North East
Local Enterprise Partnership

European Union
European Structural
and Investment Funds

Sustainable Urban Development in the North East

July 2017

CONTENTS

Executive Summary

The North East approach to Sustainable Urban Development (SUD) is built around the development, demonstration and commercialisation of new integrated approaches to global urban challenges, becoming a 'living laboratory'. It is backed by excellence in areas of smart specialisation, innovation and a rapidly developing expertise in areas of low carbon growth.

SUD provides an opportunity to test and develop innovative, integrated and partnership based responses to the key global challenges facing urban areas. It draws on the capacity and expertise of the full range of partners represented in the quadruple helix of private, public and voluntary and community sectors, working with universities and research institutions.

Projects addressing three key elements will be developed through the SUD, as set in out in more detail in Section 3.

Sustainable energy systems and networks

- **Energy generation** from renewable sources and waste-energy as part of an integrated approach to energy generation and distribution.
- **Energy distribution** and storage as part of an integrated network or system.
- **Whole place** approaches to ensure the whole building or place is maximising energy efficiency to manage demand as well as supply through improvements and retrofits.

Sustainable transport choices

- **Sustainable and health travel network** moving to low carbon travel choices, such as increased walking and cycling and improving links and usage of public transport hubs.
- **Low Carbon Vehicles** building on local strengths in low carbon vehicle manufacture and innovation to increase take up of low/ultra-low carbon vehicles for passengers and freight.
- **Effective systems** using more data-driven, smarter and real time approaches to understand and manage traffic flows to reduce congestion and pollution.

Sustainable infrastructure investment

- **Sustainable Place**s bringing together individual investment at a specific site or particular technology to enhance and improve the wider location to reduce flood risk, carbon emissions, pollution or the impact of temperature through better design.
- **Reducing flood risk** by integrating an innovative approach to re-designing natural flood risk reduction or mitigation into established urban fabric.

Introduction to Sustainable Urban Development in the North East LEP area

Cities, towns and surrounding places play a significant and growing role in driving economic growth across the globe. The proportion of the World's population living in urban and semi-urban areas has reached a historic high, and both population and economic trends further emphasise the benefits of agglomeration.

This is a long-term trend which brings both challenges and opportunities. Despite the positive economic impact of the increasingly urban pattern, the resulting concentration of people, vehicles, buildings and businesses in specific places requires ever improving infrastructure and poses environmental and social challenges.

These are particularly visible in longer established urban areas with infrastructure in place, a relatively settled resident population and limited scope for wholesale redesign. In such places a more innovative approach is required, adapting and making better use of what is already in place. Facing new, agile challengers from across the globe, long-term economic prosperity for Europe's cities requires new approaches to addressing key challenges around energy systems and networks, sustainable infrastructure and low carbon and more sustainable transport. The importance of this is recognised in the Europe 2020 agenda and directly underpins SUD.

This investment will provide benefits locally, driving growth and meeting the need for 'more and better jobs', as detailed in the North East Strategic Economic Plan. By building on the existing strengths in research and development, the business base, skills and public institutions, the development and demonstration of practical solutions will support jobs and business growth. This is part of the move towards an innovation-led economy, based on the principles of open-innovation and demonstration of technologies around those areas highlighted as being sources of smart specialisation.

The need for proven, adaptable solutions places a premium on living laboratories and demonstrator sites, which the North East is well, positioned to provide due to its location, scale and characteristics. This forms the basis of our approach to SUD, of a living laboratory using networks and systems and better integration of data to address key challenges of sustainable transport and energy. As such, responding to these challenges will not only benefit the local area but, through the lessons learned, and the technologies and approaches developed, will have global potential.

The North East LEP area European Structural and Investment Funds Strategy draws on a shared evidence base to place these challenges and opportunities in the context of a smart, sustainable and inclusive growth framework. This demonstrates the need and direction for aligned investments totalling €550m[1] across innovation, SME growth, low carbon and sustainability, employability, inclusion and skills policy areas. This SUD strategy adds an additional place dimension to this utilising an integrated strategy to inform how 10% of the ERDF allocation, worth €23.8m (£18.6m), is invested.

[1] Representing over £390m worth of investment from ERDF, ESF and EARFD at the current exchange rate and not including the further investment in County Durham from the Youth Employment Initiative.

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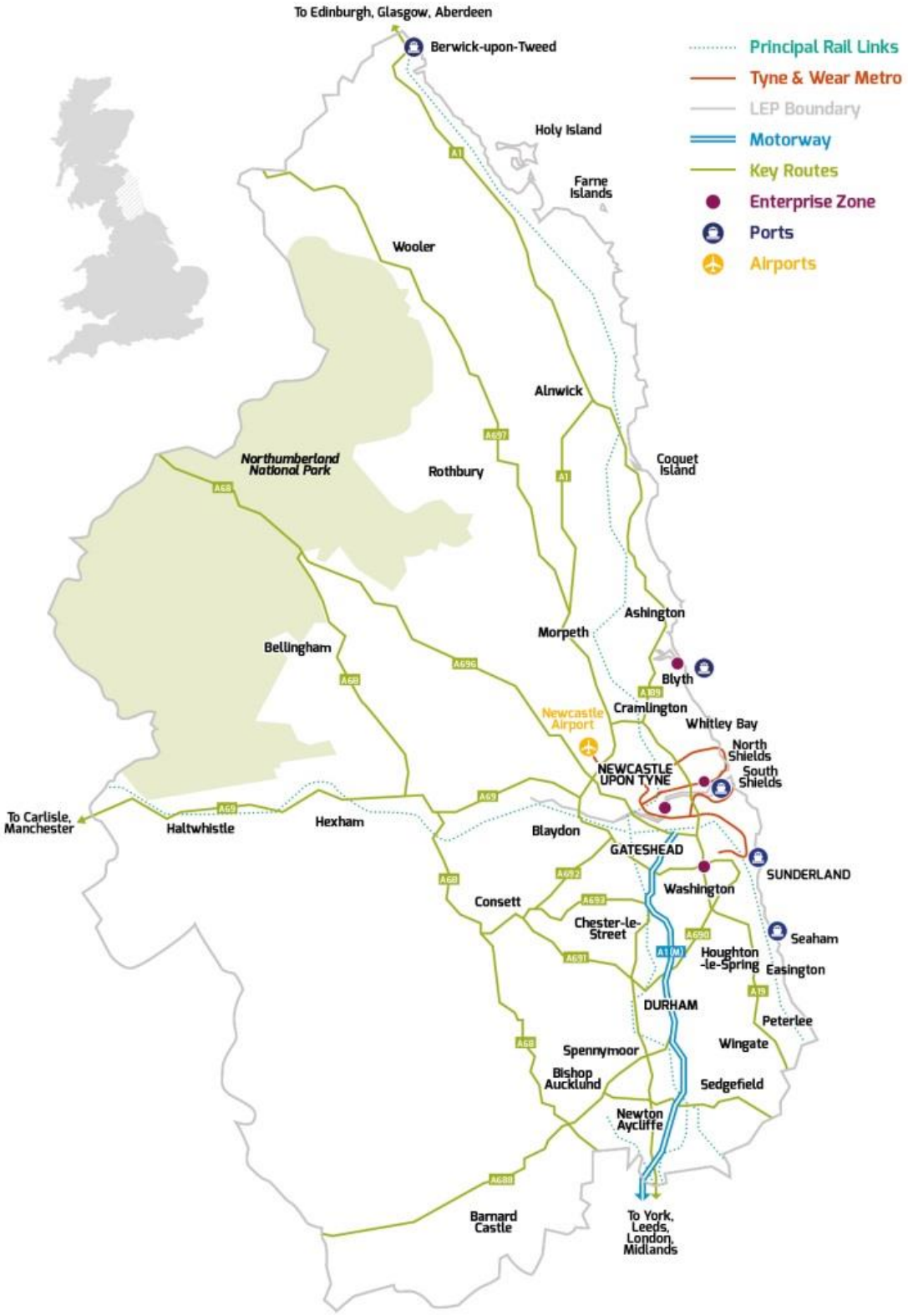
Section 1
Descriptor of the urban areas/functional economic geography targeted by the strategy



1.1 Introduction to the North East LEP area

The North East Local Enterprise Partnership (LEP) is a private-sector led partnership with the area's seven local authorities (Northumberland, Newcastle, North Tyneside, Gateshead, South Tyneside, Sunderland and Country Durham) and higher education sector.

The North East LEP is responsible for developing and ensuring the delivery of the Strategic Economic Plan; working across partners and sectors to achieve economic growth and 'more and better jobs'.
The LEP leads on three SEP programmes: innovation, business growth and skills stimulating, initiating and leading projects as appropriate. The North East Combined Authority covers the same geography as the North East LEP, provides the accountable body function to the LEP and takes the lead on transport, economic infrastructure and assets and employability and inclusion SEP themes.
Each of the local authorities represents and leads on delivery in local areas and, with a diverse range of partners, leads on specific projects to deliver the SEP and local strategies. The education sector, represented by the universities and colleges also lead on specific delivery projects in addition to their statutory responsibilities. The North East partners are committed to delivering through a quadruple helix model where appropriate, with members of the voluntary and community sector a core element to delivering projects in a way which maximises community engagement and involvement and has a positive impact on all areas.

The North East LEP area is a distinct geography with a population of almost 2 million and a sizable economy worth £74bn each year supporting 865,000 jobs, bounded by the North Sea and the rural areas of the Scottish borders, Cumbria and North Yorkshire. Our evidence base demonstrates strong performance during previous growth cycles, successfully improving employment, business start-up, skills and economic activity rates, to close the gap with the national average. Making the most of these strengths and opportunities, and addressing our challenges, forms the core of the drive for 'more and better' jobs. This approach is described in the North East Strategic Economic Plan and European Structural and Investment Funds Strategy[2] and is continued in this Sustainable Urban Development strategy.

The North East is a diverse but coherent economic area with high levels of travel throughout Northumberland, Tyne and Wear and County Durham for work and learning, as well as established supply chains between businesses. This is most intense around the urban areas reaching out from the rivers Tyne and Wear, to cover the five metropolitan local authorities, southern Northumberland and northern County Durham. As well as vibrant urban areas, the North East also has complementary assets in the rural locations of County Durham and Northumberland.

Responding to these opportunities and challenges, the North East LEP's Strategic Economic Plan sets out clear aspirations to support private-sector led growth, increasing the proportion of employment in the private sector and productivity to reduce the gap with national averages. The Strategic Economic Plan identifies the role of cultural and physical assets in supporting growth alongside four areas of specialism that economic analysis and regional engagement have highlighted as areas of our economy that provide distinctive growth opportunities:

1. Tech North East: Driving a digital surge
2. Making the North East's Future: Automotive and medicines advanced manufacturing
3. Health Quest North East: Innovation in health and life sciences
4. Energy North East: Excellence in subsea, offshore and energy technologies.

These sit alongside three enabling service sectors:

- Education
- Logistics
- Financial, professional and business services.

To support these developments the Strategic Economic Plan incorporates six programmes: Innovation, business growth and access to finance, skills, employability and inclusion, economic assets and infrastructure, transport and digital connectivity.

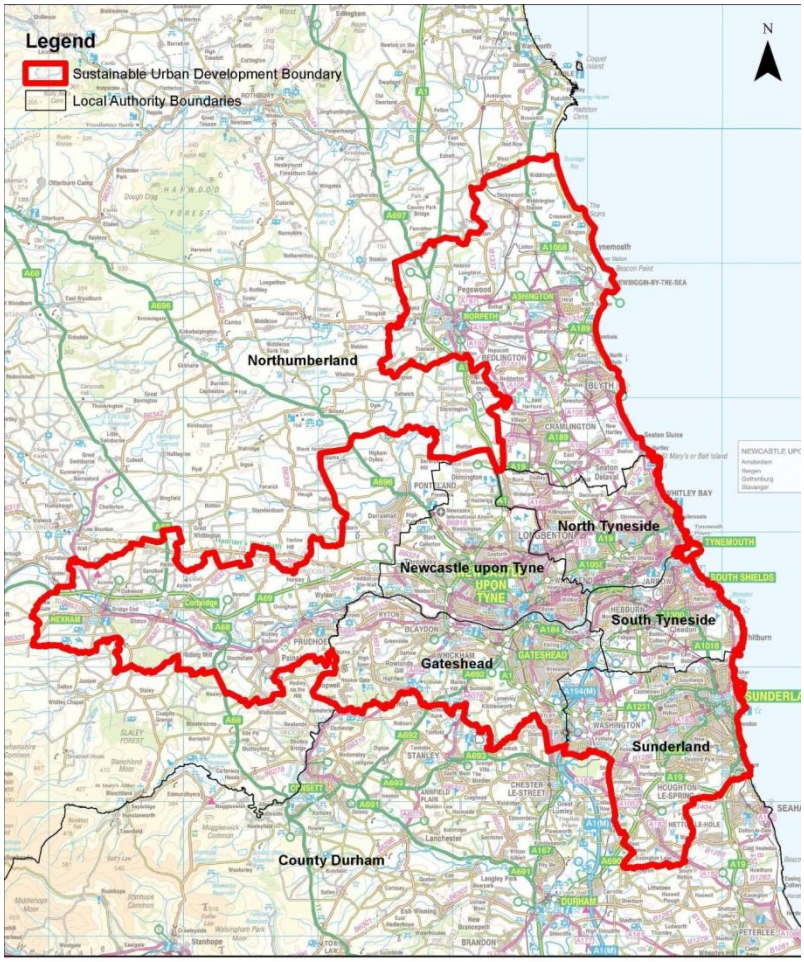
2 http://nelep.co.uk/wp-content/uploads/2014/11/North-East-Strategic-Economic-Plan-More-and-Better-Jobs.pdf
http://nelep.co.uk/wp-content/uploads/2014/10/summary-north-east-lep-esif-strategy.pdf

1.2 Defining an urban geography for SUD

The North East LEP area covers seven local authority areas; however the SUD strategy incorporates only part of the geography most closely linked to the large 'urban area', centred on Tyne and Wear.

In consultation with partners, and using analysis, an urban geography has been developed that will form the area for SUD. This builds on previous analysis of the Tyne and Wear City Region[3] area, encompassing Gateshead, Newcastle, North Tyneside, South Tyneside and Sunderland local authorities and the southern portion of Northumberland where the economic links are strongest.

Part of the established urban geography draws in parts of northern and eastern County Durham (around Chester-le-Street, Consett, Durham City and Seaham in particular). However, County Durham is part of a transition region, and therefore its inclusion would result in disproportionate administrative challenges for a limited amount of resources. The SUD proposal for the North East will therefore only operate in the 'more developed' category of region.



Newcastle City Council will take on Intermediate Body (IB) status for SUD ERDF, for the six local authority areas within the more developed part of the North East LEP geography.
The following map shows the area for activity under the Sustainable Urban Development proposal.

Published May 2017 Scale: 1:300,000 Produced by the Digital Team, Information Services, © Crown Copyright. All rights reserved. NORTHUMBERLAND COUNTY COUNCIL OS Licence No. 100049048.

3 Tyne and Wear City Region Economic Review

1.3 The Sustainable Urban Development geography within the North East LEP area

The urban geography proposed for the NE Sustainable Urban Development Programme has:[4]

- A population of 1.3m people[5] or two-thirds of the LEP population
- Over two-thirds of the economic output at about £22bn[6]
- Half of the total business count, providing a higher rate of employment with 60% of medium and 75% of large businesses located in this area
- Jobs growth, 65% of the jobs growth between 2005 and 2015 occurring in Tyne and Wear
- Higher paid jobs, with average weekly workplace pay being higher in Tyne and Wear (£487.20) than either of the more rural counties (£447.50 and £452.10 respectively).[7]

However, the urban geography is diverse, with larger economic centres around the cities of Newcastle and Sunderland, larger towns, including Gateshead, Washington, South Shields and North Shields, coastal communities along the North Sea from Sunderland through Tynemouth, Whitley Bay and into south east Northumberland including Blyth and Ashington, the market towns of Hexham and Morpeth with a range of urban and semi-urban locations between these larger centres.

These areas perform varied and complementary roles in the economy and are set out in more detail in local economic strategies:

- The strong manufacturing and engineering tradition is continued in places such as Sunderland, Washington, Team Valley and the A19 corridor through North and South Tyneside into south east Northumberland
- The city of Sunderland represents both a strong manufacturing centre and a more diverse location including education and digital/software expertise
- The largest concentration of economic activity remains in the Newcastle Gateshead area, which incorporates many of the key transport connections and the largest concentration of financial, business and professional services in the North East (although significant pockets are present in out of town locations in North Tyneside and Sunderland) among a diverse economic base.

With such diverse but interlinked locations, connectivity is key, with these areas linked by a network of roads, the Metro light rail system, a relatively limited rail service and a comprehensive bus network.

The urban area also includes major transport hubs such as the Ports of Tyne, Sunderland and Blyth, Newcastle International Airport and main stations at Newcastle (Central), Sunderland and Morpeth on the East Coast Mainline which link into national and international trade routes.

[4] Due to data availability output and other figures use Tyne and Wear figures as a proxy for the 'urban area'. This underplays the full impact of the entire 'urban geography' in the LEP economy but provides a sense of scale and impact.
5 ONS Mid-year population estimates 2014
6 ONS Regional GVA figures 2013 (published December 2014)
7 ONS IDBR 2014 and ASHE median workplace earnings 2014

Section 2
Summary of the socio-economic context and identification of main problems, policy challenge and opportunities faced by the urban area

Local partners have a strong understanding of the area, the opportunities and challenges. A shared evidence base in the North East Independent Economic Review and accompanying studies into smart specialisation, inclusive growth and sustainable growth support a common understanding of the socio-economic context.

Drawing on these the North East Strategic Economic Plan and North East LEP area's ESIF strategy set out an overarching evidence base and approach to the economic, environmental, climate, social and demographic challenges in the local area.

The partnership underpinning the development of the SUD proposal is wide-ranging. It has been supported through the North East LEP, the North East Combined Authority and the six local authorities involved (Gateshead Council, Newcastle City Council, North Tyneside Council, Northumberland County Council, South Tyneside Council and Sunderland City Council).

As is highlighted by a range of national, regional and local policy (relevant national and regional policies supported are set out against each theme area in the table - Annex 1), there is a need for an integrated approach to SUD that overcomes silos and individual developments.

This also opens the potential for projects that respond to multiple strategic drivers at a local, regional and national level. For example, improving facilities and signage and innovative approaches to these underpin aims set out in the local transport plan, Northern Powerhouse transport plan and Department for Transport (DfT) cycling and walking strategy, as well as the shift to a more digital based economy set out in the Industrial Strategy documentation.

Similarly the approaches to low carbon energy systems, with generation, storage and distribution all key are set out in the UK Renewable Energy Plan and are highlighted as areas of opportunity in the Industrial Strategy and Northern Powerhouse economic review as well as the North East Strategic Economic Plan and local authority energy planning and emerging low carbon plan.

2.1 Economic context - A growing, innovative and sustainable economy with a solid advanced manufacturing and engineering base

The economic context lends itself to the demonstration of new, innovative technologies with the focus on data and systems within energy, transport, and integration into place-based interventions. Within the overall employment growth trends in the North East LEP area, the urban area represents the largest economic driver with a job density consistently higher than the LEP average, although still below the Great Britain average (0.7 to 0.8) [8]. Despite the clear similarities in economic structure with the wider North East picture; the urban core includes higher representation from the financial, business and professional services, knowledge intensive activities, education and health as well as software, ICT and creative clusters. Whilst the LEP area overall has a high level of energy and utilities employment, this is more prominent outside of the urban area. [9]

The mixed profile reflects growth in both established and newer sectors. The Strategic Economic Plan sets out the potential for innovation-led growth built on the strong research skills and capacities of our four well-respected universities and research intensive companies. The North East is particularly well placed to make the most of the digital and offshore renewable energy catapults which have bases in the area, with application of data a key research strength.
The potential for the North East to take a lead in key areas of innovation, building on strengths and a commitment to open innovation was highlighted in the North East LEP's Smart Specialisation study[10]. This highlights four smart specialisation areas already present and in which the North East has genuine advantage, based on a strong mixture of assets, skills and business capacity.

In addition, a series of potential areas of smart specialisation were also identified which will increasingly be able to contribute to the economic performance of the North East LEP area, including surface science, public sector innovation, energy generation , storage and distribution, ageing, microelectronics, future/smart cities and design. The North East is therefore at the forefront in a number of technologies which can respond innovatively to global challenges.
Linked to these smart specialisation areas, in recent years the North East has developed significant and distinctive strengths in the low carbon environmental goods and services sector as highlighted in the sustainable growth study[11].

ClimateNorthEast identified major opportunities for further growth, with potential to drive a 0.8% increase in GVA and 10,000 new jobs by 2020, building on the strong combination of businesses, research institutions and appropriate skills, de-coupling the link between economic growth and carbon emissions and enhancing significant success to date to take a lead in low-carbon, sustainable, knowledge-based private sector-led growth and jobs.[12]

Such innovation-led and sustainable growth is enabled through a successful diversification of the economy and resurgence and continued growth and adaptation of long-established sectors. Digital and software has been a particular area of growth resulting in the North East emerging as one of the leading centres for digital games development and software, with Sage, Leighton Group, Ubisoft Reflections and Eutechnyx among thousands of flourishing software technology, gaming and creative businesses.

In addition to these positive growth trends in new sectors and businesses, the North East continues to be at the forefront of advanced manufacturing and engineering growth with strong export sectors around pharmaceuticals manufacture, energy/low carbon and environmental industries and world-class, highly productive engineering and manufacturing businesses providing strong foundations for the areas of smart specialisation. There is now an increased focus on specialist areas and moves to advanced manufacturing and high-skilled engineering. Local manufacturing has also been transformed, ranging from large scale industrial manufacturing, to lower volume, high value-added niche markets providing a clear opportunity to capitalise on global demand for high-quality manufactured goods.

Despite these positive trends significant challenges remain, with relatively low levels of employment, too few private-sector and high-skilled jobs, low business start-up, underperformance in spinning-out new ideas. A focus on driving innovation growth through the SUD will contribute to addressing these challenges.

8 ONS Job density figures 2015
9 ONS BRES data 2014
10 http://nelep.co.uk/wp-content/uploads/2014/11/north-east-lep-smart-specialisation-report.pdf
11 http://nelep.co.uk/wp-content/uploads/2014/10/sustainable-growth-final-report-14989-.pdf
12 http://www.climatenortheast.com/contentControl/documentControl/Summary%20Report%20FINAL.pdf

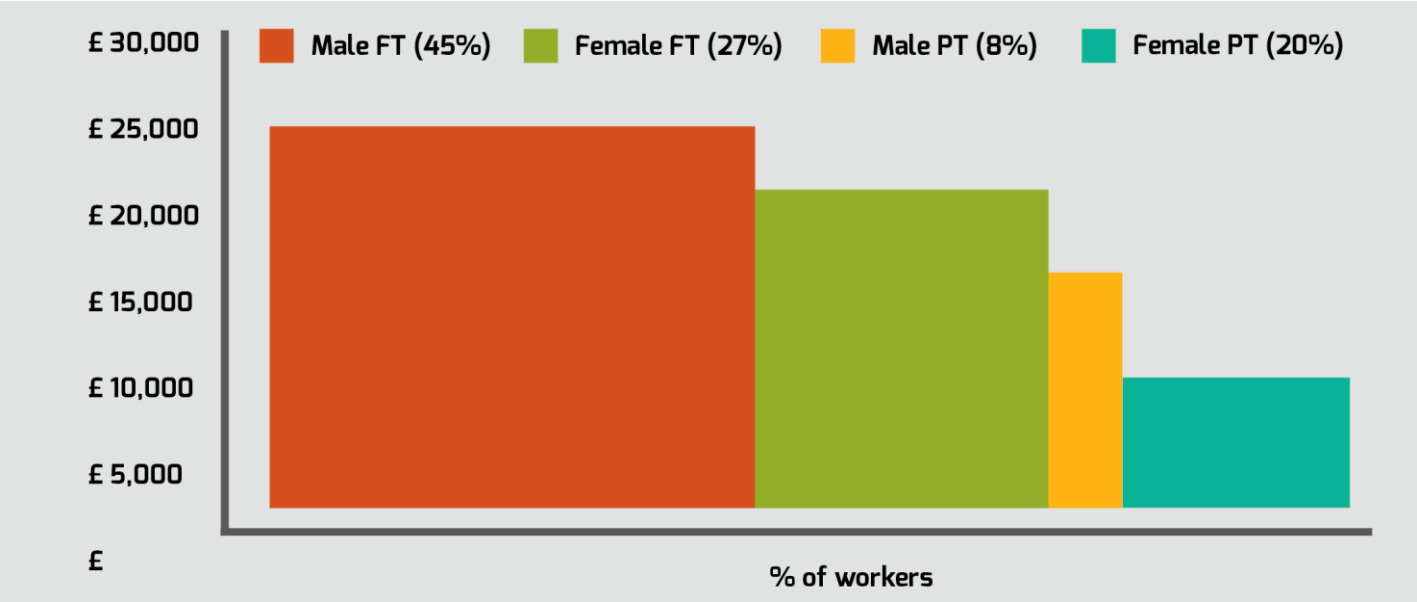
2.2 Demographic and social context - A diverse society representing a varied and challenging demographic to demonstrate solutions

The North East has a diverse population and room to grow. The population has been growing in recent years; however this has not matched the rapid growth experienced in other parts of the UK. It was as recently as 2013 that the population returned to the level seen in the early 1980s prior to major economic restructuring. In common with other areas, the North East requires new solutions to develop new areas of growth through products, services and applications.[13]

While the overall trends in society have been positive, the North East continues to face significant challenges. Despite the recent high of 1.2m people in employment representing a record employment rate of 69.3% in July 2015; too many people remain out of work or on low wages. In both the wider area and the urban locations among the pockets of wealth and affluence, there remain large areas of low economic activity and high unemployment resulting in overall levels consistently below the national average.

At just over 12% of those counted as unemployed being long-term unemployed (compared to 7% nationally) there is a significant challenge around entrenched disadvantage in the labour market. There are particular challenges around youth unemployment with 39,500 16-24 year olds unemployed.[14]

Earnings are relatively equal in distribution, by English standards, with no other region having a lower share of full-time employees earning 'low' and 'high' hourly rates (below 10th and above 90th percentiles of national distribution of hourly wages), but reflects relatively low overall levels and there are significant disparities between male and female workers.



A similar picture is visible in health related areas. There is a much greater proportion of people not in employment due to long-term sickness in the North East LEP area, and particularly the urban area, than nationally at 28.8%, although this reflects a long-term downward trend. Similarly, life expectancy in the urban area is particularly low when compared to the national figure, with male life expectancy at birth of 77.54 and female life expectancy of 81.62, lower than the national figures of 79.1 and 83 respectively. The proportion of physically active adults is also low, at 3 percentage points below the national average.

13 ONS mid-year populations estimates 2015
14 ONS Annual Population Survey and Claimant Count data July 2015

As set out in the inclusive growth study,[15] these overall trends[16] mask particular disadvantage which is visible in specific communities or areas. Within the North East there are areas of activity where performance is low for specific groups in the labour market, including in key growth sectors.

- There are low levels of female participation in digital, software and engineering/manufacturing sectors
- A relatively low level of people from black and minority-ethnic communities undertake apprenticeships
- There are ongoing challenges around mental health and disability which holds back participation levels.

Despite improvements and pockets of significant wealth, deprivation remains a significant challenge. Over a third (35.6%) of the urban population live in the 20% most deprived areas of England compared to 31.7% of the North East LEP population. The English Index of Multiple Deprivation (2010) demonstrates considerable challenges in all of our local authorities which is continued in the most recent figures.

Place	Average Score	Rank out of 326
Newcastle upon Tyne	29.74	40
Gateshead	29.48	43
Sunderland	29.46	44
South Tyneside	28.35	52
Durham	26.41	62
North Tyneside	22.24	113
Northumberland	20.21	135

Despite the large student population and high performance of local universities, graduate retention and integration into the economy is low; this represents a loss of skills and capacity for the region.

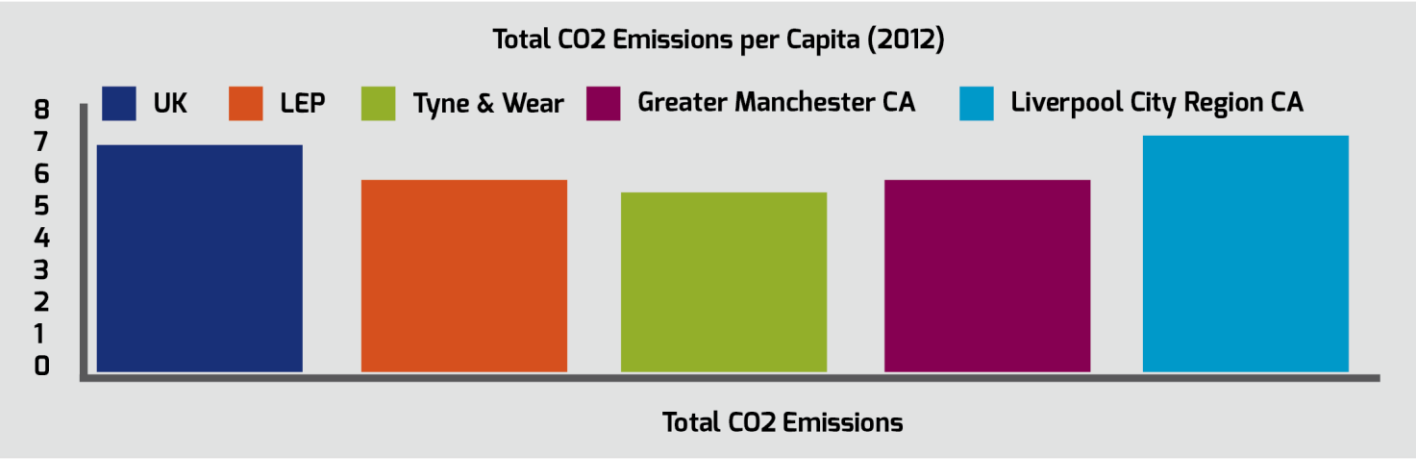
This diverse social mix and the challenges faced, in addition to the strong assets and opportunities outlined, place the North East in an excellent position to act as a test bed, offering scale and diversity within a manageable geography.

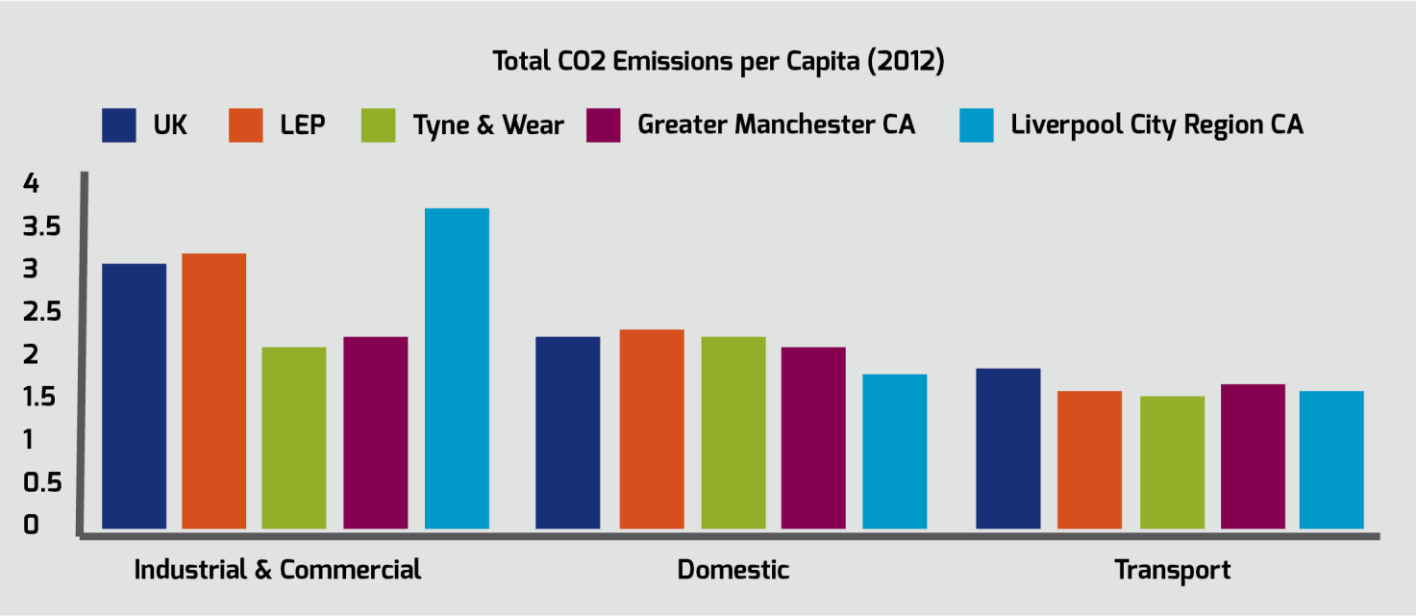
15 http://nelep.co.uk/wp-content/uploads/2014/10/nelep-inclusive-growth-final.pdf
16 ONS Life expectancy at birth 2010-2012 (published 2014)

2.3 Environmental and climate context - A representative test bed for climate mitigation with strong environmental resources

Climate change represents a global challenge and the North East faces similar challenges to key transport, energy and other utility networks due to more extreme weather events, increased flooding and greater variations in temperatures. ClimateNE has identified the cost of these challenges to be around £600m per year by 2050 without intervention, with the main threat being to business activity through flooding due to intense rainfall.

Even without the impact of climate change, the North East faces a challenge around energy due to a high level of manufacturing and energy intensive businesses in the North East. Industrial and commercial emissions of carbon dioxide per resident in the North East of England are the highest in the country at over 5.5 tonnes- significantly higher than the next highest region (Yorkshire and Humber at 4 tonnes), although this is partially related to the process industry in Tees Valley which is particularly high. However, CO2 emissions per capita are considerably lower in the urban areas of the North East LEP.The importance of reducing carbon emissions in the North East has gained high-level political support with the North East of England the only region in Europe to achieve universal sign-up to the European Covenant of Mayors. This commits local areas to reducing CO2 emissions by 22% from 2005 levels by 2020, reducing per capita emissions from their 2005 baseline of 7.4t CO2/per capita.





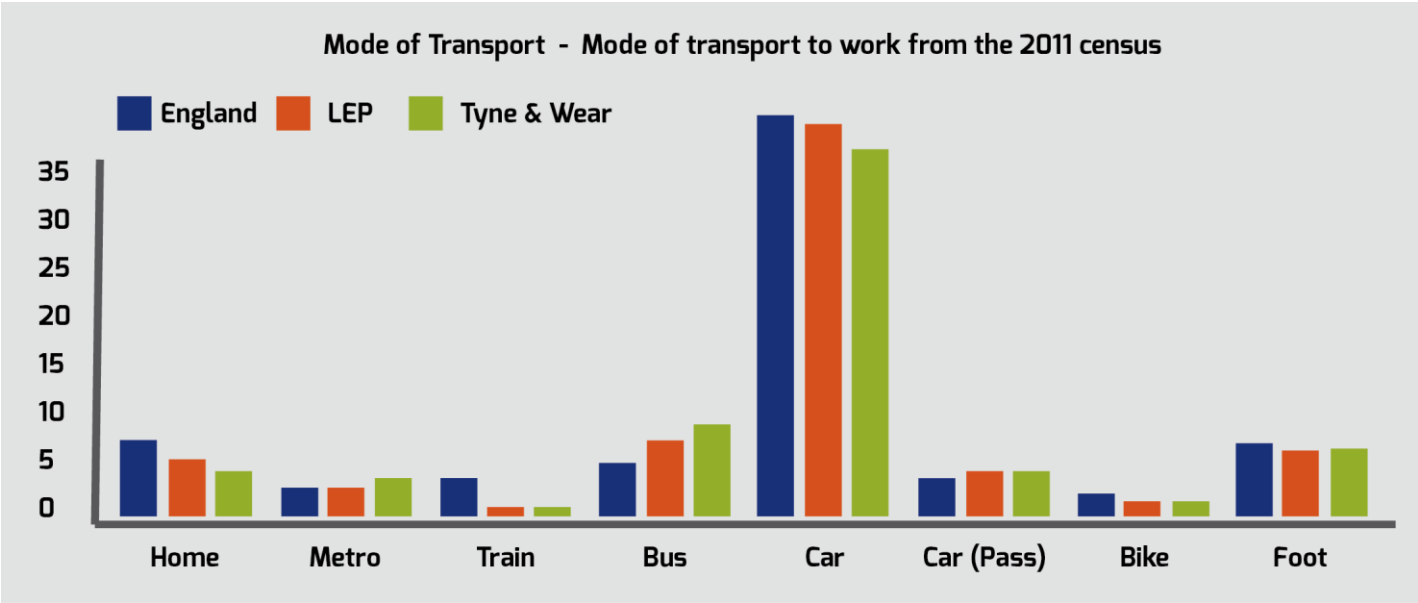
The wider LEP area has a higher rate of CO2 emissions[17] from industry than the English figure although this is somewhat lower in Tyne and Wear, reflecting a different economic basis. For domestic emissions both the total LEP area and Tyne and Wear have higher figures reflecting both the increased energy use associated with rural areas and the older and poorly insultated housing stock in the urban area.Tranport figures are largely consistent with similar areas, although the relatively low car owership and usage are likely to have contributed to slightly lower figures for Tyne and Wear.

Transportation and energy therefore represent particularly large elements of CO2 emissions and contribute significantly to environmental damage. The urban area of the North East is well placed to address these challenges and test potential solutions due to a number of positive factors:

- Relatively low car ownership and usage (motor vehicles traffic at 898 vehicle miles per annum against a national figure of 1,751)
- A relatively stable bus network (only a 1% fall in commercial bus mileage across Tyne and Wear in the context of a national underlying trend of decline in miles travelled by bus)
- The heavily used Tyne and Wear Metro provided 38m passenger journeys in 2014/5.

Nevertheless there are trends that highlight concerns over the long-term:

- Car use is rising and is the main mode of transport across the LEP area demonstrating the need to ensure better connectivity between hubs, as well as improved linkages between urban and more rural locations, and within urban locations.
- Journeys by foot and bike are both low by English levels suggesting the scope for more healthy travel choices is significant, addressing not only sustainability and climate change challenges but also the need to improve health in the area.[18]



17 DECC Carbon Dioxide Emissions Estimates 2012 (published 2014)
18 Nexus, Strategic Intelligence Report 2012-13

SWOT analysis of North East LEP area

STRENGTHS	OPPORTUNITIES
Urban transport network including bus, rail and Metro systems. Urban area relatively compact – provides coherence and opportunity for linked activities. Land availability, including key sites in city centres with an affordable opportunity cost to develop. Urban area a good size for testing, large enough to demonstrate impact, small enough to be cohesive. Significant research assets with four universities and major innovation and research institutions, including national catapults, smart grid lab and energy storage test bed. Reputation for excellence in key areas of research and for long-term regeneration success. Strong partnership working practices in place, representing the quadruple helix at operational level and coherent identity. Track record of trialling new approaches and roll-out linking to local capacities such as electric vehicles. Sector strengths in key areas including offshore and renewable, manufacturing and smart specialisation areas. Strong natural assets availability such as wood and water, relatively low natural resource pressure and good quality environmental services and assets such as water grid. High levels of FDI and strong trade performance.	Scope to expand public transport network. Unoccupied central sites available for development. Urban observatory and joint tools and understanding, available including for transport and flood modelling. Agile workforce and positive population who can engage with demonstration sites and technologies. Urban area has space and capacity to grow, providing scope to capitalise on opportunities. Smart Specialisation sectors central to an agreed regional plan (Strategic Economic Plan). Skill levels and employment are rising, with room for improvement ensuring there is scope to grow and provide skills levels needed. Can make more out of existing assets such as natural resources, colleges and universities to better strengthen local links and links to economic growth – foundations for this are now in place. Potential for a range of energy generation sources including geothermal. Developing assets and demonstrators such as district heating, EV sites, low carbon building and retrofit which can be expanded on. Business base has potential and scope to grow.

WEAKNESS	THREATS
Overall costs of transport, disconnection between modes of public transport, and limited number of multi-modal transport hubs reduce healthy and sustainable travel choices resulting in congestion at key pinch points on the road system. Complexity/quality of public transport in linking to work locations. Skills base still too narrow and career escalator too limited leads to loss of high skilled individuals. University engagement not consistent across all universities and all parts of the universities. Changing geographic focus for activities due to policy changes causes uncertainty and lack of consistency. Ageing infrastructure will need investment to maintain current levels of provision. Lack of resources for delivery in key institutions. Relative distance to other large economic locations and limitations of east-west connections. Scale of challenges faced – with long-term and entrenched economic and social challenges, high levels of deprivation, unemployment and worklessness, lower level skills and opportunities, low levels of business start-up. Lack of long-term policy framework around climate change and energy. Old housing and building stock, much of which will remain and form basis for medium-term future.	Reduced public funding available to trial and test the new approaches needed to support long-term cost reductions. Impact of Central Government infrastructure investment on M62 corridor. Long-lasting and large cuts to public sector funding in the North East may damage potential for investment. Scale and pace of change required to address the challenges may prove difficult to keep up with. Permitted development rights and changes to legislative framework reduce opportunities for activities Large proportion of contaminated sites and risks from underground mine workings. Major committed investment taking place distant to the area – HS2, Cross-rail etc, could reduce competitiveness and reduce available investment funds. Poor levels of graduate retention and under-utilisation of graduate and business investment in R&D (although improving).

Section 3
A Strategy for Urban Development - Addressing global challenges as a living laboratory and responding to local context

3.1 Rationale detailing how the strategy contributes and adds value to the longer term vision of the local ESIF strategy and the Operational Programme

This Sustainable Urban Development Strategy is an intrinsic part of delivering the North East LEP area's European Structural and Investment Funds Strategy. As such it contributes to both the local strategy and the national ERDF Operational Programme by providing a specifically place-based approach to demonstrating and supporting business growth, drawing on the potential of innovation and low carbon solutions.

Through the development and roll out of these products, applications and processes this will support the establishment of new businesses, grow existing businesses and enable more, and more highly, skilled jobs to be created. Positioning the North East as the place to develop and commercialise new ideas, this approach will support broader economic growth whilst also enhancing the social and environmental outcomes for the North East.

The development of this SUD proposal is in direct response to the ERDF Operational Programme for 2014-2020 which includes a requirement for interlinked actions aimed at securing a lasting improvement in the economic, environmental, climate, social and demographic conditions of a distinct urban geography.

The proposals set out in this strategy enhance the delivery of the specific investment priority areas by enabling a more joined-up approach focused on delivering a programme of aligned projects in a specific area. This is designed to enable innovative products and business processes to be brought forward, bringing together research institutions, public bodies and business to address key challenges and build on the Smart Specialisation and emerging areas. It matches the six investment priorities under Priority 4, and Priority 5.

Innovation and business growth are at the core of achieving the Strategic Economic Plan. This SUD proposal is therefore designed to support the themes of the Strategic Economic Plan to deliver innovation-led growth and support wider business competitiveness. Focusing on the test and demonstration of innovative low carbon technologies, processes and applications, SUD will support the development and commercialisation of new ideas. It embodies a focus on Smart Specialisation where there is an established North East strength.

The Smart Specialisation study focuses on supporting areas where the North East has particular strength and potential, such as health and life sciences (including medicines manufacture), passenger and low carbon vehicle manufacture, subsea and offshore engineering (with an energy generation, systems and networks strength) and digital and data technologies. To re-take our position as an innovation hotspot and drive business growth, the North East needs to commercialise research, demonstrate potential and support businesses to grow, making use of innovative ideas.

As well as providing areas of competitive advantage and underpinning a number of areas of strength, low carbon technologies and a focus on sustainability are core dimensions in ensuring the longevity of such advantages in moving to a reliable, low cost and low impact form of energy and improving resilience of supply chains and market access.

The value of SUD is the potential to demonstrate the quadruple helix in action by bringing together partners from the public, private, voluntary and academic sectors. In line with our overall approach supporting innovation-led partnerships, SUD projects will be encouraged to be developed to reflect the following principles:

- **Integrated –** projects will be encouraged where they contribute to more than one of the pillars. This is at the core of SUD and demonstration of solutions is most effective and most challenging at the place-level across themes. This may be demonstrated as part of a programme of discrete projects, as part of a comprehensive place-based approach or may be linked to projects part-funded from other sources

- **Interwoven and partnership-based** –individual partners do not have all the answers therefore projects will need to reflect a range of partners and organisations who can bring individual specialism, skills and experience. The 'quadruple helix' approach, bringing together public institutions, universities, the voluntary and community sector and business, is the best basis for addressing these issues

- **Innovative**– projects will need to do something innovative to address the challenges; reflecting the North East's approach to innovation this could be a product, or new use of product, approach, process or business model that enables a challenge to be addressed in a new way.

The SUD proposal has been developed to complement existing ERDF activities, wider initiatives and funding opportunities and, by leveraging in and bringing together different elements, to achieve more. This includes elements such as the Industrial Strategy Challenge Fund, InnovateUK competitions and low carbon energy funding (such as HNDU, RHI and SALIX) working across investment priorities to enable place-based coordinated approaches to testing and demonstration that cannot be achieved through other routes which focus on individual projects, and individual aspects of a scheme, rather than a programme or package of linked projects to achieve holistic change.

The SUD strategy incorporates all elements of Priority Axis 4 as well as Priority Axis 5 to maximise the potential for projects bringing together different elements and aspects within one project (such as energy generation, alongside demand management and distribution as part of a managed network linking improved buildings).

To ensure a distinctive contribution to the overall ERDF delivery the SUD retains a focus on place-based capital intensive interventions with accompanying revenue support to embed and roll out the activity in communities and localities. This is different to the high-volume SME engagement and support activities that have been invited under the main programme, resulting in a lower proportion of estimated C1 outputs for SUD; although it is expected that engaged businesses will be a significant beneficiary of activities under the SUD programme.

The approach opens the potential for projects that respond to multiple strategic drivers at a local, regional and national level. For example, improving facilities and signage and innovative approaches to these underpin aims set out in the local transport plan, Northern Powerhouse transport plan and DfT cycling and walking strategy, as well as the shift to a more digital based economy set out in the Industrial Strategy.

All of which reflect the need for a joined up systematic approach to effect changes to travel patterns. Similarly the approaches to low carbon energy systems, with generation, storage and distribution all key are set out in the UK Renewable Energy Plan. These are highlighted as areas of opportunity in the Industrial Strategy and Northern Powerhouse economic review as well as the North East Strategic Economic Plan and local authority energy planning and emerging low carbon plan.

3.2 Developing and demonstrating solutions to key urban challenges using North East capabilities

Urban areas are an essential element in driving growth as recognised in UK and European policy and in recent research undertaken by Nesta and the RSA[19]. More locally the Newcastle City Futures 2065[20] report has considered different scenarios for a part of the LEP geography, highlighting the potential of the area in acting as a living laboratory and demonstrator for smart place responses to the common challenges faced by urban areas across the globe.

The demonstration and roll out of innovative solutions will contribute to improving economic competitiveness, addressing long term "inadequate investment in skills, infrastructure and innovation",[21] closing the UK productivity gap with key comparator economies[22]. Within the UK context particular challenges are present around energy and transport, with the Eddington Review highlighting a potential £22bn per annum cost from congestion and more than a fifth of the energy generation capacity to be decommissioned over the next decade at a time of rising demand. Investment needs to be undertaken across different locations to re-balance the UK economy[23], and enable all areas to contribute to reducing the productivity gap.[24]

This will require enhanced connectivity and improved use of data which is rolled out in a systematic way to enable places to thrive as whole systems and to allow for an effective and efficient system across the area. A smarter approach to places is needed to address a wide range of issues ranging from climate change, to increased welfare costs and need to deliver public services in new, more efficient ways as well as support genuinely sustainable economic growth.

High costs of transportation, with DfT figures showing costs for bus and rail having risen by more than the cost of living consistently for a number of years,[25] and energy (alongside housing, food and other 'basic goods') have been identified as driving poverty, with over 2.28 million households in fuel poverty and with those facing fuel hardship experiencing increased hardship[26]. Energy, and carbon intensive transport therefore represent an important nexus in inclusion and sustainability. Other social factors also need to be considered such as an ageing population and health inequality which are both further linked to these opportunities.

An integrated, place-based approach, making use of data analysis and improved systems and networks, is key to achieving potential and overcoming urban challenges. However the approach remains unfulfilled. Over the last two decades of development the smart cities movement has too often 'emphasised expensive hardware rather than cheaper solutions, too often showcased technologically interesting ideas rather than responding to citizen's real needs and too often made over-inflated promises that couldn't be supported by hard evidence".[27] Similarly a focus solely on 'cities' can fail to reflect the reality of economic geographies by not reflecting neighbouring towns and places that are closely linked together.

The nature of the North East is therefore a useful test bed for developing solutions and can build a place-based approach drawing on local assets and capabilities. The North East LEP area includes four highly rated universities with key areas of expertise and high research ratings relating to innovation, design, energy and engineering and data[28] alongside the presence of key innovative and low carbon assets:

- Offshore Renewable Energy Catapult, in Blyth – integrated, open-access testing and research facilities
- The North East Business Innovation Centre in Sunderland - support and incubator services for businesses
- The North East Technology Park in Sedgefield – physical and virtual technology hub. Location for key innovation businesses, CPI and the Satellite Applications Centre
- The Centre for Ageing and Vitality at Newcastle University - cross-sectoral innovation on health and well-being.
- Automotive and Manufacturing Advanced Practice Institute - facility based solutions for businesses

19 http://www.citygrowthcommission.com/publication/final-report-unleashing-metro-growth/
20 http://www.newcastlecityfutures.org/NewcastleCityFutures2065Report.pdf
21 RSA city growth commission, pg1
22 Ibid pg13
23 http://www.citygrowthcommission.com/devo-met-for-england-its-the-economic-imbalance-stupid/
24 http://www.citygrowthcommission.com/publication/final-report-unleashing-metro-growth/
25 DfT Transport Statistics for Great Britain, 2013
26 DECC Fuel Poverty Strategy 2015 pg 32
27 Nesta, Unleashing Metro Growth, pg8
28 Witty Review

- Software City in Sunderland - growth in software, digital technology and media. Hub for Digital Catapult network
- Durham University/P&G led Innovation & Growth Centre – multi-disciplinary centre.
- The Neptune Centre for Subsea Technology in North Tyneside – supporting sub-sea cluster development
- Extension of the Northern Design Centre led by Northumbria University and Gateshead Council.
- Newcastle Science Central - a major opportunity to bring open innovation culture and practice to the urban core of the region in Newcastle City Centre and will be home to the National Innovation Centres for Ageing, Data and Energy Systems.
- Electric vehicle innovation through Zero Carbon Futures and Gateshead College, working with a range of other partners and the Skills Academy for Sustainable Manufacturing and Innovation.

The North East has the skills and expertise to develop solutions and is big enough to demonstrate at scale, but small enough to be manageable, as well as including a varied economic geography in a compact area of urban, semi-rural, upland and coastal locations, and links to a wider rural geography with areas of concentrated wealth and poverty.

Description of the focus of the strategy and associated explanatory rationale describing how the strategy will address the challenges and opportunities identified

SUD in the North East aims to support a programme of investment in integrated and/or aligned projects that demonstrate innovative solutions such as using systems, network and data to the key urban challenges. In particular these will address energy systems, transport networks and sustainability of infrastructure in the context of climate change. The importance of biodiversity, flooding and temperature management are also recognised as key to long-term sustainability and should be part of the solution.

Many 'smart city' solutions have failed to engage communities and individuals with technologies. The approach to SUD will not be solely capital focused and will, where enabled by the outputs and the operational programme, include revenue support to encourage take-up and practical application. Project proposals will need to set out how they will incorporate or align with programmes that achieve increased engagement with target communities, individuals or businesses to actively encourage take up and use of technologies and approaches.

The North East SUD plan will draw on the capacity of all partners across the public, private, voluntary and research/education sectors, focusing activity across three pillars:

- **Sustainable energy systems and networks**
- **Sustainable transport choices**
- **Sustainable infrastructure investment.**

3.3 Sustainable Energy Systems and Networks Priority Axis 4 (Low Carbon)

Key areas of activity:

Energy generation (from renewable sources and waste-energy) as part of an integrated approach to energy generation and distribution is a key element in achieving affordable, reliable and secure energy. In an urban context this is likely to include micro-, small-scale, and distributed generation linked to a wider distribution network and smart grid and reflecting the challenges of generation in an urban location such as space limitations and noise and opportunities to use waste energy and products from manufacturing and large scale institutions.

Energy distribution and storage as part of an integrated network or system is required to support the effective roll out of renewable energy. Effective management of supply and demand through new technologies and roll out of a system and network approach will enable greater take up for public, private and domestic properties and stronger management of energy to enable costs to be reduced and demand to be more closely managed. This can be well demonstrated in relatively compact urban areas with a variety of user types.

Whole place approaches the use of an integrated system most effectively needs full preparedness of linked buildings to ensure energy efficiency is maintained to manage demand as well as supply. This is necessary to ensure that the approach is sustainable. Improvements and retrofit to the property linked to the system is considered part of a whole place approach to facilitating the system or network although not as a stand-alone element. Infrastructure for the generation, storage and distribution sits in a place and can have a large impact on this; development should therefore enhance the sustainability and use of the location particularly in relation to green/blue corridors, flooding, and heat management and pollution reduction.

Rationale for activity:

The generation, distribution and use of energy represents a significant contribution to carbon emissions but the cost, security and reliability of energy is also a key determinant in fuel poverty and economic competitiveness. This is a particularly important element for the North East with high levels of fuel poverty and a number of energy intensive export-focused industries. Within an urban location the close proximity of premises with different energy usage profiles and generation potential naturally provides a relevant location for the test, roll out and demonstration of small scale renewable generation capacity, local networks and smart grid technology to manage supply and demand across different types of premises (such as factories, offices, domestic properties and large public institutions such as hospitals). The demand for space also requires usage patterns which maximise the use of available land.

With existing research expertise in local universities and innovation and translation capacity alongside strong social and industrial needs for affordable, reliable energy there is clear potential to draw on this research and capacity to develop and demonstrate the potential for integrated energy network solutions. This will address challenges in different types of property and location to reduce energy demand and use reducing energy poverty and improving resilience to climate change.

Indicative activities supported:

The Energy Systems and Networks theme reflects the need for integrated, holistic projects to improve the security, cost and reliability of energy supply and the unique capacity and challenges of an urban environment in addressing this need. Management of supply and demand through improved systems and networks as part of a network of low carbon generation and storage feeding energy efficient properties is key to this. This theme therefore draws on elements of the Priority Axis 4 Low Carbon theme of the ERDF programme, specifically linked to key activities under:

Investment Priority	Outputs	Indicative actions
4a Promoting the production and distribution of energy from renewable sources.	Number of enterprises receiving support. Number of new enterprises supported. Additional capacity of renewable energy production. Estimated Green House Gas (GHG) reductions.	Measures to support increased production of renewable fuels and energy, in particular wind energy, solar and biomass.
		Support to build capability and capacity for supply chains in renewable energy.
		Demonstration and deployment of renewable energy technologies.
		Measures to support the wider deployment of renewable heat, including micro-generation, geothermal, renewable heat networks or district heating, ground source and air source heat pumps, and biomass systems with associated heat off-take and heat distribution networks along with recycling processing reprocessing and remanufacturing facilities.
		Anaerobic digestion plants and other biomass or landfill gas schemes.
4b Promoting energy efficiency and renewable energy use in enterprises.	Number of enterprises receiving support. Estimated GHG reductions.	Enhanced advice, support, information and action to promote innovation in businesses and how they operate, in order to deliver best practice in energy management. This will include innovation in energy efficiency and energy cost reduction to improve businesses's competitiveness and resilience.
		Support to businesses to undertake 'green' diagnostics or audits of energy efficiency and potential for renewable generation and energy use, which will be followed by provision of energy efficiency information and guidance, tailored energy action plans and support to implement them.
		Investing in energy efficiency measures, processes and renewable generation capacity to improve a business's or building's environmental performance or its resilience to the impacts of climate change.
4c Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including public buildings and in the housing sector.	Number of households with improved energy consumption. Decrease of annual primary energy consumption of public buildings. Estimated GHG reductions.	Provision of advice and support to increase the use and take up of low carbon technologies, energy efficiency measures, renewable energy technologies and smart energy systems in housing stock and public buildings.
		Supporting low carbon innovation in relation to the integrated 'whole place' energy management approach including energy waste and re-use.
		Investing in building retrofit, energy efficiency measures, renewable and smart energy systems deployment, especially whole building or place solutions exemplifying next phase technologies which are near to market.
		Investing in domestic energy efficiency, renewable energy and smart construction techniques.

4e Promoting low carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures.	Number of enterprises receiving support. Estimated GHG reductions.	Investments in local/regional smart grid demonstration projects, including validation and solving system integration issues.
		Sustainable energy action plans for urban areas, including public lighting systems, smart metering and distribution through smart grids.
		Investments in combined heat and power from renewable sources.
4f Promoting research and innovation in, and adoption of, low carbon technologies.	Number of enterprises receiving support. Number of new enterprises supported. Number of enterprises cooperating with research institutions. Number of enterprises supported to introduce new to firm products. Estimated GHG reductions.	R&D, innovation and supply chain work for low carbon technologies and materials, including, wave and wind energy, smart grids, distributed generation, solar and photovoltaics, heat networks, heat pumps and low carbon heat for energy intensive industries.
		Research underpinning carbon capture and storage, taking account of the restrictions laid down in Article 3.3.b of the ERDF Regulation
		Renewable technologies in the UK renewable energy roadmap.
		Knowledge transfer with Higher/Further Education institutions and businesses.
		Demonstration and deployment of decentralised renewable energy technologies.
		Research, development and innovation and supply chain development for low carbon and resource efficient technologies and materials (including small scale pilot programmes that test the market with new low carbon solutions and the use of secondary materials).
		Developing financing methods that encourage the adoption of proven low carbon technologies and generate long-term financial savings.

3.4 Sustainable transport choices
Priority Axis 4 (Low Carbon)

Key areas of activity:

Sustainable and healthy travel network - moving to low carbon travel choices, such as increased walking and cycling, has a direct impact on reducing carbon and poisonous emissions and are increasingly the quickest as well as healthiest and most affordable option within urban locations. Supporting infrastructure to make this a natural and safe choice will further increase take-up for those living and working in relatively close locations. Nevertheless with people's working patterns favouring longer-distance commuting, end-to-end walking or cycling is not always possible. Improving links and routes and information on options into hub locations of the public transport network (such as Metro, train and bus) with appropriate facilities (such as bike storage) will make this more often a natural choice providing it is affordable, reliable and easy.

Low carbon vehicles – other forms of transport will continue to be important for both passenger and freight purposes. Traditional vehicles continue to be major sources of carbon and other pollution emissions; freight and older taxis and buses have been identified as being large producers of such emissions. This activity will build on the local strengths in low carbon vehicle manufacture and innovation in low carbon technologies, alongside an already sizable electric vehicle infrastructure, expansion to support the wider use of electric and other low/ultra-low carbon vehicles and to increase take up of approach in other vehicle sectors and across other vehicle types.

Effective systems and data – congestion and poor road use is a leading cause of carbon emissions and other pollutants. A smarter, more data-driven and real time approach to understanding traffic flows and managing these as well as incentivising road use that minimises congestion is a key element in reducing carbon emissions. The use of satellite technologies and smart road systems can improve flows alongside traffic-management approaches which prioritises use to spread flows outside of peak times.

Rationale for activity:

Transport networks are fundamental to economic prosperity and inclusion. They also represent a global challenge in the face of the need to reduce carbon emissions and address congestion that reduces opportunities for economic growth and increases poor health outcomes. And, where transport costs are high, reduces market flexibility and opportunities for poorer communities and those without car access.

Supporting a shift to healthier transport choices, in particular walking and cycling, reduced traffic congestion and pollution is more affordable, reducing pressure on income and improving health outcomes and fitness. In urban areas it can also often be the quickest option. A place-based, comprehensive approach to transport that aims to improve environmental, health and social outcomes and minimises carbon emissions can be most effectively supported through these relatively cheap and effective means. There remains a clear market failure in the lack of revenue generated through these options requiring public intervention. Incentivising links to public transport infrastructure hubs on the East Coast mainline, Tyne Valley local lines and Metro in Northumberland and Tyne and Wear for longer-journeys with just one change has been shown to be effective in changing patterns. Particularly where it is easy to plan, safe and cheap innovative approaches to encourage cycling and walking to: metro, bus and train hubs. This will also reduce congestion and emissions and encourage healthier options.

Changing work patterns, more edge communities and challenges with disability and access mean this is not always a feasible option however and a comprehensive approach is required, particularly looking at reducing the emissions from road transport. The impact of relatively small-scale, affordable activities across a network can result in a positive impact improving emissions. For example the performance of taxi, bus and freight vehicles through fleet updates and technological improvements.

There will remain a significant element of road traffic, and in addition to reducing the emissions of each vehicle through improved on-board technology, improved traffic flow, and spread across the day to reduce congestion based emissions can have a particularly beneficial impact on localised pinch points. Better use of real-time data, satellite technology and analytical approaches to flows can all improve the flow, reducing emissions and the negative consequences of these.

Indicative activities supported:

The Sustainable Transport theme reflects the carbon, pollution and health, social and economic benefits of supporting lower carbon options for transport but this must be undertaken in a holistic manner building on existing infrastructure and reflecting the increasingly complex travel patterns. Supporting modal shift to lower carbon opportunities either end-to-end or to key public transport hubs and encouraging take-up of low carbon fuels (EVs, hydrogen etc.) for road vehicles and managing better travel flows are all elements in reducing carbon emissions from transport and improving health and social outcomes, enabling more people to work and to access a range of work options.

Investment Priority	Outputs	Indicative actions
4e Promoting low carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures.	Number of enterprises receiving support. Estimated GHG reductions.	Investments in actions aimed at improving the capacity at local level to develop and implement integrated and sustainable transport strategies and plans (including for example actions related to modelling data collection, integrated transport management, operations and services, public consultation etc.) to reduce transport related air pollution, in particular retrofit or replacement programmes for bus fleets, incentive schemes for cleaner transport, improved public transport infrastructure and alternative forms of transport.
		Investments in actions aimed at introducing innovative environmentally-friendly and low-carbon technologies (for example, alternative fuel stations or charging points).
		Investments in actions aimed at developing innovative and multi-modal transport services (for example, intelligent transport systems for travel information and planning, traffic and demand management, smart ticketing, multimodal integrated datasets or cooperative systems).
		Innovative transport pricing and user charging systems.
		Cycle paths, walkways and waterways only where part of an integrated approach to GHG reductions.
4f Promoting research and innovation in, and adoption of, low carbon technologies.	Number of enterprises receiving support. Estimated GHG reductions.	Research, development, demonstration and adoption of technologies and systems that support low-energy transport and accelerate the establishment of new technologies such as low emissions vehicles (electric, hybrid and hydrogen).
		Knowledge transfer with Higher/Further Education institutions and businesses.
		Developing financing methods that encourage the adoption of proven low carbon technologies and generate long-term financial savings.

3.5 Sustainable infrastructure investment (Priority Axis 5) and (Priority Axis 4)

Sustainable places – lies at the heart of SUD, bringing together the individual investment at a specific site or particular technology to enhance and improve the wider locations as part of a holistic plan. Places can range from an office or industrial development to a city or town centre or be based around a key institution or thoroughfare. In each case the quality of the development in incorporating enhanced natural environment which integrates technologies and approaches to reduce flood risk, carbon emissions, pollution and or impact of heat or cooling through better design.

Reducing flood risk – surface flooding is a key challenge in many urban areas as natural flood reduction has been gradually lost to development, innovative approaches to re-designing this into the established urban fabric either as part of redevelopment or infrastructure development or to enhance existing infrastructure supporting businesses through enhanced protection.

Rationale:

The quality of the urban environment is a frequently missed element to bringing together individual schemes and develop a truly sustainable place. As part of investment in our town and city centres bringing together investment supporting sustainable travel and energy with the wider environment to link and support these objectives, but also reducing flood risk, heat and cooling energy need and pollution is a mutually supporting activity.

The development of green and blue infrastructure alongside public realm works not only improves biodiversity but, when designed as part of a wider place scheme, reduces flood risk and improves the environmental ability to change to overcome climate change supporting increasing business growth potential and competitiveness, reducing costs and supporting long-term growth.

Flooding remains a particular challenge in the North East due to increased extreme events inundating key transport infrastructure and main travel routes and business locations through surface flooding and the risks relating to river and coastal flooding with key settlements and business locations on the sea and river front.

Indicative activities supported:

Investment Priority	Outputs	Indicative actions
4b Promoting energy efficiency and renewable energy use in enterprises.	Number of enterprises receiving support. Estimated GHG reductions.	Investing in measures to stimulate cost-effective deep renovations of buildings, including staged deep renovations.
		Investing in energy efficiency measures, processes and renewable generation capacity to improve a business's or building's environmental performance or its resilience to the impacts of climate change.
		Supporting an increase in energy efficiency in enterprises including an emphasis on 'whole place' especially through improving industrial processes, designing out waste, recovery of 'waste' heat energy and CHP.
		Building retrofit and energy efficiency measures, especially whole building solutions to exemplify, and support the commercialisation of, next phase technologies that are near to market and low carbon construction techniques to improve the energy efficiency of buildings.

4c Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure including public buildings and in the housing sector	Number of households with improved energy consumption Decrease of annual primary energy consumption of public buildings Estimated GHG reductions	Provision of advice and support to increase the use and take up of low carbon technologies, energy efficiency measures, renewable energy technologies and smart energy systems in housing stock and public buildings.
		Supporting low carbon innovation in relation to the integrated 'whole place' energy management approach including energy waste and re-use.
		Investing in domestic energy efficiency, renewable energy and smart construction techniques.
		Investing in building retrofit, energy efficiency measures, renewable and smart energy systems deployment, especially whole building or place solutions exemplifying next phase technologies which are near to market.
4e Promoting low carbon strategies for all types of territories, in particular urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures.	Number of enterprises receiving support Estimated GHG reductions	Investments in local/regional smart grid demonstration projects, including validation and solving system integration issues;
		Sustainable energy action plans for urban areas, including public lighting systems, smart metering and distribution through smart grids.
		Cycle paths, walkways and waterways only where part of an integrated approach to GHG reductions.
		Investments to encourage the adoption of renewable technologies.
4f Promoting research and innovation in, and adoption of, low carbon technologies.	Number of enterprises receiving support. Number of new enterprises supported. Number of enterprises cooperating with research institutions. Number of enterprises supported to introduce new to firm products. Estimated GHG reductions.	R&D, innovation and supply chain work for low carbon technologies and materials, including, wave and wind energy, smart grids, distributed generation, solar and photovoltaics, heat networks, heat pumps and low carbon heat for energy intensive industries. Renewable technologies in the UK renewable energy roadmap. Knowledge transfer with Higher Education/Further Education institutions and businesses. Demonstration and deployment of decentralised renewable energy technologies. Developing financing methods that encourage the adoption of proven low carbon technologies and generate long-term financial savings. Research, development and innovation and supply chain development for low carbon and resource efficient technologies and materials (including small scale pilot programmes that test the market with new low carbon solutions and the use of secondary materials).

5b Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems.	Surface area of habitats supported to attain a better conservation status. Businesses and properties with reduced flood risk.	**Coastal resilience** - Managed realignment and mitigation of coastal squeeze; shoreline re-nourishment; cliff and dune system stabilisation; harbour, port and waterfront enhanced protection and adaptations not linked to transport; improvements to coastal frontages and seawalls; strengthening and extensions to estuary embankments. **Fluvial Risk management** - Onsite or upstream attenuation and slowing the flow measures; diversion channels; raising strengthening and/or extending river walls and frontages; fixed and temporary barrier and gates; stepped back embankments; resilience measures for business infrastructure; river restoration and improved conveyance measures. **Surface water run-off and drainage systems** - Integration, including retrofitting of surface water and run off management measures into urban and commercial redevelopments; innovative measures in contexts where flood risk and land management relies on pumping and inter-relates with drainage.

The strategy must target a minimum of two thematic objectives impacting upon one or more of the five challenges identified in Article 7 (economic, environmental, climate, social and demographic)

The North East's strategy for Sustainable Urban Development is across Priority axes 4 and 5 and addresses all five challenges identified in Article 7 (economic, environmental, climate, social and demographic) of EU Regulation 1301/2013, as summarised in the table below (Annex 1).

Description of the integrated / complementary actions to be undertaken as part of the strategy and how proposed activity will be complemented by European Social Fund provision undertaken through wider local European Structural and Investment Funds strategy and/or align with other major investments envisaged in the urban areas concerned

Revenue, as well as capital, is essential to embed learning and ensure take-up and preparedness for new technologies and approaches. ERDF applications will be encouraged to consider appropriate revenue support as part of their proposals.

Description of innovative nature of approach envisaged, and where appropriate, how proposed activity could be of national / international significance

Our approach to Sustainable Urban Development is based on the demonstration and integration of new and innovative approaches to key global challenges, energy, transport and environmental change. These can have particular impact on urban locations where increased demand, congestion and pollution all impact on the economic, health and social outcomes of a region. By providing an opportunity to test and demonstrate new solutions to these challenges in a significant, diverse but manageable urban geography these ideas can be replicated across wider areas.

Profile of spend / commitment and breakdown of indicative activities and potential sources of match funding

The spend will be achieved through one call for projects expected to be launched by September 2017 with projects to start delivering in January 2019. Spend will be undertaken over a three year period to 2023.

Timeline over which actions / activities will be delivered

The call process will be aligned with guidance from DCLG and is currently expected to launch by September 2017 with projects starting delivery in January 2019 for up to three years.

Section 4
Description of the Partnership and Governance arrangements

1. **Description of Newcastle City Council as Intermediate Body**
   Newcastle City Council will act as the Intermediate Body for the North East SUD, part of the ERDF Programme 2014-20, as agreed by the North East Combined Authority Leadership board on 21 March 2017.

   The City Council's legal name is The Council of the City of Newcastle upon Tyne. It was established by the Local Government Act 1972.

2. **Arrangements put in place to ensure that there is sufficient capacity for Newcastle City Council to be the Intermediate Body**

   As of 1 May 2017, Newcastle City Council has appointed an IB Programme Manager, who reports to the Assistant Director of Financial Services, in the Resources Directorate of Newcastle City Council. These two staff will provide the capacity for Newcastle City Council to take on the Intermediate Body role.

   This resource will allow Newcastle City Council to take on the following IB roles:

- **Call development:** Develop the local context for call specifications and agree the timing of calls with DCLG.

- **Service the SUD Advisory Group (For membership – see Annex 2)**

- **Assessment of outline applications and appraisal of full applications**

  Taking advice from the SUD Advisory Group, the IB SUD Programme Manager will complete the assessment of the strategic fit of projects in outline applications and appraisal of full applications. The IB SUD Programme Manager will also take advice from the SUD Advisory Group on the Value for Money and deliverability of projects described in outline and full applications. The IB SUD Programme Manager will liaise with DCLG appraisal officers to finalise assessments and appraisals.

4.1 Separation of functions

The organogram in Annex 3 shows that the two staff providing the delegated MA functions for SUD are based within the Resources Directorate in Newcastle City Council, and are clearly separated from those responsible for ERDF project development (Directorate of Place). More precisely:

- Intermediate Body sign off will be performed by the Assistant Director for Financial Services (Directorate of Resources)
- The IB SUD Programme Manager reports to the Assistant Director within the Directorate of Resources

These arrangements will ensure that Newcastle City Council can perform the delegated ERDF IB functions without influence nor control being applied within Newcastle City Council.

The IB has also established its own electronic and hard copy storage systems to ensure that the Ethical Wall in Annex 3 remains intact.

4.2 Description of key stakeholders involved in the development and delivery of the SUD strategy and associated governance

The diagram in **Annex 3** shows the main organisations working with the Intermediate Body on the delegated functions of the Managing Authority in: SUD strategy development, call development and project selection at outline and full application stages.

On 16 May 2017, the ESIF Sub-Committee agreed that the Intermediate Body would form the SUD Advisory Group, with supplementary membership from specialist experts if required. The SUD Advisory Group will ensure that a full range of partners from six local authority areas and beyond and will advise on: the local context for the calls, and in selecting projects at outline and full application stages.

The table below presents the key stakeholders and their role in both this strategy, and in the SUD programme:

Overview of stages

Stage	Who
SUD Strategy development	North East LEP, IB, SUD Advisory Group
SUD Strategy approval	DCLG (Managing Authority)
Call design/ development	IB, SUD Advisory Group
Call approval	DCLG (Managing Authority) and IB
Issue calls	DCLG
Outline application assessment and advice	DCLG, IB, SUD Advisory Group
Outline application approval	DCLG and IB
Full application appraisal and advice	DCLG, IB, SUD Advisory Group
Full application approval	DCLG and IB
Contracting, delivery, claims and monitoring	DCLG and project applicant

Annex1: Summary Tables

Action areas	Activity	Challenge addressed	Policy linkage	Priority axis	Investment priority	Outputs
Sustainable energy systems and networks.	**Energy generation** from renewable sources and waste-energy as part of an integrated approach to energy generation and distribution. **Energy distribution** and storage as part of an integrated network or system. **Whole place approaches** ensure the whole building or place is maximising energy efficiency to manage demand as well as supply through improvements and retrofits.	Few examples of energy networks and systems in place which engages with communities to successfully roll out. High energy usage figures coupled with high fuel poverty and low renewable generation.	North East SEP North East LEP area ESIF North East Smart Specialisation Study UK Renewable Energy Roadmap National Infrastructure Plan	4	4a Promoting the production and distribution of energy derived from renewable sources 4b: Promoting energy efficiency and renewable energy use in enterprises 4c Supporting energy efficient, smart energy management and renewable energy use in public infrastructure, including in public business and the housing sector. 4e Promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaption measures. 4f Promoting research and innovation in, and adoption of low carbon technologies	Estimated GHG reductions. Number of enterprises receiving support. Number of new enterprises supported Additional Capacity of renewable energy production. Number of households with improved energy consumption. Decrease of annual primary energy consumption of public buildings. Number of enterprises cooperating with research institutions. Number of enterprises supported to introduce new to the firm products.
Sustainable transport choices	Sustainable and health travel network moving to low carbon travel choices, such as increased walking and cycling and improving links and usage of public transport hubs. Low Carbon Vehicles building on local strengths in low carbon vehicle manufacture and innovation to increase take up of	Lack of co-ordination and real time information in travel networks and infrastructure to encourage take-up and use of low carbon and more active travel options. System not maximising take up of innovative technologies and low carbon transport equipment or managing flows to reduce emissions.	North East SEP. North East LEP area ESIF. A 20 year Transport Manifesto for the North East Combined Authority. North East Smart Specialisation Study. Creating growth, cutting carbon. National	4	4e Promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaption measures. 4f Promoting research and innovation in, and adoption of low carbon technologies	Estimated GHG reductions Number of enterprises receiving support. Number of new enterprises supported Number of enterprises cooperating with research institutions. Number of enterprises supported to

	low/ultra-low carbon vehicles for passengers and freight. Effective systems and data using more data-driven, smarter and real time approaches to understand and managing traffic flows to reduce congestion and pollution.		Infrastructure Plan			introduce new to the firm products.
Sustainable infrastructure investment	Sustainable Places bringing together individual investment at a specific site or particular technology to enhance and improve the wider location to reduce flood risk, carbon emissions, pollution or the impact of temperature through better design. Reducing flood risk by integrating an innovative approach to re-designing natural flood risk reduction or mitigation into established urban fabric	Address the market failure in building and physical infrastructure which does not enhance the quality of green and blue infrastructure to reduce flooding risk, pollution or temperature.	North East SEP North East LEP area ESIF North East Smart Specialisation Study National Flood and Coastal Erosion Risk Management Strategy	4 and 5	4b: Promoting energy efficiency and renewable energy use in enterprises 4c Supporting energy efficiency, smart energy management and renewable energy use in public infrastructure, including in public buildings and in the housing sector. 4e Promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaption measures. 4f Promoting research and innovation in, and adoption of low carbon technologies 5b Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems (flooding)	Estimated GHG reductions Number of enterprises receiving support. Number of new enterprises supported Number of households with improved energy consumption. Decrease of annual primary energy consumption of public buildings. Number of enterprises cooperating with research institutions. Number of enterprise supported to introduce new to the firm products. Surface of habitats supported to attain better conservations status Businesses and properties with reduced flood risk

Estimated outputs to be delivered by 31 December 2023	MD NE LEP target for £47,618,026	SUD Targets if pro-rata	Estimated SUD Targets	£ per target for MD NE LEP	£ per output for SUD if was pro-rata except C1
Number of enterprises receiving support (C1) (407 not 838 for SUD as capital-focus)	2,493	838	407	19,101	39,328
Number of new enterprises supported (C5)	41	14	14	1,161,415	1,161,415
Number of enterprises cooperating with research institutions (C26)	12	4	4	3,968,169	3,968,169
Number of enterprises supported to introduce new to firm products (C29)	20	7	7	2,380,901	2,380,901
Additional capacity of renewable energy production (C30)	10	3	3	4,761,803	4,761,803
Number of households with improved energy consumption (C31)	443	149	149	107,490	107,490
Decrease of annual primary energy consumption of public buildings (C32)	427,631	143,687	143,687	111	111
Estimated annual decrease of GHG (C34)	30,710	10,319	10,319	1,551	1,551
Surface of habitats supported to attain a better conservation status (ha) (C23)	3	1	1	2,130,683	2,130,683
Businesses and properties with reduced flood risk (P6)	3,382	1,376	1,376	1,890	1,890

Estimated outputs by IP by 31/12/2023	4a	4b		4c	4e	4f	5b	Total
Number of enterprises receiving support (C1)	102	102			102	101		407
Number of new enterprises supported (C5)	7					7		14
Surface of habitats supported to attain better conservations status (C23)							1	1
Number of enterprises cooperating with research institutions (C26)						4		4
Number of enterprises supported to introduce new to the firm products (C29)						7		7
Additional Capacity of renewable energy production (C30)	3							3
Number of households with improved energy consumption (C31)				149				149
Decrease of annual primary energy consumption of public buildings (C32)				143,687				143,687
Estimated GHG reductions (C34)	2,064	2,064		2,064	2,064	2,063		10,319
Businesses and properties with reduced flood risk (P6)							1,376	1,376

Cost per PA4 output and per IP - **16,000,000**

Priority axis 4 estimated outputs and cost by IP (£)	4a	4b	4c	4e	4f	Total
Number of enterprises receiving support (C1)	4,011,456	4,011,456		4,011,456	3,972,128	16,006,496
Number of new enterprises supported (C5)	8,129,905				8,129,905	16,259,810
Number of enterprises cooperating with research institutions (C26)					15,872,676	15,872,676
Number of enterprises supported to introduce new to the firm products (C29)					16,666,307	16,666,307
Additional Capacity of renewable energy production (C30)	14,285,409					14,285,409
Number of households with improved energy consumption (C31)			16,016,010			16,016,010
Decrease of annual primary energy consumption of public buildings (C32)			15,949,257			15,949,257
Estimated GHG reductions (C34)	3,201,264	3,201,264	3,201,264	3,201,264	3,199,713	16,004,769
Total (£)	**29,628,034**	**7,212,720**	**35,166,531**	**7,212,720**	**47,840,729**	**127,060,734**
Share of £16,000,000 PA4 allocation based on pro-rata share of output cost	**3,730,882**	**908,255**	**4,428,311**	**908,255**	**6,024,298**	**16,000,000**

Priority axis 5 estimated outputs and cost (£)	5b
Surface of habitats supported to attain better conservations status (C23)	2,130,683
Businesses and properties with reduced flood risk (P6)	2,600,640

ANNEX 2: North East SUD Advisory Group

Name	Position/Title and Organisation	Sector Representation
Neil Warwick	Partner, Square One Law	Chair
Teresa Kirby	Programme Manager (Secretariat for SUD ESIF Sub-Committee)	Intermediate Body
Carol Botten	Deputy Chief Executive, Voluntary Organisations' Network North East	Voluntary Sector
Adrian Coates	Relationship Manager - North East LEP, Department for Business, Energy and Industrial Strategy	BEIS
Anthony Braithwaite	Chair, North East Farming and Rural Advisory Network	Rural Sector
Kerry Corbett	Team Leader Corporate Funding Programmes, Newcastle City Council	Newcastle City Council
Raffaella Ebani	ERDF Programme Manager	ERDF Managing Authority
Helen Golightly	Executive Director, North East LEP	North East LEP
Eddie Halstead	Economic Development Technical Specialist, Environment Agency	Sustainable Growth
Simon Hanson	Policy Manager North East, Federation of Small Businesses	Private Sector
Andrew Hodgson	Chief Executive Officer, Soil Machine Dynamics Ltd	Education, Skills and Employment
Julia Lyford	Chair, North East Equalities Coalition	Equalities and Non Discrimination
Sarah McMillan	Corporate Lead Strategic Development, South Tyneside Council	South Tyneside Council
Ammar Mirza	AmmarM (UK) Ltd	Private Sector
Paul Nelson	Environmental Sustainability & Street Lighting Manager	North Tyneside Council
Suzanne Nestor-Robson	Deputy Director, Newcastle University	Higher Education
Heather Smith	Corporate Programmes & External Funding Manager, Northumberland County Council	Northumberland County Council
Cllr Mel Speding	Elected Councillor, Sunderland City Council	Sunderland City Council
Neil Wilkinson	Spatial Planning and Environment Manager	Gateshead Council
Karen Wood	Chief Executive, North East Social Enterprise Partnership Ltd	Social Enterprise

ANNEX 3:
SUD and TA arrangements for Newcastle City Council as Intermediate Body