Net Zero

# TEES VALLEY

**Anything is possible.**

# BUILDING OUR MODERN INDUSTRIAL CLUSTER

Tees Valley is the best placed industrial region in the UK to deliver deep decarbonisation. Its unique advantages include its location and North Sea access, skilled workforce and integrated industrial and chemical works alongside extensive existing infrastructure. It also includes Teesworks – the UK's largest industrial zone now under development as a global centre for decarbonised industries.

TVCA's Net Zero Strategy and the UKRI-funded Tees Valley Cluster Plan set out how $CO_2$ emissions from the heavy industrial sector can be reduced to net zero by 2040.

They demonstrate how industrial decarbonisation will be a catalyst for growth, supporting new industries including in clean power, hydrogen and sustainable fuels.

A foundation decarbonisation project is Net Zero Teesside, which will feed the Teesside arm of the East Coast Cluster $CO_2$ Transportation and Storage network, created by the Northern Endurance Partnership.

Due begin in 2028, it will capture, transport and store up to 10million tonnes of carbon in saline aquifer storage locations deep below the North Sea.

Tees Valley's Local Growth Plan and Modern Industrial and Technology Cluster sector demonstrate how low carbon technologies can deliver high growth and support decarbonisation ambitions across the UK in industries such as low-carbon energy, hydrogen, sustainable aviation and maritime fuels, the circular economy, and the bioeconomy.

Tees Valley is developing world-leading projects in heavy industry decarbonisation supported by a high quality supply chain and infrastructure.

# TEES VALLEY

Made up of Darlington, Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees, Tees Valley is home to almost 700,000 people, an international airport and the deepest water port on the east coast of England.

Home to the UK's largest and most successful Freeport

Served by four international airports; Teesside, Newcastle, Leeds and Manchester

Home to three Mayoral Development Corporations, supercharging development

Reputation for innovation and industry

2.5million people located within an hour's drive

Ten-Year Investment Plan of more than £1.7bn

Home to the Darlington Economic Campus, housing hundreds of government officials, including the Treasury

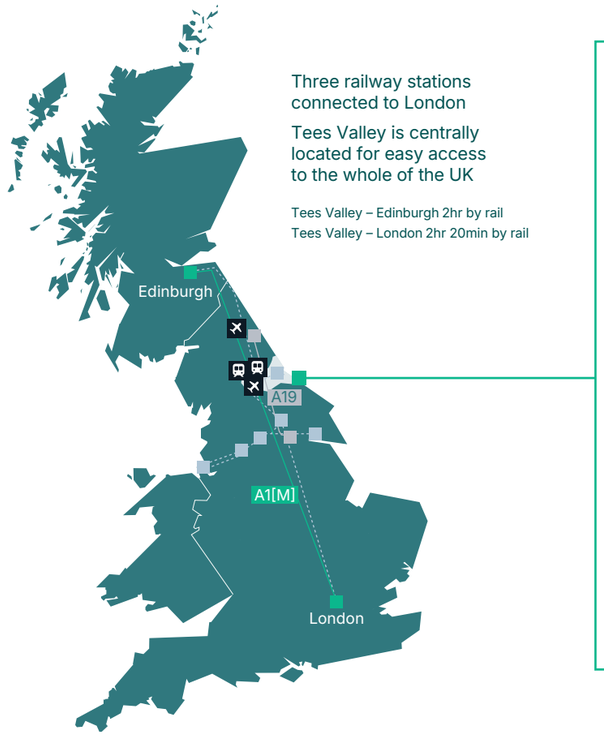
Home to Teesworks – the UK's largest industrial zone

A region with a Metro Mayor and devolved powers

Situated within 1hr of six key universities, including Teesside, Durham, Newcastle and Leeds

Creating the world's first Net Zero industrial cluster by 2040

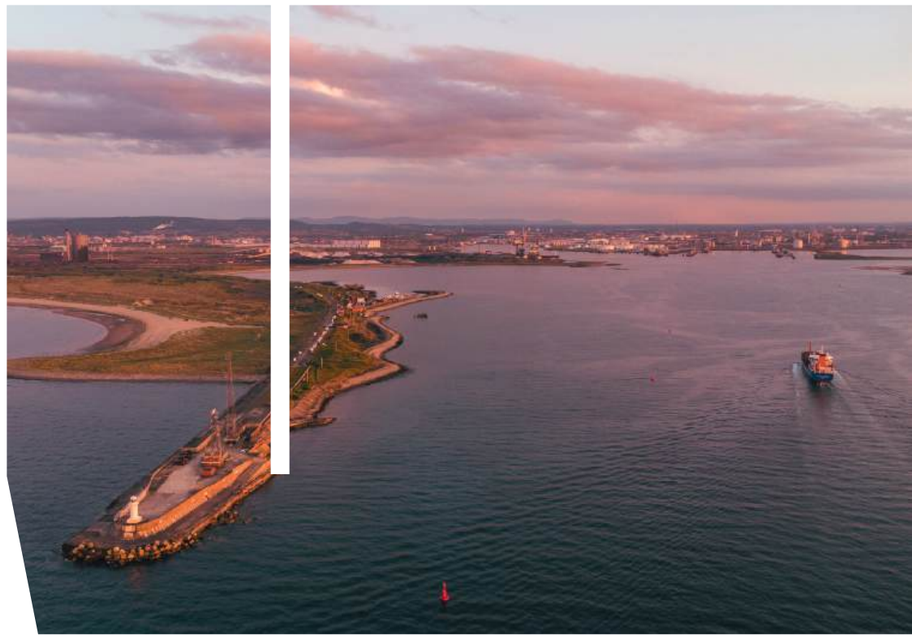
The region produces more than 50% of the UK's hydrogen




Three railway stations connected to London

Tees Valley is centrally located for easy access to the whole of the UK

Tees Valley – Edinburgh 2hr by rail
Tees Valley – London 2hr 20min by rail

Tees Valley's central location on the UK's east coast makes it perfectly placed for investment.

Situated on the east coast between London and Edinburgh there is easy access to the whole of the UK via the strategic road and rail network.

**Multiple deep water ports**

**Excellent transport links with national and international connectivity via road, rail, sea and air**

**National Road and Rail connectivity via the A1(M), A19 and A66**

**Sits on the East Coast Main Line Route**

**International Airport offering global connectivity via Amsterdam's Schiphol airport**

**Superfast broadband connectivity**

# LOCATION

# CARBON CAPTURE

Carbon capture, utilisation and storage (CCUS) is a vital low-carbon technology that captures carbon dioxide emissions from industrial processes and power generation.

The captured $CO_2$ can then either be utilised in products such as fuels, chemicals or building materials, or securely stored in subsea storage areas.

**In Tees Valley there are several CCUS projects:**

- Net Zero Teesside Power
- Northern Endurance Partnership
- East Coast Cluster
- BOC's Teesside Hydrogen $CO_2$ Capture
- H2 Teesside


© Google Earth

# CARBON CAPTURE, UTILISATION & STORAGE

**East Coast Cluster** incorporates NZT and Zero Carbon Humber which are enabled by the NEP $CO_2$ transportation and storage infrastructure. The East Coast Cluster has been selected by DESNZ as a Track-1 CCUS project in the UK Government's Cluster Sequencing Program as one of the first two CCUS clusters to be taken forward and aims to remove nearly 50% of all UK industrial cluster emissions. It includes a diverse mix of carbon capture projects including industrial carbon capture, low-carbon hydrogen production, negative emissions power and power with carbon capture. The East Coast Cluster is positioned to transport and store up to 4 million tonnes of $CO_2$ per year initially, with potential to scale up to 27 million tonnes per year by the mid-2030s, supporting an average of 25,000 jobs a year.

**Northern Endurance Partnership** is the $CO_2$ transportation and storage company which will deliver the onshore and offshore infrastructure required to transport $CO_2$ from multiple emitters across the Teesside and Humber regions. NEP's system will gather $CO_2$ in a gas network stretching across Teesside. The $CO_2$ will be compressed and transported via a subsea pipeline over 145km to the Endurance store in the North Sea. There the $CO_2$ will be injected into a saline aquifer approximately 1km below the seabed for permanent storage. NEP's storage capacity can accommodate up to 1 billion tonnes of $CO_2$.

**Net Zero Teesside Power**, a joint venture between bp and Equinor, will be the world's first commercial scale gas-fired power station with integrated carbon capture capabilities. This combined cycle gas turbine electricity generating station acts as the anchor project for decarbonisation in Teesside. It will connect to the $CO_2$ transportation and storage infrastructure being developed by the Northern Endurance Partnership. NZT Power will generate up to 742MW of flexible, dispatchable, low-carbon power which is the equivalent of powering over 1 million homes. It will capture around 2 million tonnes of $CO_2$ per year which will then be transported and safely stored by the NEP in storage sites under the North Sea. Together, this represents a £4billion investment in low-carbon energy infrastructure. Construction is expected to begin in 2025 with start-up expected in 2028.

**BOC**'s Teesside Hydrogen $CO_2$ Capture is a project that plans to add carbon capture technology to one of the UK's largest hydrogen production facilities, converting it from grey hydrogen to low carbon blue hydrogen production. The project has the potential to capture over 200,000 tonnes of $CO_2$ per year.

**H2 Teesside** is a low-carbon hydrogen production facility that includes $CO_2$ capture and compression systems, linking directly to the Northern Endurance Partnership's storage infrastructure. The project is designed to replace natural gas use by local industrial emitters in Teesside, while capturing approximately 2 million tonnes of $CO_2$ per year for secure, long-term storage.

### Opportunities for Tees Valley:

Tees Valley is leading the way in the UK's carbon capture, utilisation and storage sector, playing a key role in the country's drive towards net zero. One of the UK's first major carbon capture pipelines, currently being developed by NEP, will connect key industrial sites to secure, long-term offshore storage facilities. Backed by advanced technology and a highly skilled workforce, the region is well-positioned to deliver large-scale industrial decarbonisation.

Net Zero Teesside Power

# HYDROGEN

Tees Valley is at the forefront of the UK's hydrogen economy, producing 50% of the country's hydrogen at local industrial sites. With existing storage caverns and hydrogen pipelines linking major cluster locations, the region offers a fully integrated hydrogen infrastructure.

By 2030, hydrogen production in Tees Valley could support up to 4,000 high value direct jobs and contribute a projected £900million in annual GVA to the economy.

With developments in both blue and green hydrogen, Tees Valley is advancing in low-carbon production using natural gas with carbon capture, as well as renewable-powered by electrolysis.

**In Tees Valley there are several hydrogen projects:**

- H2 Teesside – bp
- H2 NorthEast – Kellas and SSE
- Tees Green Hydrogen – EDF
- Wilton Green Hydrogen – RWE
- BOC
- Teesside Green Hydrogen – MorGen
- Protium Green Hydrogen
- Element 2 Hydrogen Refuelling
- Hydrasun
- Redcar and Cleveland College
- Teesside International Airport

# HYDROGEN

**H2 Teesside** is a low-carbon project set to become one of UK's largest blue hydrogen production facilities. Blue hydrogen is produced by converting natural gas into hydrogen and carbon dioxide, with the $CO_2$ then captured and permanently stored. The project aims to deliver up to 1.2GW of hydrogen production, equivalent to 10% of the UK's 2030 hydrogen production target. A 31km pipeline network will distribute hydrogen directly from the site to industrial users across the region. The project also plans to displace existing natural gas consumption, while capturing and transporting around 2 million tonnes of $CO_2$ per year for secure, long-term storage via the Northern Endurance Partnership's infrastructure.

**H2 NorthEast** is an infrastructure project to build a 1GW low carbon blue hydrogen production facility located next to the CATS terminal on Teesside. The project will deliver 355MW of hydrogen in its first phase, with plans to scale up to 1GW by the early 2030s, equivalent to heating over one million homes. Enabled by carbon capture and storage, it has the potential to contribute up to 10% of the UK's 2030 hydrogen production target.

**Tees Green Hydrogen** is a project using locally generated green electricity to power the hydrogen electrolyser. Supplied by the nearby Teesside Offshore Wind Farm and a proposed solar farm, the project will provide clean hydrogen to local businesses, supporting industrial decarbonisation. Now entering phase 1 with support from the UK's HAR 1 and HAR 2 allocation, the initial electrolyser will have a 7.5MW capacity with future phases aiming to scale production up to 300MW by 2030.

**Wilton Green Hydrogen** is a green hydrogen production facility planned for Wilton International on South Teesside. The project will initially deliver up to 260MW capacity, producing around five tonnes of hydrogen per hour, with ambitions to scale up to gigawatt levels in the future. Located near emerging hydrogen infrastructure, the plant will support decarbonisation across local industries while supplying renewable energy to the gird. Land has been secured with feasibility and initial environmental assessments completed.

**BOC** is the UK's leading supplier of hydrogen and operates the country's largest independently owned hydrogen production facility in Teesside. With decades of safe hydrogen production in the region, BOC maintains more than 80 miles of pipeline delivering essential industrial gas supplies across the cluster. The company is now planning to add carbon capture technology to its North Tees Hydrogen plant, enabling a transition from grey hydrogen to low-carbon blue hydrogen.

**Teesside Green Hydrogen** is a proposed project located within the Teesside industrial zone, aiming to produce hydrogen on-site and develop dedicated infrastructure for its storage and transport. This will allow industrial users to switch to clean energy without disrupting existing operations. The project has been shortlisted in the UK's Hydrogen Allocation Round 2, with a planned capacity of 60MW.

**Protium Green Hydrogen** is a project planning to develop a 40MW green hydrogen facility in Teesside, having secured a site at Wilton International. The project will be delivered in two phases and includes 40MW of electrolysis capacity along with hydrogen storage. Once operational, the plant will produce renewable green hydrogen, with an aim of supplying clean energy to local manufacturers across the region.

## Opportunities for Tees Valley:

Tees Valley offers a unique and fully integrated hydrogen ecosystem, combining large-scale production, storage, and refuelling infrastructure with cutting-edge projects across both blue and green hydrogen. With strong industry collaboration and a skilled workforce, the region is perfectly positioned to lead the UK's transition to a low carbon economy.

Hydrogen Power Plant, BOC

# HYDROGEN REFUELLING

Tees Valley has three schemes producing green hydrogen by electrolysis under consideration in the Hydrogen Allocation Round programme. These will secure supplies of low-carbon hydrogen for refuelling and industrial applications.

Teesside University is leading research into deployment of hydrogen transport, including the Research England Hydrogen Innovation Project, assessing hydrogen opportunites for vehicle fleet operators such as the police.


Hydrogen Refuelling CGI at Teesside International Airport

## Element-2

**Element 2** is a hydrogen refuelling company, developing the first nationwide network of hydrogen refuelling stations using green hydrogen sourced from local and national producers. The Tees Valley Hydrogen Hub was part of a programme of hydrogen vehicle trials across the Northeast, supported by UKRI and the Department for Transport. As part of this initiative, Element 2 deployed three mobile refuelling stations across Teesside to support seven hydrogen vehicle trials.

**Hydrasun** – part of the D2Zero group, a leading industrial decarbonisation organisation - has a major presence in the region and specialises in hydrogen refuelling systems. Its resources, supported by the skills programmes from TVCA with Redcar & Cleveland College, make sure that Tees Valley will be able to deliver and maintain the robust hydrogen transport infrastructure needed.

**Redcar and Cleveland College,** in partnership with Hydrasun, is the first college in the UK to host a fully operational modular hydrogen refuelling station, supported by £286,000 hydrogen hub transport funding from the Tees Valley. Operational in October 2025, the facility will support workforce training and raise awareness of hydrogen's role in transport. Three hydrogen cars will be used to familiarise the public with hydrogen as a zero-emission fuel. The college has also invested in four hydrogen dispensing unit training facilities to support practical learning and share with other institutions across the region.

**Teesside International Airport,** in partnership with Element 2, is constructing a £4.1million large-scale hydrogen refuelling station at the airport. This project is set to position Tees Valley as a hub for zero emission transport and airside operations. The full scale Hydrogen Refuelling facility will have 24/7 public access and will be capable of refuelling all types of vehicles including HGVs and PSVs. Starting in early 2026, it will support long-term trials of commercial vans, passenger and airside support vehicles. The station will strengthen the region's, and the north of England's, hydrogen refuelling infrastructure and is projected to reduce 240,000 tonnes of $CO_2$ emissions per year.

### Opportunities for Tees Valley:

With the deployment of hydrogen refuelling infrastructure and the use of hydrogen vehicles, Tees Valley is leading the way in the UK's use of hydrogen to decarbonise transport. As more hydrogen vehicles become available, Tees Valley is ideally placed to decarbonise the logistics sector including port operations and distribution warehousing. The inclusion of Non-Road Mobile Machinery in the UK's transport decarbonisation strategy also supports further Tees Valley deployment in the construction of low-carbon infrastructure.

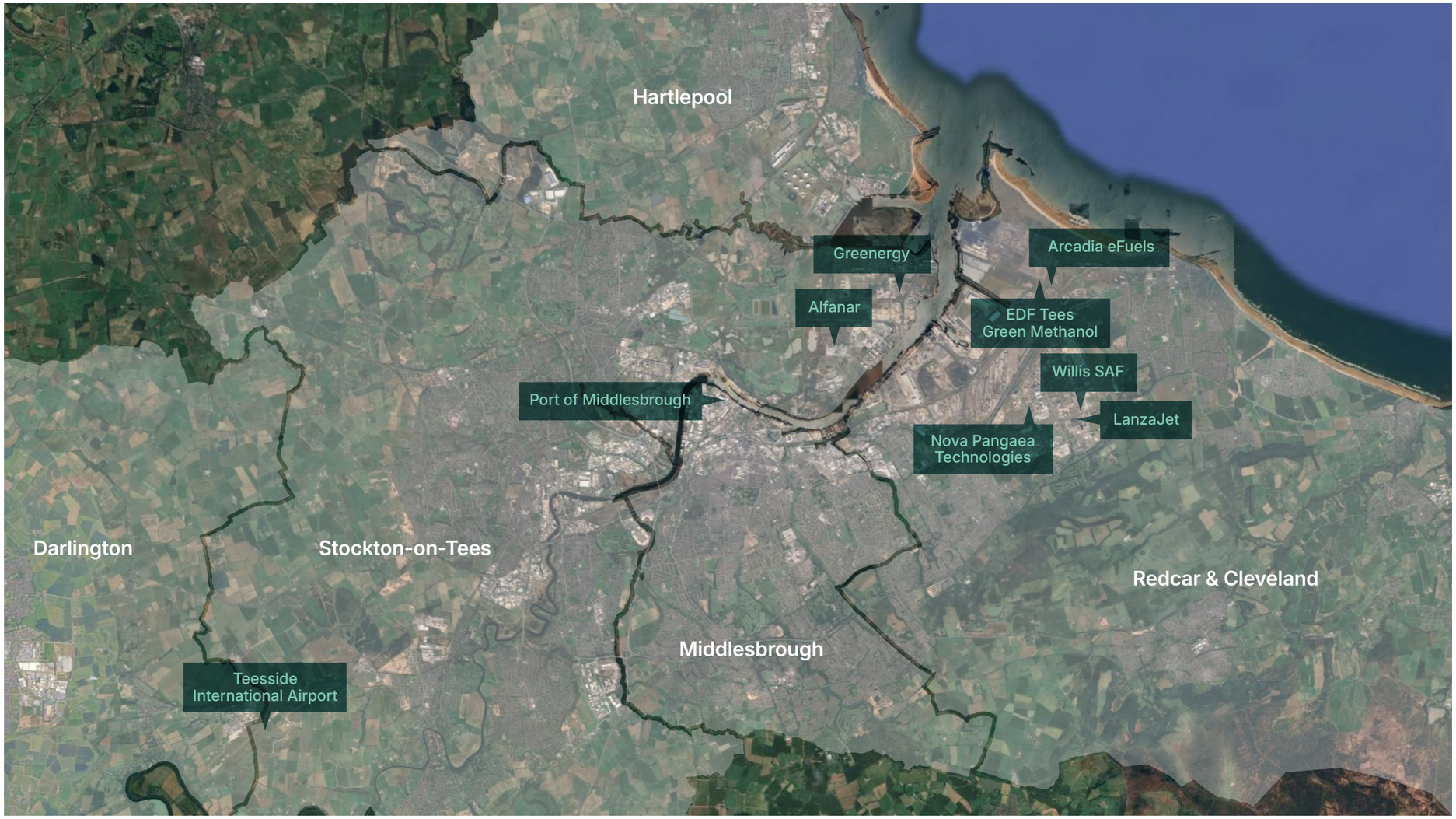
# SUSTAINABLE FUELS

Sustainable fuels are a key low-carbon solution that help reduce greenhouse gas emissions across transport, industry and power generation.

Made from renewable or waste-based sources, these fuels can be used in existing infrastructure making them essential for decarbonisation across our industrial cluster.

**In Tees Valley there are several Sustainable Fuels projects:**

- Lighthouse Green Fuels – Alfanar
- Project Speedbird – LanzaJet and Nova Pangaea Technologies
- Arcadia eFuels
- EDF Tees Green Methanol
- Willis SAF
- Teesside International Airport
- Greenergy
- Port of Middlesbrough



# SUSTAINABLE FUELS

Lighthouse Green Fuels

**Lighthouse Green Fuels**, led by **alfanar,** is set to deliver Europe's first green fuel refinery in Teesside. The facility will convert more than 1.5million tonnes of non-recyclable biogenic waste into more than 180 million litres of sustainable aviation fuel and 30 million litres of green naphtha each year, enough SAF to power 4,500 transatlantic flights annually. With an on-site generating capacity of up to 150MW and plans to integrate local CCUS infrastructure, the project is expected to save up to 750,000 tonnes of $CO_2$ per year. First SAF is targeted by 2029, with full commercial operations from 2030.

LANZAJET NOVAPANGAEA TECHNOLOGIES BRITISH AIRWAYS

**Project Speedbird** is a partnership between **LanzaJet, Nova Pangaea Technologies** and **British Airways** to deliver the UK's first ethanol-to-SAF facility at Wilton International in Teesside. The plant will produce more than 90,000 tonnes of SAF and renewable diesel each year, using advanced biofuels supplied by Nova Pangaea Technologies. The SAF, processed using LanzaJet's alcohol-to-jet technology, will be used by British Airways, reducing their carbon emissions by 230,000 tonnes annually.

Arcadia eFuels

**Arcadia eFuels** is a company that produces net-zero synthetic fuels from renewable power, green hydrogen and $CO_2$. It is developing project NABOO which will be based on Teesside. The project will deliver a commercial scale plant that uses power-to-liquid technology to convert biogenic $CO_2$ and green hydrogen into SAF. The plant is expected to produce 67,000 tonnes per year of SAF when at full operational capacity.

hynamics EDF GROUP

**EDF Tees Green Methanol** is the 3rd phase of **EDF Renewables and Hynamics' Tees Green Hydrogen** programme aiming to develop a 200MW electrolyser which will feed into a proposed e-methanol plant at Teesport. Powered by EDF's wind, solar and nuclear energy, the electrolyser will produce green hydrogen to combine with captured biogenic $CO_2$ in the e-methanol plant, creating the UK's largest source of renewable e-methanol. Set to begin operations in 2030, the project will supply clean fuel to the maritime sector and the hydrogen that is utilised here would represent 2% of the UK's 10GW hydrogen production target.

Willis Sustainable Fuels

**Willis Sustainable Fuels** is developing a commercial-scale facility that, in its first phase, will produce bio-based sustainable aviation fuel using biomethane and $CO_2$ and, in its second phase, it introduce power-to-liquid technology combining green hydrogen and captured $CO_2$. This plant will deliver 14,000 tonnes of SAF annually, equivalent to 50,000 litres a day, with at least an 80% reduction in greenhouse gas emissions compared to conventional jet fuel. The project is currently in the detailed design phase after receiving £4.7million in funding from the DfT Advanced Fuels Fund.

Teesside International Airport

**Teesside International Airport** is leading the way in sustainable aviation, becoming the first UK airport to sign a sustainable aviation fuel agreement with Air France-KLM as part of the airline's drive to boost SAF use. As part of its wider net zero strategy, the airport aims to decarbonise all buildings and infrastructure by 2030 and achieve net zero flights by 2035, positioning Teesside as the UK's first net zero airport.

Greenergy

**Greenergy**, a major UK road fuel supplier that provides the biogenic content used in diesel, has announced plans to develop a sustainable aviation fuel plant on Teesside. The proposed facility will use waste oils to produce SAF, with the potential to reduce aviation emissions by up to 80%.

A.V. DAWSON ROAD • RAIL • LAND • SEA

**Port of Middlesbrough**, owned and operated by **AV Dawson**, has been chosen as the site for Waste Knot Energy's first alternative fuel pelleting plant. The facility will convert non-recyclable waste into low-emission fuel pellets, producing over 240,000 tonnes annually as a cleaner alternative to coal for maritime use. In 2024, the port received its first international shipment where 7,000 tonnes of recyclable fuel was processed and loaded on site.

ensus

**Ensus** operates one of Europe's largest production plants for renewable ethanol at Wilton. At the site, British and European grain in feed quality is refined to produce more than400 million litres of renewable ethanol and 350 thousand tonnes of high protein animal feed. Up to 250 thousand tonnes of carbon dioxide from the production process is cleaned and liquefied each year by a partner company to be used in drinks and food production or for industrial and medical gases.

### Opportunities for Tees Valley:

Tees Valley is a growing hub for sustainable fuels, playing a key role in the transition to low-carbon transport and industry. Home to some of the country's most advanced sustainable aviation and maritime fuel projects, the region combines access to green hydrogen, carbon capture infrastructure, and a strong industrial base. Backed by major investment and a skilled workforce, Tees Valley is equipped to support large-scale production of next-generation low-carbon fuels.

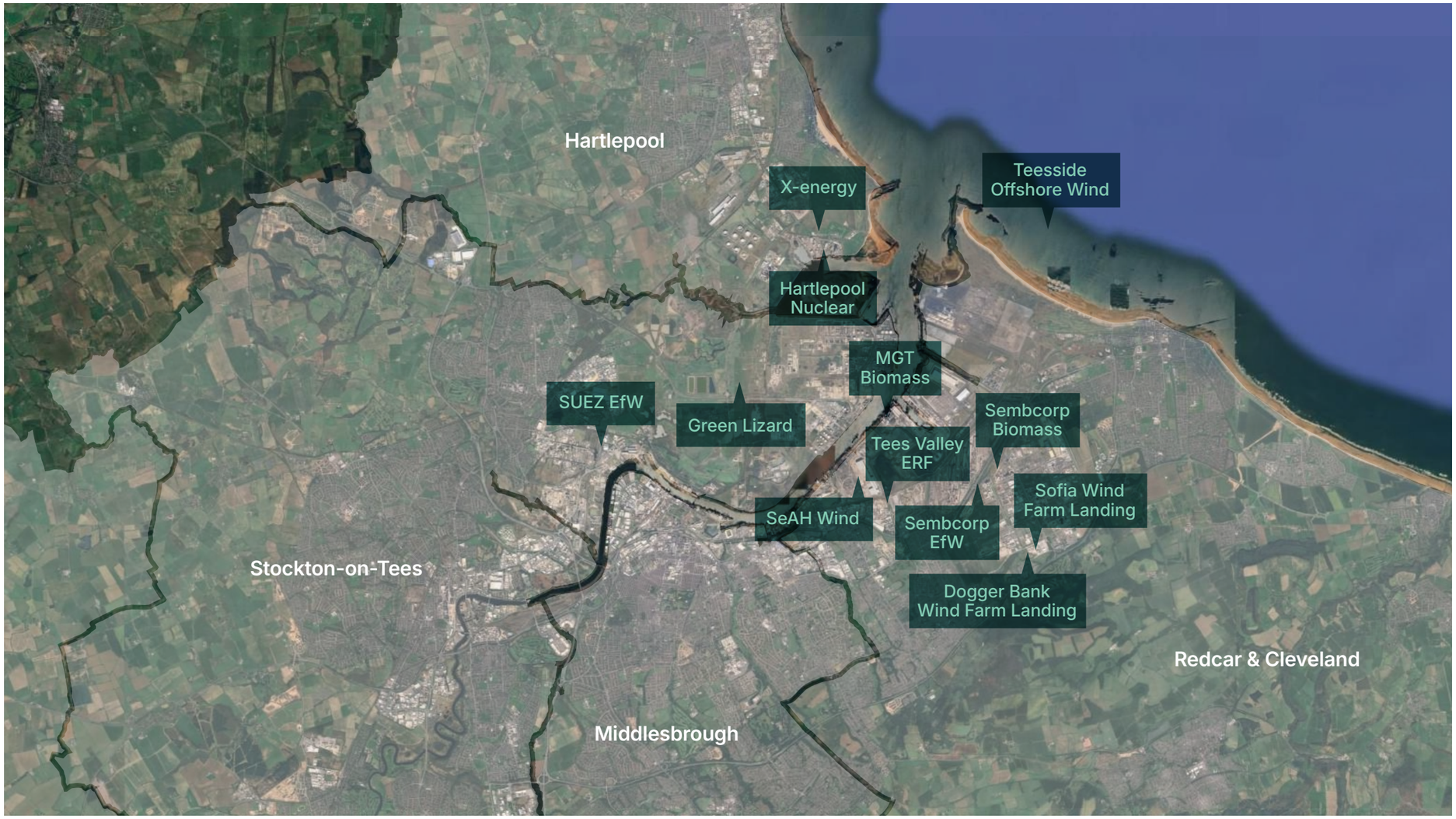
# CLEAN POWER

Clean Power refers to energy generated from renewable, low-carbon sources such as wind, solar, nuclear, biomass and energy-from-waste which produce little-to-no greenhouse gas emissions.

It is vital in reducing our reliance on fossil fuels and tackling climate change. Supporting around 4,600 jobs in Tees Valley, clean power is at the heart of the region's transition to net zero.

**In Tees Valley there are several Clean Power projects:**

- Hartlepool Nuclear Power Station
- Green Lizard
- X-energy
- Teesside Offshore Wind Farm
- Dogger Bank Offshore Wind Farm Landing
- Sofia Wind Farm Landing
- SeAH Wind
- MGT Biomass
- Sembcorp Biomass
- Sembcorp Energy From Waste
- SUEZ Energy From Waste
- Tees Valley Energy Recovery Facility



# NUCLEAR POWER

**Hartlepool Nuclear Power Station** currently supplies 1GW of low carbon-electricity per year via two advanced gas-cooled reactors and will operate until 2028 before entering decommissioning which will support skilled jobs and enable future renewable energy projects on the site. An adjacent nuclear-approved site is being considered for a new facility. Studies have taken place to explore the environmental and economic potential of a new Xe-100 high temperature gas cooled reactor, providing an opportunity for low-carbon power and high temperature heat.

**Westinghouse** and **Green Lizard** have announced plans to deliver the UK's first privately financed small modular reactor fleet on a site in North Teesside. The project proposes the deployment of four Westinghouse AP300 SMRs, which together would generate around 1GW of reliable, low-carbon electricity. This capacity aligns with the forecasted energy demand of the emerging green energy and chemical hub planned for the North Tees Group Estate and will provide clean and always-on energy for the surrounding industries with commercial operations expected in the 2030s.

**X-energy** is an advanced nuclear reactor & fuel company. Centrica and X-energy have signed a Joint Development Agreement to look to deploy X-energy's Xe-100 Advanced Modular Reactors in the United Kingdom. The companies have identified EDF and Centrica's Hartlepool site as the preferred first site for deployment, building up to a total planned UK fleet of up to 6 gigawatts. The plan would mean the first electricity generated in a new Hartlepool facility would be in the mid-2030s.

Hartlepool Nuclear Power Station

Hartlepool Nuclear Power Station

# OFFSHORE WIND

**Teesside Offshore Wind Farm**, located off the coast near Redcar, is the North East's first large-scale commercial offshore wind farm. The site consists of 27 turbines with a combined generating capacity of 62MW, producing enough clean electricity each year to power up to 54,000 homes.

**Dogger Bank C** is the third phase of the **Dogger Bank Wind Farm**, located in the southern North Sea, and forms part of what will be the world's largest offshore wind farm once all phases are complete. It has been developed and constructed to operate the site over its expected 35-year lifespan. Dogger Bank C will have an installed generational capacity of 1.2GW. The project will connect to the national grid via the existing Lackenby Substation in Teesside. Covering a development area of 311km² and located 196km from shore, Dogger Bank C will make a significant contribution to clean energy targets in Tees Valley.

**Energi Coast** is the North East of England's Offshore Wind Cluster organisation. It is made up of more than 30 key regional businesses and stakeholder organisations involved in offshore wind. The leadership group works to showcase the vast supply chain capabilities in this sector within North East England and promote the region as a key hub for servicing both the UK and international offshore wind markets.

**Sofia Offshore Wind Farm**, currently under construction by RWE, is located on Dogger Bank in the North Sea, 195km from the Teesside coast. Covering a development area of 593km², the project will have an installed generating capacity of 1.4GW, delivered through 100 turbines and is expected to be operational in 2026. Power will be transmitted via high voltage direct current from an offshore converter platform to a new onshore converter station near the Wilton complex, before connecting to the national grid at the existing Lackenby substation in Teesside.

**SeAH Wind** has developed a £950million wind turbine monopile manufacturing facility - the biggest in the world - at the South Bank site within Teesworks. The facility will produce large-scale monopiles to meet the increasing demand from the growing offshore wind sector. The finished components will be transported via Teesworks' newly constructed heavy-duty deep-water quay which has been specifically designed to support the export of major infrastructure for the offshore industry.

**Ørsted** is a developer, constructor, and operator of offshore wind farms, with a core focus on Europe, with 10.2 GW of installed offshore capacity and 8.1 GW under construction. Their Hornsea 3 project has signed a lease agreement for up to 300,000 square metres at Steel River Quay at Teesworks. Here they will muster products for the construction of the Hornsea 3 wind farm, such as monopile foundations and secondary steel. Here they will be loaded onto Installation Vessels for installation at the site, around 160km east of the Humber.

### Opportunities for Tees Valley:

Tees Valley is leading the way in the UK's clean power transition, with a diverse mix of low-carbon energy sources including nuclear, offshore wind, biomass and energy-from-waste. Home to major infrastructure projects like Dogger Bank C, SeAH Wind's monopile facility and the UK's largest biomass power station, the region is powering industry while reducing emissions. Supported by skilled local workers and advanced facilities, Tees Valley is driving clean energy growth, cementing its position as a leader in low-carbon power generation.

# ENERGY FROM WASTE

**Sembcorp** owns an energy-from-waste facility which is operated by SUEZ and located at the Wilton International site in Teesside. It is a £250million facility that converts municipal and commercial waste into low-carbon energy. Processing up to 440,000 tonnes of landfill waste every year transported by rail from Merseyside and Halton, the plant helps turn unrecyclable household residual waste into power and steam. With a generational capacity of 49MW, it produces enough power to supply around 63,000 homes.

**Tees Valley Energy Recovery Facility** is an infrastructure project being developed by a partnership of seven councils in the North-East including the councils that make up Tees Valley, Newcastle and Durham. The facility will treat up to 450,000 tonnes of non-recyclable residential waste each year, generating 49MW of electricity, enough to power 60,000 homes. Serving 1.5 million people across Tees Valley, Durham and Newcastle, the facility will cut greenhouse gas emissions by nearly 100,000 tonnes annually compared to landfill, offering a more sustainable solution for managing residual waste in the region.

**SUEZ** owns and operates an energy-from-waste facility at Haverton Hill in Billingham, employing 516 people across the Northeast. The facility converts residual municipal waste from the surrounding boroughs of Hartlepool, Middlesbrough, Redcar & Cleveland and Stockton-on-Tees into energy.

# BIOMASS

**MGT Teesside** owns the Tees Renewable Energy Plant, located on the banks of the River Tees. As the UK's largest dedicated biomass power plant and a major thermal-combustion facility, MGT Teesside represents a £650million investment in low-carbon energy infrastructure. The facility, operated by px Group, generates 299MW of combined heat and power, producing around 2.3TWh of low-carbon electricity each year, enough to power 600,000 homes as well as supplying heat for nearby users.

**Sembcorp** owns a biomass power station at the **Wilton International** site in Teesside which is the UK's first large-scale wood-fired biomass plant. It uses 300,000 tonnes of sustainably sourced and recycled wood each year to generate 30MW of renewable electricity and steam, enough to power 30,000 homes. By displacing fossil fuel use, the facility saves approximately 200,000 tonnes of $CO_2$ emissions annually, the equivalent of removing 67,000 cars from UK roads.


Sembcorp


MGT Teesside

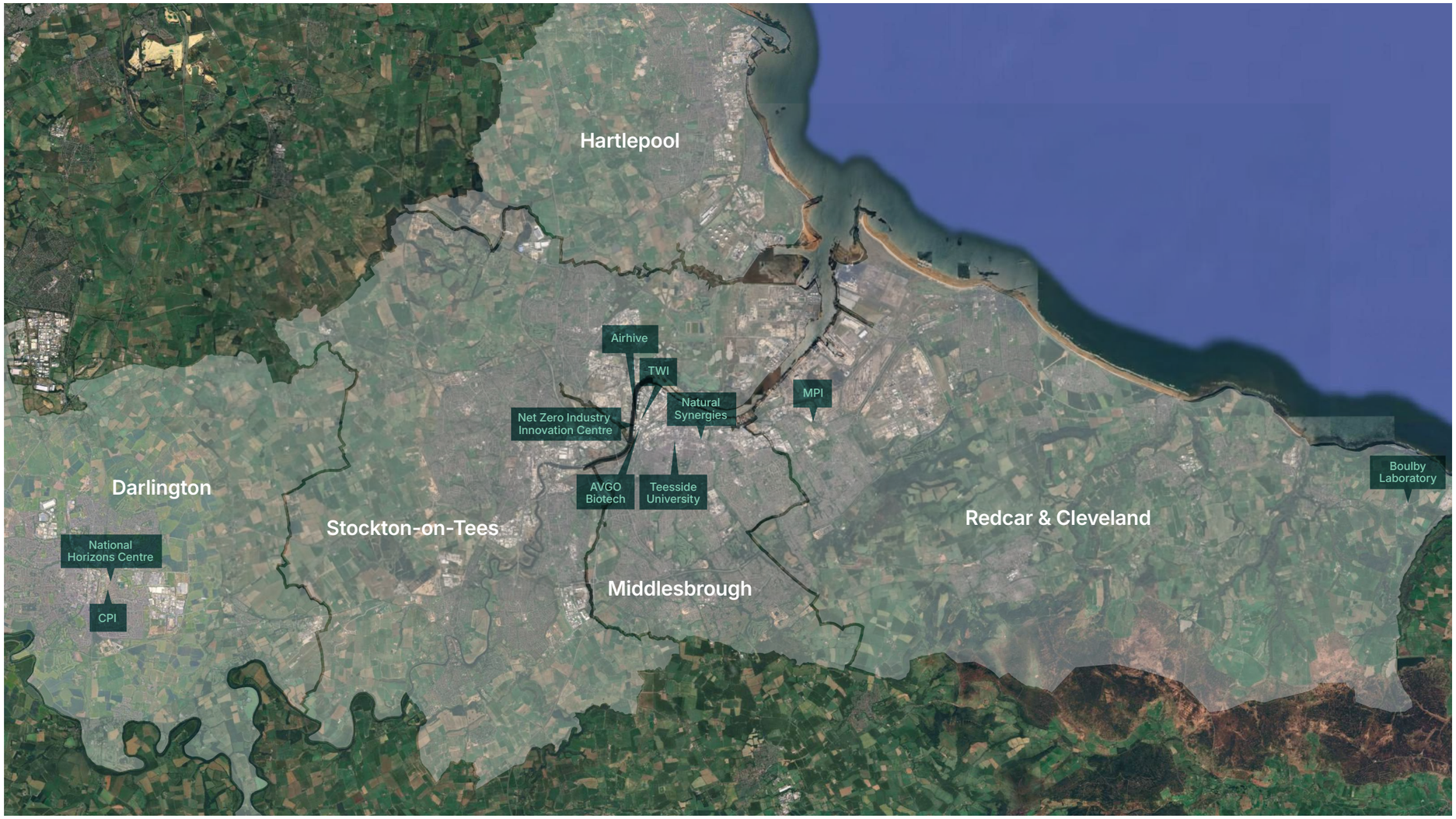
# NET ZERO INNOVATION

Tees Valley is at the forefront of net zero innovation and is building the knowledge, technology and skills needed to support the UK's transition to net zero.

Net zero innovation enables the region to be a leader in clean energy and sustainable industry.

**In Tees Valley there are several Net Zero Innovation projects:**

- Teesside University
- Net Zero Industry Innovation Centre
- Centre for Process Innovation
- Materials Processing Institute
- TWI
- National Horizons Centre
- Boulby Underground Laboratory – ICL
- Natural Synergies
- AVGO Biotech
- Airhive




© Google Earth

# NET ZERO INNOVATION

**Teesside University** is a research institution that combines academic expertise with industry collaboration to support clean growth and sustainability. Through dedicated centres such as the Net Zero Industry Innovation Centre and the National Horizons Centre, the university leads research and development in areas including clean energy, digital technologies, advanced manufacturing, and the circular economy.

**Net Zero Industry Innovation Centre** is a £13.1million research and development facility based on the Tees Advanced Manufacturing Park in Middlesbrough, supporting the region's transition to a clean energy, low-carbon economy. The centre provides specialist facilities in hydrogen, smart energy, the circular economy, digital innovation and carbon capture, utilisation and storage. Through collaboration between academia and industry, the centre helps businesses reduce costs, improve efficiency and accelerate the development of innovative net zero technologies and strategies across a range of sectors. A few of the projects include Project TENET, the Tees Valley Hydrogen Innovation Project, the Research England Hydrogen Innovation Project, the Northern Net Zero Accelerator Programme.

**Centre for Process Innovation** is an independent technology innovation centre and a founding member of the UK Government's High Value Manufacturing Catapult. With a strong presence in Tees Valley, CPI connects academia, industry, government and investors to accelerate the development and commercialisation of innovative products and processes. Through access to specialist expertise, advanced facilities, and funding networks, CPI supports businesses in bringing new technologies to market.

**Materials Processing Institute** is a research and innovation centre, specialising in the development of advanced materials, low-carbon processes and circular economy technologies. The institute works closely with small and medium-sized enterprises across the region, offering access to research expertise, consultancy, training, and specialist facilities including pilot-scale melting, library resources and on-campus support services.

**TWI** is a professional engineering institution based at Tees Advanced Manufacturing Park in Middlesbrough, specialising in welding, joining and allied technologies. Through its research and development work, TWI supports a wide range of technologies for industry sectors including oil and gas, chemical, power and transport. The organisation provides advanced technical expertise, training, and innovation support to businesses across the region, contributing to the growth of high-value engineering and manufacturing.

**National Horizons Centre** is a £22.3million biological research, teaching and training facility based in Darlington's Life Sciences Hub. The centre is dedicated to advancing biosciences and healthcare innovation while supporting the development and retention of a skilled workforce. It offers expertise in biodiscovery, digital health, medicine manufacturing, sustainable futures, and the bioeconomy, providing businesses and researchers with access to research, training programmes and specialist facilities.

**Boulby Underground Laboratory** is a deep underground science facility located within the working polyhalite mine at Boulby on the Nort East coast, operated by the Science and Technology Facilities Council with support from ICL UK. The lab provides a low-radiation environment for research in fields including astrophysics, geology, climate science, and the study of life in extreme environments. Alongside its scientific role, the site also contributes to the development of polyhalite, a naturally occurring mineral fertiliser, supporting innovation in advanced science and sustainable agriculture within the region.

## Opportunities for Tees Valley:

Tees Valley is a driving force in net zero innovation, home to leading research institutions, cutting-edge facilities, and breakthrough technologies supporting the UK's transition to a low-carbon economy. From advanced materials and hydrogen to biosciences and carbon capture, the region fosters close collaboration between industry and academia, creating an environment where climate solutions are developed, tested and scaled.

## CASE STUDIES:

**AVGO Biotech** is developing circular, sustainable solutions to produce high-purity calcium carbonate from upcycled industrial co-products such as eggshell waste. Its pilot plant at the Net Zero Industry Innovation Centre uses a circular process to produce environment-friendly calcium carbonate for use in paint, paper, supplements and pharmaceuticals.

**Airhive** is developing carbon capture technology with the goal of removing more than a million tonnes of $CO_2$ annually within the next decade. Its first operational direct air capture project, TENET, is being delivered in partnership with the Net Zero Industry Innovation Centre. Part-funded by innovate UK, the system will capture 60 tonnes of $CO_2$ per year and is expected to be operational in Teesside in 2025.

**Natural Synergies**, established in 2012, specialises in developing environmental and renewable energy technologies. Its projects include NS-ATAD, a biomass power system using anaerobic digestion, and NS-SONEK, a community-scale sanitation treatment system that transforms waste into useful by-products. It is currently leading a new project focused on developing a low-cost, low-energy carbon capture system where a prototype is due to be tested in the North East of England.

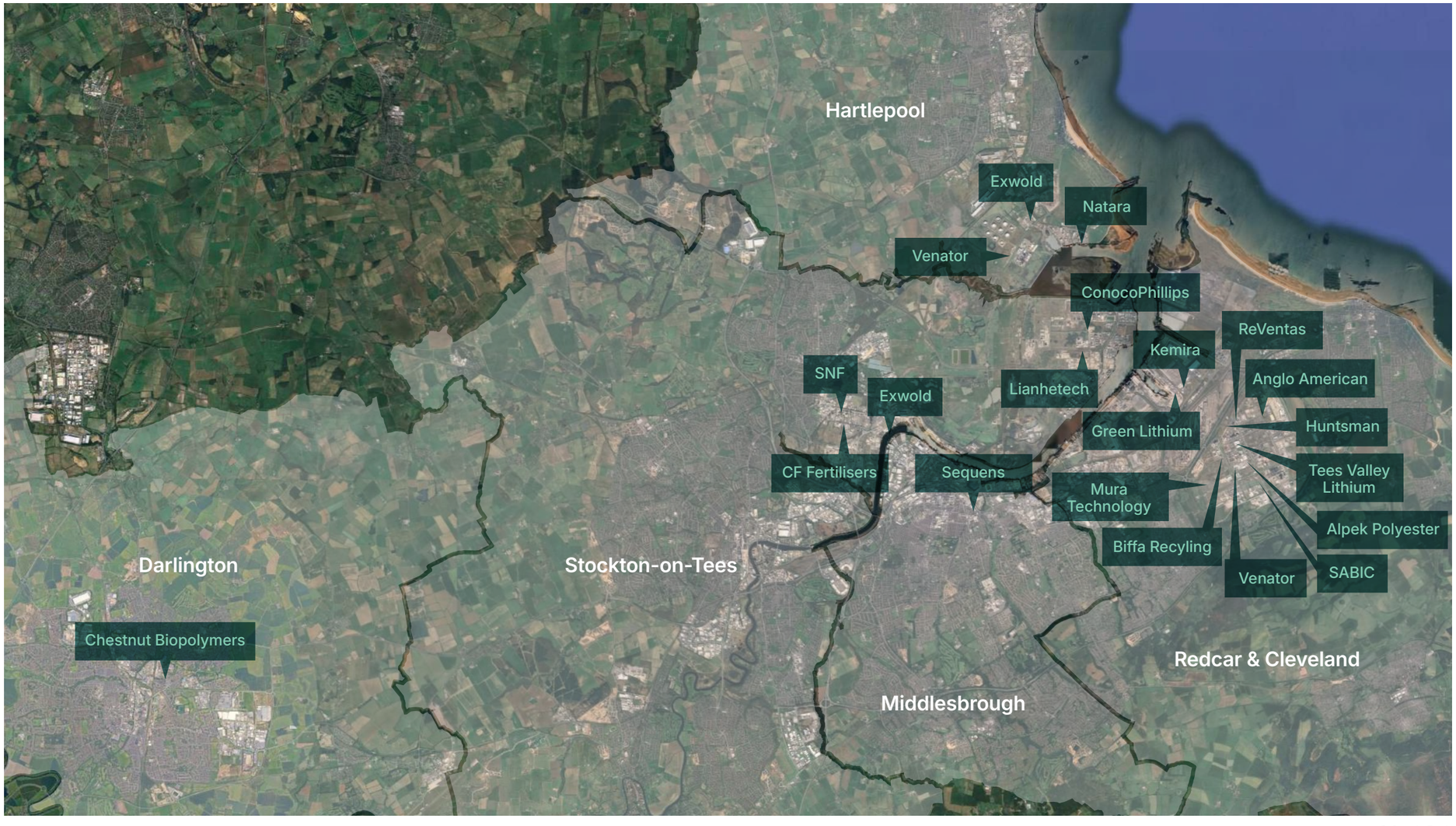
# CHEMICALS & CIRCULAR ECONOMY

Tees Valley is home to the UK's largest chemical complex, accounting for around 30% of the nation's chemical output.

With more than 1,400 companies in Tees Valley actively involved in the chemicals and process industry, the sector supports 5,000 jobs locally, exports £12billion of product and contributes £2.5billion a year to the local economy.

**In Tees Valley there are several Chemicals and Circular Economy projects:**

- Mura Wilton – ReNew ELP and Mura Technology
- Biffa Polymers
- Alpek Polyester
- Huntsman
- Tees Valley Lithium
- Green Lithium
- Venator
- Kemira
- Lianhetech
- Seqens
- CF Fertilisers
- SNF
- Natara
- ConocoPhillips
- Anglo American
- Sabic
- Exwold
- Chestnut Biopolymers
- ReVentas




© Google Earth

# CHEMICALS

**Alpek Polyester** is a petrochemicals company focused on the production of PTA, PET resins, specialty polymers, polyester fibres and PET recycling. At its Wilton site in Redcar, the company manufactures around 230,000 tonnes of PET resin annually which is used in the production of food-grade plastic bottles and containers.

**Huntsman** produces polyurethanes at its Wilton site in Teesside. Originally commissioned in 1964 as an aniline plant with a capacity of 25,000 tonnes per year, the facility is now operated by Huntsman producing aniline for use in polyurethane manufacturing, employing around 80 people.

**Venator** is a global chemical company with its headquarters in Wynyard and a major manufacturing site at Greatham in Teesside. The site produces titanium dioxide pigments used in paints and plastics, supporting improved product performance and manufacturing efficiency, employing 2,300 people worldwide.

**Kemira** provides sustainable chemical solutions for water-intensive industries and operates a production site in Teesside. The company focuses on water treatment, fibre and renewable solutions.

**Lianhetech** is a contract manufacturer of high-quality fine chemicals used in crop protection, pharmaceuticals and performance chemicals. The company operates a manufacturing site at Seal Sands in Teesside.

**Seqens** operates two chemical contract manufacturing sites in Teesside, located in Middlesbrough and Billingham. The Billingham site produces specialty diols used in personal care products and supported the response during the pandemic by supplying hand sanitiser. The Middlesbrough facility offers a broad range of specialty chemical processes and houses an R&D centre with pilot-scale equipment. Together the sites employ around 160 skilled staff.

**CF Fertilisers** is a global manufacturer of hydrogen and nitrogen products for clean energy, fertiliser, emissions abatement and other industrial applications. The Billingham complex has around 154 employees and produces ammonium nitrate and other nitrogen products at an annual capacity of 1 million tonnes.

**SNF** has operated in Tees Valley since 2018, with a major production site in Billingham. The site includes three lines producing water-soluble polymers and acrylamide monomers serving the water and wastewater treatment industry as well as supporting the demand for enhanced oil recovery in the North Sea.

**Natara** operates a facility in Teesside focused on producing natural flavour extracts and a site in Hartlepool manufacturing aroma chemicals. Together, these sites support the global flavour and fragrance industry.

**ConocoPhillips** operates the Teesside oil terminal at Seal Sands. Oil was first received in 1975 with full processing facilities completed in 1979. The terminal receives oil and natural gas liquids via a 354km pipeline from Ekofisk in the North Sea and includes both processing infrastructure and tanker-loading facilities across a 285-acre site.

**Anglo American** is developing the Woodsmith Project, a polyhalite fertiliser mine in North Yorkshire, with a 37km underground tunnel transporting material to a handling facility at Wilton on Teesside, where it will be processed and exported to global markets.

**Sabic** has operated in Teesside since 2006, with manufacturing and storage facilities across two sites. At Wilton International, it runs System 18, a plant producing low-density polyethylene used in plastics, with materials stored and handled through an extensive logistics facility including storage tanks, underground salt cavities and jetties. Fifteen grades of LDPE in the form of polymer pellets are produced at System 18.

**Exwold** is a contract chemical processing company specialising in formulation and processing for the crop protection and specialty chemicals markets. Based in Tees Valley, it operates five manufacturing sites with a total processing capacity of 20,000mt per year.

**Chestnut Biopolymers,** based in Darlington, develops and manufactures sustainable, biodegradable biopolymer formulations designed to match the strength of fossil plastics while breaking down safely in the environment without leaving microplastics or nano plastics.

**ReVentas** is developing advanced recycling technologies to recover and reuse post-consumer plastic waste. The recycled materials can displace virgin plastics across the packaging, automotive, construction and textiles industries. The company plans to establish a new advanced recycling plant in Teesside creating high skilled jobs and supporting the circular economy.

# CIRCULAR ECONOMY

The circular economy offers a sustainable approach to minimise waste through continuously reusing resources.

**Mura Wilton**, located at Wilton on Teesside, will be a commercial scale Hydro-PRT advanced plastics recycling plant. Set to begin operations in 2025, the facility will initially produce around 20,000 tonnes of circular hydrocarbons per year with the capacity to expand to up to 80,000 tonnes per year. The process will recycle end-of-life plastics that could not previously be recycled and will return them to a useful form, contributing to a circular economy.

**Biffa Polymers** operates a large-scale plastics recycling plant at Wilton in Teesside, where it has been based for around 20 years. The facility reprocesses household and industrial plastic waste across five different processing streams. The plant recycles around 63,000 tonnes of plastic each year and produces approximately 83,000 tonnes of recycled polymers including recycled HDPE and polypropylene.

Mura Technology, Wilton

Teesworks Site Aerial

# BATTERY SUPPLY CHAIN

The rise of lithium refining in the UK reflects a broader strategic move toward securing critical minerals essential for the energy transition.

As global demand for electric vehicles and renewable energy storage surges, two projects are in development in Tees Valley to reduce the UK's reliance on foreign supply chains for the growing battery market.

**Tees Valley Lithium** is developing a lithium refinery in Teesside to produce battery-grade lithium chemicals at commercial scale. Phase 1 will have a capacity of 25,000 tonnes per year with plans to scale up to 100,000 tonnes, enough to supply more than 2 million electrical vehicles per year.

**Green Lithium** is developing a low-carbon lithium refinery in Teesside, aiming to reduce emissions by 75% compared to traditional methods. The plant will produce 50,000 tonnes of battery-grade lithium annually for use in lithium-ion and EV batteries supporting Green Lithium's plan to manufacture more than 1million EVs in Europe by 2030.

### Opportunities for Tees Valley:

Tees Valley is a leading force in the UK's chemical industry and in circular economy innovation. With the country's largest chemical complex and advanced recycling technologies, the region is delivering sustainable solutions for chemical production and resource reuse, supported by a highly skilled local workforce and an integrated chemical infrastructure.

# ADVANCED MANUFACTURING

Tees Valley is a global leader in advanced manufacturing, supported by one of the UK's most integrated industrial economies.

Key sectors include chemicals and process, offshore, automotive, aerospace and energy which form the industrial economic base of the region. The area is also home to companies in composites, food and drink, defence and construction. The sector employs around 15,700 people across Tees Valley.

**In Tees Valley there are several Advanced Manufacturing projects:**

- Wilton Group Engineering
- British Steel
- Cummins
- Liberty Steel
- Darchem Engineering
- TMD Friction
- ElringKlinger
- NIFCO
- Paralloy & Firth Vickers
- Caterpillar
- KP Snacks
- JDR Cable Systems
- Mersen
- Quorn
- SeAH Wind
- Glacier Energy
- Cicor
- Tata Steel
- Diffusion Alloys
- Globus Metal Powders
- Eastgate Engineering


© Google Earth

# ADVANCED MANUFACTURING

**Wilton Group Engineering** operates a 112-acre facility at Port Clarence on the River Tees, delivering design, fabrication, coating and load-out of large, complex steel structures. Serving sectors such as offshore oil and gas, subsea, marine, defence, decommissioning, and offshore wind, the site includes extensive workshop space, heavy lifting capacity, and direct river access.

**British Steel** operates the Teesside Beam Mill which has been manufacturing large structural steel sections for the construction industry since 1958. The Beam Mill employs around 430 people and is supported by the Teesside service centre which processes and distributes structural steel for construction.

**Cummins** has been manufacturing in Darlington since 1965 and currently employs around 1,500 people. The site handles engine assembly, exhaust aftertreatment manufacturing, technical operations and business support. Producing approximately 66,000 engines per year, the site also houses a new powertrain test facility, enabling the development and testing of vehicles and machinery powered by hydrogen, renewable natural gas, sustainable diesel and battery electric technologies.

**Elringklinger** operates a facility in Redcar, specialising in the design and manufacture of specialty gaskets, heat shields and sealing solutions for engine, transmission and exhaust applications for the automotive industry.

**Globus Metal Powders** specialises in the production of fine metal powders, such as stainless steel, nickel, cobalt, which supply the aerospace, defence, oil & gas, hydrogen, marine, motorsport and wider engineering sectors. Their innovative process involves melting metals in a vacuum and atomising with argon gas, creating a highly pure and spherical product. These are especially suited to Additive Manufacturing and Hot Isostatic Pressing processes.

**Liberty Steel** employs around 1,800 people across eight UK sites, supplying engineered steel products to a range of sectors. The Hartlepool site operates a submerged arc welded carbon steel pipe mill, producing both line pipe and structural hollow sections. The site was recently chosen by the Northern Endurance Partnership to manufacture pipelines for their onshore and offshore $CO_2$ transportation network. As part of the project, 105km of offshore pipeline infrastructure will be produced, helping Liberty secure 30 new jobs, supporting local people.

**Darchem Engineering** operates two UK sites, including one in Stockton, employing around 800 people across both locations. The company specialises in the design and manufacture of high integrity engineered products in stainless steel and titanium as well as thermal insulation systems for aerospace, motorsport, marine, defence, nuclear, and oil and gas applications.

**TMD Friction** specialise in friction technology, employing around 4,200 people worldwide. Its Hartlepool facility serves as a key manufacturing hub for brake pads, supporting the company's supply to the global automotive sector.

**NIFCO** is an advanced automotive components manufacturer with a facility on Teesside, employing around 600 people. The site also hosts one of Nifco Group's four global research and development centres, the only one in Europe, and supplies plastic components for use in cars made by several companies including Nissan, Ford and Honda.

**Paralloy & Firth Vickers** has operated in Billingham since 1967, specialising in transforming raw elements into products that power the syngas and ethylene industries. The site produces horizontal and vertical centrifugal castings and static castings for use in high-temperature furnace applications.

**Caterpillar** owns 20 major facilities in the UK, employing around 10,000 people. The Caterpillar Building Construction Products facility at Stockton uses the latest technology to cut, weld and machine all the major structures for use at the assembly plant in Leicester.

**KP Snacks** is a producer of savoury snacks, operating its largest manufacturing site in Teesside, employing around 750 people. The site includes a £6million pellet production facility, where two lines produce pellets used in products such as Pom-Bears and Hula Hoops Puff.

**JDR Cable Systems** operates its largest manufacturing site in Hartlepool, featuring a deep-water quayside facility. Opened in 2009, the site serves as a hub for producing subsea power cables and umbilicals, supporting both the offshore renewables and oil and gas sectors.

**Mersen** operates a manufacturing facility in Stockton, specialising in anti-corrosion equipment and graphite-based solutions. The site produces graphite supplies, cerberite components and graphite cubic heat exchangers as part of Mersen's anti-corrosion equipment division.

**Quorn** operates a meat alternative production facility in Billingham. Following a major expansion in 2018, the site doubled its capacity and now produces around 1.33million packs per week.

**SeAH Wind** as referred to in Clean Power on p.26 specialises in the fabrication and export of steel pipes and is currently constructing a large monopile production facility on a 90-acre site at South Bank within Teesworks to support the offshore wind sector.

**Glacier Energy** operates from the Wilton Centre and Stockton-on Tees providing heat exchangers and pressure vessels for the sectors including hydrogen, CCUS, circular economy, waste-to-energy and energy storage industries whilst also supporting large-scale wind projects across Europe.

**Cicor** operates a facility in Hartlepool, with around 130 employees, providing electronic manufacturing solutions. Services include PCB assembly, box building, and power supply solutions, primarily for industrial and IoT markets.

**Tata Steel** operates the Hartlepool 20" pipe mill with an annual production capacity of 220,000 tonnes of tube products for the construction, engineering and energy infrastructure markets.

**Diffusion Alloys** specialises in protective coatings that prevent metal degradation in the industrial gas turbines market and the oil, gas and process industries. Its headquarters, research and development, engineering and processing facilities are all based in Middlesbrough.

**Eastgate Engineering** provides electrical and instrumentation services across sectors such as offshore wind, renewables, and pharmaceuticals. Its technical capabilities include engineering design, construction, commissioning, and maintenance.

## Opportunities for Tees Valley:

Tees Valley's advanced manufacturing sector combines innovation and expertise while showcasing the region's deep-rooted industrial heritage and modern industrial strengths. With a skilled workforce and a network of highly specialised companies, the area is perfectly positioned for an industrial cluster to grow and thrive. The region continues to build on its strengths, creating an environment where advanced manufacturing can evolve and succeed.

SeAH Wind at Teesworks

British Steel

# INFRASTRUCTURE

Tees Valley is home to an infrastructure network which supports industrial growth and global connectivity.

It is well served by the UK's transmission network and natural gas infrastructure to ensure reliable energy delivery for manufacturing and residential needs. Interlinking pipeline corridors streamline the transport of industrial gases and water across key economic zones. With deepwater ports offering direct access to international shipping, the region is well equipped for trade and investment, with further potential in the Freeport designated areas.

The region is home to two 400kV and four 275kV National Grid substations, with the distribution network run by Northern Powergrid.

The Northern Endurance Partnership's onshore $CO_2$ gathering network will run through the region's pipeline corridors to its compression station near NZT Power, before transitioning to its offshore section.

The East Coast Hydrogen project aims to connect Tees Valley's planned major hydrogen producers to wider regional customers, enabling hydrogen adoption as a key method of decarbonisation.

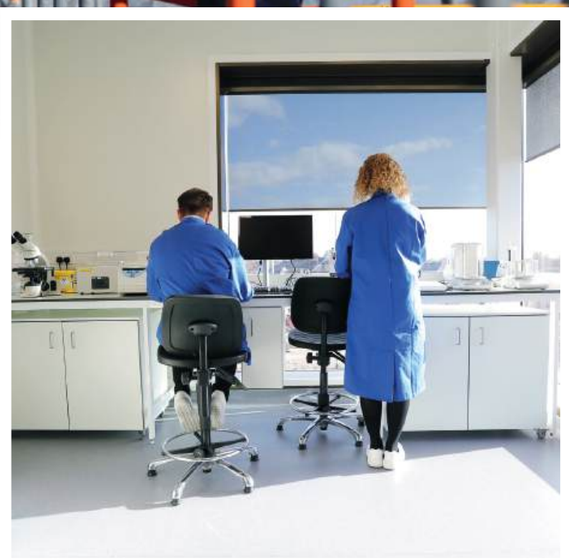
The port facilities at Teesport, Port of Middlesbrough, Port of Hartlepool, Able Seaton, and Redcar Bulk Terminal serve a variety of industrial, energy, and logistics sectors, offering deep-water access and connectivity.

Chemical terminal businesses such as Navigator and Exolum provide extensive capabilities for handling a wide range of products, supporting Tees Valley's role as a critical hub for the UK's energy and chemical supply chains.

# SKILLS

## & Workforce


- 2.5million people living within a 60-minute drive
- Four Russell Group Universities



Tees Valley has a highly skilled workforce and industry training network ready to support the transition to net zero and built on an industrial heritage which has established the region as a centre of excellence in engineering and manufacturing.

The development of net zero industries includes a commitment to support highly skilled jobs and apprenticeships across the region and Tees Valley's historic industrial base means it is well-equipped to support the growing sector.

Tees Valley sits in the cluster of Four Russell Group universities within one hour and is home to a multiple high quality further education providers offering skills training in net zero sectors including clean energy and hydrogen.

The most recent data shows there were well over twice the number of both Engineering and Manufacturing Technologies achievers in Tees Valley further education catchment area as compared to nationally.

Tees Valley has also recently seen the launch of the Tees Valley Net Zero Industry Scholarship, a unique collaboration between industry and education providers to develop the pipeline of talent to support the growth in net zero industries.

The scholarship is providing individuals aged 16 and above with up to two years' training in trades such as welding, instrumentation, pipefitting, electrical engineering and civil operations.

# LIVING in Tees Valley

Tees Valley offers a great standard of living with a richly diverse landscape, from picturesque villages to charming market towns and a beautiful coastline to stunning countryside.

The region has a thriving independent scene, with Baker and Bedford Streets in Middlesbrough, as well as Yarm, Darlington and Saltburn offering café and coffee culture, and unique independent shopping alternatives.

If you love the outdoors then Tees Valley is the ideal location for you. Enjoy water sports along the River Tees or at our coastal villages. If you prefer cycling and hiking, Guisborough Woods, the North York Moors and coastal paths around Saltburn provide a range of options, all with stunning views across the region. The Lake District and Yorkshire Dales are within a 1.5-hour drive too.

You can also enjoy afternoons out supporting our local sports teams, including Middlesbrough Football Club and Darlington Mowden Park rugby team.

Quality of life is good here because people get more for their money. There is a superb variety of homes to suit most incomes. From country cottages to new builds and Victorian houses to executive apartments, there is something for everyone. The average house price across Tees Valley is £137,350, which means you have more money to spend on the important things.

Nine out of ten Tees Valley primary schools are either good or outstanding and apprenticeships and support schemes create pathways for our young people. Schools, such as Yarm School and Teesside High, offer co-educational, independent education for pupils aged 3-18. Conyers, in Yarm, and Egglescliffe and Hurworth are excellent, high performing comprehensive schools.

Not many areas allow you to live less than 30 minutes from outstanding coast, stunning countryside and the office. With a high quality of life and low cost of living, the perfect work-life balance is easier to find when you live in Tees Valley.

TEES VALLEY

For more information contact
info@teesinvest.com
www.teesvalley-ca.gov.uk/business/netzero

@TeesValleyCA