have been developed through a process of collaboration with a range of city-wide partners.

This action plan represents a short-list that has been assessed in terms of feasibility and impact. Activity has been costed and will be delivered within the parameters of existing and available resources.

Delivery will be phased, with all of these actions completed in full by 2030.

<b>OBJECTIVE 1 Strengthening the Green Skills Ecosystem</b>	
Action	
1	Launch a Glasgow Just Transition Jobs Fund to support reskilling and upskilling across all sectors.
2	Develop and deliver additional low carbon and climate resilient modules to existing FE and HE courses.
3	Develop a series of green skills bootcamps for heat decarbonisation, housing retrofit and transport, that focus on early skills pathways / accreditations that recognise unskilled/voluntary work as a series of credits which contribute to entry to further formal qualifications
4	Extend the Step Up to Net Zero project to support the development of specialist skills.
5	Scale up a city-wide green apprenticeship scheme in a range of areas, such as retrofit, construction, and renewables.
6	Continue to engage with national organisations (SFC, SDS) to blend national funding with local employability and skills funding to support an all age offering.
7	Ensure comprehensive climate justice impact assessments undertaken in skills policy and climate planning.
<b>OBJECTIVE 2 Facilitating and Meeting Future Demand</b>	
8	Develop a Developing the Young Workforce 2.0 Strategy, that maps out how we will inspire our young people and prepare them for green jobs.
9	Promote opportunities to unlock additional investment in learning for sustainability where it supports climate literacy and environmental stewardship for all learners from early years through to school leavers.
10	Develop a challenge-led approach to engaging 16-25 year olds in solving sustainability problems for businesses in Glasgow and wider Scotland, with a particular focus on those individuals furthest from the labour market or most at risk from the transition
11	Develop a Glasgow retrofit academy to upskill and reskill construction specialists
12	Establish an innovation skills alliance to capitalise on investment in innovation, ensuring it stimulates the supply of high-end green skills.
13	Secure a green jobs guarantee for the city.
14	Implement a green-skills passport that covers through from early years to retirement.
15	Scale up the SMART STEM programme in primary and secondary schools to inspire the next generation about Science, Technology, Engineering and Maths.

16	Publish a Glasgow City Climate Infrastructure pipeline with associated job creation potential to provide market stimulus.
17	Publish industry estimates of the size of Glasgow's future Low Carbon Goods and Environmental Services and adaptation sectors, and skills needs for this
18	Work with investors and partners to extend the pipeline to scale market demand.
<b>OBJECTIVE 3 Promoting equity and equality through the delivery of the skills system.</b>	
19	Embed green skills in all employability provision, to ensure the support to those furthest from the market is delivered in line with the economic transition.
20	Launch a package of support specifically for older workers that includes funding support and job coaching.
21	Engage with the Sustainable Glasgow Green Economy Hub and the Chamber of Commerce Skills and Employment Board to ensure strong partnership focus on this agenda.
22	Establish a training support fund for individuals with protected characteristics that can be used to address the practical barriers that prevent individuals accessing training opportunities.
23	Work with FE and HE to scale up the funded green skills opportunities that are available for individuals with protected characteristics.
24	Work with industry and trade unions to promote the funded and accessible opportunities that are available for retraining and upskilling of employees, particularly in instances where formal qualifications are lacking.
25	Utilitise international networks including the Resilient Cities Network, Eurocities, and the OECD Jobs and Skills Network to share and learn from peer cities from across the globe on managing an equitable transition.

## 10. Governance and Monitoring

The delivery of this plan is entirely dependent on strong partnership working. We are well experienced in developing synergies by combining resources, expertise and ideas from different agencies and authorities.

There are two principal partnerships that provide strategic guidance and leadership to this agenda: the Glasgow Local Employability and Skills Partnership (LEP); and the Sustainable Glasgow Partnership.

The green economy is a key area of interest for the Sustainable Glasgow Partnership. We will work with the Green Economy Hub to ensure strong partnership focus on this agenda. We will also link with other hubs on specific topics, such as the Housing and Heating hub in relation to energy and retrofit skills.

The LEP consist of key strategic employability partners and is chaired by the Council. Given the rapidly changing funding landscape and policy context, the LEP committed to implementing and monitoring this action plan. It will be reviewed and updated annually to account for emerging developments and opportunities.



The LEP will work with the Scottish Government to ensure efforts are coordinated and aligned with the Scottish Government's emerging Just Transition Planning Framework.