



TEES VALLEY  
COMBINED  
AUTHORITY

TEES VALLEY MAYOR

# NET ZERO STRATEGY FOR TEES VALLEY

Powering the UK's journey to Net Zero

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The Tees Valley is proud to be leading the approach to achieve Net Zero, not just because it is the right thing to do but because it is in the interests of our residents and businesses to do so – and we are determined to grab the once-in-a-generation economic opportunity it presents us.

Delivering Net Zero is a massive opportunity to bring industry back to Darlington, Hartlepool, Middlesbrough, Stockton and Redcar & Cleveland.

Net Zero is not about what we have to give up: It is about what we have to gain – jobs, investment, economic growth and, perhaps most importantly of all, a renewed sense of purpose and pride.

If Britain is to achieve its Net Zero targets, the large-scale reduction of emissions from homes, workplaces and transport and the rapid decarbonisation of our national energy supply needs to happen now.

But all too often this transition is described in terms of costs and sacrifices – at the expense of benefits. Benefits Tees Valley stands to gain from.

Benefits such as growth driven by new products and services, both at home and exported to the world via Teesside International Airport and the Teesside Freeport. Benefits like higher living standards delivered by well-paid jobs of the future for local people. Benefits like cleaner air and improved health for our residents.

Most importantly of all, the opportunity for areas like ours to quite literally power the national journey to Net Zero.

Tees Valley is the obvious place to lead the UK’s environmental ambitions. We are already home to countless game-changing projects powering the way to Net Zero. These projects are already creating thousands of good-quality jobs and safeguarding thousands more – and creating cleaner, healthier and safer communities for the generations to come.

Climate change could be the biggest challenge Teesside has ever faced - and we have faced more than our fair share of challenges.

Our previous Local Enterprise Partnership Chair Paul Booth often used to highlight how close our world-leading chemicals and processing cluster came to total shutdown during the floods of 2013. This would have caused significant and perhaps permanent damage to our local economy. If flooding on that scale became a fact of life and not a once-in-a-generation event, the impact does not bear thinking about.

But we have to think about it.

The effects of Covid-19 and the recent appalling events in Ukraine, and their subsequent impact on energy prices, have dramatically underlined the need for the development of a self-sufficient British energy system built on clean, affordable power. The more we produce our own energy the better protected Tees Valley families are from the volatility of international energy markets.

But make no mistake, even if climate change were not happening, we would be pursuing the same path.

Tees Valley is going to be at the heart of Britain’s journey to Net Zero. This is also the greatest economic opportunity we have been presented with since the discovery of ironstone in the Eston Hills in 1847.

We have already built a national and international reputation as the go-to location for clean energy and low carbon technology. We are already home to a number of existing and emerging projects – Net Zero Tees, a first-of-a-kind fully integrated gas-fired power and carbon capture project; bp’s plans to build the UK’s largest Blue Hydrogen production facility; Kellas’ 1GW H2NorthEast Blue Hydrogen project; EDF’s plans to construct a major Green Hydrogen facility; SEAH’s new facility to supply into offshore wind; Whitetail Clean Energy’s Net Zero Power Station; and Circular Fuel and Alfanar’s plans to create sustainable fuels at scale from waste.

As a region we also have unique natural Sites of Special Scientific Interest including important saltmarshes, wetlands and bird sanctuaries, a Local Nature Partnership viewed nationally as an exemplar of best practice and important green spaces all of which are important to our regional quality of life.

Tees Valley’s Net Zero ambitions will create the jobs of the future, transforming our economy and nature and make us the UK’s clean energy powerhouse. The Tees Valley built the modern world, and now we are going to save it – by doing the same thing for clean energy and hydrogen that we historically did for steel and chemicals.

This strategy sets out a clear roadmap for how the Tees Valley intends to achieve Net Zero by 2050 – and how our region stands to benefit from that journey.



**Ben Houchen, Tees Valley Mayor**  
Chair of Tees Valley Combined Authority

## EXECUTIVE SUMMARY

### This strategy:

- Articulates our overall vision for a Net Zero Tees Valley and sets out a practical roadmap for how we intend to achieve it
- Is a catalyst to bring together all the necessary partners to enable our region to reach Net Zero and lays the groundwork for a future built around sustainable industries and more resilient natural environment
- Brings together a range of existing strategies and activities and individual organisational targets into a single shared ambition
- Will be used to inform future investments and economic interventions

**Tees Valley – Powering the UK’s journey to Net Zero is a strategy for our region** – a clear high-level statement of intent, that sets out how partners across Darlington, Hartlepool, Middlesbrough, Stockton and Redcar & Cleveland can deploy their distinctive strengths to power the national transition to Net Zero, while delivering prosperity and opportunity locally.

It is designed to support organisations and households to change their operations to become carbon neutral and to adopt new technologies to achieve net zero. It is by no means definitive - each organisation detailed within this strategy will have its own individual path to achieving that ambition and set its own targets. This strategy seeks to align that work where feasible and does not supersede any existing organisational plans.

The strategy builds upon aligns with the organisational Net Zero strategies agreed by the Tees Valley Local Authorities – and their key themes such the transition to sustainable and low emission powering of assets and vehicles, improved energy efficiency of local buildings and the improvement of natural assets – and is designed to support their delivery. It does not supersede these strategies.

Crucially, this strategy represents a collective move towards a Net Zero Tees Valley fuelled by a revitalised economy built on clean energy and Net Zero manufacturing.

The Tees Valley economy is historically dependent on energy intensive industries and fossil fuels. Transitioning to a Net Zero future is vital if our industry is to survive and it provides the cornerstone for regeneration and future economic growth.

The strategy also recognises the important role of transport, as well as our natural capital and green spaces. Our region includes significant Natural Assets, which can help mitigate the effects of climate change, help manage future flood risks and contribute to the wellbeing and quality of life of our residents.

Our Local Industrial Strategy set an overarching ambition - “Tees Valley will be a global leader in clean energy, low carbon and hydrogen. The area will achieve a Net Zero carbon industrial cluster by 2040, providing good jobs with long-term prospects that local people can access”

This strategy outlines how we will reach Net Zero by 2050, abating or capturing more than 11 Mega Tonnes (MT) 33 of Carbon Dioxide (CO2). It first sets out the overall challenge, then breaks it down into five distinct areas of in-depth analysis and priority:



Some areas of this work – particularly industrial decarbonisation – are further progressed than others. Detailed action plans will be developed setting out a regional approach to address each of these strategic areas, where such a plan does not already exist.

### Conclusion

We have set out an ambitious plan to achieve Net Zero as a region by 2050 – from the starting point of emission levels today.

Our aim is for a sizeable proportion of the region's emissions – predominantly those relating to industrial emissions – to be eliminated by 2030 through the delivery of a local large-scale carbon capture, utilisation and storage system.

We have identified five key areas which will be our focus and we will work in partnership with a wide range of local and national partners to develop roadmaps and to implement interventions in each area.

We will continue to maximise the impact of national funding in the region and to lead the way in innovative solutions to deliver a Net Zero future. As a region, we will continue to focus on economic development, taking advantage of the opportunities the transition to a Net Zero future offers to the Tees Valley.

## OUR TEN POINT PLAN FOR A NET ZERO TEES VALLEY

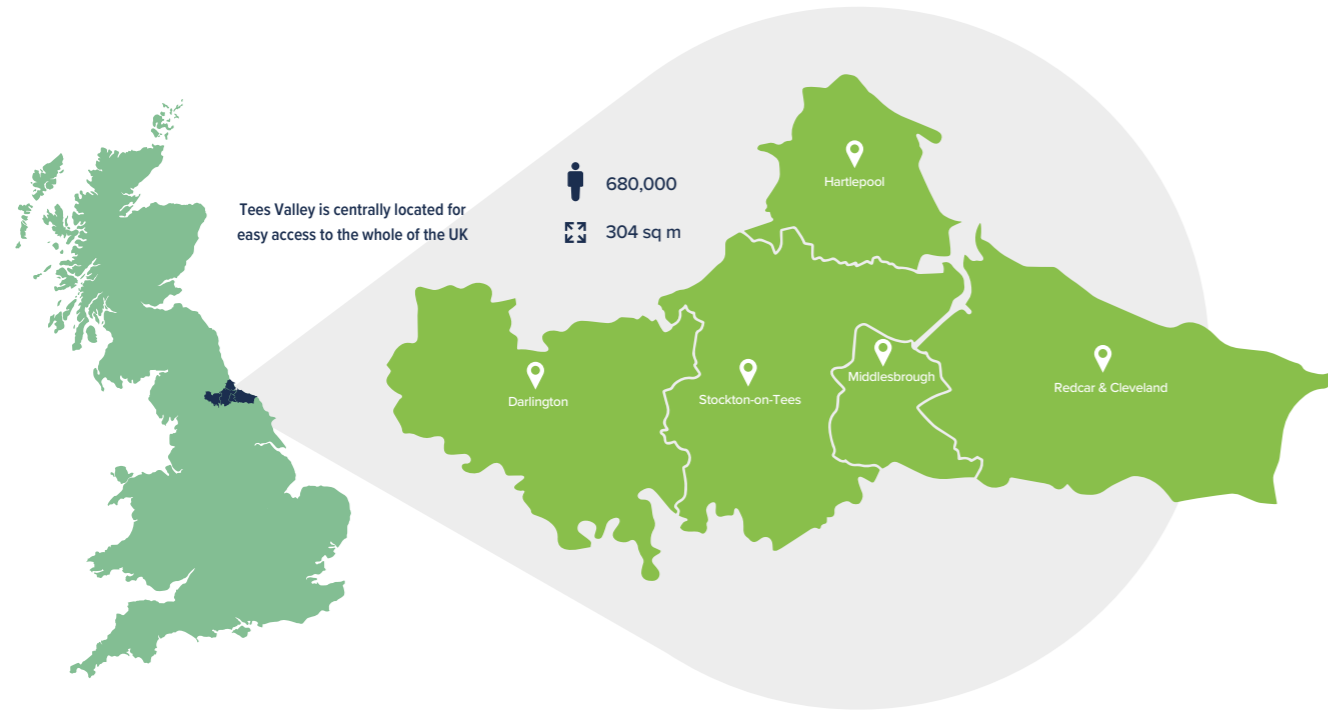
We will identify the necessary steps to reach Net Zero in the Tees Valley and produce an action plan setting out how this can be achieved by 2050.

### Our top priorities include:

1. Delivering the UK’s first decarbonised heavy industrial cluster by 2040.
2. Delivering large-scale carbon capture, utilisation and storage and over 4GW of hydrogen production by 2030
3. Creating a National Hydrogen Transport Hub, supporting the transition to zero emission transport.
4. Supporting Teesside International Airport to be Net Zero in its operations by 2030 and supporting the development of Sustainable Aviation Fuels to pursue Net Zero flights by 2035 – making it the UK’s first Net Zero Airport.
5. Using our natural capital and responsibility for the Local Nature Recovery strategy to help mitigate the effects of climate change, support flood resilience and improve access to green and blue spaces – including by promoting tree planting by residents and community groups and working with private landowners on larger tree planting schemes.
6. Increasing the number of public Electric Vehicle charging points in Tees Valley by 200% by 2025 as part of a plan to deliver a Net Zero local transport network by 2036
7. Supporting the national target of all homes being rated to EPC C and above by 2035.
8. Support all public sector organisations in the delivery of their own Net Zero strategies and supporting more than 1000 businesses to adopt new practices and achieve carbon savings by 2035
9. Provide online services to help residents monitor and reduce their environmental impact
10. Deliver training and employment opportunities aligned to the new green economy

Detailed action plans will also be developed for each of key strategic challenges set out in this strategy, where such plans do not already exist.

## THE NET ZERO CHALLENGE IN TEES VALLEY



The Tees Valley is located on the east coast in the middle of the United Kingdom, nestled between North Yorkshire and County Durham. Covering an area of 304 square miles it has a population of around 680,000 people living and working in the region.

Tees Valley is made up of five local authorities, Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton. Each is defined by its communities, natural assets and industry and each shares the same commitment to develop the area and build the local economy.

### What do we mean by Net Zero?

National legislation defines Net Zero as a 100% reduction in the UK's net emissions of greenhouse gases by 2050, relative to 1990 levels.

For this purposes of this strategy, Net Zero is the achievement of a balance between the greenhouse gases emitted into the atmosphere and those removed from it. This balance – or Net Zero – will happen when the amount of greenhouse gases we add to the atmosphere is no more than the amount removed through technology or our environment.

To reach Net Zero, emissions from homes, transport, nature and industry will need to reduce. Remaining emissions will need to be removed from the atmosphere either by changes in our natural environment or through technologies such as Carbon Capture, Utilisation and Storage.

Net Zero means reducing or offsetting all harmful greenhouse gas emission – not just Carbon Dioxide.

For a truly Net Zero future we must also consider our impact on the planet and aim for sustainable use of materials, including reuse and disposal of waste

### The Tees Valley's emissions today

Local and regional estimates of carbon emissions start from a baseline of 2011, which is the baseline for most statistics in this strategy.

Although emissions figures for 2020 are available, this strategy uses figures from 2019 due to the impact of the international response to Covid-19 making figures from 2020 highly untypical.

Pre-pandemic the Tees Valley's total CO2 emissions were in excess of 6.9MT, including 4.3 million from our industrial cluster. This means the Tees Valley has some of the highest emissions of any area, both in real teams and per capita.

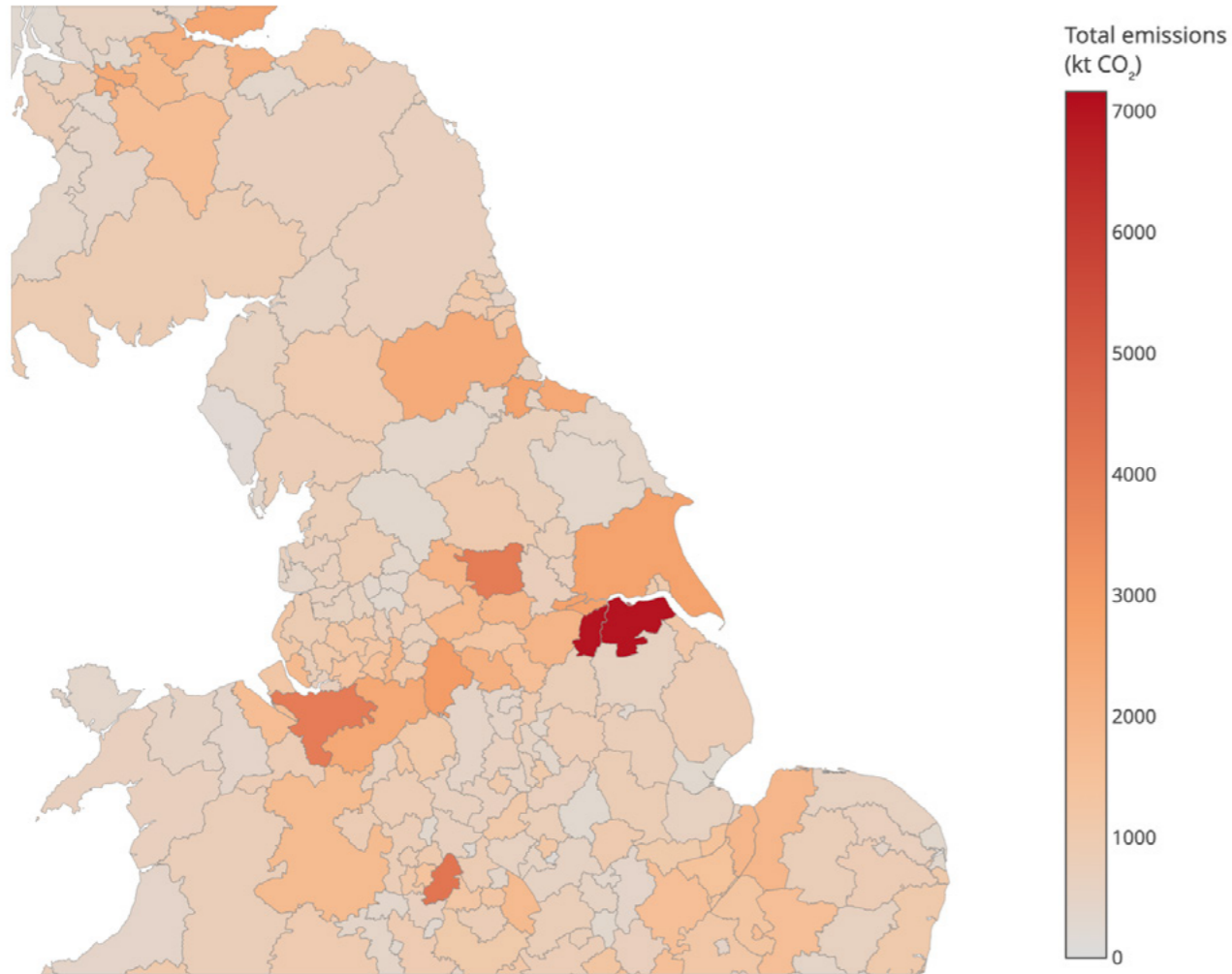
The statistics highlight the fact that a significant amount of the regions CO2 emissions is from energy intensive industry exporting goods outside of our region.

These emissions are dominated by the heavy industrial cluster based towards the mouth of the river Tees. Historically, emissions reductions have been associated with the closure of industry, which can clearly be seen in the large reductions associated with the mothballing in 2010 and then closure of the blast furnace in 2015.

As a region we need to decarbonise our industry whilst maintaining and growing our industrial base and the employment it provides our residents.

We will also not achieve Net Zero by displacing emissions for which the Tees Valley is responsible to other parts of the world.

2019 emissions (kt CO2) by source	Tees Valley	UK	Tees Valley % Total	UK % Total	Tees Valley Per Capita Emissions (t)	UK Per Capita Emissions (t)
Household emissions (kt CO2)	950.17	94532.06	13.71%	27.44%	1.41	1.42
Industrial emissions (kt CO2)	4327.48	82913.12	62.42%	24.07%	6.40	1.24
Transport emissions (kt CO2)	1168.31	124303.43	16.85%	36.08%	1.73	1.86
Other Sector emissions (e.g, Agriculture and Commercial) (kt CO2)	486.74	42762.99	7.02%	12.41%	0.72	0.64
<b>Total Emissions (kt CO2)</b>	<b>6932.70</b>	<b>344511.60</b>	<b>100%</b>	<b>100%</b>	<b>10.26</b>	<b>5.16</b>



## GRASPING THE OPPORTUNITY

Net Zero is too often framed in terms of what we have to sacrifice – not what we have to gain. Achieving Net Zero will require changes to the way we work, travel and power our lives.

For a lot of our businesses this will mean transforming the way they operate.

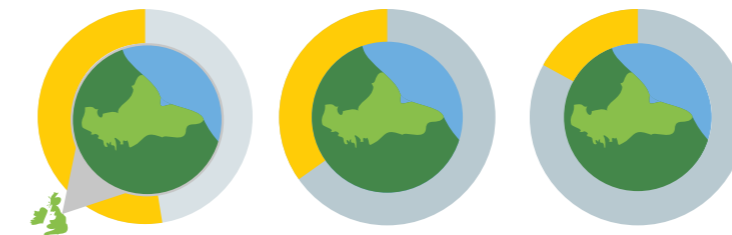
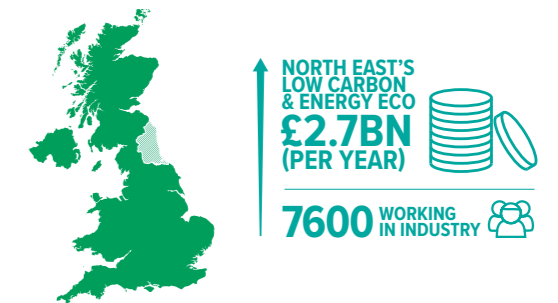
Achieving Net Zero presents the industry in the Tees Valley with a stark choice, either invest in innovative technologies and growth or close. There is no status quo.

This effectively means there is no choice for our region, we must support our industrial companies to transition to Net Zero and ensure it anchors their ongoing operations in the region. This transition also opens up new opportunities for new green investments and continued regeneration of our industrial base.

Net Zero needs innovative products and services to make zero emission products and services affordable and appealing. We need new technologies to power our industry and to move people and goods around our region. We need businesses to step up to take advantage of the supply chain opportunities as Tees Valley leads the way in green energy production, in rolling out the green infrastructure we need to grow our economy, and in retrofitting our homes to make them more energy efficient and affordable to fuel.

And we are already realising the kind of economic gains which are up for grabs.

The Office of National Statistics research suggests that the value of the wider North East's low carbon and energy economy is now worth £2.7bn a year – with 7600 people already working in the industry and we see huge growth potential.



54% of Tees Valley is agricultural land which currently is a **net emitter**. Small changes in the next two decades could reduce emission by close to two thirds

A preliminary economic analysis shows that 24,000 direct jobs could be created and safeguarded in the region by 2030, across the offshore wind, CCUS, hydrogen, and energy sectors – with more than 29,000 more roles in the supply chain.

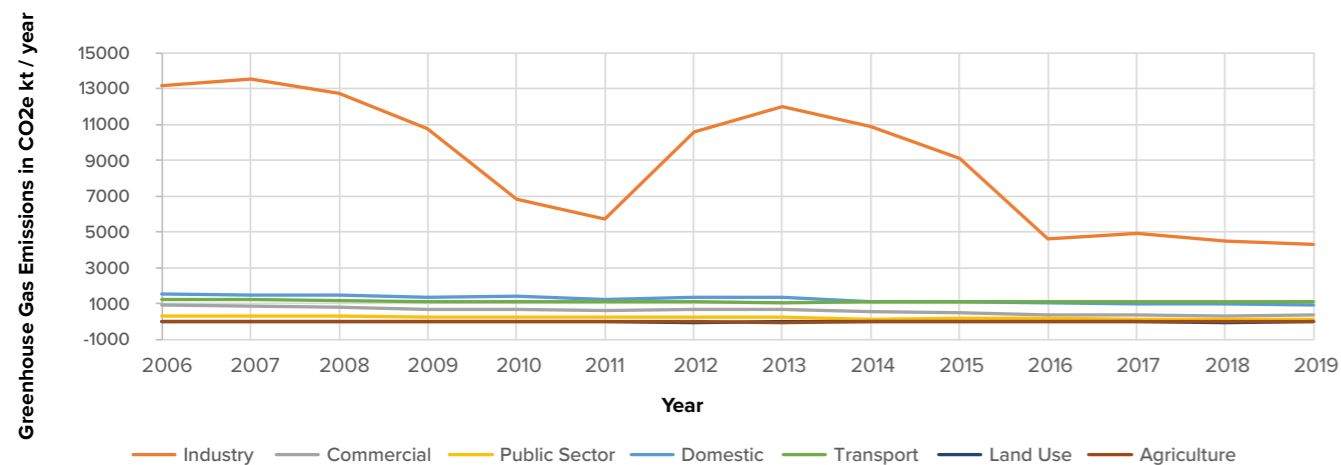


Independent analysis from Vivid Economic projects an additional £500m of regional GVA impact from the Net Zero Teesside Project alone.

It's not just major employers that stand to benefit. There will be significant economic opportunities for local SMEs and third sector organisations in a Net Zero economy, including those that may not currently see Net Zero as relevant to their operations.

And that's just the start.

Tees Valley Emissions by Type of Emitter (Including Industry) in kt per year (2006 – 2019)



## FITTING INTO THE NATIONAL PICTURE

The United Kingdom has made a number of international and binding commitments to reduce emissions to Net Zero by 2050 – and this strategy sets out the role the Tees Valley will play in achieving them.

The Climate Change Act 2008 mandated an 80% cut overall in national greenhouse gas emissions by 2050 and set out a legal framework for reducing emissions across the UK economy, made up of five-year targets called Carbon Budgets. The Act also established the Committee on Climate Change to advise government on achieving Net Zero and to set Carbon Budgets.

In June 2019, the target was revised to a 100% reduction – making the UK the first major economy to make achieving Net Zero by 2050 the law.

In December 2020, the Committee on Climate Change published its Sixth Carbon Budget, recommending a 78% reduction in greenhouse gas emissions by 2035. In June 2021, the government also set this target in law.

In November 2020, the Prime Minister’s 10 Point Plan for Green Industrial Revolution set out how “by investing in clean technologies – wind, carbon capture, hydrogen and many others – Britain will lead the world into a new Green Industrial Revolution” promising to “create hundreds of thousands of new jobs by investing in pioneering British industries while simultaneously protecting future generations from climate change”.

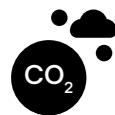
### The plan set out several national targets, including:



**Generation of 40GW of energy from offshore wind by 2030**



**Production of 5GW of low carbon hydrogen by 2030**



**Capture of up to 10MT of CO2 per year through the establishment of Carbon Capture Utilisation and Storage in two industrial clusters by mid 2020s, and four sites by 2030**



**Accelerating the shift to zero emission transport by ending the sale of new petrol and diesel cars and vans by 2030 and increasing the share of journeys taken by public transport, cycling and walking**



**Making buildings more energy efficient and phasing out fossil fuel boilers, making people’s homes warm and comfortable, whilst keeping bills low**



**Unleashing innovation to further develop green technologies for Net Zero**

The national Net Zero Strategy (October 2021) brought together several earlier strategies (including the Hydrogen Strategy, Transport Decarbonisation Strategy, Heat and Buildings Strategy and Energy White Paper) and committed the UK to a Net Zero Future characterised by:

- Our industrial heartlands are reinvigorated with innovation and private investment in clean technologies
- Our green economy and its supply chains provide sustainable jobs for highly skilled workers
- Our businesses are delivering the latest low carbon technologies, services and innovations for the UK and export markets
- Our homes are warm and comfortable and powered and heated by cheap, affordable energy
- Our journeys – including logistics and deliveries as well as leisure and commuting – are made in zero emission vehicles
- Our natural environment is protected, enhanced and more diverse

In April 2022, the government also published an Energy Security Strategy, setting out how plans to accelerate homegrown power for greater energy independence.

These plans set a new national target of achieving 95% low carbon electricity production by 2030, including:

- A doubling of the previous ambition of low carbon hydrogen production by 2030 to 10GW
- A new target of 50GW of energy from Offshore Wind by 2030

- “Significant acceleration” of nuclear power with a target of 24GW output by 2050 meeting 25% of overall power demand.

The UK has also adopted the United Nations Sustainable Development Goals, which include:

- Ensuring access to affordable, reliable, sustainable, and modern energy for all
- Promoting sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all
- Building resilient infrastructure, promoting sustainable industrialisation, and fostering innovation
- Making cities and human settlements inclusive, safe, resilient, and sustainable
- Ensuring sustainable consumption and production

The Levelling Up White Paper (2022) also sets out a relationship between the government’s ambition to spread prosperity and opportunity around the United Kingdom and Net Zero, stating how Net Zero “could also be transformative” for post-industrial areas as “the Green Industrial Revolution will require significant investment in new infrastructure and production processes using new technologies” which “has the potential to benefit disproportionately less well-performing parts of the UK, particularly those with a rich heritage of manufacturing and engineering” which “have the potential to build on existing areas of strength, such as renewable energy, electric vehicle manufacture, Carbon Capture, Utilisation and Storage (CCUS) and hydrogen”



## THE REGIONAL POLICY CONTEXT

This strategy aims to bring existing policy and activity in the Tees Valley relating to the delivery of Net Zero under a single vision – and it is built upon our established and agreed vision for the Tees Valley economy.

Each of the Tees Valley local authorities will remain responsible for pursuing Net Zero within their own areas – with this strategy focussed on emissions which span geographies, in particular industrial emissions. This strategy seeks to align that work where feasible and does not supersede any existing organisational plans.

Our locally-agreed Local Industrial Strategy (2019) is based on “our niche offer in relation to clean energy, low carbon and hydrogen – aspects of the Clean Growth agenda”.

It’s ‘core proposition’ is focused on delivering Clean Growth through clean energy, low carbon and hydrogen, responding to government’s aim to develop one net-zero industrial cluster by 2040. These ambitions are “underpinned by a breadth and depth of assets in Tees Valley, which mean that the area is uniquely well-placed to pilot and demonstrate the benefits of clean energy, low carbon and hydrogen on productivity and supply chain integration.”

### The strategy continues:

“Our industrial legacy, infrastructure and geology mean that the main sources of clean energy available in the UK are already in use or can be deployed at scale in Tees Valley... We also have an established, geographically concentrated and highly integrated cluster, which is supported by proximity to: offshore wind; decommissioning growth potential; access to carbon capture and storage; hydrogen infrastructure and expertise; and innovation specialisms”.

“Our ambition provides an opportunity for Tees Valley to make a significant contribution to carbon emissions reductions at the national level, with the potential to deliver reductions of 80MT CO2 over the period to 2050”.

The Local Industrial Strategy sets out how Tees Valley will “Lead the way as an exemplar region for clean energy, low carbon and hydrogen” by:

- Developing the technology, infrastructure and supply chain linkages needed to maximise the impact of clean growth and industrial decarbonisation in Tees Valley
- Positioning Tees Valley as the UK’s Hydrogen Capital
- Establishing Tees Valley as the pioneer region for Carbon Capture, Utilisation and Storage and clean growth technologies
- Supporting the further development of the Tees Valley Offshore Wind cluster and supply chain links to the wider North East region
- Cementing Tees Valley’s position as an exemplar region for industrial decarbonisation and clean growth

The earlier Strategic Economic Plan (2016) also set the ambition for Tees Valley to become “a high value, low carbon, diverse and inclusive economy” and noted:

“Tees Valley has long championed the case for low carbon approaches to production as a means of meeting carbon reduction targets and improving long term competitiveness”

Key targets within the plan included:

- Developing high growth potential businesses and key growth sectors
- Introducing new processes and practices which reduce carbon emissions, increase productivity and the availability of high value jobs
- Promoting the Tees Valley as the preferred location in the UK for energy intensive indigenous firms and Foreign Direct Investment



## THE FIVE STRATEGIC CHALLENGES

For our region, achieving Net Zero can be broken down into 5 distinct challenges



Heavy Industry



Public Organisations



Homes & Communities



Transport



Nature & Resources

We will engage with key stakeholders to develop action plans for each of the themes separately and link the plans together under the overarching Net Zero strategy. Each area is at a different point on the journey to Net Zero and the actions plans will reflect this. Having separate action plans will enable us to consult widely whilst remaining focused on key areas of challenge and opportunity.

1. **Industrial decarbonisation** – A full industrial cluster decarbonisation plan is being developed through the Government’s Industrial Strategy Challenge fund programme. The work, led by NEPIC, involves major industries in the cluster and is due to report in 2023. The final report will provide a detailed technical roadmap to achieve Net Zero and will form the basis of the action plan for this sector. Key anchor projects are already underway including the underpinning CCS project, conversion of the SABIC cracker to hydrogen and hydrogen production projects.
2. **Public organisations and commercial businesses** – Local authorities and public organisations have individual plans to achieve Net Zero. Decarbonisation and energy efficiency support is also provided to companies in the region. We will aim to link these plans and activities together under an overarching road map, to help identify the interventions and support that will be needed to achieve a Net Zero future. We will consult with relevant organisations, business networks and individual businesses to understand the issues being faced and develop an action plan to deliver focused interventions.
3. **Homes and communities** – We will seek to maximise the impact of government policies and initiatives in the Tees Valley. We will work closely with local authorities and other local partners to develop an action plan that will identify practical support to help residents transition to a Net Zero future.
4. **Transport** – The transport action plan will be developed through the existing Transport Advisory Group (TAG) which oversees transport policy for the region. We will work with TAG to help align and support their strategies through the wider Net Zero activities.
5. **Natural and resources** – We will work with the Environment Agency, local nature organisations and local authorities to develop an action plan. We will work with existing policies and strategies and explore how to maximise the use of our Natural Assets. We will also work across different sectors to ensure a balance is maintained between economic growth and natural environment.



## PEOPLE AND SKILLS

Through our journey to a Net Zero future, we need to ensure our residents have good quality employment opportunities and excellent places to live. To achieve this, we need to ensure we have the workforce to attract and retain businesses – particularly those in the clean energy sector and that our residents have access to the skills training to secure the jobs.

A shortage of available local skills also has the potential to lead to capacity and delivery issues in a number of Net Zero initiatives – in particular housing retrofit.

### Our Employment & Skills Strategy (2022-29) sets out a vision where:

- Every business has access to a readily available skilled workforce
- Every business has access to workforce development and skills support
- There are clear, accessible and appropriate training routes for priority and growth sectors
- Every Tees Valley resident can access a good and progressive job
- Every resident has access to the support needed to make informed decisions that will help them achieve their career and employment ambitions
- Every young person and adult is aware of career opportunities and the routes to achieve them

### The importance of Net Zero is explicitly stated in the strategy, which states:

*“Tees Valley is an area of significant economic opportunity, increasingly recognised as an exemplar region in clean energy and the hydrogen economy... central to our growth plans is our ambition to become the national capital of clean growth and clean energy.”*

*“In developing this strategy it has been important to recognise that every job in the future will be directly or indirectly shaped by the transition to Net Zero as all sectors will go through a transformation on the journey to Net Zero”.*

In 2021, the Tees Valley was one of only eight Local Skills Improvement Plan (LSIP) Trailblazers, with the North East England Chamber of Commerce, leading on the development of the plan. The Tees Valley LSIP Trailblazer focused on the Low Carbon, Hydrogen and Clean Energy sector.

The Skills and Post-16 Education Act 2022 placed LSIPs on a statutory footing and will be rolled out nationally. LSIPs will be different from previous skills plans as they give employers, through designated employer representative bodies (ERBs), a clear and strengthened role in shaping future technical education skills provision. LSIPs will identify the skills priorities of employers and set out recommendations to inform ‘curriculum changes and adaptations to provision’, ensuring that provision is more

responsive to employer needs within our local area.

The North East England Chamber of Commerce have been designated as the employer representative body for the Tees Valley LSIP geography and will lead on the development of the plan, to be published in May 2023. The Combined Authority has also begun to map current and future need for green jobs and skills.

There are 67,750 green jobs in Tees Valley – representing over a quarter of all jobs – and the number of green jobs in Tees Valley is projected to grow by 3.3% by 2030.

### Interventions we are currently making to deliver an unrivalled Net Zero workforce includes:

- **Adult Skills Programmes:** As part of our devolution deal for Tees Valley, the Tees Valley Combined Authority has responsibility for the Adult Education Budget, allowing us to deliver a responsive, flexible adult skills system based on creating the training pathways that meet business demand, drives business growth and helps Tees Valley residents fill the roles of today and tomorrow. Devolved powers over the Adult Education Budget, along with the Free Courses for Jobs funding, present an opportunity to work with businesses and training providers to ensure there is provision which is agile and responsive to the impact of new technologies and new ways of working.
- **Apprenticeships:** Providing funding for SMEs who create Apprenticeships in sectors facing high demand and growth from employers as identified in the Strategic Economic Plan and critical to the delivery of Net Zero, such as process, chemicals and energy, health and biologics, advanced manufacturing, digital and creative and culture and leisure.
- **Careers:** Using our position as the regional Careers Hub to ensure local young people are aware of the emerging opportunities in the Net Zero economy and the skills and training they need to take advantage of them.
- **Teesworks Academy:** A one-stop-shop linking jobseekers, local employment hubs and skills providers to give local people the skills and training to meet the needs of the Net Zero industries emerging on the Teesworks site.
- **Skills Bootcamps** offering free, flexible courses in sector-specific skills, including clean energy and expected to support at least 1,000 adults across the region in the 2022/23 financial year.

## CROSS CUTTING ACTIVITIES TO DECARBONISE TEES VALLEY

### Using digital as a driver for Net Zero

Digital technology is critical to achieving Net Zero – at least one study suggests that cloud migration alone can help a business reduce the carbon footprint of its IT systems by 88%.

The Tees Valley [Digital Strategy \(2021\)](#) sets out to make Tees Valley the UK’s first truly Smart Region by 2032, using digital innovation and infrastructure to optimise the flow of energy, people and data, enabling:

- Smart buildings which save and optimise energy
- Smart homes which make it easier for residents to monitor and control lighting, heating and appliances
- Smart manufacturing and construction, optimising supply chains and improving energy efficiency
- Smart transportation systems enabling more people to move around more quickly
- The strategy will be delivered through three key foundations:
  - Infrastructure – ensuring high speed digital connectivity for all businesses and homes across the region.
  - Innovation – establishing the Tees Valley as a global centre of digital innovation, research and practice. Digital innovation will drive the success of our key industry clusters and support our transition to Net Zero, including Clean Energy production and Advanced Manufacturing.
  - Inclusion and skills – ensuring all communities are digitally connected, with the digital skills to access education, jobs, health, social care and other public services, wherever they live.
  - There are also opportunities for the digital sector within Tees Valley’s emerging hydrogen economy. For example, several leading technology firms have already installed hydrogen fuel cells to provide emission free back-up power to their data centres, some using technology developed in Tees Valley.

### Leveraging procurement

The Tees Valley Combined Authority intends to use our forthcoming Procurement Policy to leverage our position as a major regional procurer of goods and services to embed Net Zero goals in our purchasing.

### Improving Trade

We are currently working in partnership with the Department of International Trade to implement a regional trade strategy, helping us to export Tees Valley’s Net Zero expertise around the world.

Tees Valley is also home to the newly-launched Centre for Digital Trade and Innovation which will work closely with the Teesside Freeport to bring together initiatives and expertise and enable industry to develop the latest technologies and approaches to frictionless trade and remove barriers to growth.

### Supporting Innovation

We will work with our established cluster bodies and research technology organisations and academia to invest in and catalyse Net Zero innovation across the Tees Valley, with projects such as:

- The Net Zero Innovation Centre, a new and innovative Research and Development facility spearheaded by Teesside University
- Hosting the National Hydrogen Transport Hub
- Supporting novel food and circular economy research at CPI and the Materials Processing Institute
- Supporting research into materials integrity for offshore structures and onshore pipes at TWI

The Tees Valley is committed, through initiatives such as the Net Zero Innovation Centre, to supporting the Research and Development underpinning climate change technology.

### Using culture as a catalyst

We are also embedding environmental sustainability objectives into our Creative Place activity.

Tees Valley’s cultural venues, festivals and events engage with hundreds of thousands of people every year. We will support them to become flagships of sustainability, using their reach and influence to demonstrate best practice and encourage behavioural change.

Tees Valley has been confirmed as a Priority Place in Art’s Council England’s 10-year strategy, meaning priority investment. The Council’s investment principles include arts organisations using their activities to “connect, mobilise and inspire places and communities, and champion cultural leadership” with regards to achieving Net Zero and we will utilise our funding and support programmes to support this.



## INDUSTRIAL DECARBONISATION

A Net Zero Tees Valley cannot be achieved without the full-scale decarbonisation of our industry – and we intend to deliver the UK’s first fully decarbonised industrial cluster by 2040

90% of our industrial cluster is based within a 5km radius – giving Tees Valley a unique opportunity to deliver regional decarbonisation. It currently emits more than 4.3MT of CO2 every year, and it is predicted that by 2040, due to an increase industrial base, 8.8MT of CO2 per annum will be abated or captured within the cluster.

- But the scale of the challenge in this area is significant.
- 62% of Tees Valley emissions come from industry compared to UK average of 24%
- The Tees Valley industrial cluster contains 5 of the UK’s top 25 emitters and is single-handedly responsible for 5.6% of the UK’s total industrial emissions

We need to decarbonise our industry to achieve Net Zero – but do so in a way which attracts investment, future-proofs our major businesses and secures well paid skilled jobs local people can access.

### We will achieve this by:

- Working directly with the 40 largest emitters in the region through our Cluster Decarbonisation Plan to develop a bespoke pathway to decarbonising their operations
- Using Carbon Capture, Utilisation and Storage to capture up to 10MT of CO2 each year – equivalent to the emissions associated with the annual energy use of around 3 million homes

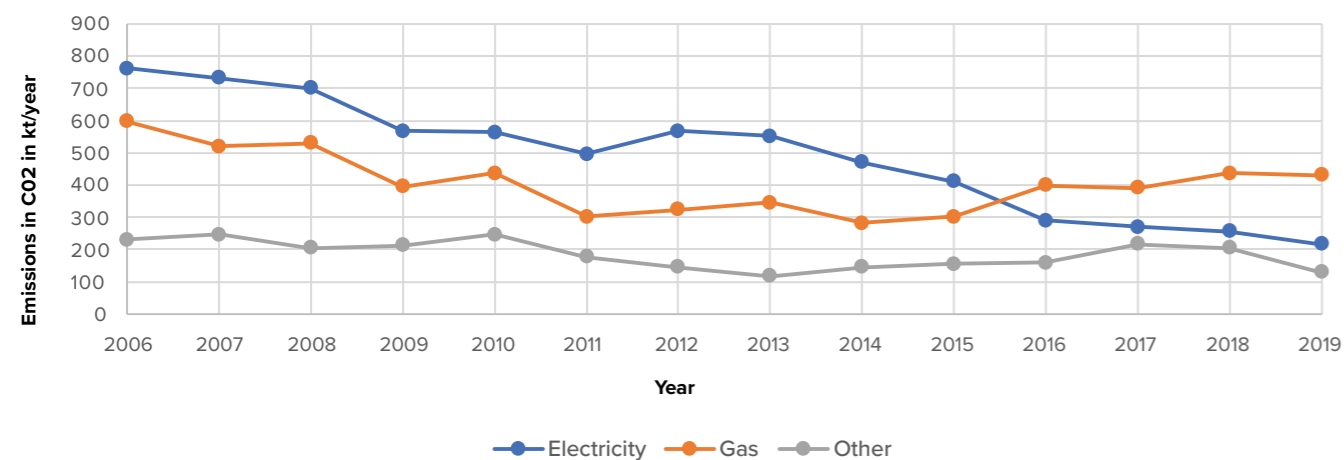
We will also work with energy companies to maximise the work they are doing in the region, particularly with regards

to the readiness of the national grid. This work will be complemented by the commissioning of an independent Local Area Energy Plan which will set out the Tees Valley’s projected energy needs.

### Key deliverables:

- Delivering the UK’s first decarbonised industrial cluster by 2040
- Establishing a large-scale carbon capture, utilisation and storage project by 2030 .
- Contributing 4GW of hydrogen production by 2030
- Delivering and implementing the industrial cluster plan to reduce the cluster’s emissions to zero, including supporting the CCS and related Blue Hydrogen projects
- Promoting Green Hydrogen production projects
- Promoting the Tees Valley as a location for energy intensive industries, using clean power, CCS and hydrogen to enable Net Zero manufacturing
- Developing an offshore wind manufacturing cluster and promote the opportunities in the wider supply chain
- Supporting the development of circular economy and recycling technologies and their implementation in the region
- Promoting clean energy production including nuclear, sustainable fuel, solar and wind energy

CO2 Emissions from Industry (Excluding Large Industry) by Fuel Type (2006 – 2019)



## PUBLIC ORGANISATIONS AND PRIVATE SECTOR BUSINESSES

Although often overshadowed by the region’s heavy industry when discussing the route to Net Zero, over 17% of our regions emissions come from non-energy intensive businesses, of which 99.2% are SMEs.

These industries cover most sectors including manufacturing, retail, hospitality, digital and the creative industries, as well as logistics, health and social care, education and the voluntary sector.

Each company faces a unique set of challenges and needs a personalised route to a Net Zero future which can be sustained within their business model. All companies need to consider not just their power source, but also their input materials, waste generated, logistics and transport and operating impacts.

Many of our smaller companies lack the capacity or resources to reduce their environmental impact or the time to explore every option.

We will work with partners to understand the specific needs of our business base and develop the tools and services to help them monitor and reduce their environmental impact. We will need to develop tools which can be used by all businesses but will also explore sector specific tools and support where there is a bespoke need. These tools will be designed to amplify the effects of existing tools and to address any gaps identified within their provision.

Our SME Energy Efficiency programme has already identified 1329 opportunities for energy efficiency improvements at local small businesses, with a potential annual cost savings of £670,537 to businesses and carbon savings of 2,068 tCO2e.

Car dealership Alexanders Motor Group approached the scheme for an energy audit which recommended the replacement of fluorescent lighting in the firm’s showrooms, workshops and offices with LED lights – saving the company over £4,500 per year in energy costs and reducing greenhouse gas emissions by 13.5tCO2e per year.

A similar upgrade to lighting at Pioneer Court Offices near Darlington by property management firm Hagen Developments has also been estimated to save over £2,200 per year in energy costs and reduce greenhouse gas emissions by 5.8tCO2e per year.

To maximise impact we will look to develop online tools and resources where possible and to deploy business support specialists where required. As a region we will look to learn from successes in other areas and where possible, buy in services and support rather than duplicate effort, building on the expertise of local initiatives such as Middlesbrough Environment City.

We will also work with our five local authorities, along with other public bodies and agencies to help them transition to a Net Zero future, helping them access the government support they will need to reduce their environmental impact.

The strategy builds upon aligns with the organisational Net Zero strategies agreed by the Tees Valley Local Authorities – and their key themes such the transition to sustainable and low emission powering of assets and vehicles, improved energy efficiency of local buildings and the improvement of natural assets – and is designed to support their delivery. It does not supersede these strategies.

We need as a region to start seeing waste as a resource and not a problem, and we will collaborate with partners to ensure that the Tees Valley fully utilises region’s waste resources as a source of biogenic feedstock to produce low carbon fuels and industrial energy.

### Key deliverables:

- Developing an action plan with local authorities, public sector originations, the local third sector and business which bring together an overarching roadmap to achieve Net Zero. This will supplement Local Authorities own plans for their area
- Promoting the use of practical tools to help companies measure, monitor and reduce their environmental impacts (bringing together existing third-party tools and making them accessible to local businesses)
- Supporting all public sector organisations in the delivery of their own Net Zero Strategies
- Practical assistance with training and business support – including raising awareness through business events, business networks and through social media campaigns to help companies and organizations reach Net Zero
- Supporting businesses to adopt new practices and achieve carbon savings through the Tees Valley Business Growth Hub – with a target of 1000 businesses being supported by 2025
- Exploring how to leverage green finance support to help companies invest in new technologies and environmental emission reduction projects
- Develop and support companies to access a Net Zero supply chain in the region by investing in skills and training and helping regional companies looking to expand into net zero technologies
- Support companies to export their expertise and access international low carbon supply chains
- Commissioning an independent Local Area Energy Plan detailing the Tees Valley’s projected energy needs to 2050

## HOMES AND COMMUNITIES

There is no sense in generating clean power if most of the energy just goes straight out the window – and fuel poverty is a critical issue.

Reaching Net Zero means tackling emissions from all sources – 15% of carbon emissions in the Tees Valley come from domestic properties, yet 110,445 of the Tees Valley's 295,053 homes – 37% - have an Energy Performance Certificate of D or below.

In fact, over three times as many Tees Valley homes have the lowest possible Energy Performance Rating (1265) as have the highest (407). This means that in too many properties too much heat is escaping through windows, doors, roofs and walls.

At the same time energy costs have risen substantially in recent years, with the average household seeing its bill rise to £3,549 from October 2022.

National statistics show that there are 42,891 households in Tees Valley currently living in fuel poverty – an average of 14.4% across our constituent authorities, and 16.8% of homes in Middlesbrough. This compares to a national average of 13.2%.

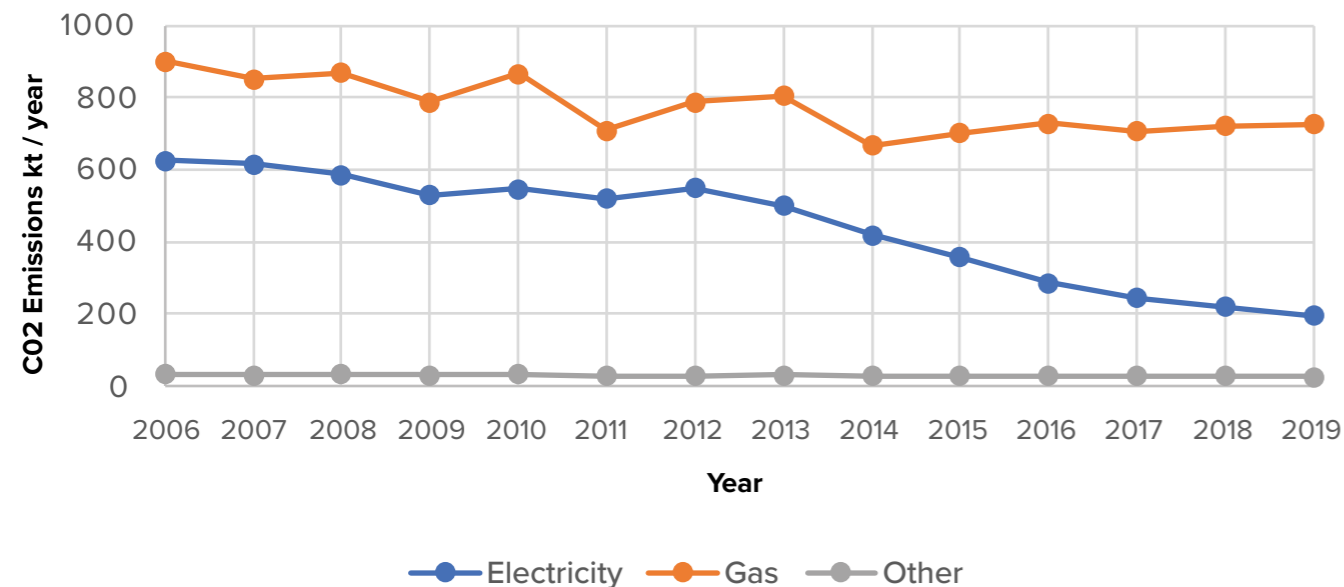
We will work with partners to improve the energy efficiency of residential properties across Tees Valley, making them cheaper and more efficient to heat and power, supporting national targets of achieving a rating of EPC C for every domestic building by 2035 where feasible – and by 2030 for fuel poor homes.

We will also work to fundamentally change the way we fuel our homes – with hydrogen at the heart of that transition.

However, to achieve a sustainable future it is not just energy we need to consider, residents also need to consider their choices around food, packaging, plastics, clothes, how they recycle and the transport choices they make. As part of the strategy we will develop online tools and environmental impact modelling tools to enable residents to understand their environmental impact and to help them explore the options they have to lower their impact.

We will also work with partners to help improve recycling to ensure as a region we recycle and re-use as much of our waste as possible.

### Tees Valley Domestic CO2 Emissions by Fuel Type (2006 – 2019)



#### Key deliverables:

- Maximising the impact of national funds supporting the retrofit of homes rated to EPC C and above in line with national targets for all homes to be EPC C or above where feasible by 2035 and for fuel poor homes to be EPC C by 2030

- Promoting online services to help residents to measure, monitor and reduce their environmental impact by 2025
- Promoting the transition of homes to low carbon heating and power, promoting the best solution for the property be it heat pumps, hydrogen fuel, electric or other technologies

## TRANSPORT AND INFRASTRUCTURE

Our Net Zero ambition for Tees Valley is to encourage our residents and businesses to always choose the lowest emission means of transportation – and to empower them to make that choice.

We will transform travel into, out of and around the Tees Valley with greener, faster, and more efficient transport and encourage modal shift towards public and active transport – and aim to fully decarbonise our public transport system by 2036.

Travel is a significant cause of carbon emissions – responsible for 17.3% of emissions in Tees Valley – and the only sector of the UK economy where emissions are still rising.

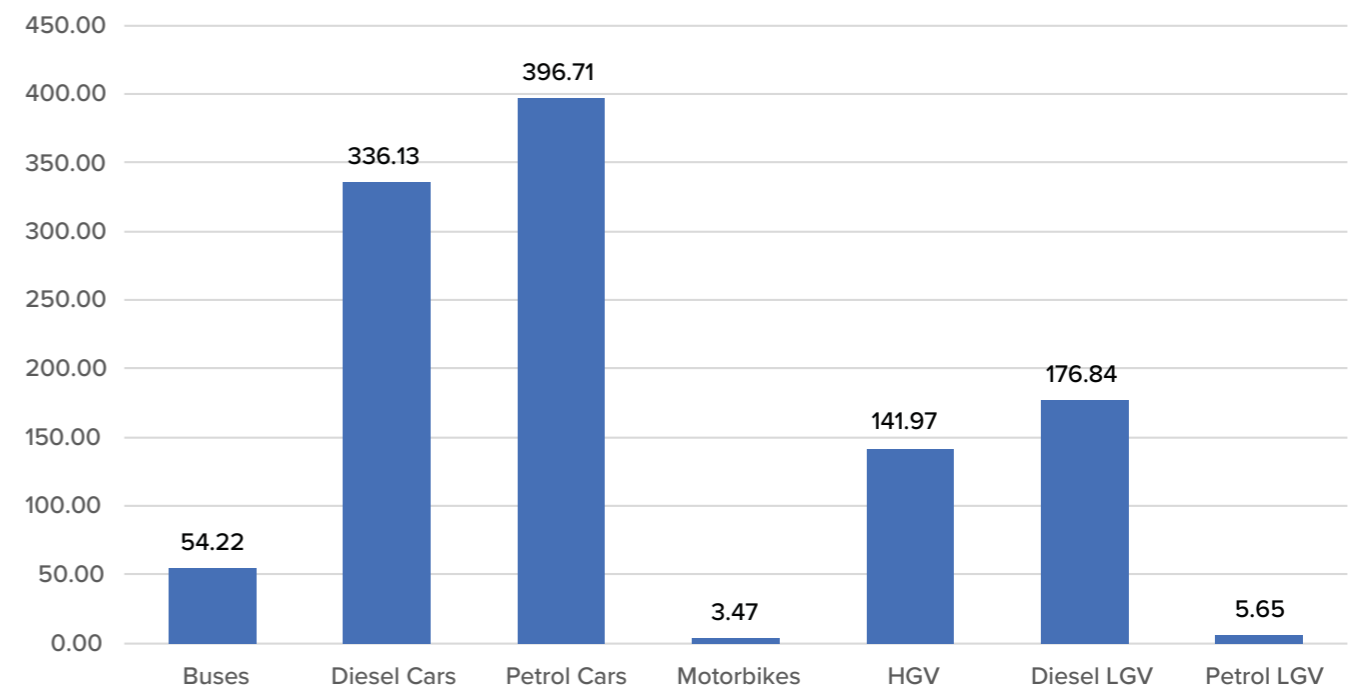
The majority (55%) of these emissions come from passenger cars – even through 31% of Tees Valley households have no access to a car.

As 87% of residents work within the region there is clear and significant need for reliable, environmentally sound methods of transport.

As Tees Valley is highly urbanised, with 90% of the population living in urban areas and 35% living in our five town centres, our natural geography lends itself to active and public transport.

We will also work with partners to help improve recycling to ensure as a region we recycle and re-use as much of our waste as possible.

### Tees Valley Co2 Transport Emissions by Source in kt (2019)



#### Key deliverables:

- Supporting the Transport Advisory Group to develop a plan to achieve a Net Zero transport network in Tees Valley by 2036
- Implementing an emissions reduction plan for Teesside International Airport designed to deliver an operationally Net Zero airport by 2030 – and the UK's first Net Zero airport in terms of flights by 2035

- Creating a National Hydrogen Transport Hub, supporting the transition to zero emission transport
- Increasing the number of public Electric Vehicle charging points in Tees Valley by 200% by 2025
- Pursuing the installation of at least two hydrogen refuelling hubs in the region by 2025

## NATURAL ASSETS

84,000 tonnes of CO<sub>2</sub> is sequestered in the Tees Valley's Natural Assets every year – but our natural environment currently emits 157,000 tonnes, making it a net emitter overall.

Nature plays a vital role in the Tees Valley's economy, supporting our visitor economy, agriculture – including feedstocks for industry – liveability and health. But currently only 6% of our region is woodland and 98% our population live in an urban area.

We will also work with partners to help improve recycling to ensure as a region we recycle and re-use as much of our waste as possible.

- We have 11% more ecologically 'bad' and 'poor' waterbodies compared to the rest of England
- We have 6% tree cover, 3% less than the national average
- Only 11.4% of land in the Tees Valley is currently working for nature (including protected sites, agri-environment schemes, local authority sites and nature reserves)

In 2021, the Combined Authority worked with Natural England to produce a Natural Capital Account for the Tees Valley which set out the monetary and non-monetary benefits which flow from our region's natural assets.

The account found that Tees Valley has a "unique mixture of natural assets" with a quantifiable value of more than £100m a year – mostly arising from recreational visits – and a £8m a year benefit in the removal of pollution from our air.

We will use, enhance and expand these assets by using nature-based solutions to reduce emissions, sequester carbon and build our resilience to climate change, while also enhancing the quality of place for existing and future communities and potential investors and visitors, improving perceptions of the area as a place to live and bringing about improvements to the health and wellbeing of local people.

This will include promoting tree planting by residents and community groups and working with private landowners on larger tree planting schemes.

We will also maximise the use of innovative Tees Valley industry to improve the environmental efficiency of agriculture. For example, ICL's Cleveland Potash Limited Boulby mine has mined Polyhalite mineral and produced products of Polysulphate since 2011 and will in 2022 dispatch over 1MT of Polysulphate from its quayside within PD Ports wharfage on the Tees River. These products have not only demonstrated efficacy in increasing crop yields and crop quality but also low environmental impact helping farmers reach industry carbon targets.

We will also bring together partners and stakeholders to develop our local resource and waste system, developing our circular economy, improving resource efficiency and increasingly eliminating the amount of biodegradable waste sent to landfill.

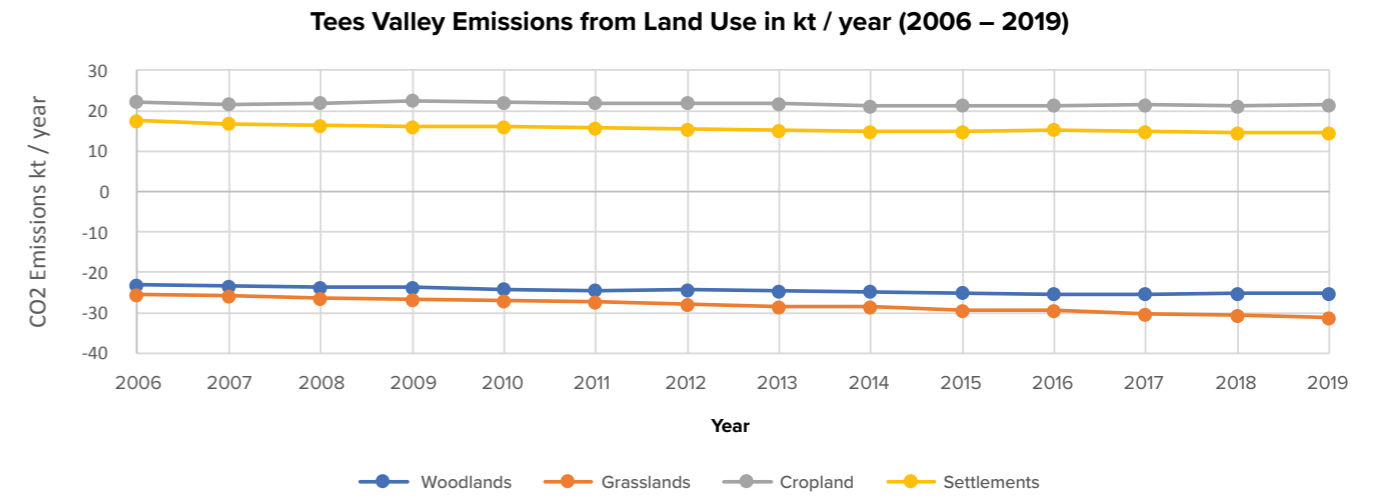
Green spaces are important for both the environment and our resident's wellbeing, we will work with key organisations and local authorities to maintain existing and develop access to more green spaces. We will also commission an independent mapping of local sites available for off-setting activities and biodiversity net gain. We will promote and support off-setting and biodiversity net gain for local development and we will work to minimise the negative impact of national offsetting schemes on the region.

We will support partner organisations to continue to preserve and grow Sites of Special Scientific Interest and promote the balance between industry and nature. An example of this at work is the Industry Nature Conservation Association, a charity set up by industry to promote natural environments for wildlife co-existing around industrial sites.

Through the development and implementation of our Local Nature Recovery Strategy we will, along with our partners, realise more nature for more people in Tees Valley. Promoting a balance between industry and nature we will create, restore, buffer and provide connections needed to enable nature to move and adapt to the changing climate.

We will also work with the Environment Agency to develop flood resilience schemes across the region, using where possible nature to offset the impacts of climate change seeking to be seen as an exemplar demonstrator site for 'nature-based solutions' – for example utilising habitats like salt marsh and seagrass beds for carbon sequestration.

We will also work with appropriate organisations to improve coastal and waterway biodiversity.



### Key deliverables:

- Development of a Local Nature Recovery Strategy
- Promoting tree planting by residents and community groups and working with private landowners on larger tree planting schemes.
- Commissioning of independent research into the local availability of off-set and biodiversity net gain sites
- Working with partners to optimise the allocation of the region's biomass and bio-resources

to operational advanced technologies which can produce low-carbon fuels and industrial feedstock and energy for use within the region

- Working with the Environment Agency, local authorities and local organisations, develop an overarching action plan to maximise the use of our Natural Assets to achieve Net Zero emissions and help mitigate the negative effects of climate change
- Work with the Environment agency to promote the use of natural sites to mitigate flood risks, especially coastal flood risks

### Our partners



IDRIC | EAST COAST HYDROGEN | DARLINGTON COLLEGE | MIDDLESBROUGH COLLEGE | HARTLEPOOL COLLEGE | EAST COAST HYDROGEN | NORTHERN ENDURANCE PARTNERSHIP | ICL BOULBY | ALFANAR | ANGLO-AMERICAN MINING | ARUP | THE NORTH EAST AND YORKSHIRE NET ZERO HUB | AV DAWSON | QUORN | THIRTEEN HOUSING | NORTHERN GAS NETWORKS | TEES VALLEY NATURE PARTNERSHIP | INDUSTRIAL NATURE CONVERSATION ASSOCIATION | ENVIRONMENT AGENCY | VONNE | SUSTRANS

## APPENDIX 1: INDUSTRIAL DECARBONISATION

A Net Zero Tees Valley cannot be achieved without the full-scale decarbonisation of our industry – and we intend to deliver the UK’s first fully decarbonised industrial cluster by 2040

90% of our industrial cluster is based within a 5km radius – giving Tees Valley a unique opportunity to deliver regional decarbonisation. It currently emits more than 4.3MT of CO2 every year, and it is predicted that by 2040 8.8MT of CO2 per annum will be abated or captured within the cluster.

But the scale of the challenge in this area is significant.

- 62% of Tees Valley emissions come from industry compared to UK average of 24%
- The Tees Valley industrial cluster contains 5 of the UK’s top 25 emitters and is single-handedly responsible for 5.6% of the UK’s total industrial emissions

We need to decarbonise our industry to achieve Net Zero – but do so in a way which attracts investment, future-proofs our major businesses and secures well paid skilled jobs local people can access

**We will achieve this by:**

- Working directly with the 40 largest emitters in the region through our Cluster Decarbonisation Plan to develop a bespoke pathway to decarbonising their operations
- Using Carbon Capture, Utilisation and Storage to capture up to 10MT of CO2 each year – equivalent to the emissions associated with the annual energy use of around 3 million homes

We will also work with energy companies to maximise the work they are doing in the region, particularly with regards to the readiness of the national grid. This work will be complemented by the commissioning of an independent Local Area Energy Plan which will set out the Tees Valley’s projected energy needs.

We will continue close working with the Environment Agency, as the Environmental Regulator for waste, energy intensive and process industries in the Tees Valley, to build a shared understanding the wider environmental impacts of the scale and pace of change required.

### Key deliverables:

- Delivering the UK’s first decarbonised industrial cluster by 2040
- Establishing a large-scale carbon capture, utilisation and storage project by 2030
- Contributing 4GW of hydrogen production by 2030
- Commissioning an independent Local Area Energy Plan detailing the Tees Valley’s projected energy needs to 2050

### Cluster plan for decarbonisation

We are working with bp and NEPIC to produce an Industrial Cluster Plan for decarbonation. which will be completed in early 2023. The Plan will set out a roadmap to decarbonise the Tees Valley industrial cluster by 2040, working directly with the 40 largest emitters in the region to develop bespoke plans to decarbonise their operations, through options such as carbon capture and storage; energy reduction; feedstocks and fuels switching and increased use or generation of renewable energy.

As part of this we will support the development of the necessary infrastructure to ensure key industrial areas have access to piped hydrogen and carbon capture, utilisation and storage infrastructure.

We will also pursue additional CCUS projects to ensure capacity, working with industry to maximise opportunities.

### Net Zero Teesside

The anchor project for the Cluster Plan is the Net Zero Teesside project – the UK’s most developed and deliverable carbon capture, utilisation and storage project.

Net Zero Teesside will develop shared CO2 infrastructure across Tees Valley industrial cluster.

A consortium of some of the world’s largest energy companies led by bp, is developing an offshore pipeline that will capture CO2 emissions and transport them to be permanently stored deep underground.

### Key deliverables:

- Capture 6m tonnes of CO2 and store it safely underneath the North Sea
- Support and safeguard between 35% and 70% of existing manufacturing jobs in Tees Valley
- Have an annual gross benefit of up to £450 million for the Teesside region
- Support of up to 5,500 direct jobs during construction

Work is already progressing quickly on Net Zero Teesside Power, with plans already underway to remediate 150 acres of land at its proposed site at Teesworks, with the first contracts for a design and development competition awarded to two engineering consortiums, with 4000 jobs set to be created during its construction phase.

### Hydrogen

We will promote the Tees Valley as a major hydrogen production hub, with Teesside hydrogen being used fuel homes, industry, and transport across the UK and beyond. We will promote the use of hydrogen in transport, for home heating and in industrial applications where it can help achieve climate ambitions.

The government has set the target of the UK producing 10GW of hydrogen a year by 2030, and we believe a significant amount of that target will be delivered in the Tees Valley. The Tees Valley already leads the way on hydrogen production, transportation and storage, with 50% of the UK’s hydrogen production undertaken at local sites such as BOC and CF Fertilisers.

Hydrogen can be produced through many different processes, which are being slowly colour coded. The two main ones are Green Hydrogen, which is hydrogen produced using electrolysis, which used electricity and water to produce the gas and Blue Hydrogen, which converts natural gas to hydrogen and carbon dioxide, with the CO2 captured and stored through a CCS process.

We want Tees Valley to be a globally recognised centre for hydrogen production, with both Blue Hydrogen (from decarbonised natural gas) and Green Hydrogen (made by electrolysis).

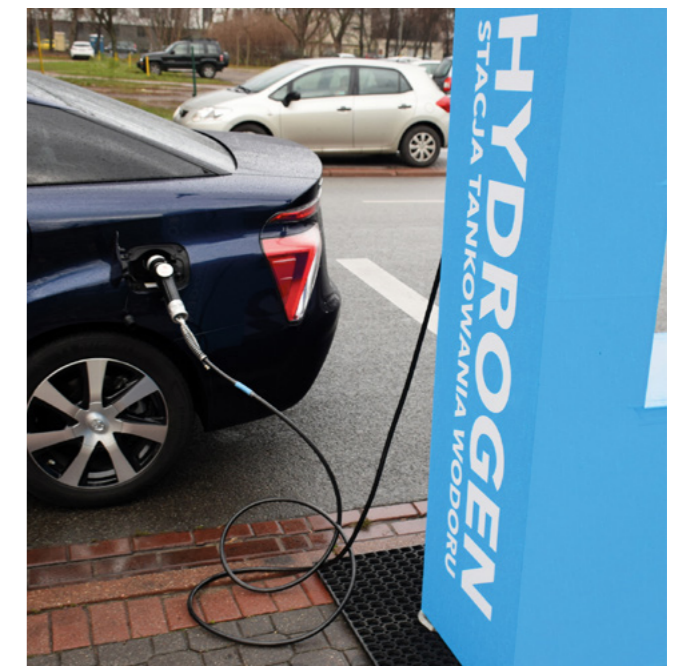
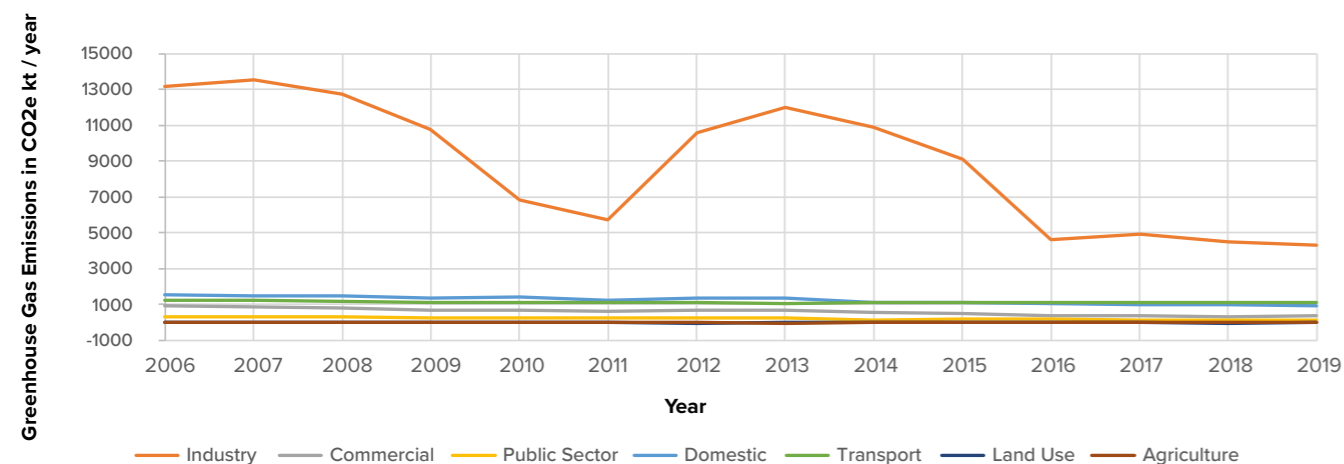
Current technological thinking is that by 2050 Green Hydrogen is likely to be the dominant technology. But at the very least Blue Hydrogen will be a key and inevitable transitional technology and central to ensuring a just transition to Net Zero. The Tees Valley is agnostic on how Net Zero hydrogen is produced and is supporting a wide variety of production technologies.

Hydrogen production could support around 4,000 high-value direct jobs in the region and contribute to a projected £900 million GVA annually to the UK economy by 2030.

We are currently supporting a number of major blue, green and bio hydrogen projects in Tees Valley, including:

- BP’s 1GW H2 Teesside Blue Hydrogen project
- Kellas’ 1GW H2 North East Blue Hydrogen project linked to the CAT’s gas import terminal
- BP’s HyGreen project, which targets 60MW Green Hydrogen production by 2025 and 500MW by 2030
- Protium Green Solution’s 40MW Green Hydrogen project in Port Clarence
- EDF’s newly announced Green Hydrogen project in Redcar supplying clean fuel to British steel for steel reheating furnaces
- SABIC have agreed to restart their hydrocarbon cracker at Wilton International and convert it to run on hydrogen, which will cut emissions from 1MT to 0.3MT per year, with a route to achieve less than 0.001MT

**Tees Valley Emissions by Type of Emitter (Including Industry) in kt per year (2006 – 2019)**



## THE CIRCULAR ECONOMY, GREEN STEEL AND SUSTAINABLE FUELS

As part of our industrial environmental plan, we will promote the use of bio sustainable feedstocks as the input to produce new products. We will promote the use of recycling, including the increased use of recycled plastics as the feedstock for plastic production and recycling of metals, including copper recycling, and green steel technologies including the introduction of electric arc steel making into the region.

The use of sustainable feedstocks to produce fuel is key to a low carbon future, current projects include:

- Greenergy: operates a refinery on Teesside producing up to 250,000 tonnes of biodiesel per year from waste
- Alfanar Group' Lighthouse Green Fuels Project will see \$1bn investment at Port Clarence to produce Sustainable Aviation Fuel
- Circular Fuels will use residual waste to make 50,000 tonnes per year of sustainable fuel (rDME – a LPG & diesel substitute) – the gas used in gas cylinders by homes and industries for the hard-to-decarbonise off grid energy sector
- Ensus – operate a biorefinery producing 400 million litres of renewable ethanol and 350 thousand tonnes of high protein animal feed (DDGS). The CO2 produced is liquefied and used in the food industry

This is a considerable innovation activity in this area in Tees Valley at institutions such as CPI, the Materials Processing Institute and NEPIC. When considered alongside questions of supply chain resilience in a changing global marketplace and the costs (both financial and ethical) in the sourcing and sustainability of high value materials, it is rapidly emerging as a huge challenge and opportunity for UK industry and one for which Teesside is well placed to respond.

Materials are the fundamental building block for almost every theme of this strategy - without them we would have no homes and buildings, no power stations and no means of transport. The materials supply chains which support current and future manufacturing are therefore key to a successful and resilient local – and national - economy.

Currently some 43% of total UK emissions result from the manufactured products we consume and most of these emissions are directly attributable to material extraction, refining and disposal. Addressing the emissions associated with the materials we use will be key to meeting our net zero targets and Tees Valley's industrial, innovation and academic base means that our region is well placed to capitalise.

### Clean energy

The government has committed to all UK electricity being derived from low carbon sources within a little over a decade. Tees Valley is home to several clean energy projects which will power its local heavy

industry as well as supply power into a UK wide decarbonised power system and is on course to deliver at least 4.4GW of clean energy by 2030.

#### The sources of this energy are:

- Offshore Wind – the region will be a major landing location for several offshore and near shore wind farms which will utilise the regions transmission connections
- Power generation connected to Carbon Capture, – with projects such as Net Zero Teesside potentially generating 1.6GW and Whitetail Clean Energy 300MW of clean energy by 2030
- Energy from Waste – There are several major Energy from Waste projects in the region, including the 37MW PMAC development in Redcar and the Tees Valley Energy Renewable Facility at Teesworks. The latter was recently approved to move to the next phase of industrial carbon capture projects funded by government and once operational the facility will treat up to 450,000 tonnes of residual waste every year and generate nearly 50MW of electricity –enough to power the equivalent of 60,000 homes
- Nuclear – the region houses a reactor at Hartlepool Power Station, and is activity promoting sites to house next generation Small Module Reactor and Advanced Modular Reactors
- Biomass – generating power from natural sources at sites such as the 300MW MGT biomass power station

### Offshore Wind

The UK plans to install 50GW of offshore wind generation capacity by 2030. The Tees Valley is just 80 miles away from the Sofia and Dogger Bank offshore wind farms, which will land 2.6 GW of clean electricity in the region.

The growth of offshore wind is one of the most visible elements of the clean energy revolution – including the 27 turbines of Teesside Wind Farm, off the coast of Redcar, which generate 62GWh of clean energy a year. It also presents an opportunity for the Tees valley to support by attracting key manufacturers and transitioning existing companies from offshore oil and gas to green technologies.

To support this, the region is investing in a new 450m £107m offshore wind Quay on the Teesworks site and developing 500 acres of manufacturing, storage and mobilisation land.

This has enabled companies such as SeAH to invest in a £300m wind turbine monopile production facility, creating 750 jobs.

### Power generation linked to Carbon Capture and Storage

Net Zero Teesside Power will be the world's first commercial scale gas fired power station using carbon capture, utilisation and storage. The combined cycle gas turbine electricity generating station will have an electrical output of up to 1.6MW of low carbon electricity, enough to power up to 1.3m homes per year. The facility will also support the deployment of renewable energy sources by providing flexible, dispatchable low carbon electricity back up for intermittent energy sources.

Tees Valley could also be home to Whitetail Clean Energy – a 350MW Net Zero Power Station which will emit zero stack emissions to air while capturing almost 98% of carbon dioxide emissions for sequestration. The Whitetail Clean Energy plant will use supercritical carbon dioxide as a working fluid to drive a turbine instead of steam. The plant's carbon dioxide can be captured and stored offshore.

### Energy from Waste

Energy from waste is the process of creating energy, in the form of electricity and/or heat, from incinerating waste which may otherwise has ended up as landfill. The region is home to several Energy from Waste (EfW) projects which are on track to generate 200GW of power by 2025.

Central to Energy from Waste in the Tees Valley is the Tees Valley Energy Recovery Facility (TV ERF) currently being developed in Redcar by a partnership of seven North East local authorities, led by Hartlepool Borough Council.

The TV ERF is an energy-from-waste plant which will use unrecyclable waste as fuel to produce heat and electrical energy instead of sending it to landfill. When operational – with construction expected in 2026 - the TV ERF will use nearly half a million tonnes of rubbish each year to generate almost 50MW of electricity – enough to power 60,000 homes. The plant will also be capable of exporting the heat it produces to district-heating networks and could become a low or zero-carbon source of heat and power for new nearby businesses.

### Nuclear

EDF's Hartlepool Power Station currently produces over 1GW of nuclear energy per year – but is set to be decommissioned in 2024. The facility has been shortlisted as a potential site for new nuclear deployment, either Small Modular Reactors (nuclear fission reactors that are smaller than conventional nuclear reactors) or Advanced Modular Reactors (which can expand the green energy solutions nuclear can provide).

Tees Valley will promote the region as a potential site for SMR and AMR technologies linking it both top power and hydrogen production.

### Biomass

Based at Teesworks, MGT Tees will be one of the largest dedicated biomass power plant in the UK. When operational the plant will generate 300MW.

### Sustainable fuel

Tees Valley is also home to sustainable fuel innovation such as Circular Fuels use of waste-to-syngas technology to develop natural gas substitutes. This is a clean-burning fuel solution for the hard-to-decarbonise off-grid energy sector which is complimentary to hydrogen for off-grid properties and as a hydrogen rich fuel also fits into our local hydrogen economy vision.

### Critical minerals

We will look at business opportunities linked to Net Zero in the critical minerals sector, such as the role of lithium in electric vehicle and battery manufacture played by local businesses such as Green Lithium and Tees Valley Lithium, through our Collaborative Networks programme

#### Key Deliverables:

- Delivering the UK's first decarbonised industrial cluster by 2040
- Establishing a large-scale carbon capture, utilisation and storage project by 2030
- Contributing 4GW of hydrogen production by 2030
- Delivering and implementing the industrial cluster plan to reduce the cluster's emissions to zero, including supporting the CCS and related Blue Hydrogen projects
- Promoting Green Hydrogen production projects
- Promoting the Tees Valley as a location for energy intensive industries, using clean power, CCS and hydrogen to enable Net Zero manufacturing
- Developing an offshore wind manufacturing cluster and promote the opportunities in the wider supply chain
- Supporting the development of circular economy and recycling technologies and their implementation in the region
- Promoting clean energy production including nuclear, sustainable fuel, solar and wind energy
- Commissioning an independent Local Area Energy Plan detailing the Tees Valley's projected energy needs to 2050

## APPENDIX 2: PUBLIC ORGANISATION AND COMMERCIAL BUSINESSES

Although often overshadowed by the region's heavy industry when discussing the route to Net Zero, over 17% of our regions emissions come from non-energy intensive businesses, of which 99.2% are SMEs. These industries cover most sectors including manufacturing, retail, hospitality, digital and the creative industries, as well as logistics, health and social care, education and the voluntary sector.

Sustainability not just about reducing emissions but also reducing consumption. Each company faces a unique set of challenges and needs a personalised route to a Net Zero future which can be sustained within their business model. All companies need to consider not just their power source, but also their input materials, waste generated, logistics and transport and operating impacts.

We need as a region to start seeing waste as a resource and not a problem, and we will work with partners to ensure that the Tees Valley fully utilises regional's waste resources as a source of biogenic feedstock for the production of low carbon fuels and industrial energy.

We will work with low carbon energy production companies who can utilise the region's waste resources to provide decentralised low-carbon energy solutions which are financially sustainable at the scale needed to supply low carbon energy to the region's dispersed SMEs.

Many of our smaller companies also lack the capacity or resources to reduce their environmental impact or the time to explore every option.

We will work with partners to understand the specific needs of our industrial base and develop the tools and services to help them monitor and reduce their environmental impact. We will need to develop tools which can be used by all businesses but will also explore sector specific tools and support where there is a bespoke need.

We are already engaging with the Environment Agency to ensure that the agency's risk management programme is aligned with the needs of local businesses. This work builds on the Tees Tideland partnership, led by Stockton Borough Council, which is developing an integrated approach to restoring habitats and managing flood risk in the Tees estuary.

To maximise impact we will look to develop online tools and resources where possible and to deploy business support specialists where required. As a region we will look to learn from successes in other areas and where possible, buy in services and support rather than duplicate effort.

We will also work with our five local authorities, along with other public bodies and agencies to help them transition to a Net Zero future, helping them access the government support they will need to reduce their environmental impact.

We will also work as a region to ensure we recycle and re-use as much of our waste as possible as well as converting efficiently the energy in our residual waste once all the recyclables have been recovered into usable, low-carbon

transport fuels and energy for industry and homes.

The strategy builds upon aligns with the organisational Net Zero strategies agreed by the Tees Valley Local Authorities – and their key themes such the transition to sustainable and low emission powering of assets and vehicles, improved energy efficiency of local buildings and the improvement of natural assets – and is designed to support their delivery. It does not supersede these strategies.

Net Zero ambitions and activities of our constituent local authorities include:

### Darlington

In July 2020, Darlington Borough Council passed a climate change strategy with the target of reducing emissions by 30% every 5 years.

The strategy sets out plans to “both mitigate and adapt to climate change” by the council reducing overall energy consumption, reducing local demand for fossil-fuel energy and sequestering carbon, as well as “use our influence and experience to inspire action across the borough”.

#### Key actions include:

- Developing a mechanism for allocating each portfolio area a carbon budget
- Requesting expected carbon impact assessments as part of the planning process
- Installing air source heat pumps at key sites such as the Town Hall and Hippodrome, solar panels on the roof of the Town Hall and a Combined Heat and Power system at the Dolphin Centre
- Switching the council's energy supplier to a zero-carbon tariff

### Hartlepool

Hartlepool is developing its own Net Zero Plan, due to be published in December 2022, and published its first 'Climate Pledge' in February 2022. The Council is appointing a dedicated Net Zero Officer to lead its response to climate change including delivering emissions reductions and adaptation actions.

The Net Zero Plan will set out the timetable and emissions trajectory to the Council achieving Net Zero, but significant work is already underway to reduce emissions including:

- Delivery of LED street lighting and heat pump installation across council assets
- Amending the council Constitution to require all Committee and Council decisions to take account of climate change
- Over £2.4m of new housing retrofit activity to reduce emissions from domestic dwellings

### Middlesbrough

2021's Green Strategy Action Plan sets out plans to make Middlesbrough Council carbon neutral by 2029 and Middlesbrough itself carbon neutral by 2039.

#### Plans include:

- Planting 15,000 trees and sowing 30,000 square metres of urban flower meadows
- Increasing recycling rates for residents through education and recycling roadshows and working with businesses to reduce commercial waste
- Purchasing electric vehicles
- Make climate change training mandatory for all council employees

Middlesbrough is also exploring the possibility of establishing an eco-festival, developing community growing plots, establishing a food re-distribution hub and developing new nature reserves.

### Stockton-on-Tees

Approved by council in March 2022, Stockton's Environmental Sustainability and Carbon Reduction Strategy 2022-2032 sets out a 10-year vision for the borough to reach operational Net Zero by 2032, using the coming decade to shift to sustainable practices and systems.

- Through the way it manages its operations, buildings, land and other assets
- Through the delivery of strategies, policies and work programmes designed to achieve improved environmental outcomes
- By influencing others, by encouraging and inspiring residents, businesses and other organisations to adopt practices and take positive action which will contribute to an environmentally sustainable borough

#### Key activities in the strategy include:

- Decarbonisation of the council fleet by 2032
- Introduction of new sustainable design principles for planning
- Increase in tree canopy across council land assets
- Improving recycling facilities and developing other measures to encourage high levels of re-use and recycling

### Redcar & Cleveland

Redcar & Cleveland's 'A Greener Future' programme, agreed in September 2021, sets out the authority's plans to become carbon neutral by 2030 with a 10% a year reduction in emissions.

The programme builds on the replacement of 90% of streetlights with energy efficient replacements and the planting of more than 4000 trees between 2014 and 2019.

#### Key actions include:

- Pursuing the installation of a solar farm on council land to generate renewable energy for the authority and exploring the use of on-site generation of solar power and energy storage for council facilities and amenities
- Making 20% of the council's fleet electric by the end of 2022, with the authority also participating in an electric bin lorry pilot
- Installing air source heat pumps and solar panels on a number of council buildings
- Working with partners to assess if dispersed Energy from Waste technologies can be deployed across the region so that the transport of residual waste to a limited number of centralised waste processing plants is minimised

#### Key deliverables:

- Developing an action plan with local authorities, public sector originations, the local third sector and business which bring together an overarching roadmap to achieve Net Zero. This will supplement Local Authorities own plans for their area
- Promoting the use of practical tools to help companies measure, monitor and reduce their environmental impacts (bringing together existing third-party tools and making them accessible to local businesses)
- Supporting all public sector organisations in the delivery of their own Net Zero Strategies
- Practical assistance with training and business support – including raising awareness through business events, business networks and through social media campaigns to help companies and organizations reach Net Zero
- Supporting businesses to adopt new practices and achieve carbon savings through the Tees Valley Business Growth Hub – with a target of 1000 businesses being supported by 2025
- Exploring how to leverage green finance support to help companies invest in new technologies and environmental emission reduction projects
- Develop and support companies to access a Net Zero supply chain in the region by investing in skills and training and helping regional companies looking to expand into net zero technologies
- Support companies to export their expertise and access international low carbon supply chains
- Commissioning an independent Local Area Energy Plan detailing the Tees Valley's projected energy needs to 2050

## APPENDIX 3: HOMES AND COMMUNITIES

There is no sense in generating clean power if most of the energy just goes straight out the window – and fuel poverty is a critical issue.

Reaching Net Zero means tackling emissions from all sources – 15% of carbon emissions in the Tees Valley come from domestic properties, yet 110,445 of the Tees Valley's 295,053 homes – 37% - have an Energy Performance Certificate of D or below.

In fact, over three times as many Tees Valley homes have the lowest possible Energy Performance Rating (1265) as have the highest (407). This means that in too many properties too much heat is escaping through windows, doors, roofs and walls.

At the same time energy costs have risen significantly throughout 2022 and are now capped at £2500 for the typical household until April 2023. Current projections suggest they may exceed £4000 after this time,

National statistics show that there are 42,891 households in Tees Valley currently living in fuel poverty – an average of 14.4% across our constituent authorities, and 16.8% of homes in Middlesbrough. This compares to a national average of 13.2%.

We will work with partners to improve the energy efficiency of residential properties across Tees Valley, making them cheaper and more efficiently to heat and power, supporting national targets of achieving a rating of EPC C for every domestic building by 2035 where feasible – and by 2030 for every fuel poor household.

We will also work to fundamentally change the way we fuel our homes – with hydrogen at the heart of that transition.

Key to our ambitions is leaving no household behind – and specific measures will also be developed to address off-grid homes, with a project within Tees Valley already helping to bring these properties with us on the journey to net zero.

To achieve a sustainable future it is not just energy we need to consider. Residents also need to consider their choices around food, packaging, plastics, clothes, how they recycle and the transport choices they make. As part of the strategy we will develop online tools and environmental impact modelling tools to enable residents to understand their environmental impact and to help them explore the options they have to lower their impact.

We will also work with partners to help improve recycling, to reduce packaging and to ensure as a region we recycle and re-use as much of our waste as possible.

The Tees Valley is home to the North East and Yorkshire Net Zero Hub, which supports and accelerates the development of low and zero carbon energy projects across 31 local authority boundaries, including the five Tees Valley authorities. We will continue to work through the hub to promote low carbon projects throughout the Tees Valley.

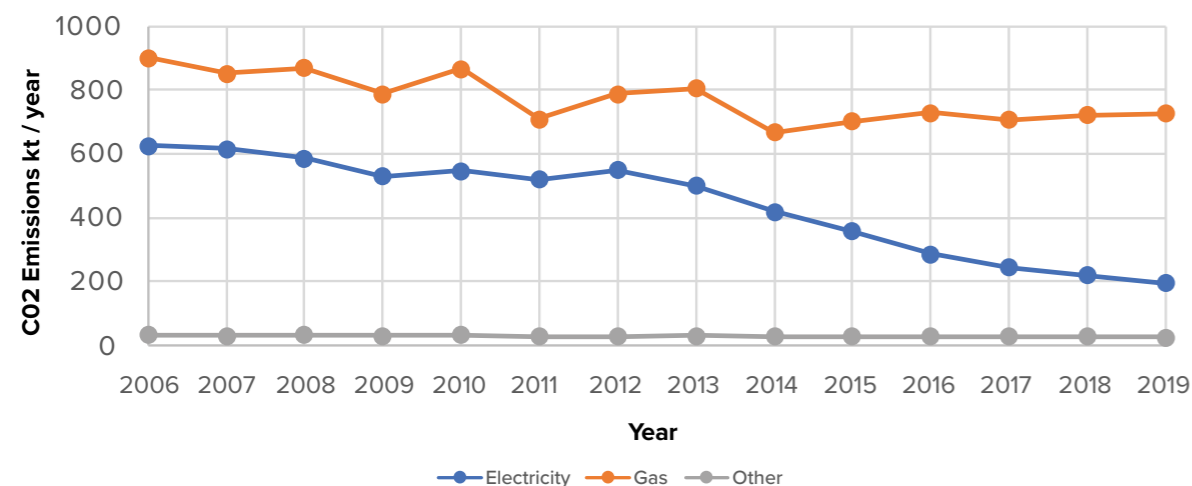
There are several key initiatives across the UK to help insulate homes and reduce energy use, we will work with all current and new initiatives to help maximise their impact in the Tees Valley, current activity includes:

### Housing retrofit and insulation

TVCA has secured £2.6m of funding from the Social Housing Decarbonisation Fund – rising to over £4m thanks to match funding from partners, to upgrade social homes to EPC rating C with cavity wall insulation, solar panels, air source heat pumps and triple glazing.

We are also implementing a £3.6m Home Upgrade Grant Scheme helping low-income, privately owned off-gas grid homes to move to Net Zero.

### Tees Valley Domestic CO2 Emissions by Fuel Type (2006 – 2019)



### Going forward we will:

- Work with our constituent authorities to promote energy efficiency in all new house builds, including maximising insulation, promoting low carbon onsite energy generation and the use of sustainable building materials
- Continue to secure funding to retrofit houses and insulate them to EPC C to fight fuel poverty

### Home energy

We will explore all low carbon energy options relevant to our existing and future housing stock. We will promote

- Heat pumps were appropriate and for new build
- Hydrogen to replace natural gas
- Solar panels – including retrofit and new build
- District and area heating were appropriate
- Community and micro generation

### Hydrogen village

The Government has set out an ambition to support the delivery of a 100% hydrogen village trial by 2025.

The trial will see a community of 2000 occupied homes, offices and other buildings converted to use 100% hydrogen for heating, cooking and hot water for at least 12 months.

Parts for Redcar town centre, Warrenby, Coatham, and parts Kirkleatham have been selected by Ofgem for a feasibility study due to their close links to existing energy infrastructure, including hydrogen and production storage facilities.

We also have the ambition of the UK's first fully hydrogen-powered town being operational by 2033.

Northern Gas Networks are also currently undertaking trials using existing natural gas mains to carry out standard gas operational procedures under 100% hydrogen conditions for the first time in South Bank, Redcar.

### Heat networks

We will also work, through the Energy Hub, to support our partners to develop Heat Network schemes, seeking funding through the national Green Heat Network Fund.

Heat networks supply heat to buildings from a central source, avoiding the need for households and workplaces to their own individual heating systems.

Darlington Borough Council currently taking part in a national heat network zoning pilot project.

### Net Zero housing project

The Tees Valley is currently working in partnership with our constituent authorities and housing providers to deliver

the £25m Brownfield Housing Fund in our region, which will deliver in the region of 1500 new homes on previously developed but currently unused land.

It is an aspiration that a future Brownfield Housing Fund Scheme will be one of the UK's first 100% Net Zero housing developments.

### Waste management

The five Tees Valley authorities have agreed to a co-ordinated Joint Waste Management Strategy (2020) which commits each individual authority to delivering a high quality, accessible and affordable waste management service that contributes to:

- economic regeneration, including employment and a more circular economy
- the protection of the environment and Natural Assets
- reducing the carbon impact of waste management

Since 2010, the five Tees Valley authorities have achieved:

- 13% increase in the amount of waste recovered through energy recovery

- 10% reduction in the amount of waste sent to landfill

Forecasting in the strategy indicates that if the economic regeneration planned by the Tees Valley Combined Authority is realised the amount of waste generated in the Tees Valley every year could rise to between 392,00 to 420,00 tonnes by 2035.

This increase will be addressed with measures including:

- Adoption of prevention, reuse and recycling initiatives
- The introduction of high recycling collections
- Development of a new energy recovery facility with the ability to utilise the heat produced, through the development of Combined Heat and Power (CHP)

### Key deliverables:

- Maximising the impact of national funds supporting the retrofit of homes rated to EPC C and above in line with national targets for all homes to be EPC C or above where feasible by 2035 and for fuel poor homes to be EPC C by 2030
- Promoting online services to help residents to measure, monitor and reduce their environmental impact by 2025
- Promoting the transition of homes to low carbon heating and power, promoting the best solution for the property be it heat pumps, hydrogen fuel, electric or other technologies

## APPENDIX 4: TRANSPORT AND INFRASTRUCTURE

Our Net Zero ambition for Tees Valley is to encourage our residents and businesses to always choose the lowest emission means of transportation – and to empower them to make that choice.

We will transform travel into, out of and around the Tees Valley with greener, faster, and more efficient transport and encourage modal shift towards public and active transport – and aim to fully decarbonise our public transport system by 2030.

Travel is a significant cause of carbon emissions – responsible for 17.3% of emissions in Tees Valley – and the only sector of the UK economy where emissions are still rising.

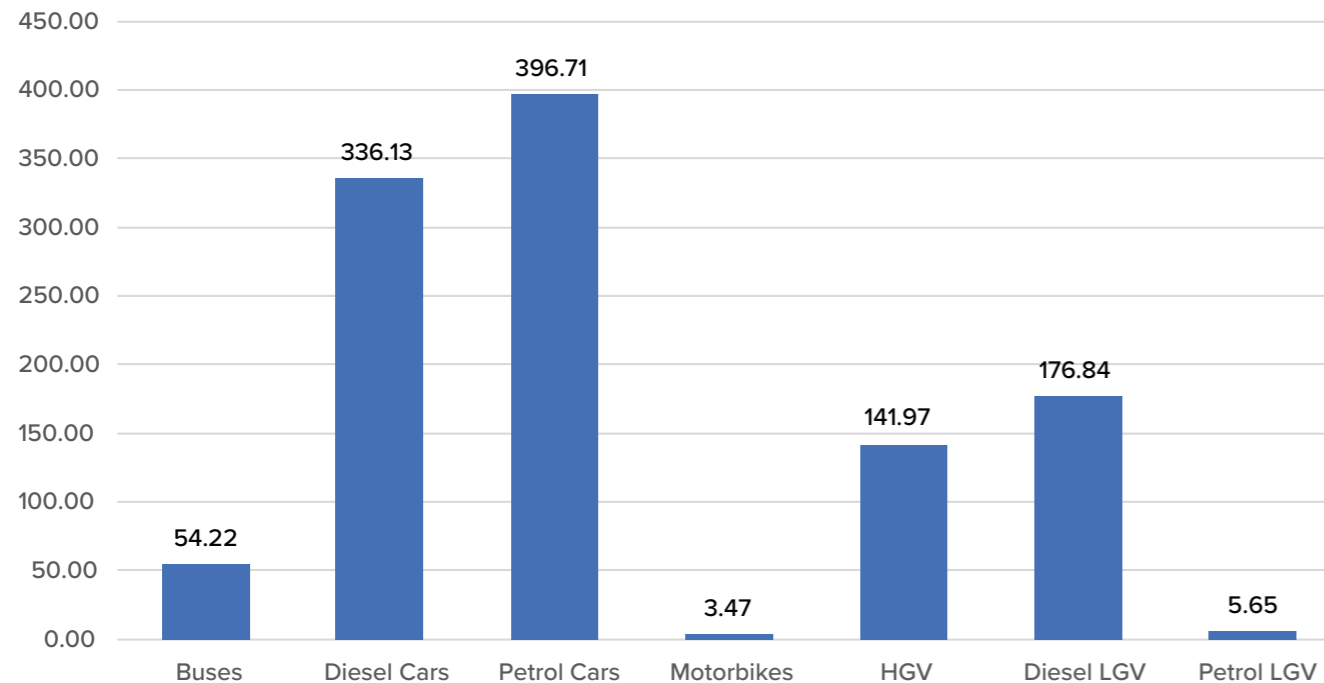
The majority (55%) of these emissions come from passenger cars – even through 31% of Tees Valley households have no access to a car.

*“To provide a high quality, quick, affordable, reliable, low carbon and safe transport network for people and freight to move within, to and from Tees Valley”*

**The Plan’s ambitions include:**

- Reducing carbon emissions
- Enhancing and protecting the natural and built environment
- Improving air quality

**Tees Valley Co2 Transport Emissions by Source in kt (2019)**



As 87% of residents work within the region there is clear and significant need for reliable, environmentally sound methods of transport.

As Tees Valley is highly urbanised, with 90% of the population living in urban areas and 35% living in our five town centres, our natural geography lends itself to active and public transport.

Our transport proposals will also contain opportunities for new habitats to be created – for example on railway embankments and verges.

Our Strategic Transport Plan (2020) puts Net Zero at the heart of our work as local transport authority, with its ambition:

**We will achieve this with the following interventions:**

### Delivering a zero emission transport network

We have developed a pipeline for a sustained transition to a Net Zero transport system – and have already seen the introduction of hydrogen cars, trucks and buses on our roads and hydrogen-powered operational vehicles deployed at Teesside International Airport.

**This timeline sees:**

- A fleet of low emission buses in service by 2030
- Hydrogen refuelling stations to facilitate heavy road haulage trials and trials of hydrogen powered vehicles at the airport

- Advanced sustainable aviation fuels and advanced biofuels being produced on Teesside by 2025
- A rollout of marine hydrogen applications supporting Teesport to become a Net Zero port by 2032
- Regular flights from Teesside International using sustainable aviation fuels by 2033 and hydrogen powered planes as they become available
- All public fleets being zero emission by 2036

### Hydrogen Transport Hub

Tees Valley has been named the national Hydrogen Transport Hub, bringing together government, industry and academia to trial research, testing and trials into hydrogen as a fuel for all modes of transport.

By creating real-world hydrogen transport pilots, the hub be critical to national decision-making on the future role hydrogen and inform future investment decisions.

These interventions include the trialling of hydrogen refuelling stations to facilitate heavy road haulage trials for hydrogen internal combustion engines and fuel-cell technologies of the kind being pioneered by firms such as Cummings on Teesside and trials of hydrogen powered vehicles at the airport

### Encouraging a Shift to Public Transport

We want to improve consumer choice, making the most carbon efficient mode of transport the most effective way of moving into, out of and around Tees Valley to encourage more sustainable travel choices.

- Delivering a Bus Service Improvement Plan in partnership with local operators, simplifying fares, targeting discounts on key passenger groups and improving the frequency and availability of local services
- Developing Bus Improvement Corridors which will use physical improvements and technological interventions to deliver quicker and more consistent journey times for passengers, starting with an initial 9 priority routes
- Using our fleet of nine demand responsive Tees Flex buses to connect people in underserved communities to essential services, employment and education
- Railway network improvements, including:
  - Middlesbrough Station: Redevelopment of the station, including extending Platform 2 and constructing a new Platform 3 to support a planned increase in passenger rail services and enhancements to the station to improve the passenger experience
  - Darlington Station: Redeveloping the station with three new platforms and as a new station building to bringing more frequent services to the area

- A programme of investment at all Tees Valley stations covering improved accessibility, integration with bus, cycle and walking routes and any gaps in passenger facility provision
- Using digital technology to improve the customer experience across our public transport network, including more accessible fares, timetable, real-time and mapping information and audio-visual next stop announcements across all buses in the Tees Valley fleet

### Developing our electric vehicle infrastructure

The government has announced that the sale of new cars that run solely on petrol or diesel will be banned in 2030. As electric vehicles become more common, additional charging points will be required to satisfy demand.

The Tees Valley Combined Authority has allocated £2m to developing the local public Electric Vehicle Charging Point infrastructure necessary to encourage and support more residents to switch to electric vehicles.

This funding will allow the installation of 145 new chargers in 32 public spaces such as local authority car parks and at Teesside International Airport as part of a first phase boosting overall numbers of publicly accessible charging points by 200% by 2025.

We will also investigate the feasibility of some of these locations to being rapid charge facilities.

### Broadband infrastructure to support increased flexible/smart working

The Covid-19 pandemic has led to a notable increase in home-based and hybrid working, leading to a fall in transport demand. If sustained, this change in working behaviour will require rapid, robust and resilient broadband infrastructure. Our Digital Strategy gets out how we will ensure high speed digital connectivity for all businesses and homes across the region.

### Reducing congestion

We are upgrading the local Urban Traffic Management Control System to reduce congestion and to provide residents, workers and visitors in Tees Valley with the most up-to-date information to make the best travel choices.

A move to digitalisation will make our road network more efficient and responsive and improve customer information, enabling real-time responses such as changing traffic light timings to minimise delays due to planned large-scale events (like sporting events or major concerts) or unforeseen circumstances such as traffic accidents.

### Encouraging and supporting active transport

We want to improve the Tees Valley’s network of cycling and walking routes to be coherent, direct, safe, comfortable, and attractive so that cycling and walking become the norm as transport options for shorter trips.



Our Local Cycling and Walking Infrastructure Plan sets out plans for close to £150m investment over 20 years to deliver approximately 92 kilometres of new and improved routes over coming years.

The Wheels to Work project will help people who do not have access to a car or bike, or who cannot make the journey by bus or train, to get to their job or college access to electric bikes.

### Teesside International Airport

Teesside International Airport is implementing a decarbonisation action plan designed to make the airport operationally Net Zero by 2030 and deliver the UK's first Net Zero airport by 2035.

As well as setting out steps to halve the airport's operational energy consumption, this action plan includes ambitious plans for the airport to install its own renewable energy systems, allowing it to become self-sufficient in energy production and even sell excess energy to the national grid.

The airport is also transitioning its ground operation vehicles to zero emission hydrogen-powered vehicles, as well as participating a major hydrogen refuelling centre project.

Teesside International is also partnering and brokering significant Sustainable Aviation Fuel projects, connecting aviation businesses to local industrial innovators and making the airport available as a test bed for ground-breaking projects, with the long-term aim of encouraging more airlines to fly from the airport due to the local availability of Sustainable Aviation Fuels.

### Encouraging decarbonised port and freight operations

We will work with local logistics operators, in particular through the Hydrogen Transport Hub, to assist with the decarbonisation of their operation – with a specific ambition of establishing a Net Zero port by 2032.

#### Key Deliverables

- Supporting the Transport Advisory Group to develop a plan to achieve a Net Zero transport network in Tees Valley by 2036
- Implementing an emissions reduction plan for Teesside International Airport designed to deliver an operationally Net Zero airport by 2030 – and the UK's first Net Zero airport in terms of flights by 2035
- Creating a National Hydrogen Transport Hub, supporting the transition to zero emission transport
- Increasing the number of public Electric Vehicle charging points in Tees Valley by 200% by 2025.
- Pursuing the installation of at least two hydrogen refuelling hubs in the region by 2025



## APPENDIX 5: NATURE AND RESOURCES

84,000 tonnes of CO2s sequestered in the Tees Valley's Natural Assets every year – but this is only marginally more than it is currently emitting.

Nature plays a vital role in the Tees Valley's economy, supporting our visitor economy, agriculture – including feedstocks for industry – liveability and health. But only 6% of Tees Valley is currently classed as woodland, and 98% of the local population lives in an urban area.

In 2021 Natural England produced a Natural Capital Account for the Tees Valley which set out the monetary and non-monetary benefits which flow from our region's natural assets.

The account found that Tees Valley has a "unique mixture of natural assets" with a quantifiable value of more than £100m a year – mostly arising from recreational visits – and a £8m a year benefit in the removal of pollution from our air.

We will use, enhance and expand these assets by using nature-based solutions to reduce emissions, sequester carbon and build our resilience to climate change, while also enhancing the quality of place for existing and future communities and potential investors and visitors, improving perceptions of the area as a place to live and bringing about improvements to the health and wellbeing of local people. We will also promote tree planting by residents and community groups and working with private landowners on larger tree planting schemes.

We will also bring together partners and stakeholders to develop our local resource and waste system, developing our circular economy, improving resource efficiency and increasingly eliminating the amount of biodegradable waste sent to landfill.

Green spaces are important for both the environment and our resident's wellbeing, we will work with key organisations and local authorities to maintain existing and develop access to more green spaces.

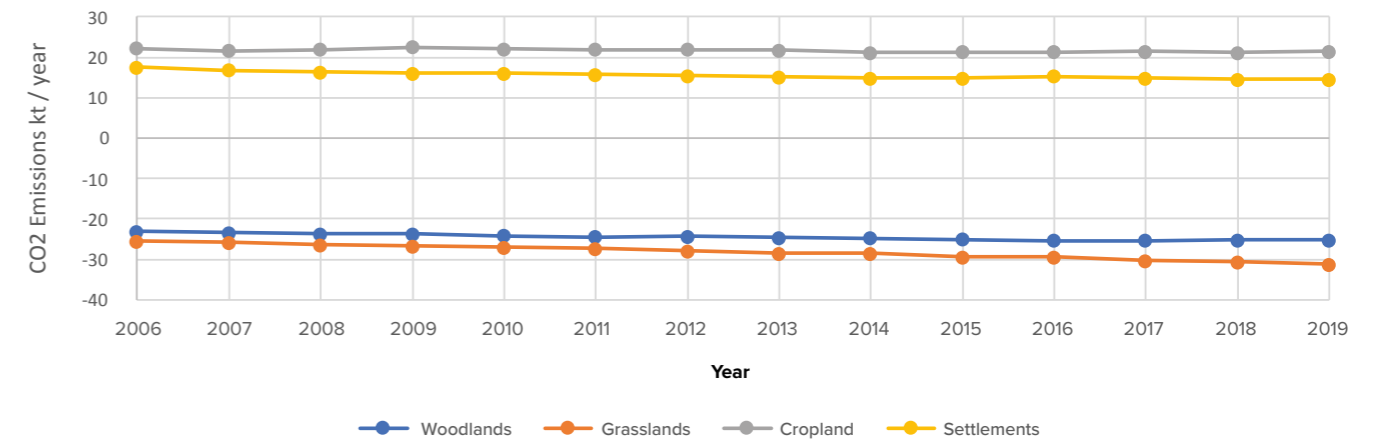
We will prioritise investment in destination development that strengthens sustainability credentials and promotes environmentally responsible visitor activity, as detailed in our Destination Management Plan 2021-2026.

We will support partner organisations to continue to preserve and grow Sites of Special Scientific Interest and promote the balance between industry and nature. An example of this at work is INCA (the Industry Nature Conservation Association), a charity set up by industry to promote natural environments for wildlife co-existing around industrial sites.

We will also maximise the use of innovative Tees Valley industry to improve the environmental efficiency of agriculture. For example, ICL's Cleveland Potash Limited Boulby mine has mined Polyhalite mineral and produced products of Polysulphate since 2011 and will in 2022 dispatch over 1MT of Polysulphate from its quayside within PD Ports wharfage on the Tees River. These products have not only demonstrated efficacy in increasing crop yields and crop quality but also low environmental impact helping farmers reach industry carbon targets.

We will also work with the environment agency to develop flood resilience schemes across the region, using where possible nature to offset the impacts of climate change

Tees Valley Emissions from Land Use in kt / year (2006 – 2019)



## Nature-based solutions

Local Nature Recovery Strategies are a new, England-wide system of spatial strategies introduced under the Environment Act 2021 that will set out priorities and proposals for specific actions to drive regional natural recovery and provide wider environmental benefits.

The Tees Valley Combined Authority will have a key role amongst the partners developing this strategy, which will build on long-standing regional priorities for the development of a network of green corridors and green spaces which will increase local carbon sequestration through new hedgerows, woodlands and wetlands – aiming to bring the Tees Valley's overall woodland coverage of 6% closer to the national average of 10%.

We will also work with developers to utilise the forthcoming national biodiversity net gain regulations to offset biodiversity losses from development sites through environmental improvements and increased carbon sequestration. We will also commission an independent mapping of local sites available for off-setting activities and biodiversity net gain. We promote and support off-setting and biodiversity net gain for local development we will work to minimise the negative impact of national offsetting schemes on the region.

We will also support the Environment Agency in understanding the economic and physical risks to the Tees Valley, and in their development of physical interventions to mitigate against them, including strengthening Tees Estuary flood defences with investment in 22.5km of new or improved measures.

## Nature partnership innovation hub

The Tees Valley Natural Capital Account identifies a number of potential changes in land use that could make a significant contribution to carbon sequestration using nature-based approaches in the region – including the creation of wetlands and new woodland.

The Combined Authority is currently working with partners to develop a new project which would identify sites and projects, develop projects, and prepare business cases and cost benefit analysis to attract blended finance for new projects which would contribute to carbon sequestration through green infrastructure and habitat creation.

## Key deliverables:

- Development of a Local Nature Recovery Strategy
- Promoting tree planting by residents and community groups and working with private landowners on larger tree planting schemes
- Commissioning of independent research into the local availability of off-set and biodiversity net gain sites
- Working with partners to optimise the allocation of the region's biomass and bio-resources to operational advanced technologies which can produce low-carbon fuels and industrial feedstock and energy for use within the region
- Working with the Environment Agency, local authorities and local organisations, develop an overarching action plan to maximise the use of our Natural Assets to achieve Net Zero emissions and help mitigate the negative effects of climate change
- Work with the Environment agency to promote the use of natural sites to mitigate flood risks, especially coastal flood risks





TEES VALLEY  
COMBINED  
AUTHORITY

TEES VALLEY MAYOR

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