Essex County Council

Essex Sector Development Strategy

Targeting a stronger, more inclusive, and more sustainable future economy

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Foreword

I am delighted to introduce Essex County Council's first Sector Development Strategy, setting out our approach to creating high quality jobs within the priority economic sectors, increasing prosperity for all and facilitating growth across the County.

This is a long-term strategy which focuses on futureproofing the Essex economy and embracing the opportunities that the transition to net-zero carbon will offer.

We have been ambitious in our aims and in order to succeed it will require a collective effort in partnership with our Borough, City and District Councils, the private sector and local businesses; however, I am confident that by working alongside my Cabinet colleagues Cllr Tony Ball, Cabinet Member for Educational Excellence, Skills, and Education and Cllr Peter Schwier, Climate Czar and Deputy Cabinet Member to the Leader, we will successfully drive this agenda forwards.

Tony's work with our schools, colleges, universities, and the entire skills sector will be crucial to the success of this strategy, as will the work Peter has done building on the momentum of the Essex Climate Action Commission report to deliver sustainable change in Essex.

This strategy is only the start of our work to deliver a stronger, more inclusive, and more sustainable future economy, and I am excited to see the opportunities that it generates.

Cllr Lesley Wagland, Cabinet Member for Economic Renewal, Infrastructure, and Planning

Executive summary

The Sector Development Strategy will support Essex County Council, public sector partners, and businesses to effectively plan together for the future economy of the county.

To do this, the strategy has identified 5 economic sectors with significant growth potential that could be realised in Essex: Construction and Retrofit; Clean Energy; Advanced Manufacturing & Engineering; Digi-tech; and Life Sciences (including med-tech and care-tech).

These economic sectors will deliver large numbers of good quality jobs for our residents. Our research shows that Essex has a number of **marketable strengths** that businesses consider important and will be needed to be successful, but the county is also falling behind the national average in key metrics which we must address.

We are adopting a number of key principles in our approach to support transformational, long-term economic change:

- **Identifying and leveraging the strengths** we have in Essex that gives us a unique opportunity for growth

- **Targeting systemic challenges** that we need to address to create a truly successful economy, such as relatively low numbers of high-level qualifications, low investment in innovation and R&D, and uneven participation across demographics in productive sectors

- Collaborating across the public and private sectors to take a **'whole Essex system'** approach – not only within the county council with strategies and teams working on inward investment, skills, capital investment, sustainable transport, care and housing, but also with external partners like universities, the NHS, with businesses, district councils and the voluntary and community sector

- Prioritising where our interventions will have the most impact within the sectors, on action to address **systemic weaknesses** and make **groundwork-laying investment**

Our approach will be structured around ensuring the growth of the 5 sectors supports our wider goals for the Essex economy:

- **Strategic goal 1: A thriving economy** using the sectors to market Essex as a centre of innovation and entrepreneurial spirit where the benefits of this growth are felt within the county.
  In practice that will mean:
  - More high quality jobs in the sectors of the future
  - More funding for innovation
  - Good quality buildings for businesses
  - A business community that is ready to take advantage of innovation and technology
  - Residents with the skills and confidence to embrace digital services and employment opportunities.

- **Strategic goal 2: An economy for everyone** ensuring every resident of Essex has the opportunity to gain the skills and experience to succeed in the five sectors regardless of their background and identity. To do this we will deliver:
  - A skills system that is aligned with the job and opportunities of the future
  - A collaborative approach between education, businesses, and local government to deliver the skills needed for employment in the five growth sectors
  - Clear pathways of employment from traditional sectors into the five growth sectors
  - Equality of opportunity in our in growth sectors.

Strategic goal 3: An economy fit for the future

centring green growth as intrinsic to the future growth of the five priority sectors to ensure we meet our target for a net zero county by 2035. Success for this opportunity looks like:

- Reduced emissions in line with our ambition for the County to become net zero
- Progress towards a decentralised and decarbonised energy system
- Sustainable new homes and a thriving retrofit sector to improve existing homes
- Essex at the forefront of low carbon (solar, offshore wind, nuclear and hydrogen) energy development and employment
- Harnessing innovation to reach our net zero ambitions.

The strategy will be supported by a Delivery and Action plan, agreed with partners across the county who share a joined vision for the future economy and support the actions we need to make to deliver transformational change.

Introduction

£40b

Essex's annual output

Generating an annual output of some **£40 billion**, larger than many City regions, Essex is a substantial, growing, and diverse economy. The County supports **700,000 jobs and 74,000 businesses** and is home to world leading R&D in quantum technologies, medicine, data science and advanced manufacturing – all underpinned by a strong corporate base and by growing universities. We have excellent connections to London, Cambridge and the M11 Corridor, East Anglia, and the rest of the world, and we are growing rapidly as more people choose to make Essex their home. Essex is a great place to live, with good schools, a diverse landscape and places to enjoy arts and culture.

This presents the county with significant potential for growth, but it will take a careful approach to ensure this latent economic opportunity is realised in the areas that are already thriving and also helps level up all parts of the county and outcomes for all residents, to ensure nowhere and no one is left behind. This growth must tap into green and sustainable practices to support our ambition to reach net zero by 2050. **There is, therefore, a need to establish an approach unique for Essex to proactively drive a sustainable and inclusive economy at the same time as overcoming the barriers to growth for the future.**

The strategy has identified future growth sectors that are projected to have strong growth in the county. The five sectors have been chosen for the transformative benefits they can deliver across the whole economy. Building a vibrant economy will boost all of our important wider sectors – therefore all sectors will be supported through increased prosperity and better opportunity to diversify and thrive. Key elements of our sectors are cross-cutting – energy and digital for example. Growing these will mean all sectors can benefit. Other areas such as our cultural and heritage sectors, are key to attracting and keeping businesses and workers and are supported by ECC and partners through bespoke strategic intervention.

This makes the strategy an important part of our **Levelling Up** goals, and it will deliver five key commitments through which our longer-term aims will be realised. It will play a direct role in enabling the delivery of five key commitments from Everyone's Essex, our organisational strategy:

- Creating **Good Jobs** for Essex residents
- Addressing the drivers of inequality by **Levelling Up** the economy
- Creating the conditions for **Future Growth and Investment**
- Capturing the benefits to the economy and the environment of **Green Growth**
- Hitting our **Net Zero** targets.

440k

Jobs created by 2030, through the government's net zero strategy; Build Back Greener

The successfully delivery of this strategy will also rely on tapping into wider national strategies that share our goals for sustainable and equal growth. The government's Net Zero Strategy: Build Back Greener published in October 2021, aims to support **440,000 jobs** by 2030, as well as leveraging up to £90 billion of private investment by 2030, and reaching net zero by 2050. The Sector Development Strategy will not only support the delivery of the UK's national goals but also grasp the opportunities served up by this ambitious agenda.

Success will take partners across Essex – from local government, business, and education providers – to work together on a collaborative approach and agree shared vision and goals. This is an ambitious undertaking, requiring the best of partners, businesses, and our communities, and we will continue to test, adapt, and iterate our plans in coordination with all of these groups.

Engagement and strategy development

This strategy is intended to set the direction for the whole Essex system to come together and act upon. In order to establish something this ambitious and cross-cutting, throughout the development of the strategy we have engaged with a wide range of partner organisations to ground our recommendations in the real conditions in Essex today. This engagement also formed an important part of how we have identified the most appropriate growth sectors for Essex through detailed qualitative and quantitative research and modelling of future economic strengths. To highlight the depth and breadth of our interactions, ECC spoke with the following bodies as part of our research:

Essex Districts, Boroughs and Unitaries:
Basildon BC
Brentwood BC
Castlepoint BC
Chelmsford CC
Colchester BC
Epping Forest DC
Harlow BC
Maldon DC
Rochford BC
Southend-on-Sea BC
Tendring DC
Thurrock Council
Uttlesford DC

Universities:
Anglia Ruskin University
University of Essex
Writtle College University

Other bodies:
Essex Anchors Group
Innovate UK
ORE (Offshore Renewable Energy) Catapult
FEDEC
UK INNOVATION CORRIDOR
NHS (East Suffolk and North Essex NHS Foundation Trust)

Business representatives:
South East Local Enterprise Partnership (SELEP)
Success Essex Board
Opportunity South Essex Board
Essex Chambers of Commerce
Make UK
CITB
Tech East

Business view

ECC commissioned both quantitative and qualitative research to understand the perspective of businesses within the five highlighted growth sectors, which was carried out by QA Research in partnership with Ortus Economic Research in the period June to August 2021. This research was carried with 605 different businesses based and operating in Essex, this has given us direct understanding of the issues facing those businesses and how they view future challenges and opportunities (QA Research & Ortus Economic Research, 2021). The key positive elements that come though the responses were that for businesses in our growth sectors:

- Essex is seen as being advantageously placed between London and Cambridge
- Essex is seen as a good place to live in the region with relatively low house prices allowing proximity to family, as well as easy access to coast and green spaces
- Within Essex growth sectors there's substantial optimism about the future, as the majority expect increased turnover and staff numbers in the next 5 years – most growth sector businesses expect opportunities to come from both diversification and green growth
- Most firms expected to stay in Essex in future.

However, the research also showed:

- When asked about the main barriers to growth in the next five to ten years, those chosen most often were 'workforce and skills', 'Covid and the Pandemic', 'access to markets and sales opportunities and 'the finances of the business'

- Just under a quarter of growth sector businesses had 'sought information, support or advice for the business' in the last two years and a wide range of sources were used for this and mentioned most was a 'business consultancy/consultant' (23 per cent), 'Essex County Council' (16 per cent) or 'accountants/ solicitors' (15 per cent – excluding statutory/regulatory purposes)

- The research showed that firms were confused about where to get support: many struggle to identify where to - a question was included to explore where businesses would go for support if specifically looking to diversify with 31 per cent saying they 'don't know'; additionally no single resource for this is top-of-mind, as a wide range of different potential providers were mentioned.

Many firms reported immediate recruitment issues, and many stated they are looking to grow in future. Most reported that skills would need to change to meet the future needs of their business. Many businesses recognised that more needed to be done around skills in order to meet their future needs. In keeping with our principle of leveraging our strengths as a county to deliver Essex-specific solutions, we have incorporated this feedback into the sectors we have selected as our priorities and our strategic goals and recommendations – in particular our geographic position as an asset.

Local government view

We have a number of important insights from discussion with local government partners. These have been integrated within the strategy and form part of our **whole Essex system** approach.

The work for sector development must include interventions at a wider regional level on major projects such as the Thames Freeport – which would require close collaboration with the Thurrock, Havering, Barking, and Dagenham local authorities; and the Lower Thames Crossing areas with those same authorities north of the Thames.

Also recognised was the importance of working better together and being much clearer about the different layers of partnership engagement to collaborate more effectively. In particular, the importance of continuity and dialogue from ECC with partners was highlighted – recognising the strengths and experiences of localities in order to co-create projects and a collective, long-term action plan. Within this plan the whole system approach will be crucial, especially on large projects such as the planned Freeport East; with the creation of **30,000 new jobs** the effective planning for housing, transport, and education of those who will fill these roles is crucial.

30k

New jobs will be created through collaborative projects

Our assets and strengths

The **Sector Development Strategy** builds on the number of strengths and assets in Essex that would support the development of future growth sectors. We must build on these and address our challenges now, in order to build a future stronger economy:

- The economy of Essex is already generating **£40 billion in Gross Value Added** (GVA) per annum for the country, larger than many UK Local Enterprise Partnership (LEP) Regions such as Liverpool City (£32 billion); Coventry and Warwickshire (£26 billion); York, North Yorkshire and East Riding (£25 billion) (ONS, 2017)

- By 2040 the population of Essex is likely to increase by 13 per cent, or 192,000 people, to **1.65 million** – allowing for significant economic growth (ONS, 2020)

- The **business stock in Essex increased by 17 per cent** (2014-2018) and Essex businesses have higher survivability rates than the national average

- It is the only county in the UK with **two international airports** (Stansted and Southend)

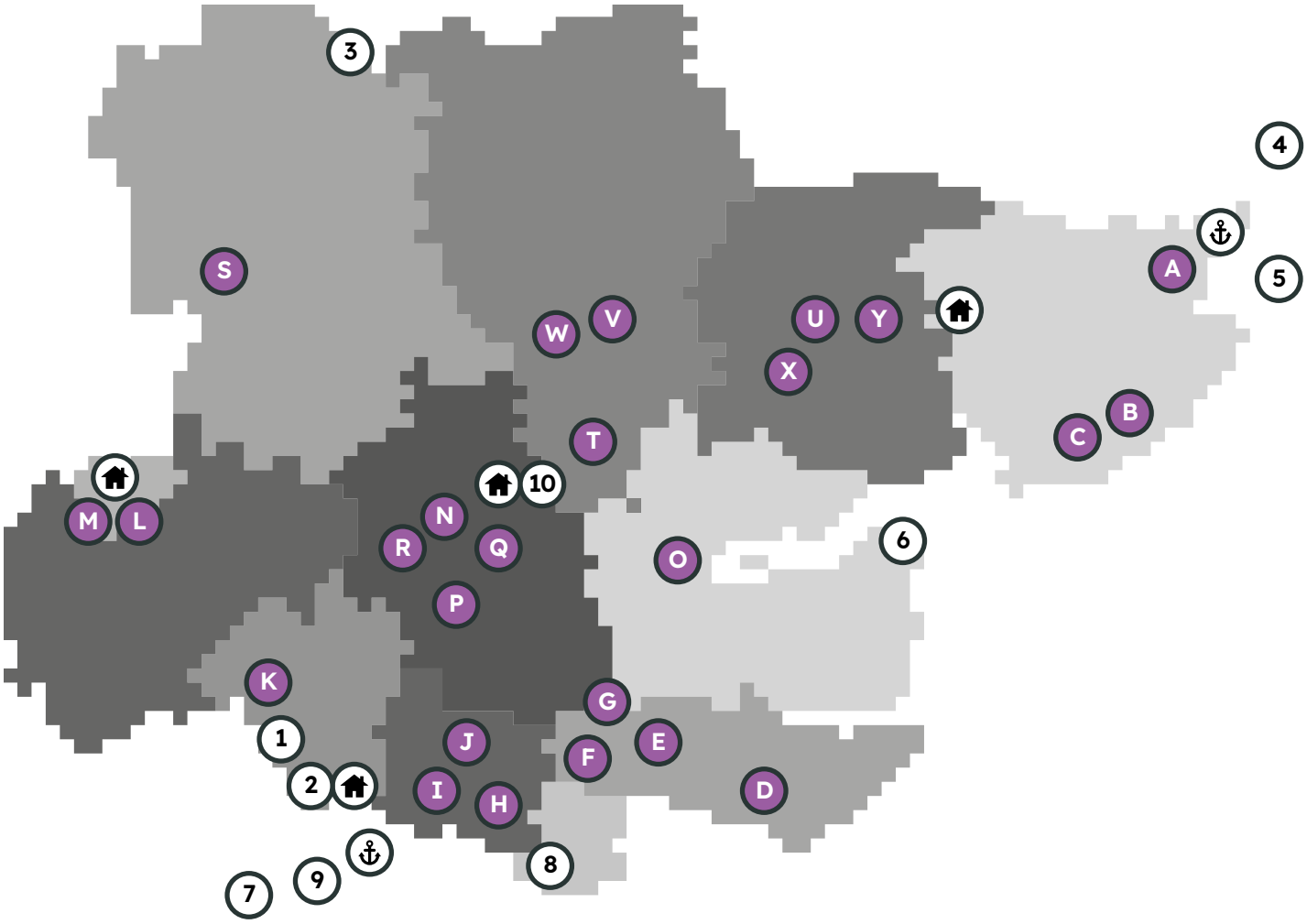
- It has great accessibility to world trade through proximity to **UK's two largest container ports** and direct links to Europe and global trade (Felixstowe/Harwich and Thames DP World – which will soon become the location for two freeports)

- It has a key role to play in the **UK's strategic road infrastructure** with M11, M25, A12, A13, Dartford Crossing, and forthcoming Lower Thames Crossing all within Greater Essex.

- We are home to **three leading universities**: The University of Essex, Anglia Ruskin University, and Writtle University College, as well as a thriving school system with many rated good or outstanding.

When these assets are overlayed onto a map of the county, alongside future proposed development a picture emerges of real on-the-ground strengths of Essex that this strategy can build upon:

Figure 1: Map of Essex highlighting key assets



Higher education centres:

- **A** Harwich Energy Skills Centre
- **B** Colchester Institute Clacton
- **C** ACL Clacton
- **D** South Essex College Southend Campus
- **E** South Essex College Stephenson Road Campus
- **F** USP College
- **G** ACL Rayleigh
- **H** ACL Basildon
- **I** South Essex College Centre for Digital Technologies
- **J** South Essex College Luckyn Lane Campus
- **K** ACL Brentwood
- **L** ACL Harlow
- **M** Harlow College
- **N** ACL Chelmsford
- **O** ACL Maldon
- **P** Chelmsford College
- **Q** Anglia Ruskin University
- **R** Writtle University College
- **S** Stansted Airport College
- **T** ACL Witham
- **U** ACL Colchester
- **V** Colchester Institute Braintree
- **W** STEM Centre
- **X** Colchester Institute
- **Y** University of Essex

Proposed NSIPs:

- **1** M25 J28
- **2** Lower Thames Crossing
- **3** Bramford to Twinstead
- **4** North Falls Wind Farm
- **5** Five Estuaries Wind Farm
- **6** Bradwell B
- **7** The London Resort
- **8** Oikos
- **9** Thurrock FGP
- **10** Longfield Solar Farm

Garden Community

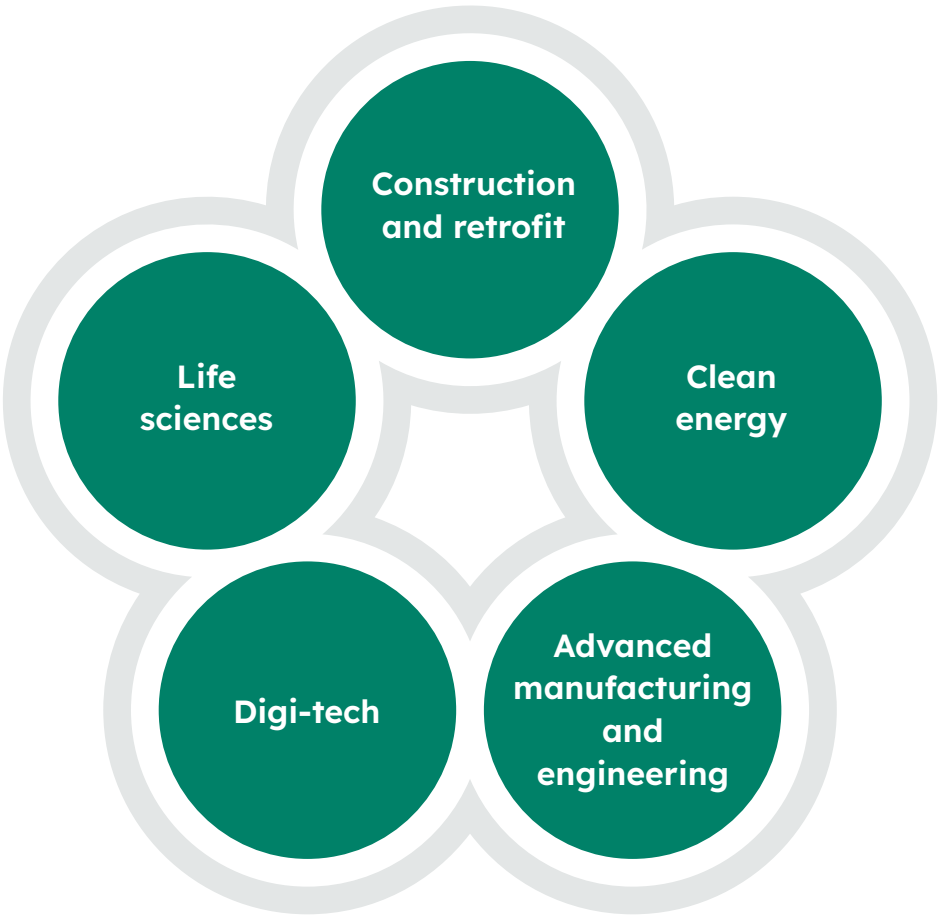
Freeport

Alongside these tangible economic strengths, we will also need to leverage our **strong cultural sector and visitor economy**. This will have an important role in building the profile of Essex as an attractive place to live, visit, work and also invest, to secure the sectors we want to grow in the county. This will be spearheaded by our Visit Essex, Marketing Essex, and cultural programmes, alongside our work on Inward Investment. This emphasises the collaborative nature of this strategy. While the cultural element is not included within the Sector Development Strategy explicitly, there is nonetheless a crucial dependency on it to deliver our long-term strategic goals, and in turn, a vibrant, healthy economy will support these sectors. We will continue to work closely with both internal and external partners to align the recommendations and work of the strategy with dependencies such as this.

Leveraging the strength of the public pound spent in Essex and our ability to work with local anchor institutions will also be crucial. ECC have already established an anchors network that is seeking to better direct the spending and policies of all of its members (NHS, universities, fire and police and local authorities) to tackle climate change and a number of other challenges. Utilising public sector spend towards long-term economic aims will also be a key feature for the delivery of the strategy, especially around growth sectors, where we have an opportunity to pump-prime the market and give local residents and businesses the chance to get ahead in a future growth sector.

Key growth sectors for Essex

The **5 key growth sectors** that we have identified through extensive analysis are those that are best placed, with the right investment and support, to meet our ambition of a stronger, more equal, and more sustainable economy. These are by no means the only sectors that will grow in the future, nor are they the only sectors that have a base in Essex to grow from. They are, however, the sectors that we have identified as having the potential to bring transformative economic opportunities that Essex will miss unless we, as a whole-Essex system across the public and private sectors, act now.



They are:

- **Construction and retrofit**
- **Clean energy**
- **Advanced manufacturing and engineering**
- **Digi-tech**
- **Life sciences** (including med-tech and care-tech)

We have commissioned work to model the future potential growth in employment and GVA and have considered a number of factors, including: the future potential for growth based on existing Government policy as outlined in documents such as the **10-Point Plan for a green industrial revolution** (Department for Business, 2020); future trends and projections for the future economic context of Essex and the UK; the impacts and requirements on supply chains, logistics, commercial space, skills; and finally the potential to create clusters with existing Essex businesses.

It is also important to note that these sectors are in many cases enabling of one another. For example, there are significant potential benefits to the advanced manufacturing and engineering industry in producing machinery for offshore wind farms, med-tech equipment, and green construction materials. The digi-tech sector has opportunity to support businesses to increase their efficiency and productivity, make more informed decisions, and help to differentiate them in the marketplace.

The full list of sectors in Essex measured by total employment and GVA contribution can be found at Annex B. The breakdown of how we have identified businesses (by SIC code) and occupations (by SOC code) that align to specific sectors is found at Annex C.

Our sectors in context

In keeping with our principle to make the most of our strengths, Essex is already well placed to take advantage of the scale of opportunity presented by these sectors:

£15b

The economic opportunity to deliver retrofit across Essex

- Essex construction GVA is **25 per cent** larger than the average across the Eastern region
- We estimate the economic opportunity of delivering retrofit in Essex to be in excess of **£15 billion**, with more than **13,000 jobs created** (LGA, 2021)
- The Local Government Association forecast that in 2030 across England there could be as many as **694,000 direct jobs** employed in the low-carbon and renewable energy economy, rising to over **1.18 million** by 2050. In Essex it is estimated that 15,908 jobs will be required by 2030 and 27,741 by 2050 (Local Government Association, 2021)
- Advanced manufacturing and engineering is going to be integral to achieving our net zero aspirations and creating a circular carbon economy in Essex. Every additional person employed through engineering activity is also projected to **create a further 1.74 jobs down the supply chain**
- Greater AI diffusion and SME tech adoption could add **£38 billion** and **£45 billion** respectively to UK GVA in 2030 – there is a slice of this pie available for Essex because of our HE strengths (Confederation of British Industry, 2021)
- Forecasts predict that by 2040, Essex could gain around **10,000 additional jobs in the life sciences sector** (Cambridge Econometrics, 2021).

Using data on the location and size of Essex businesses that are aligned to growth sectors, we have created a 'heatmap' to understand the geographic distribution of existing businesses who will be best placed to directly take advantage of growth in these sectors:

- Medium/large construction business
- Medium/large telecoms or digital technology business
- Medium/large advanced manufacturing business
- Medium/large energy business
- Medium/large life sciences business
- Medium/large care business

Medium or larger businesses defined a having 50+ employees.

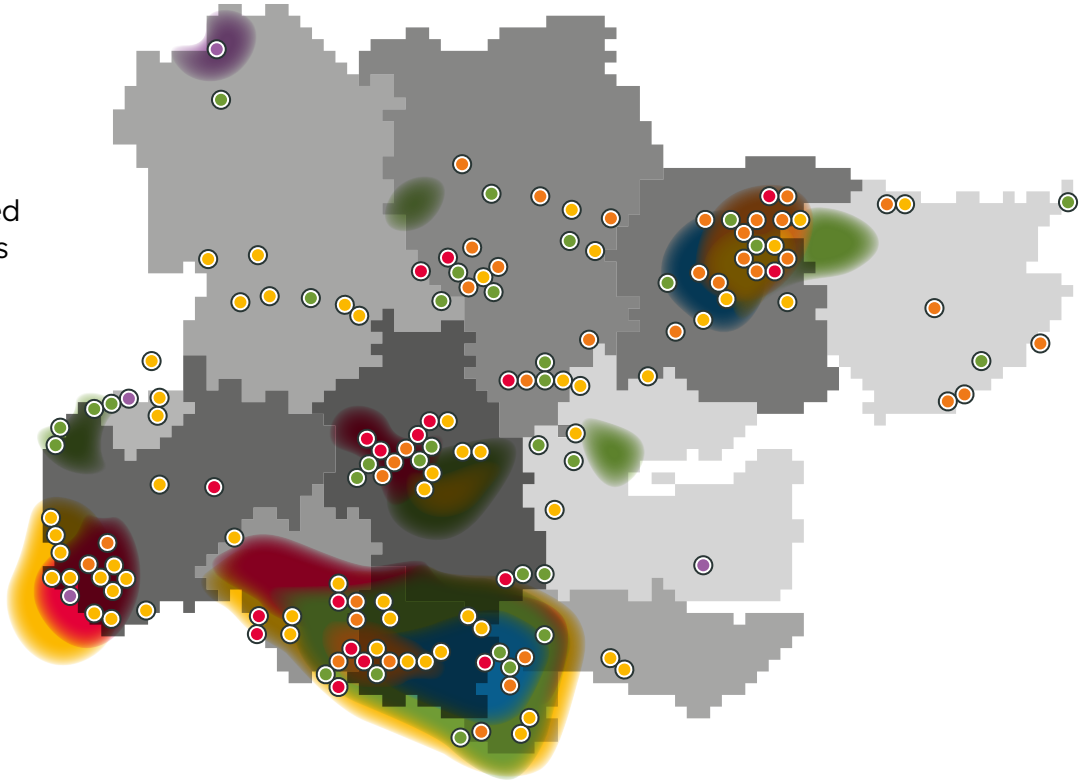


Figure 2: Map of Essex showing distribution of businesses who could take advantage of growth sectors.

Figure 2 shows the location of employers in construction, telecoms and digital technology, advanced manufacturing, energy, life sciences and care. Each dot representing larger businesses that have 50 or more employees. The heat effect highlights the concentration of all businesses within the sector, relative to the total number of businesses in the county. It shows the relative strength of the south of the county and the urban hubs of Chelmsford and Colchester in the mid and north of the county respectively – the strategy will need to build on these strengths but also ensure that those areas currently without a great deal of economic prospects in these business sectors are supported to grow them where it makes sense. The strategy will look to identify the work we and others can do to support these sectors in understanding their individual and combined needs, and coordinate supply chains to meet those demands within Essex which will open up new opportunities across the county.

59%

Essex business expect turnover to grow over the next 5 years

From our qualitative research (QA Research & Ortus Economic Research, 2021), the businesses in Essex already operating within these sectors are positive about future growth prospects:

- Whilst **35 per cent** of businesses questioned were focusing upon the short term, **35 per cent** were making firm plans for the medium term and **26 per cent** firm plans for the longer term
- **59 per cent expected turnover to increase** in the next five years, with **26 per cent** expecting it to remain constant. **72 per cent** of businesses in the digi-tech sector expected an increase
- **62 per cent** said that they expected to either **diversify or pivot** their business within the next 5 years, with diversifying into new products and services alongside existing and diversifying into new markets alongside existing as the keys.

However, there are also a number specific areas we can address to support local businesses in these sectors:

- **39 per cent** saw workforce and skills as the main barrier to growth, with **33 per cent** citing the pandemic, **23 per cent** access to markets and sales opportunities
- Whilst **89 per cent** of businesses said they sought out information which affects their business externally, **54 per cent** of them do not engage with innovators in their markets and **48 per cent** never engage with public sector opportunities
- All businesses were asked whether they actively seek out information on four different topics and they clearly make a proactive effort to – **89 per cent** said they do so for at least one

- This was most likely to be 'other legal and regulatory changes such as tax, accounting or health & safety' **71 per cent**, while around half said they did so for 'technical or digital innovations in your market' **55 per cent**, 'new products and services offered by your competitors' **54 per cent** or 'green and environmental policies that might affect your operation' **53 per cent**

- Business do not seek external support with only **27 per cent** saying they would seek external support, and only 6 per cent would seek government funded support

50%

Essex businesses that sought support over the last 2 years

- Of those that had sought support in the last two years figures, which was only **50 per cent of businesses**, Essex County Council (16 per cent) came out highest of local organisation compared to BEST Growth Hub (5 per cent); Chamber of Commerce, FSB & District Councils (3 per cent); Innovate UK (2 per cent); and DIT (1 per cent).

In terms of alignment with other local sector analysis, the South Essex LEP's Skills Report March 2021 identified priority sectors based on projected growth and skills shortages. These include construction, creative, tourism, energy, logistics, health, care, digital, agriculture and finance (South East Local Enterprise Partnership, 2021).
Our chosen sectors align with these and the other ECC strategies around Marketing Essex, Inward Investment and Visit Essex.

Construction and Retrofit

Why the construction and retrofit sector?

The construction industry affects everyone, influencing productivity and wellbeing, creating the homes, hospitals, schools, workplaces, and infrastructure essential for a good quality of life. It is one of the largest sectors in Essex and as such is crucial to our future economy and success.

The following infographic included within the Government's policy paper Construction 2025 helps to illustrate the breadth of the jobs within the construction industry nationally – a broad set of jobs and with opportunities for all – if they can be given the skills to access them:

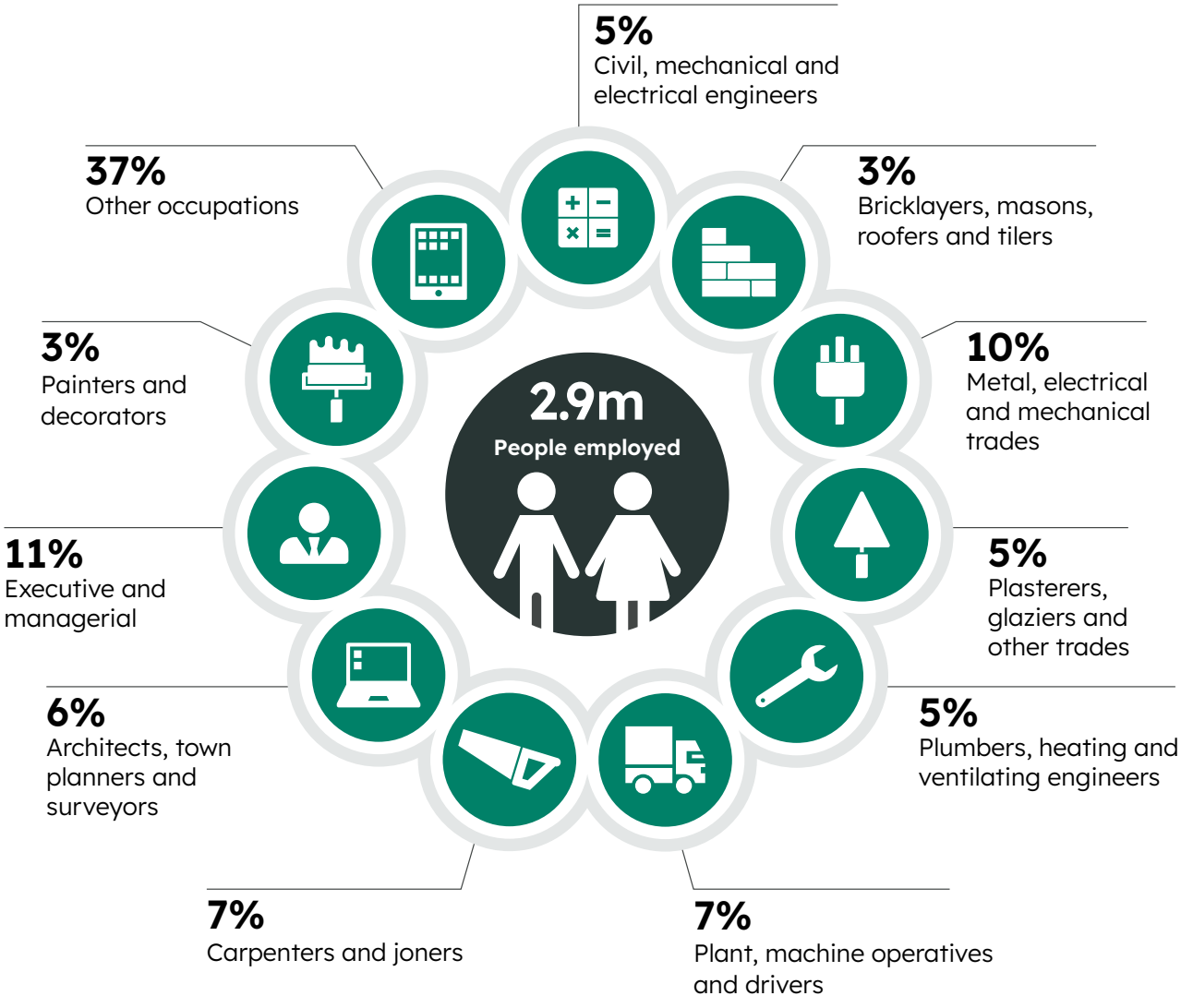


Figure 3: Role distribution in the UK construction industry.

As part of this role distribution, it is also important to discuss who is filling these roles and how the strategy can drive greater equality of opportunity for women in traditionally male dominated sectors to build a more equal future economy. The construction sector has one of the largest pay gaps – with a gender pay gap at 20 per cent in the 2019 survey (although the UK average gender pay gap isn't encouraging at 18 per cent). Addressing this systemic issue along with engagement with the education system at the earliest opportunity to make young women aware of the wide variety of opportunities within the sector and highlighting role models will be crucial in hitting our aims for a more equal economy.

What does the construction and retrofit sector look like in Essex today?

£4.8b

GVA generated in 2018

Essex has a large and mature construction sector; it's 13,040 businesses, which in 2018 officially generated **£4.8 billion** in Gross Value Added (GVA) – **11.2 per cent of the County's economic output** and provides employment for **46,000 people**. Construction provides a higher proportion of businesses, GVA and jobs than any other sector in the County. Essex construction sector GVA is 25 per cent larger than the average across the Eastern region. Geographically there are larger concentrations of construction businesses towards the south and south west of the county, with pockets in all districts.

The county is dominated by small/micro enterprises and the self-employed with strengths in skilled trades. By contrast, Essex has a relatively small civil engineering sector (a key demand of many of the emerging major projects) and has relatively few jobs in office-based technical roles (such as architects, engineers and quantity surveyors). Over time, the demand for non-manual roles, including office-based professional and technical roles, is expected to increase, whilst demand for traditional skilled trades will decline, as a result of changing practices, technologies, and workforce demographics.

Where is the sector strong within the county?

Growth Sector	Construction
Basildon	1.42
Braintree	**1.90**
Brentwood	**2.34**
Castle Point	**1.63**
Chelmsford	1.40
Colchester	0.98
Epping Forest	**2.66**
Harlow	1.13
Maldon	**2.31**
Rochford	**1.87**
Tendring	**1.54**
Uttlesford	1.17

Table: Workplace Employment Location Quotients (compared to Great Britain) highlighted for the construction sector. A Location Quotient of 1 is equivalent to the national average.

From the table above it is clear that the construction sector has a significant presence compared with the national average in a number of places across Essex. This means projected growth in the sector could benefit a wide geographic swath of residents without intervention, potentially including areas of deprivation that we should aim to **level up**. Therefore, ensuring local residents from all backgrounds have the right skills to enter the sector and that future business growth can be accommodated by the right commercial property will be priorities around this sector.

What is the Government interest in the sector?

There are many examples of Government policy which will have a significant impact on the sector, be that through demand driven by investment in infrastructure and homes, or targeted interventions to help to ensure the construction sector is home to more sustainable, profitable businesses. Some examples include:

- The Government's **Build Back Better a Plan for Growth** published in March 2021 set out its plan to accelerate and improve delivery through wide-ranging 'Project Speed' reforms including streamlining the planning system; improving the way projects are procured and delivered; and greater use of cutting-edge construction technology (HM Treasury, 2021)

- The **National Infrastructure Strategy** published in November 2020 sets out plans to achieve a radical improvement in the quality of the UK's infrastructure to help level up the country, strengthen the Union, and put the UK on the path to net zero emissions by 2050 (HM Treasury, 2020)

- The UK Government outlined its approach to a green recovery in its **Ten Point Plan for a Green Industrial Revolution** published in November 2020. Virtually all of the proposals included within the document will involve significant investment in construction and in fact, many of those investments are scheduled to take place within Essex.

- UK Government in The Clean Growth Strategy set a target to upgrade as many houses to EPC Band C by **2035 "where practical, cost-effective and affordable", and for all fuel poor households, and as many rented homes as possible, to reach the same standard by 2030.**

Construction and the new homes opportunity

Future homes standard and zero carbon

On 19 January 2021, the government published its response to the **Future Homes Standard** consultation. The response includes plans to radically improve the energy performance of new homes, with **all homes to be highly energy efficient, with low carbon heating and be zero carbon ready by 2025**. These homes are expected to produce 75-80 per cent lower carbon emissions compared to current levels.

Modern Methods of Construction

The Ministry of Housing Communities and Local Government (MHCLG) announced in March 2021 that it is set to establish a **Modern Methods of Construction** (MMC) Taskforce to accelerate the delivery of MMC homes in the UK. Announced as part of budget, the MMC Taskforce will be backed by **£10 million of seed funding**. The government said the taskforce will be made up of 'world-leading experts from across government and industry' and will work closely with local authorities and mayoral combined authorities.

The Government is already incentivising this as registered providers bidding for partner status with Homes England will need to demonstrate that not less than 25 per cent of their homes will be produced through MMC.

Green construction sector opportunities – Local business case study

British Offsite, a subsidiary of the Weston Group – a long established Essex based construction business, has become the third employer to sign-up to the new Horizon 120 Business, Innovation & Logistics park in Braintree, with the firm's new venture set to create up to 80 new jobs.

British Offsite will see it create a new manufacturing and distribution centre at the Horizon 120 site.

The building will be an expansion of the company's existing factory facility alongside its head office at the nearby Skyline industrial estate, enabling British Offsite to dramatically expand the size and complexity of its operations and output.

British Offsite will manufacture and distribute building components for the new homes industry, including kitchen and bathroom units, as well as their UNI-System of light gauge steel wall, floor and roof panels, all key components in the use of MMC (Modern Methods of Construction) which minimises the environmental impact of construction.

The Weston Group has recently reiterated how delighted it is to have acquired this new manufacturing and distribution centre which forms a key part of their strategic expansion plans for British Offsite. Weston Group will be releasing details of their exciting plans for British Offsite and the future of this large complex later in 2021, which will provide new employment and inward investment to this key business park in north Essex.

What is the size of the prize for Essex?

A strong baseline demand growth in the Essex construction sector is forecast. According to the East of England Forecasting Model (EEFM)[1], average **growth of 1.4 per cent per annum** is expected between 2020 and 2040. Moreover, a number of key project pipelines and changes to legislation (outlined in the paragraphs below will create substantial demand on the construction sector above and beyond baseline 'business as usual' levels. This modelling predicts a peak **38 per cent increase in jobs** in the sector leading up to 2040.

Housebuilding targets

93k

Homes allocated in local plans up to 2036

ECC forecast over **40,000 houses** will be built in Essex over the next five years. Construction of six new garden communities in Essex is scheduled over the next 15 years; planning permission is agreed for over 55,000 new homes and a further **93,000 homes** allocated in local plans up to 2036. This creates a pipeline with a value of **£9.6 billion** and **£16.4 billion** respectively.

Every house that is built today adds to the problems for the future as new homes will have to be retrofitted by 2030 and our landscape rapidly changed to instil climate resilience if we're to meet climate objectives. Since retrofitting is significantly more expensive than building a house to net zero, retrofitting a house would cost an average of £26,300 (Committee on Climate Change, 2021), meaning another five years of housing delivery without reform could create a **future retrofitting bill of £1 billion-£1.75 billion** for the public sector and future householders in Essex.

1. Designed to facilitate the setting of consistent housing and jobs targets, the EEFM provided a set of baseline forecasts prepared by a leading independent forecasting house (**Cambridge Econometrics**) for the East of England region and sub-regions (counties, unitaries and district authorities), the East Midlands and South East regions, and the Greater Cambridge Greater Peterborough, Hertfordshire, New Anglia, South East and South East Midlands LEP areas.

Major infrastructure projects

There is a substantial pipeline proposed of major construction projects identified for Essex and its neighbouring counties, comprised of:

- The **Lower Thames Crossing** (which will also impact on Kent), and potential new nuclear build sites, together with the proposed 150ha+ land reclamation at Bathside Bay as part of Freeport East. In total, these projects would deliver infrastructure with a value of around **£26 billion**. Outside of the Essex boundary, other mega-projects are also expected to draw on the Essex workforce. These include High Speed 2 and Silvertown Tunnel; Sizewell C nuclear new build and East Anglia wind farms in Suffolk; and the London Resort in Kent

- A significant programme of **highways improvements**: including the new M11 junction 7a (already underway); M11 J8 improvements; M25 Junction 28 improvements at Brentwood; proposed A120 dual carriageway from Braintree to the A12; A12 widening between Chelmsford and Marks Tey; and the new north Chelmsford relief road between A12 and A131 which will unlock the north **Chelmsford Garden Community** alongside the new **Beulieu Park Station**

- A proposed major new facility for **Public Health England** (now the UK Health Security Agency) in Harlow

- Potential **replacement of Princess Alexandra Hospital** at Harlow

- **Essex school building programme**

- Creation of two new freeports at **Freeport East** (Harwich/ Felixstowe) and **Thames Freeport** (London Gateway, Tilbury and Dagenham)

£26b

Projected infrastructure investment across Essex

- **Longfield Solar Farm** in Braintree and Chelmsford
- **Oikos Marine South Side** port and storage development at Canvey Island
- **Thurrock Flexible Generation Plant**
- **Offshore wind farms** at Harwich (North Falls and Five Estuaries), the infrastructure for which will come on land somewhere off the Tendring Coast
- Bramford to Twinstead **National Grid upgrade**. A key part of upgrading the National Grid and distributing the 40GW+ of offshore wind to the country
- The development of new **garden communities** including: Tendring Colchester Boarders; Harlow Gilston; north Chelmsford; and Dunton Hills; with others proposed to come forward.

Retrofit

Retrofitting is the installation and fitting of new systems, which are designed for high energy efficiency and low energy consumption, to buildings previously built without them; hence 'retro fitting'. This is closely tied to the construction industry and is an emerging opportunity. Retrofitting the built environment of Essex is integral to meet our **green transition** goals and net zero aspirations.

£15b

Economic opportunity to deliver retrofit across Essex

We estimate the economic opportunity of delivering retrofit in Essex to be in excess of **£15 billion.** However, at present energy efficiency projects such as retrofit are generally awarded to companies from outside the county. There is a lack of local supply chain capacity and capability and local tradespeople are generally at capacity with standard repairs and maintenance. Consequently, there is insufficient motivation for SME's to scale up to embrace the low carbon opportunity. Nationally we need an 'army' of retrofit businesses and tradespeople, to meet the minimum EPC 'C' target by 2030, in addition to the **50,000** retrofit coordinators and associated designer and advisor roles. UK100 data noted Essex as the county which could reap the greatest benefit from retrofit, with more than **12,800 new roles** needing to be created.

There is opportunity to stimulate economic renewal through retrofit opportunities in Essex, with triple benefits:

- **Minimising GHG emissions** to tackle climate change – moving towards net zero
- **Reducing fuel poverty**, which will leave hard-working families with more pounds in their pocket and benefit the public sector – it's estimated that for every £1 spent on eradicating fuel poverty, the NHS alone would save 42p
- **Tackling inequality**, levelling up by up-skilling residents and getting lots of new people into long term sustainable employment – A review of over 20 studies found that every £1 million invested in retrofitting homes resulted in the creation of about 23 person years of employment.

Around 9-30 jobs in manufacturing and construction would be created for every million pounds invested in retrofits or efficiency measures in new builds. Construction jobs would mostly be local, while manufacturing jobs in the wider industrial sector would be created by increased demand for building materials and equipment such as insulation, efficient glazing, and heat pumps.

Focussing on retrofit as a first step

We know that:

- Lack of energy efficiency results in the second greatest contribution towards GHG emissions
- Energy-efficiency retrofits can reduce the operational costs, particularly in older buildings, as well as help to attract tenants and gain a market edge
- Retrofit can have triple benefits by supporting residents out of fuel poverty (profit, environment, and wellbeing)
- Age UK has estimated that cold homes cost the National Health Service (NHS) £1.4 billion every year. With emergency admissions to hospital costing around £2,500, doctors in the north-east of England are even experimenting with prescribing home improvements to keep people well
- Estimate that for every £1 spent on eradicating fuel poverty, the NHS alone would save 42p (Age UK, 2012).

A core part of the opportunity around the construction sector will therefore be around tapping into retrofitting.

Retrofit sector opportunity – Local case study

The retrofit challenge is vast for existing homes and commercial spaces – Essex has 633,000 domestic properties, which emitted 2,152.3 ktCO2 in 2018, and to de-carbonise this existing stock our existing trades will need to pivot to new ways of working with less reliance on gas boilers in favour of more sustainable technologies such as ground and air-source heat pumps and solar. However, Essex is ideally placed to capitalise on this innovation: we are the sunniest county in the UK and our ambition to build more than 40,000 new homes in the county over the next 5 years mean we can position ourselves as the place to build sustainably.

Equality considerations

- Nationally[2], **2 per cent** of those in a "skills construction and building trades" occupation are female (ONS, 2020)
- In terms of working hours, women also make up **2 per cent** of full time roles and 11 per cent of part time roles (ONS, 2019)
- In Essex, there are **24,523** people employed in the 'Construction and Building Trades' SOC code
- Applying the national per cent distribution between genders we can assume there are approximately **490** women employed in the Construction sector in Essex.

2. National data is used as data is not available at local level.

Clean energy

Why the energy sector?

Energy supply and demand encompasses the four most polluting sectors in terms of Greenhouse Gas (GHG) emissions (transport, power production and supply, commercial, and residential usage). To reach our net zero carbon goals we need to create renewable energy and harness the supply for when demand peaks. The energy sector has strong supply chain links within in the county and work already undertaken as part of as part of SELEP's Clean Growth South East project needs to be capitalised upon. Connections already made within the supply chain and with local companies will be imperative to harnessing the potential and growth of the energy sector in Essex. There are a wide range of opportunities in the sector for innovation and growth in the county – as demonstrated by the graphic below:

Low Carbon, Renewable Energy and Environment (LCREE)

Environmental Goods and Services Sectors (EGSS)

Sector	Sub-sector
Low carbon electricity and renewable heat	– Renewable energy – Nuclear power
Energy from waste and biomass	– Bioenergy – Alternative fuels
Low carbon and energy efficiency products equipment and machinery	– Energy-efficient lighting – Energy-efficient products – Energy monitoring saving or control systems
Low carbon construction	– Low carbon construction
Low carbon services	– Low carbon financial and advisory services
Low-emissions vehicles and infrastructure	– Low-emissions vehicles and infrastructure
Water, waste and recycling	– Waste management, reuse and recycling – Water supply and treatment
Forestry and woodland management	– Forestry and woodland management
Non-renewable energy related	– Non-renewable energy related

Figure 9: LCREE+ sector definition (Clean Growth South East)

What does the clean energy sector look like in Essex today?

- The area sits at the heart of one of the world's largest markets for offshore wind
- The Magnox Nuclear reactor at Bradwell has been decommissioned and a new plant using new technology is proposed at Bradwell
- Onshore renewable energy projects such as solar, biomass, and battery storage are growing
- With emerging plans for the storage of gas and captured carbon in the Southern North Sea, the East of England has an energy investment programme worth billions of pounds
- The scope and scale of planned developments in the region's energy sector means that companies across across Essex are faced with with a host of new business opportunities
- The benefits could be vast, promoting economic growth, boosting productivity, creating thousands of new jobs and securing many existing positions in high-value low-carbon sectors.

Where is the sector strong within the county?

Growth sector	Energy
Basildon	0.01
Braintree	0.04
Brentwood	0.06
Castle Point	0.00
Chelmsford	**0.32**
Colchester	**0.54**
Epping Forest	0.00
Harlow	0.06
Maldon	0.00
Rochford	**1.03**
Tendring	0.17
Uttlesford	0.03

Table: Workplace employment Location Quotients (compared to Great Britain) highlighted for the energy sector. A Location Quotient of 1 is equivalent to the national average.

From the table above it is clear that the energy sector is relatively weak across the county compared with the national average – capitalising on national policy changes and investment opportunities will be key in kick-starting the future growth of the sector within Essex.

What is the Government interest in the sector?

120k

Jobs in the energy sector by 2030

The Government's **net zero strategy: Build Back Greener** sets out several commitments around the energy sector and hydrogen. In particular, it sets out the ambition for:

- Supporting up to 59,000 jobs in 2024 and up to **120,000 jobs** in 2030 as well as mobilising additional public and private investment of **£150-270 billion**, in line with the 2037 delivery pathway in the energy sector
- **Deliver 5 gigawatts of hydrogen** production capacity by 2030, whilst halving emissions from oil and gas
- **Fully de carbonising** the UK's power system by 2035.

There are also planned UK strategies on hydrogen to complement the net zero strategy and supporting papers such as the **HMG Energy White Paper** (Powering Our Net Zero Future), **HMG UK Hydrogen Strategy** and the 10-point plan for a Green Industrial Revolution, which ECC will monitor for the implications and opportunities for the sector.

40GW

Projected off-shore wind production by 2030

The UK holds a leading global position in offshore wind capacity, and the sector is expected to continue to experience significant growth, with an up tick in the demand for workers and skills ahead of the government's goal of **40 gigawatts** of offshore wind by 2030. According to industry estimates, by 2026 the sector could employ around **70,000 workers** (40,000 direct jobs and 30,000 jobs in the supply chain). This compares to around 26,000 presently (15,000 direct jobs and 11,000 jobs in the supply chain). By the 2030s, employment should grow in all phases of the project life-cycle, but particularly in construction and installation, and in operations and maintenance. Demand should be strongest for technicians and engineers as a result. In addition, the continued development of the sector will require a broad range of skills, including asset management, project management, engineering and technical skills (e.g. mechanical, electrical and control & instrumentation, blade and turbine technicians), science (e.g. marine biology, geophysics, hydrography, oceanography), advanced first aid and rescue, and offshore-specific skills (e.g. confined spaces, working at heights). Many of these skill gaps could be covered by workers currently within the oil and gas sector, given the transferability of their skills to offshore wind.

What is the size of the prize for Essex?

- With Essex receiving over 2,200 hours of sunlight across the year in 2020 there is significant opportunity in the county to capitalize on the **growth of solar PV** with solar farms and battery storage in rural districts

- New investment in over **5GW of offshore wind farms** in the Southern North Sea (North Falls and Five Estuaries Wind Farms)

- Planned projects **Onshore Wind Hub** to build and assemble wind turbines at Freeport East

- Not one but two major ports within Essex offer huge potential for **clean energy production** in terms of hydrogen and renewables. The geographical positioning of the freeports with renewable energy in the North Sea and the fact that they also offer the space for electrolyzers and have existing infrastructure which can be used, mean they are well placed to maximise hydrogen production

- Freeport East & Thames Estuary Freeport – **green hydrogen potential**: Green hydrogen is produced by the electrolysis of water, meaning the breakdown of water molecules into the two individual elements hydrogen and oxygen. Only electricity from renewable energies is used. This way no CO2 is produced, making the generated hydrogen carbon neutral

- Bradwell B nuclear opportunities – **blue hydrogen potential**: Blue hydrogen is produced by natural gas steam reforming, meaning the separation of natural gas into hydrogen and CO2. The CO2 is not released into the atmosphere afterwards but is directly stored

- There is also the possibility of establishing **biofuel production** from waste or crops given the rural nature of certain parts of the county

- There are immediate opportunities including **decommissioning and process innovation**, as well as green energy provision that not only needs to be maintained but expanded to promote

- In order to reach net zero the county will also need to consider the innovative technologies and practices associated with carbon offsetting and carbon sequestration. There are significant and emerging opportunities in the **carbon capture usage and storage** industry that should be explored in relation to energy and have significant growth potential. The government's net zero strategy: Build Back Greener commits to deliver four carbon capture usage and storage (CCUS) clusters, capturing 20-30 MtCO2 across the economy, including 6 MtCO2 of industrial emissions, per year by 2030. There is potential to place one or more of these units in Essex, generating manufacturing jobs and expertise, which ECC should look to pursue.

Energy sector opportunities – Local business case study

The **Push Investment Group**, located in Colchester are one of the UK's largest installers, operators, and maintainers of solar PV systems as well as builders of low energy homes for both the social housing and private housing and planning and architectural support. The group encompasses 8 separate businesses.

Their mission is to provide a professional and cost-effective solution to the supply of, and demand for, large scale green energy generation through the use of renewable technologies.

Currently Push have 447 megawatts of clean energy production capacity in planning, as well as using innovative approaches to solar farm O&M using drones. Push is the largest O&M solar farm business in the UK.

Equalities considerations

- Nationally, **8 per cent** of those in a 'energy plant operative' occupation are female (ONS, 2019)
- In terms of working hours, women also make up less than **2 per cent** of full time roles and almost **100 per cent** of part-time roles (ONS, 2020)
- In Essex there are **450** people employed in the Energy SIC code group
- Applying the national per cent distribution between genders we can assume there are approximately **36** women employed in the energy sector in Essex.

Advanced manufacturing and engineering

What is included in the advanced manufacturing and engineering sector?

Advanced manufacturing is the use of innovative technology to improve industrial products or processes. Advanced manufacturing industries increasingly integrate new technologies to allow manufacturers to create new kinds of products that can't be made cost effectively with conventional processes, and permit manufacturers to produce high-quality goods made to buyers' exact specifications.

£1.4b

Generated GVA in Essex in 2018

The sector makes an important contribution to the Essex economy; it's **585 businesses**, which in 2018 officially generated **£1.4 billion in Gross Value Added** (GVA), 6.9 per cent of the County's economic output, provides employment for **9,000 people**. Research by the Centre for Economics and Business Research (CEBR) for EngineeringUK found that the engineering sector had a strong multiplier effect on the economy, generating a further £1.45 Gross Value Added (GVA) for every £1 GVA created directly in the engineering industries (CEBR, 2015). What's more, every additional person employed through engineering activity was projected to create a further 1.74 jobs down the supply chain.

What does the advanced manufacturing and engineering sector look like in Essex today?

Essex has a large, advanced manufacturing sector and is a leading UK and European hub for the manufacture in the automotive, aerospace, and electrical industries, and well as computer, electronic and optical products and machinery and equipment. Geographically there are larger concentrations of AM&E businesses towards the south of the County with pockets in virtually all districts (including activity around Stansted). Strong advanced manufacturing clusters exist in Basildon (including Ford, Leonardo MW, Case New Holland, Gardner Aerospace), Harlow (including OI-Glass, Raytheon, Arrow Electronics, Harlow Group) and Braintree (including Nexus PLC/Triconnex, Millbank Ventures, Crittall, Maycast Noakes) offering a variety of industrial development opportunities, including bespoke units, land and an enterprise zone with standing planning permission and business rate discounts. Essex has historically been an attractive location for the sector, providing costs savings in comparison to London and Cambridge premises. A report from Invest Essex released in 2018 highlighted up to **24 per cent labour cost savings** compared to London, Antwerp, Berlin, and Toronto.

24%

Essex labour cost savings compared to London, Antwerp, Berlin or Toronto

In recent years **automation of manufacturing** processes has had a significant impact on employment within the sector. In Essex, jobs have reduced by 11 per cent 3 over the 4 years since 2014 and businesses numbers have also reduced by 7 per cent over the same period – notwithstanding this, the sector has achieved a **6.9 per cent increase in GVA**. Automation is likely to continue leading to a reduction in numbers of lower paid workers, and an increased demand for those with higher skills. The Make UK regional manufacturing forecast showed that for quarter ended July 2020 there had been a dip in output within the manufacturing sector in the East of England, although contrasted with other regions in the UK, the average change of output over the year had only been a moderately negative result (Make UK, 2021).

Where is the sector strong within the county?

Growth sector	Advanced manufacturing
Basildon	1.14
Braintree	**1.22**
Brentwood	0.88
Castle Point	0.70
Chelmsford	0.75
Colchester	0.52
Epping Forest	0.41
Harlow	0.64
Maldon	**1.98**
Rochford	**1.80**
Tendring	0.77
Uttlesford	0.70

Table: Workplace employment Location Quotients (compared to Great Britain) highlighted for the advanced manufacturing sector. A Location Quotient of 1 is equivalent to the national average.

From the table above it is clear that the advanced manufacturing sector has a particularly significant presence in a few areas of the county, whilst being relatively weaker compared with the national average in others. Capitalising on growth in the sector will therefore likely revolve around support direct sector growth but also ensure transport and planning is structured to give residents the best access to future opportunities that will be concentrated in certain parts of Essex.

What is the Government interest in the sector?

In March 2021, the Government replaced the 2017 Industrial Strategy with a new framework setting out how it intends to **Build Back Better**. This document details the Government's focus on infrastructure, skills, and innovation. It also highlights the UK's strengths across a diverse range of sectors and its international reputation for science with strengths across sectors, including aerospace, and in emerging industries such as AI (HM Treasury, 2021).

Net zero is highlighted as a priority. The document commits to the delivery of the ten point plan for a green industrial revolution, and pledges £12 billion of Government investment, leveraging significant private sector investment and supporting up to 250,000 highly skilled jobs in its delivery. This includes investment in offshore wind; hydrogen; nuclear; electric vehicles; public transport, cycling and walking; greener maritime; and homes and public buildings (Department for Business, 2020). The document does not single out manufacturing in its own right but will clearly require a first class and innovative advanced manufacturing and engineering sector as an enabler to support the sectors defined as a priority.

Advanced manufacturing and engineering sector opportunities – Local business case study

Early in 2021 the UK Government espoused an ambition to capture 10 per cent of the global space market by 2030, worth approximately £30 billion pa.

Essex has a rich history in engineering and manufacturing electronic devices, especially complex ones, dating back to Marconi's world first radio broadcast for Chelmsford in 1920.

Today Essex boasts a burgeoning and growing sector which specialises in the manufacture and use of different electronics used in space, from solar panels on the Hubble Space telescope to sensors and items used on the Mars rover.

Essex based advanced manufacturing and engineering businesses working in the space sector include: Atlantic Microwave, Blue Abyss, Concurrent Technologies, DSV Air & Security, Intertek, Jallco, Leonardo MW, Merlin Flex, Paradise Datacom (recently acquired by Teledyne e2v), Printech Circuit Laboratories, Radkon UK, Raytheon Systems, S3 Satcom, Satellite Signals, Teledyne e2v, Vislink and there are many others in the supply chains.

What is the size of the prize for Essex?

Despite the challenges experienced by the sector over the last year, a State of Manufacturing Report in July 2020 reported that manufacturers across the UK are looking to the future, from supply chains to workforce agility, manufacturers have come to realize that preparedness is key to adapting to the fluctuations in demand seen in today's current climate (Oden Technologies, 2020). Manufacturing in 2050 will look very different from today and will be virtually unrecognisable from that of 30 years ago. Successful firms will be capable of rapidly adapting their physical and intellectual infrastructures to exploit changes in technology as manufacturing becomes faster, more attuned to customer demand.

The **Fourth Industrial Revolution** (Industry 4.0) is the ongoing automation of traditional manufacturing and industrial practices, using modern smart technology. It helps businesses manage and optimize all aspects of their manufacturing processes and supply chain. It provides access to the real-time data and insights required to make smarter, faster decisions about a business, which can ultimately boost efficiency and profitability. The independent Made Smarter Review, following the launch of the Industrial Strategy Green Paper in January 2017, sets out a vision for growth and increased productivity across the manufacturing sector, by unlocking the potential of Industrial Digital Technologies (IDTs) (Made Smarter, 2017). The sector is crucial to help build a more resilient and self-sufficient Essex economy and enable and support the planned growth in green energy, construction and retrofit sectors. Production of goods as close possible to their ultimate use will help to reduce both their cost and environmental impact.

Space sub-sector

The space industry is also an important sub-sector that will have significant potential opportunities for Essex – **the UK Government has espoused an ambition to capture 10 per cent of the global space industry by 2030**, worth an estimate £30 billion pa, and the Knowledge Transfer Network (KTN) and UK Space Agency have already identified a number of Essex businesses which are already operating within the sector. Essex therefore already has a significant sector base of space and satellite businesses and sector knowledge. With the challenge laid down by Government, Essex is ideally placed to exploit the opportunity and engender future sector growth – both in terms of growing existing businesses in the sector, creating new highly paid and highly skilled jobs as well as attracting new businesses from UK and overseas to locate in Essex because of the strength of the space and satellite applications sector.

Essex is not looking to compete with other areas that have other known strengths such as Cornwall and Scotland for potential launch sites, or the Leicester Space Cluster, or Surrey, but it has already carved itself a unique position in the UK Space and Satellite applications sector supplying NASA, ESA, and other global space players with equipment. Essex made components are in orbit around all the planets in the solar system, recording and feeding back data. Essex Space businesses are playing a key role in monitoring and predicting climate change in providing key components for the Copernicus and CO2M programmes which measure the levels of CO2 produced by human activity on earth. A future growth industry is predicted when businesses have to report on their emissions and Essex is primed as one of the world's leading places the manufacture the sensors which will do this and interpret the data. ECC are currently working with business partners to develop a county wide space cluster proposition to promote this sub-sector's strength in Essex to key strategic bodies such as UK Space Agency, European Space Agency, etc.

Equalities considerations

- Nationally, **12 per cent** of those in an 'engineering professional' occupation are female (ONS, 2019)
- In terms of working hours, women also make up **11 per cent** of full time roles and **31 per cent** of part time roles (ONS, 2020)
- In Essex, there are **11,048** people employed in the 'Engineering Professional' SOC code
- Applying the national per cent distribution between genders we can assume there are approximately **1326** women employed in the engineering sector in Essex.

Digi-tech

What is included in the digi-tech sector?

The digi-tech sector is wide ranging, covering the provision of digital technology to create improved customer experiences and opportunities for differentiation in the marketplace; all the way to innovation to support the internal capabilities that can help businesses be more flexible, gather more data to inform strategies, instil trust, and increase efficiency and productivity.

£1.2b

Generated GVA in Essex in 2018

What does the digi-tech sector look like in Essex today?

Essex has a healthy digi-tech sector. The telecoms and digital technology sectors together amount to over **4,200 businesses**, which in 2018 officially generated **£1.2 billion in Gross Value Added** (GVA), **2.8 per cent** of the County's economic output and provide employment for 15,250 people. The digi-tech sector currently provides a lower than average proportion of businesses in Essex than the same proportion for the Eastern region. There are a number of clusters of innovative digi-tech assets across Essex that can be categorised across academic, infrastructure, and business strengths:

Business

- **Harlow Enterprise Zone** – Is focussed on life sciences, ICT and advanced manufacturing and includes:
  - **Harlow Science Park** is a 15-hectare greenfield site available for design and build opportunities with a focus ICT sectors, amongst other things
  - **Harlow Data Centre** – Kao Data is one of the largest campus developments in the UK and represents the future in sustainable, efficient, and scalable computing. Kao Data is the Data Centre supporting the Light Blue Fibre Network and is home to Cambridge 1, the UK's most powerful supercomputer

- **Essex and Hertfordshire Digital Innovation Zone** (DIZ) spanning Epping Forest, Harlow, Uttlesford and East Herts. The DIZ's ambition is to become a nationally and internationally recognised leader in health-tech and agri-tech innovation and enterprise (including the health and social care sectors).

Infrastructure

- The **Innovation Centre, Knowledge Gateway**, at the University of Essex, just outside Colchester provides flexible office, co-working, meeting and conferencing spaces, backed up by professional mentoring and support and access to research links and facilities at University of Essex. The centre is currently home to more than 20 SMEs benefiting many specialising in software and games development. The University of Essex is ranked No 2 in the UK in the provision of KTPs, predominantly in the fields of data science and AI.

Academic

- The **Creative Colchester Partnership** brings together creative business and arts organisation leaders alongside higher education and local authority representatives who work on developing a strategic vision to grow Colchester's creative, cultural, and digital economy.

- Essex is also well equipped with universities and colleges specialising in digital technology:

  - **University of Essex** has specialism in computer science and information technology, ranking in top 200 globally. Its Knowledge Transfer Partnerships programme which majors on this academic area working with business has recently been ranked No. 1 in UK

  - **Anglia Ruskin University** (ARU) are ranked 27 in the UK for Computer Science and Information Systems in the QS World University Rankings by subject.

- **ARU's School of Computing and Information Science** research maintains close collaborative links with industry to create impactful research and knowledge exchanges opportunities.

- **South Essex College's Centre for Digital Technologies** in Basildon town centre houses state-of-the-art facilities and equipment for students on courses with a tech focus including IT networking, app development, games design and animation.

Where is the sector strong within the county?

Growth sector	Telecoms and digital technology
Basildon	**1.04**
Braintree	0.56
Brentwood	**2.16**
Castle Point	0.41
Chelmsford	**1.03**
Colchester	0.54
Epping Forest	0.70
Harlow	0.33
Maldon	0.38
Rochford	0.55
Tendring	0.27
Uttlesford	0.69

Table: Workplace employment Location Quotients (compared to Great Britain) highlighted for the telecoms and digital technology sector. A Location Quotient of 1 is equivalent to the national average.

The strength of the digi-tech sector is concentrated in a few key areas of the county – growth in this sector will benefit from capitalising on the academic strengths Essex has, to help create thriving clusters of innovation. Opportunities for networking and knowledge transfer to match suppliers of digital technnology with demand within Essex will help to ensure that wider economy benefits from this innovation and maximise the ability of residents to access the economic opportunity.

What is the Government interest in the sector?

The Plan for Growth stated that 'Over the coming year, we will publish an Innovation Strategy and set out a vision for high-growth sectors and technologies where we are well-placed to develop a globally competitive advantage'. A new HMG Digital Strategy is due for release in 2021.

The plan also highlighted that the UK has a lower proportion of innovating firms overall than other advanced economies and weaker business investment and that there is evidence that UK firms are relatively slow to adopt basic digital technologies, such as customer relationship and eCommerce tools that have been shown to have significant productivity benefits.

What is the size of the prize for Essex?

When looking at the digi-tech and telecoms sectors, it is important to consider the value to the Essex economy of enabling opportunities for all sectors that are transforming their businesses with digital technologies as well as that from the growth in the sector itself. For manufacturers, the main drivers for investing in advanced manufacturing digital technology are largely internal, for example, reducing production costs, improving the quality of products and services, improving the employee productivity and reduction of production lead time. Industry 4.0 is the current trend of automation and data exchange in manufacturing technologies, leading to greater efficiencies.

Digi-tech sector opportunities – Local business case study

Arma Karma is a new innovative insure-tech business which was set up in 2019 by two University of Essex graduates and is based at the Innovation Centre, Knowledge Gateway in Colchester. Their mission is to bring some 'good' to the dull and sometimes unethical world of insurance.

It offers a simple fully digital monthly insurance subscription to protect that things that matter, from phones through to saxophones. Subscribers can cancel at any time with no fees and add or remove covered items at a moment's notice.

Arma Karma has already received international recognition for its service offerings and donates 25 per cent of its commission revenue to charities every month, which the subscriber can choose when taking out their subscription. It is growing quickly, and its new flexible approach is seen as what the market wants and needs.

There are a raft of examples of existing and developing technologies that can bring benefit for Essex businesses:

- **Internet of things** – where digital solutions have begun to move beyond a singular element or individual task, and integrate into existing systems, effectively linking them up to enable data from each to be consolidated and computers used to calculate the most optimal processes and potential automate those processes with robotics

- **Artificial intelligence** – which can help businesses across every industry gain automated insights from complex data sets faster than in the past enabling end-to-end efficiency, improved accuracy, and decision-making

- **Quantum computing** – will play an increasing role in powering machine learning systems and AI platforms to better improve, understand, and interpret large datasets and calculations

- **5G** – as 5G networks begin to roll out, the technology will become a primary way to transfer data quickly from machine to machine to aid in communication

- **Cloud technologies** – allow businesses to completely digitize their organizations and fully offsite their digital business.

The Industry 4.0 trends sit alongside the growing demand for digital applications and software to meet our day-to-day needs. We now expect to receive intuitive personalised services via our mobile phones and computers. The breadth of innovation across all sectors is diverse, with unique opportunities in some areas for Essex:

- **Agri-tech** – the north of Essex has a strong potential for growth in agri-tech, with a focus on agricultural use of land for of food production and other uses. The University of Essex has developed partnerships with leading academic research centres in this field and recently opened the EPIC (Essex Plant Innovation Centre) which focuses on research in a broad range of plant science areas, including agri-tech (such as agricultural robotics)

- **Digital health and care** – enabling people to live longer, happier, healthier lives through digital technology, with Essex County Council leading with a new care technology partnership with Millbrook and both University of Essex and ARU carrying out research in this area

- **Care-tech** – health and social care apps supporting patients, clinicians and non-clinical staff. The north of the county is also a hub for care services, and ECC can use this to leverage public investment to develop and deliver care tech enabled services

- **Fin-tech** – including robo-advising and stock-trading apps, blockchain and cryptocurrency exchanges, mobile banking and payment apps, crowdfunding platforms. The south west of the county has strengths in financial expertise which traditionally would be focussed on London, but post-Covid new ways of working mean Essex is primed to benefit from home based working

- **Insure-tech** – the technology that lies behind the creation, distribution, and administration of insurance business

- **Logistics-tech** – digitalisation to match the supply and demand for products, reduce waste and allow coordination of high-speed product delivery to meet customer demands

- **Gaming-tech** – creating new markets for the UK's creative industries using emerging digital technologies; making the UK the best place in the world to create content for immersive systems. The global gaming industry is estimated to be worth $173 billion in 2020, and in UK £5.3 billion. Both have grown significantly due to lockdowns as a result of the pandemic. Gaming-tech is now being widely used in everyday applications within other sectors such as life sciences.

Equalities Considerations

- Nationally, **19 per cent** of those in a 'information technology and telecommunications professional' occupation are female (ONS, 2019)
- In terms of working hours, females also make up **17 per cent** of full time roles and **48 per cent** of part time roles (ONS, 2020)
- In Essex there are **20,635** people employed in the 'information technology and telecommunications professional' SOC code
- Applying the national per cent distribution between genders we can assume there are approximately **3,920** women employed in the energy sector in Essex.

Life sciences (including med-tech and care-tech)

What is included in the life sciences sector?

Life sciences includes a number of different sub-sectors in this context:

- **Medical life sciences** – Businesses operating in the fields of biotechnology, pharmaceuticals, biomedical technologies, life systems technologies, nutraceuticals, biomedical devices, and organizations and institutions that devote the majority of their efforts in the various stages of research, development, technology transfer and commercialization

- **Med-tech** – Technology, often involving manufactured products that facilitate the delivery of health services in the community care setting and in people's homes. These technologies save lives, are convenient for patients and make efficient use of healthcare resources. This includes diagnostics, monitoring and devices

- **Care-tech** – is technology designed and used to give people more control over their health, safety and wellbeing and to support them to be more independent or feel less isolated. Its provision can link them to services which are important for them and enhance the care or treatment providers offer; help them communicate with families, professionals and staff; and help staff to prioritise and focus their attention on people who need it most.

What does the life sciences sector look like in Essex today?

There is a strong ecosystem and clustering of key components supporting the life sciences/med-tech sectors in West Essex.

- **Harlow Innovation Park** and **Uttlesford's Chesterford Research Park** both sit within the UK Innovation Corridor (UKIC), linking Cambridge and London, and where research and ideas are transformed into commercial products and services. The UKIC aims to be an ecosystem of leading science, technology and manufacturing companies creates the perfect blend of businesses, skills, and places, to turn innovation into world-leading solutions. Around quarter of the UKIC lies within Essex

- **Kao Data and Business Park** in Harlow is home to the UK's most powerful super-computer and provides 20,000 square metres of 'Grade A' office space, and home to NVIDA's Cambridge 1 super-computer which was used in the sequencing of Covid-19 to enable vaccine production

- At **Princess Alexandra Hospital** Harlow, a new integrated, high-tech healthcare campus is proposed to open in 2026, and aims to be the most technologically advanced hospital in the UK

- **Bupa Home Healthcare** head office is based in Harlow and is one of the UK's leading healthcare providers of both nursing care and medication direct to patients in their homes and communities

- A planned national science hub for **Public Health England** (soon to form part of the new UK Health Security Agency) in Harlow from around 2025, will have the potential to accommodate c. **2,750 jobs**

- **ARU's Arise Innovation Hubs** in Chelmsford and Harlow provide business accommodation space offering work, innovation space and bringing together academics, researchers, and students, with full access to supporting facilities.

2,750

New jobs estimated in Harlow for Public Helath England

Other key locations contributing to the sector in Essex are:

- **Southend**, which has a particular strength in medical technologies primarily due to the presence of Southend University Hospital and Olympus Keymed which has stimulated the cluster of spin off and supply chain companies. Keymed originated in Southend in 1970 and employ over 1,000 staff in Southend. The medical technologies sector in Southend has continued to grow with many family-run businesses having flourished and expanded into national and international markets

- **Braintree**, which has recently seen over **£100 million** of Government investment into the development of the Cell and Gene Therapy Catapult Vaccines Manufacturing Innovation Centre. Its long-term focus to advance the growth of the UK cell and gene therapy industry, by bridging the gap between scientific research and full-scale commercialisation, and to become the UK's primary vaccines manufacturing centre. This development is already stimulating considerable interest and the development of a local cluster

- **Chesterford Research Park (CRP)** in the north of Uttlesford is seen as part of the Cambridge Cluster, but is firmly in Essex. CRP offers advanced laboratory and office space set within 250 acres of parkland-modern dynamic, flexible facilities perfectly appointed for biotechnology, pharmaceutical and technology R&D companies of all size. It is home to international businesses that are making a real difference. Scientists, Investors and entrepreneurs developing life changing drugs within a sustainable environment. Arecor recently won £2.8 million of Innovate UK funding to accelerate the development of AT247, a next generation, ultra-rapid acting Insulin; cell centric develops small molecule inhibitors for cancers such as prostate; superdialectics is developing high energy density, low cost, low environmental impact electrical energy storage devices that will help create a clean and sustainable global energy and transportation system.

£100m

Government investment in Braintree vaccine centre

The two main universities in Essex also have faculties dedicated to improvement of health:

- The **University of Essex** has formed a Smart Health Technologies Group (SmartHealthTech), a new multidisciplinary research group within the Faculty of Science and Health and part of the Centre for Computational Intelligence. Its main purpose is to apply information and digital technologies to improve health

- **ARU** in Chelmsford is the largest provider of health, social care and education courses in the East of England and train the doctors in the first School of Medicine in Essex. Their medical Technology Research Centre draws expertise from the Faculty of Health, Education, Medicine and Social Care and the Faculty of Science and Engineering and aims to research and develop biomedical technology solutions for healthcare, pharmaceuticals, medical engineering, and medical devices sectors.

Where is the sector strong within the county?

Growth sector	Life sciences
Basildon	0.27
Braintree	0.31
Brentwood	0.19*
Castle Point	0.06
Chelmsford	0.34
Colchester	0.24
Epping Forest	**0.86**
Harlow	**4.02**
Maldon	0.16
Rochford	0.45
Tendring	0.25
Uttlesford	**0.25**

Table: Workplace employment Location Quotients (compared to Great Britain) highlighted for the life sciences sector. A Location Quotient of 1 is equivalent to the national average.

***Brentwood life sciences LQ has been modified for accuracy. SIC code 72200 has been removed. Unmodified LQ is 3.77.**

The opposite table shows that Essex holds an extremely strong life sciences sector on the London-Cambridge corridor. While this growth will need careful shaping and support to ensure that the benefits are felt within the county, there is also significant opportunity to support the growth of more niche elements of the sector such as care-tech in areas of the county that currently have a relatively low Location Quotient score.

What is the Government interest in the sector?

The Government has worked closely with industry and scientists to grow the life sciences sector through delivering the **2017 Life Sciences Industrial Strategy**. This provided a roadmap for the UK to take the lead on cutting-edge, emerging industries including digital health. The strength of the life sciences sector in these areas and others provides economic opportunity in all parts of the UK. It also includes proposals to adapt our regulatory frameworks to maximise advantage of innovation, especially in sectors such as financial services, health, data, agriculture.

The Government's industrial strategy also set out grand challenges to put the UK at the forefront of the industries of the future, ensuring that the UK takes advantage of major global changes, improving people's lives and the country's productivity. Ageing society was included as a grand challenge for the industry to find innovations which help people 'maintain their independence and wellbeing', a key driver behind the med-tech sector.

There have been various central and local government initiatives which invest in care technology and run specific interventions to support the development of new solutions. This includes the **Local Government Association's Social Care Digital Innovation Programme**, a three year collaboration between councils and NHS Digital to provide grant funding for digital innovation in social care. The programme has resulted in digital solutions being developed through collaboration with service users, health and care professionals, and local councils. Those solutions have included online services to support people's care needs, from initial assessment and care planning, to ongoing support. The digital tools have given people more independence, made tasks for care professionals easier, and delivered long-term value for councils through cash savings and indirect non-cash benefits.

What is the size of the prize for Essex?

There is a growing demand for **med-tech** products for diagnostics, digital health and assisted living support. For example:

- Home diagnostics is a burgeoning market, fast gaining popularity in a world battling the Covid-19 pandemic. With the use of advanced technology, home diagnostic kits enable users to check and monitor their health conditions in the comfort of their homes. The aging population and prevalence of chronic diseases have resulted in rising demand for home healthcare services in the UK According to UK's Office for National Statistics (ONS). It is projected that there will be an **additional 7.5 million people aged 65 years and over in the UK in 50 years' time**
- Syringes and cannulas market forecast highlights that the increasing number of infectious diseases and communicable disorders is expected to boost demand for disposable as well as reusable syringes
- **Precision engineering** and advanced manufacturing of clinical, medical, or surgical instruments
- There is also a **growing demand for M-Health**; mobile devices such as digital health apps and wearables such a health monitoring wrist watches to support healthcare practices
- McKinsey reported that investment in emerging health-tech companies (using next generation technologies such as AI, quantum, AR/VR, and advanced computing) in the UK has climbed from just under $500 million to over $1.5 billion in 2020.

Life sciences sector opportunities – Local business case study

In 2021 Essex-based **Biosure (UK) Ltd** won the prestigious Queen's Award for Enterprise: Innovation.

BioSure (UK) Ltd develop, manufacture, source and distribute rapid tests with the highest levels of accuracy, many rivalling those of standard laboratory tests. Their rapid diagnostic and detection tests are invaluable tools where immediate results are the primary consideration. The tests they manufacture and supply are used worldwide for the management of human infectious disease.

BioSure (UK) Ltd specialise in providing solutions utilising rapid Point of Care Tests (POCT) and has unique expertise in self-testing. We passionately believe that this technology through integration into healthcare settings and for use as self-tests can revolutionise testing protocols, reduce late diagnoses, provide cost effective testing solutions for the general population and engage hard to reach key populations. Ultimately budgets can be spread further through far lower delivery costs and immediate diagnosis.

Their aim is to bring cost effective, straightforward, fast and accurate self-testing for disease to the mainstream.

BioSure (UK) Ltd are the manufacturers of the first CE marked HIV Self-Test for personal use. Since launching our BioSure HIV Self-Test in 2015 our products have helped people throughout the UK and the world.

In 2021 BioSure (UK) Ltd launched the first Covid-19 IgG Antibody Self-Test onto the market and are continuing to develop new self-tests for different diseases.

In terms of opportunities for **care-tech**, a Care Technology Landscape Review report prepared for Future Care Capital (FCC), an independent charity shaping the future of health and social care, recommends that a distinct programme should be developed to capitalise on emerging technologies and ways of working. This should begin with collaboration with key partners to better understand how to enable the development of a wider care technology ecosystem and begin to explore the challenges in care which need to be addressed. Once this is in place, more coordinated, targeted intervention support should be implemented to help grow the sector and encourage the emergence of a greater number of new solutions helping to provide higher quality care (Future Care Capital, 2021).

It is clear that good quality start-up space dedicated to med-tech and care-tech development would be of benefit for Essex, ideally as part of a thriving ecosystem with co-working spaces which allows start-up founders to connect with other founders and share thoughts about how to overcome technical and commercial problems they may be facing (Espinal, 2021).

There are currently no bespoke facilities in Essex that seek to provide an ecosystem to support the development of products and services in the care-tech sphere, however a consultancy study is underway which will help identify the feasibility of a Colchester care-tech hub. Proposals centre around the development of bespoke physical care settings/surgeries/social prescribing spaces, providing live working care environments for companies to test and develop their care-tech technologies. The proposal refers to the number of care-tech companies already in the area or looking to locate in north Essex but requiring practical support to enable growth. The project will support innovation-led growth, by strengthening links between academia and innovative businesses and seeks to develop a 'cluster' or innovation ecosystem to specifically support the care-tech sector. The proposal highlights **close links to the University of Essex**, which is a national centre of excellence in data analytics, augmented and virtual reality and robotics. A possible outcome of the proposal is a technology hub, but it could be a simpler outcome of **trialling some of the technology in existing care environments**.

Equalities Considerations

- Nationally, **48 per cent** of those in a 'natural and social sciences professional' occupation are female (ONS, 2019)
- In terms of working hours, females also make up **44 per cent** of full time roles and **72 per cent** of part time roles (NOMIS, 2020)
- In Essex we estimate there are **5,000** people employed the Life Sciences SIC code group
- Applying the national per cent distribution between genders we can assume there are approximately **2,400** women employed in the energy sector in Essex.

Commercial accommodation requirements

We have assessed the likely accommodation requirements that businesses in the growth sectors will need in the future. This considers: the type of accommodation required; the key supply chain activities that will require it; the typical occupier requirements; existing skills and innovation assets; and key locations for potential growth. Please note that the commentary below does not consider business accommodation for professional services within the supply chains (e.g. architecture and engineering services supporting the construction supply chain).

Construction and retrofit

Whilst many construction components may continue to be imported from abroad and much of the construction workforce will continue to be home-based, the projected growth in construction and retrofit activity will likely increase the need for retail warehousing/trade counter spaces, warehouses and open storage land. Retrofit activity is likely to be spread across the county in proportion to the number of properties. Essex already has a number of existing construction skills and innovation assets spread across the County, including the i-Construct centre in Braintree, the Construction Skills Centre at Harlow College, and the College Construction Centres in Basildon and Chelmsford.

Essex's four Garden Communities will provide over 30,000 new dwellings in the coming decades, although this is a fraction of the total housing need across the County (over 8,000 new homes per annum). As the industry shifts towards Modern Methods of Construction (MMC), large factories may be required for off-site assembly. Essex already has three such facilities (Swan Housing's light gauge steel modular factory in Basildon, Swan Housing's cross-laminated timber modular factory in Basildon, and Weston Homes' British Offsite factory in Braintree) – but more will be required to meet projected growth. Given the land-hungry nature of MMC factories, they may be more easily accommodated as part of large new employment areas such as those within the Garden Communities.

Clean energy

Power generators in the clean energy sector will need sites with access to and capacity within the energy distribution network, and waterside locations will be required for nuclear and offshore wind. Existing energy skills and innovation assets include the Galloper Wind Farm operations based in Harwich and the Harwich Energy Skills Centre. There is potential for further growth in offshore wind from the southern North Sea as well as hydrogen production and distribution associated with Freeport East.

Light industrial space will also be needed for the operation and maintenance of generation and distribution infrastructure. The south of the County, where development densities are higher, may support more District Heat Networks. The middle of the County, which is more rural but has moderate agricultural quality, may accommodate more solar farms.

Advanced manufacturing and engineering

The advanced manufacturing and engineering sector needs a wide variety of sizes and types of business accommodation for component manufacture and assembly operations, but most will benefit from sites with good access to the strategic road network and public transport interchanges and adequate utilities capacity. Existing skills and innovation assets include the Ford Dunton Campus in Basildon, the STEM Centre in Braintree, and the Harlow Advanced Manufacturing and Engineering Centre. Many highly qualified employees already work in Basildon, Braintree, Chelmsford, Harlow and Maldon.

Research facilities will also be needed for the design, testing, and commissioning of new products and smaller-scale production processes. Teaching spaces and conference facilities can be important forums for knowledge-sharing and collaboration with partners. Anglia Ruskin University in Chelmsford and University of Essex in Colchester provide relevant skills and innovation infrastructure, and clusters of high-tech companies are already established along the A127 in Basildon, at Knowledge Gateway in Colchester, EOS in Braintree, and MODUS in Harlow. There may be the potential to develop Innovation Districts within larger town centres and existing employment areas as their uses continue to diversify.

Digi-tech

Most Essex businesses will benefit from futureproofed broadband access such as Fibre to the Premises and 5G, and the Superfast Essex programme works with operators and central government to make superfast and ultrafast broadband available to as many businesses across Essex as soon as possible. Businesses that design, develop and test software require a highly qualified workforce – and teaching spaces and conference facilities can be important forums for knowledge-sharing and collaboration with partners. The Essex & Hertfordshire Digital Innovation Zone is a partnership including the districts of Harlow, Epping and Uttlesford that supports innovations such as smart city technologies and the Internet of Things, as well as digital inclusion projects.

Supercomputing facilities are typically required close to Big Data generators such as those within the UK Innovation Corridor and require secure buildings with controlled environments and the ability to transfer large volumes of data to and from data centres at high speed. The NVIDIA Cambridge-1 supercomputer is located at Kao Data Park in Harlow, and forms part of the University of Cambridge Light Blue Fibre network.

Essex has a number of existing skills and innovation assets relevant to this sector, including the Centre for Digital Technologies in Basildon, Institute for Analytics and Data Science at University of Essex in Colchester, and USP College Centre of Excellence for Digital Technologies on Canvey Island. Town centres and high streets, with their excellent connectivity and amenities, could accommodate SME's and larger companies in this field. South Essex is part of the Thames Estuary Production Corridor.

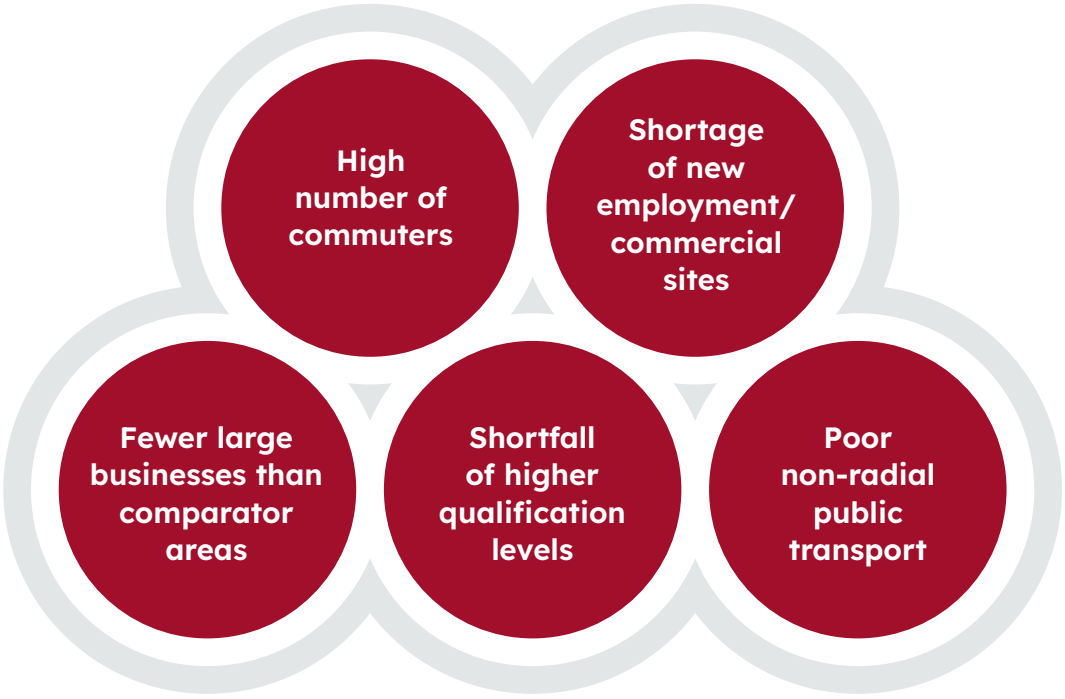
Life sciences (including Med-tech and Care-tech)

Businesses that design, test, and commission new products within the field of life sciences typically require controlled environments for different types of laboratories such as wet labs, microbiological/ clinical labs, and in vivo labs. They require a highly qualified workforce, and teaching spaces and conference facilities can be important forums for knowledge-sharing and collaboration with partners. CareTech businesses report a shortage of environments for testing their products, ranging from private dwellings to independent living developments and care homes.

As well as a large workforce at Chesterford Research Park, Essex has a number of skills and innovation assets relevant to this sector including the Cell & Gene Therapy Catapult Vaccines Manufacturing Centre in Braintree, Anglia Ruskin University in Chelmsford, Essex Biomedical Sciences Centre at the University of Essex in Colchester, the Centre for Health and Social Care Professionals in Colchester, and Arise Innovation Hub in Harlow. The UK Health Security Agency headquarters is also planned to be located in Harlow. There may be the potential to develop Innovation Districts within larger town centres and existing employment areas as their uses continue to diversify.

Our track record

To date, our role in shaping the economy of the county has been limited by systemic challenges in areas such as skills provision and infrastructure development, where the structure of local government and the wider public and private sectors has not supported joined up working. As a result, Essex faces a number of challenges that stand in the way of progress towards a stronger, more inclusive, and more sustainable economy:



- Essex has a **higher number of commuters** to other employment areas (pre-pandemic – and there is uncertainty to what extent these commuters will return to the same patterns)
  - Results from Cambridge Econometrics forecasts for Essex show that, across the county and its large urban areas, relative to pre-Covid levels, there is expected to be a notable decrease in the number of workers commuting to their workplace more than 50 per cent of the working week (Cambridge Econometrics, 2021)

- There are a **dearth of new employment/commercial sites** coming through compared to the scale of planned housing growth

- We have **fewer large businesses than comparator areas**, many of which are foreign owned thereby reducing the financial benefit retained within the county

- Essex falls well **short on higher qualification levels** compared with the national and South East averages

- There are **poor non-radial public transport** connections to local areas of growth like Harlow.

These challenges are further highlighted when Essex's position is analysed in comparison to the rest of the UK. The Confederation of British Industry (CBI) have produced a growth analysis paper Reviving Regions (Confederation of British Industry, 2020) that shows three of the 4four Essex growth corridors are 'losing ground' to the national average across 16 measures (full detail provided at Annex A).

The table shows Essex split into the four recognised growth corridors and for each of the 16 measures scores Essex as green (better than national average), amber (level with the national average), or red (worse that the national average). From this we can see there are clear weaknesses pan-Essex in R&D investment, in-work training, and commuting time. It is fair to allocate some of these issues as result of the pandemic, but others are persistent issues that pre-date March 2020. For example, in 2018 the Essex Economic Commission identified the relative lack of large firms in Essex, driven by a lack of Foreign Direct Investment (FDI), as a key impact on both the number and skill/pay level of jobs in Essex.

Districts	Haven Gateway	West Essex	Heart of Essex	Essex Thames Gateway
Household income [1]	Level	Better	Better	Better
Employment rate [2]	Worse	Better	Level	Better
Deprivation index (lower = better) [3]	Level	Better	Better	Better
Life satisfaction index [4]	Worse	Better	Better	Better
Productivity [5]	Level	Better	Better	Better
Schools above standard [6]	Level	Level	Level	Level
Graduates in workforce [7]	Worse	Better	Level	Worse
In-work training [8]	Worse	Worse	Worse	Worse
Broadband speed [9]	Worse	Better	Worse	Worse
Commute time (lower = better) [10]	Worse	Worse	Worse	Worse
Home working index [11]	Worse	Better	Better	Level
Median house prices (higher = better) [12]	Level	Better	Better	Better
R&D per head (Essex) [13]	Worse	Worse	Worse	Worse
Innovation activity (East of England) [14]	Level	Level	Level	Level
High growth firms [15]	Worse	Better	Worse	Better
Export intensity [16]	Worse	Better	Worse	Better

Better than national average
Level with the national average
Worse than the national average

Table 1: Analysis of the CBI report 'Reviving Regions' comparing Essex to national averages.

While this remains an issue (Essex has a higher proportion of micro businesses than the national average, with over 90 per cent of all businesses having fewer than 10 employees), smaller businesses often have agility and an ability to quickly re-pivot to take advantage of new market opportunities (Cooper, 2020). Tapping into this agility, especially with regard to green growth opportunities, will be a focus for the recommendations of the strategy.

HE qualifiers by subject, 2018/19 – South East

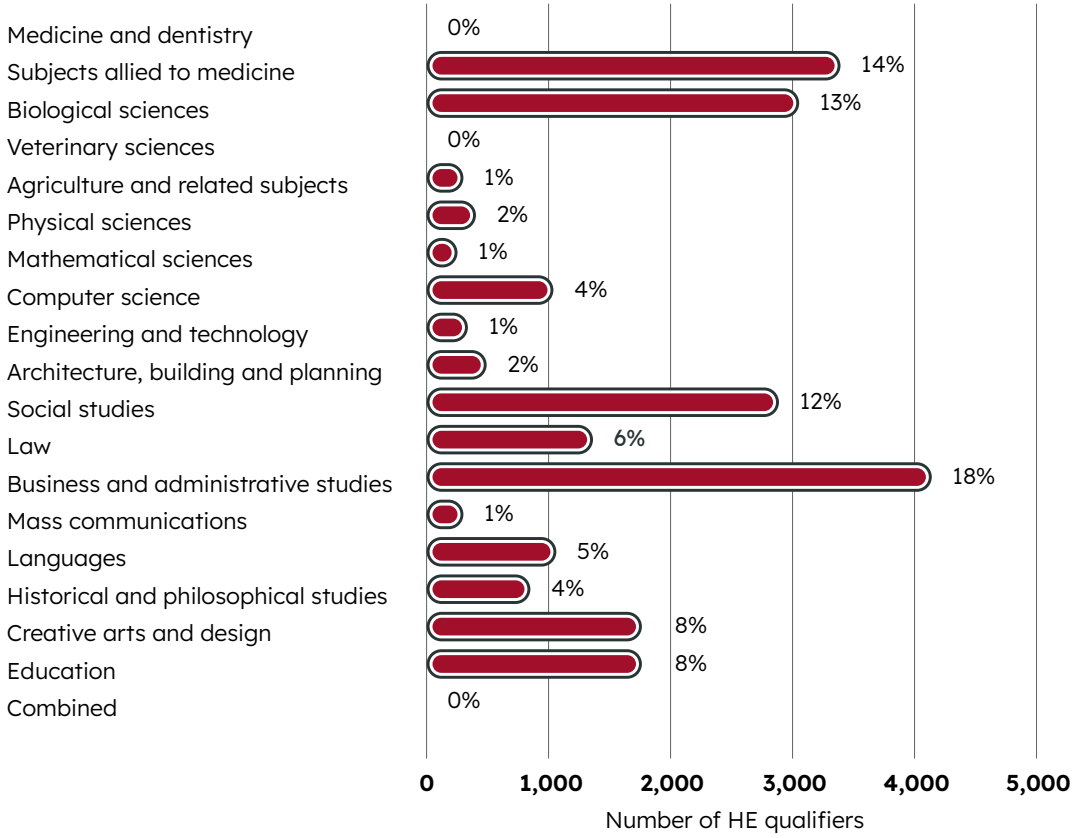


Figure 3: Table showing graduates from higher education in the South East. Source: HESA, 2018/2019 qualifiers (published 2020), 2020 SAP boundaries.

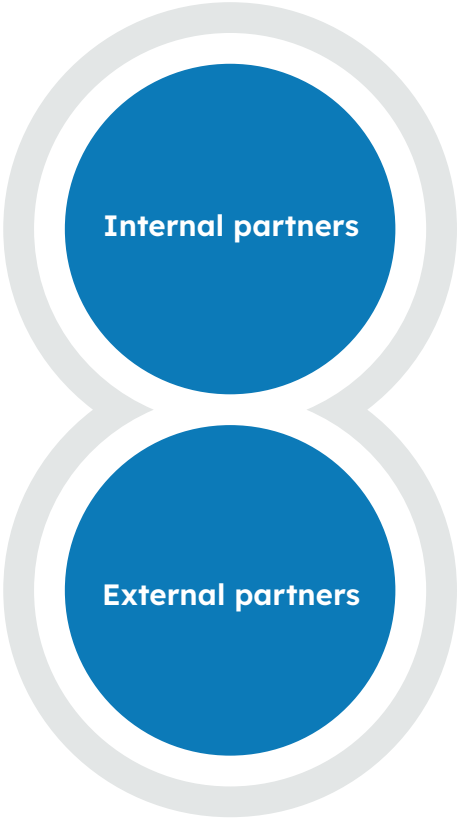
We also know that we need to do more to align our skills and training offer to the needs of our future sectors, and to increase the proportion of those gaining qualifications equivalent to NVQ Level 4 and above – as an example, just 1 per cent of graduates across the South East have an engineering and technology degree. Given what we know about our future skills needs within our key sectors we need to work together to align priorities and encourage more of our residents to aspire to work in these areas.

Apprenticeship achievements

Generally, apprenticeship sector subject areas in the SELEP area as similar to those nationally. There are slightly higher percentages in business, administration and law (31 per cent compared to 29 per cent) and health, public services and care (24 per cent compared to 23 per cent). Positively, 15 per cent are in engineering and manufacturing which is a key sector for SELEP. Looking at sector needs, it would be positive to see higher percentages in other areas such as construction.

Our role in sector development and change -making partnerships

Essex County Council has taken a lead in developing this strategy based upon firm evidence from a number of sources detailed in the references section of the document, but we cannot do this alone; the success of the strategy will rely on a multitude of partners to deliver it across Essex.



Internal partners

The sector development work includes strong links to a number of ECC work-streams and strategies: the new **ECC Skills Strategy**; the emerging **Digital Strategy**; the new **Inward Investment Strategy**; and the **Marketing Essex Initiative** currently under development to name but a few. We have worked, and continue to work, alongside colleagues to support the delivery of our wider goals for environmental sustainability in line with the recommendations from the **Essex Climate Action Commission** [5].

5. https://www.essex.gov.uk/climate-action

This will enable the **Sector Development Strategy** to form part of a suite of documents which will set out how the future economy of Essex will be driven forward in an inclusive and ambitious way to achieve a more prosperous and sustainable county for the people and businesses of Essex.

Case study: Leveraging public sector spend in adult social care in Essex to support the care-tech sector

Essex County Council spends more than **£500 million** delivering care to the most vulnerable across the county every year. This budget covers support to approximately **16,000 adults** of which the majority are older people, but also includes over 4,000 people with learning disabilities, over 2,000 people with physical or sensory impairments and over 700 people with mental health needs.

On of the biggest challenges facing the council is that demand for care is growing, with the population of older people in Essex expected to grow by **21 per cent** over the next decade with those aged over 85 expected to grow **by more than 60 per cent.**

Working with the Adult Social Care function within ECC to deliver the best possible service to our residents and meet rising demand is therefore a priority. Using this significant spending to invest in the care-tech sector and maximise the efficiency and effectiveness of the service, while at the same time supporting the growth of a nascent sector that will bring economic benefits to Essex is a significant opportunity. The Adult Social Care service recognises the important role care technology can play in helping to achieve its vision for every adult to be able to live as independently as possible and to enjoy a good and meaningful life. ECC has commissioned the services of Millbrook to work in a strategic partnership with the wider health and social care system across Essex. The aim of the partnership is to deliver and embed a cultural change programme that uses care technology as a first line of response in meeting eligible care need and in preventing, reducing, and or delaying, the escalation of that need.

External partners

A whole system approach will be crucial in tackling the issues highlighted in the 'Track record' section and making the most of assets we have as a county. We have taken a holistic view in looking across the county to assess our strengths and where the opportunities lie rather than concentrate on individual areas and districts, and have engaged with partners across the public sector, academia, and private sectors in Essex to develop this strategy, as well as national and regional representative organisations.

The Government's **net zero strategy: Build Back Greener** highlights the scale of the economic opportunity across the county that green growth hopes to bring:

Sector	Jobs supported by 2024/5	Jobs supported by 2030
Power	59,000	120,000
Fuel supply	-	10,000
Industry	5,000	54,000
Heat and buildings	100,000	175,000
Transport	22,000	74,000
National resources and waste	2,000	2,000
Total	**190,000**	**440,000**

Table: Estimates of jobs supported in net zero strategy pathways from the Government's net zero strategy (BEIS, 2021).

Taking the strategy forward and capturing Essex's slice of this opportunity will only be achieved if done in partnership, with a shared and collective responsibility. We can start already by harnessing the spending power of the public sector in creating growth markets that are nationally in demand and which our businesses can tap into, such as the retrofit sector, where local businesses can develop the skills and ability to thrive in the wider economy.

£6.3m

Awared by ECC for decarbonisation grants

Case study: The role of the public estate in driving demand for the retrofit sector

Retrofit is key to de-carbonising the public estate nationally; with more than **300,000 properties** and a value of more than £500 billion on the national balance sheet; workplaces for thousands of public servants and the platform for millions of citizens accessing public services – by any measure, it's fair to say the UK public estate is significant, both in the scale of the challenges as well as the opportunity. Operating at such scale means we have a responsibility to be innovative and forward-thinking in how we manage our estate. While the built environment is a major contributor to greenhouse gas emissions and environmental impact, that also means there is huge potential for the changes we make to be a force for good – building back better and greener. Enhancing the sustainability of our built environment. We know the vast majority of the buildings we will need in 2050 have already been built, which means that, while net zero new-builds will play an important part, a major focus will be in retrofitting and de-carbonising existing buildings. ECC was awarded **£6.3 million** from Public Sector De-carbonisation Scheme grants in March 2021.

To meet the demands of this retrofit challenge a locally based qualified workforce will be required, along with Essex-based firms primed and ready to take on work as it comes forward – but at present this only exists at a fraction of the scale needed. There is therefore a role for ECC as a local authority to work with central government and a network of partners to provide confidence in the retrofit market and to kickstart the move to de-carbonising our buildings, lowering emissions, and growing the retrofit business and skills base within the county. By leveraging the scale of the retrofit need for the public sector to directly train and fund local businesses to take on the work, we can create a circular economy where those trained and given work through this process will have transferable skills and experience to take back to the private sector. This will help Essex to be at the forefront of wider retrofit in commercial and domestic setting and keeping jobs local and the money spent within the Essex economy.

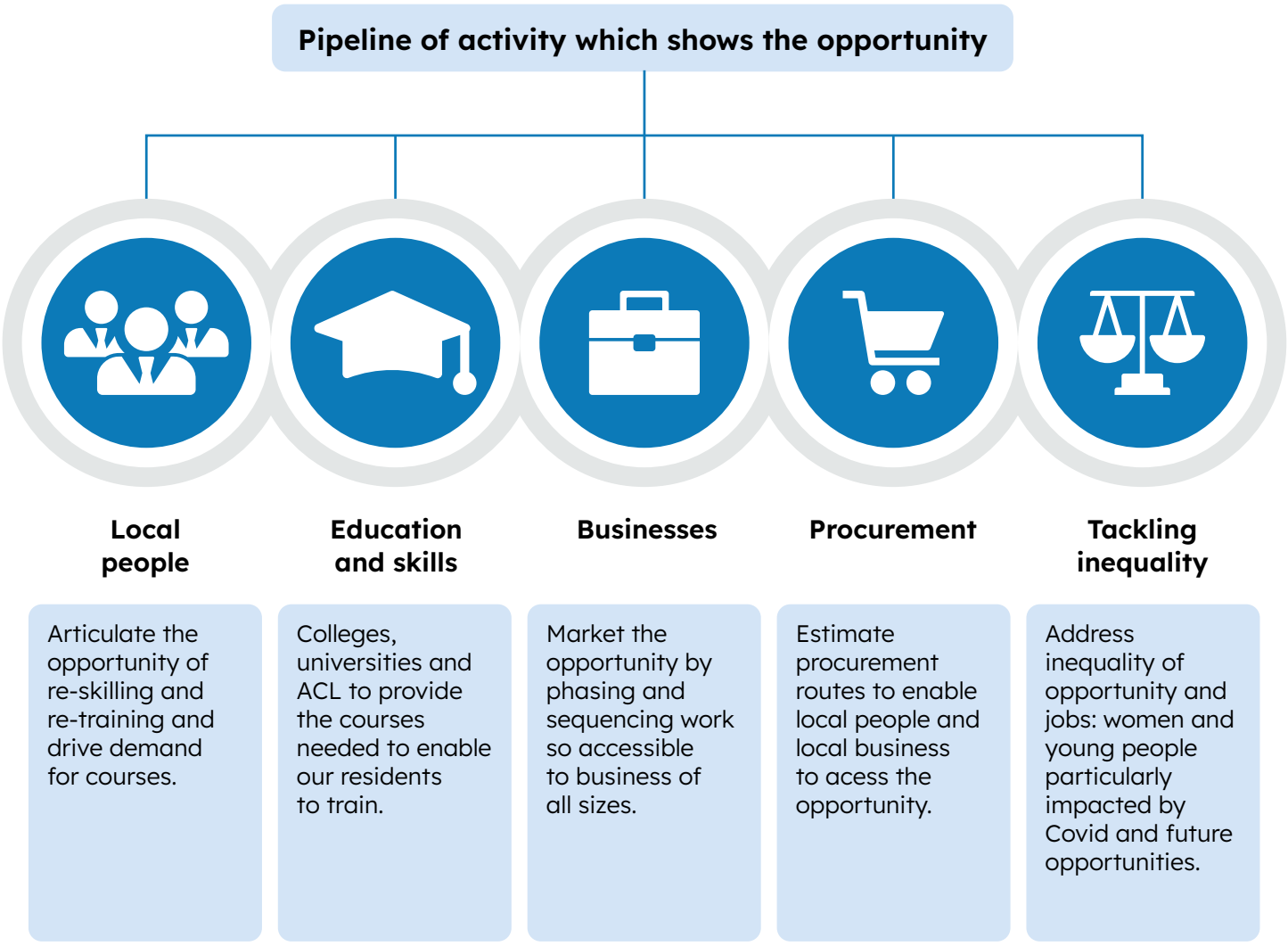
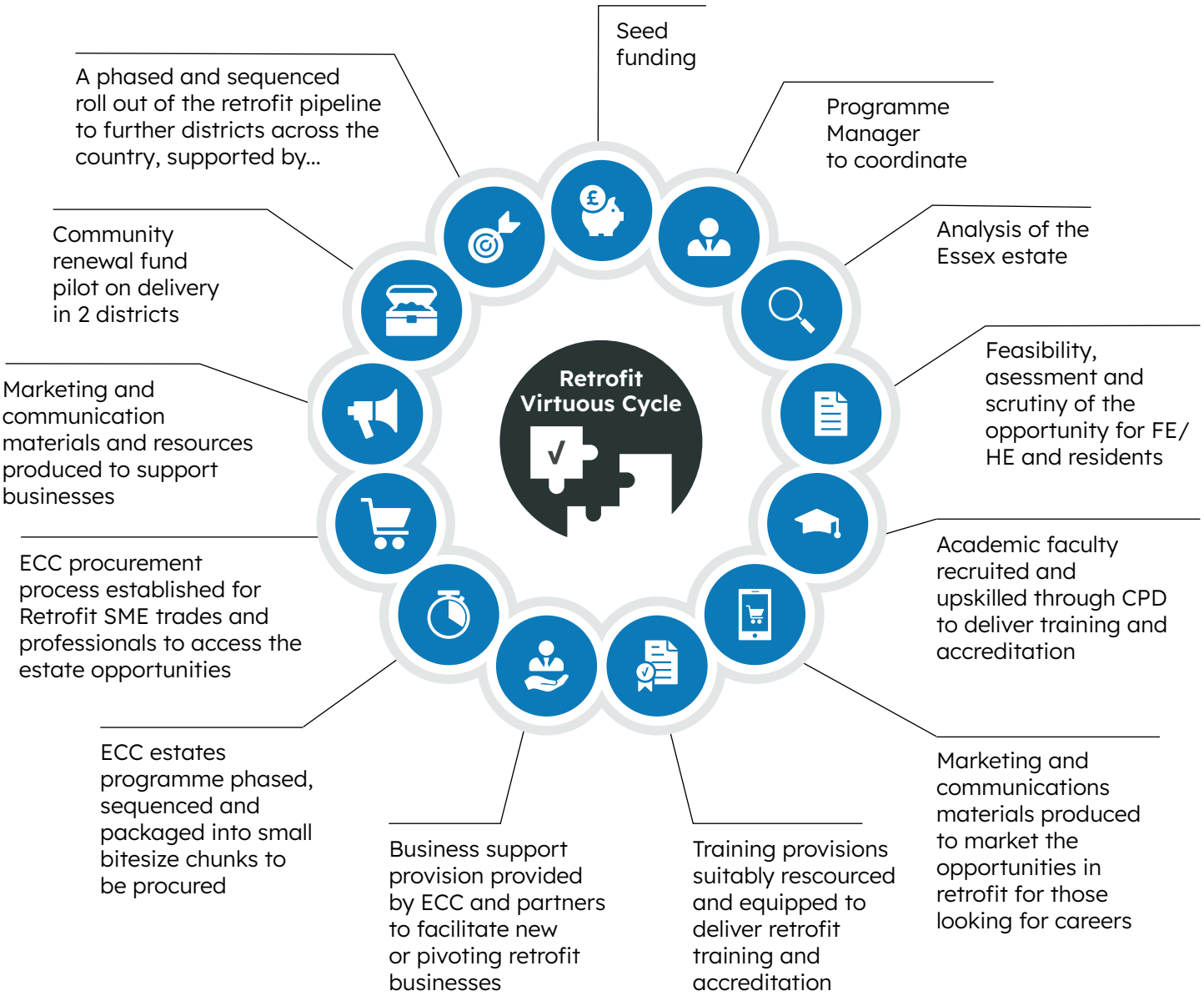


Figure 4: Retrofit opportunity available by driving market demand.

ECC has a role to play in articulating this market and with investment, both monetary and in resource, by working with partners, ECC can help aid and kickstart the retrofit market and grow the sector within the county – and create a virtuous circle:

Figure 5: The Retrofit virtuous circle



Our sector development strategy

The Sector Development Strategy will be a driver of growth in jobs and productivity within five sectors, but to also be a key contributor to our wider goals for the whole economy to become more innovative, inclusive, and sustainable. There are specific opportunities for our sector work to contribute to:

These opportunities just like the sectors that we can grow to deliver them, are not stand-alone entities but interdependent and mutually reinforcing. This means we cannot succeed by delivering one in isolation; for example, massive increases in productivity that cut directly against our sustainability ambitions is not an outcome we can accept. We must act on them all in concert to enable the benefits of each, in a virtuous circle.5

Strategic goal 1: A thriving economy

Making Essex a centre of innovation and entrepreneurial spirit where the benefits of this growth are felt within the county rather than elsewhere

Essex has a rich history of technical innovators including Marconi and Sir Charles Kao, and innovations such as the Bentall Plough, the discovery of Argon, and the development of digital colour photography. Building on this legacy of innovation is key priority for the strategy, as in recent times Essex has consistently struggled to perform as well as comparable areas in traditional measures of productivity – peer areas such as Hertfordshire, Surrey, Suffolk, and Berkshire outperform Essex in terms of GDP per head as below:

County	GDP per head 2018
Essex	£26,092
Berkshire	£49,454 (+89% more than Essex)
Surrey	£39,401 (+51%)
Hertfordshire	£36,178 (+39%)
Suffolk	£27,414 (+5%)
Kent	£25,424 (-2%)

Table 2: GDP per Head (2018) for Essex and comparator county areas (source: ONS).

If Essex is to achieve its ambition to match and outperform its peers in terms of economic performance, businesses must embed innovation as part of their growth strategy. If we are able to support local Essex businesses to innovate and commercialise that innovation, it will also support the realisation of financial benefits into the pockets of Essex residents.

Essex County Council and other anchor institutions can take a leading role in driving this innovation culture, though it is the businesses themselves that will deliver the productivity growth. It is proven that businesses that innovate are more likely to grow in terms of (Higon & Driffield, 2011):

- **Productivity** (output per employee)
- **Business size** (finite financial metrics)
- **Employment** (employee metrics)
- **Exports**

One of the main barriers to embedding innovation in local businesses is that Essex has historically underperformed in terms of gaining innovation funding. Innovate UK provides figures on funding received by Local Enterprise Partnerships – the following table compares SELEP with other LEPs on a per business basis:

LEP	IUK Grant/ business 2016/17	IUK Grant/ business 2017/8	IUK Grant/ business 2018/19	IUK Grant/ business 2019/20	IUK Grant/ business 2020/21
SELEP	£98.52	£163.82	£149.56	£80.18	£56.84
New Anglia	£83.21	£72.98	£62.27	£135.37	£54.46
Hertfordshire	£123.21	£181.38	£167.84	£106.22	£145.06
Thames Valley Berkshire	£195.75	£410.81	£233.48	£186.62	£200.19
Enterprise M3	£266.38	£246.15	£268.70	£166.60	£155.07

Table 3: Source ONS/IUK

Outcomes

To embrace the innovative and entrepreneurial spirit of Essex to generate transformational economic growth, the outcomes this strategy seeks to deliver are:

1. Increased employment across the 5 sectors

2. Increased R&D funding per head to competitive levels with peers and enabling local SME's to access

3. A choice business of accommodation in strategic locations across the county to make the most of local assets and get the right growth in the right place

4. Quality commercial premises that meet the needs of the growth sectors and building clusters that foster innovation

5. A digital enabled business community that can take full advantage of innovation and technology to build competitive advantage and grow their business

6. Provide all citizens with the skills and confidence to use online tools and take advantage of digital services and employment opportunities irrespective of their financial, educational, or social status.

Strategic goal 2: An economy for everyone

Ensuring every resident of Essex has the opportunity to gain the skills and experience to succeed in the future economy regardless of their background and identity

An effective skills system is one where skills planning and provision reflects the current and future skills needs of the economy, giving all individual learners and employers the best possible chance of realising their potential. Developing this will require close collaboration between skills providers and businesses to develop tomorrow's workforce, to improve the industry-relevance of qualifications, enhance awareness of career opportunities and support capital investment in delivering Further and Higher Education capacity.

The post-Covid recovery of the Essex economy is expected to be uneven. According to projections from Cambridge Econometrics, some areas of Essex are not expected to reach pre-Covid levels of growth until at least 2030 (Cambridge Econometrics , 2021). We have chosen our sectors of the future based on the needs of the future, the potential for growth, and the benefits they will bring to Essex. There is, however, the potential for certain groups to miss out on this growth – including women. For example, Construction is projected to have large amounts of growth in the near future – yet only 2 per cent of those in skilled construction and building occupations are female. Automation is also likely to have an uneven impact, particularly for women – with 70 per cent of jobs at high-risk of being automated being held by women (Office of National Statistics, 2019). This makes it even more crucial that Essex is able to harness the sectors of the future and ensure that women and other under-represented cohorts are well-represented within them.

The Success Essex Prosperity and Productivity Plan (2019) highlights that the county's skills profile is improving, as new, better-qualified entrants to the labour market gradually replace those who leave. However, only around 35 per cent of the workforce in the Essex County Council area are qualified to NVQ4 or higher, compared with 43 per cent in Great Britain as a whole, and around 45,000 people have no formal qualifications at all (NOMIS, 2020). These county-wide figures mask significant divergence, with particular shortfalls in coastal districts such as Tendring and Castle Point – tackling the underlying causes of this disparity, accounting for variations in demography, is a clear priority.

Qualification level by area

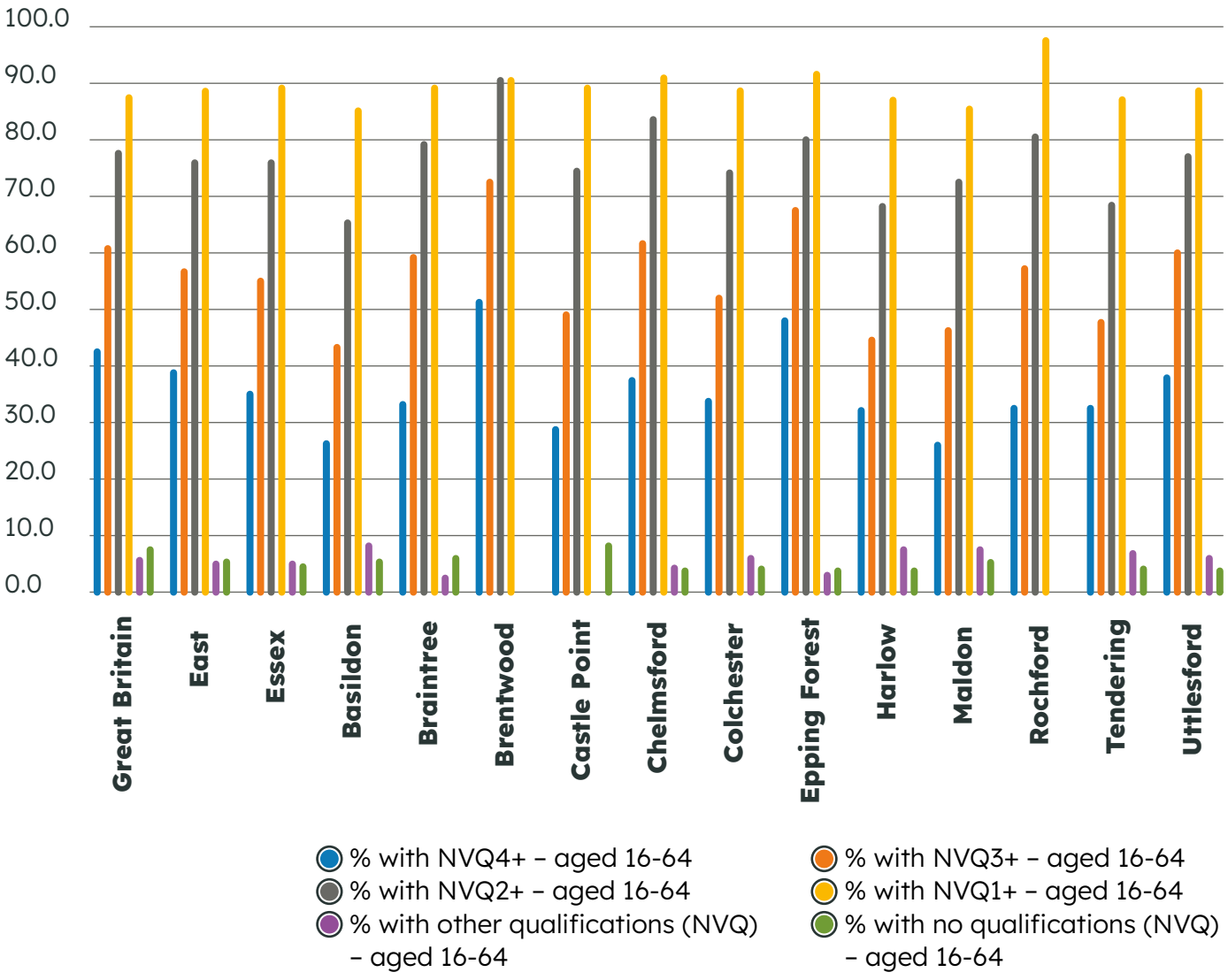


Figure 5: A graph showing the qualification levels by Essex District (NOMIS, 2020).

In aggregate, there is also a net outflow of more highly skilled workers to job opportunities elsewhere. This reflects Essex's proximity to London (and the wider Greater South East), which is itself an asset and a location rationale for many people in the first place – but prevents the value generated by these jobs from being fully captured within Essex:

District	Top inflow	Top outflow	Net flow
Basildon	Thurrock	London	-147
Braintree	Colchester	Chelmsford	-16,525
Brentwood	Basildon	London	-2,351
Castle Point	Southend	Basildon	-16,103
Chelmsford	Braintree	London	-3,825
Colchester	Tendring	Tendring	-1,814
Epping Forest	Harlow	London	-14,097
Harlow	East Herts	Epping Forest	-10,624
Maldon	Chelmsford	Chelmsford	-554
Rochford	Southend	Southend	-7,250
Tendring	Colchester	Colchester	-14,025
Uttlesford	Braintree	East Herts	-458

Source: 2011 Census

Our research undertaken with Essex businesses to explore what they need in the short, medium, and long term to expand further, and where relevant to diversify into growth sectors in Essex highlighted a number of key findings in relation to skills challenges. The starkest of those was that **workforce and skills is shown to be the highest barrier that might prevent their business from growing in the next five to ten years.** The majority of businesses in Growth Sectors expected their business and staff numbers to grow but also cited finding recruits with the right skills as a barrier (QA Research & Ortus Economic Research, 2021).

Outcomes

To tackle these underlying issues and build a more inclusive economy full of equal opportunity, the outcomes this strategy seeks to deliver are:

7. A skills system aligned to the local employment market across the whole of the county, taking into account regional differences

8. A clear understanding and collaborative approach between the whole school system, HE and FE, other skills providers, local government, anchor institutions, and employers towards the skills needed for employment in the 5 growth sectors

9. Clear pathways of employment from traditional sectors into the 5 growth sectors

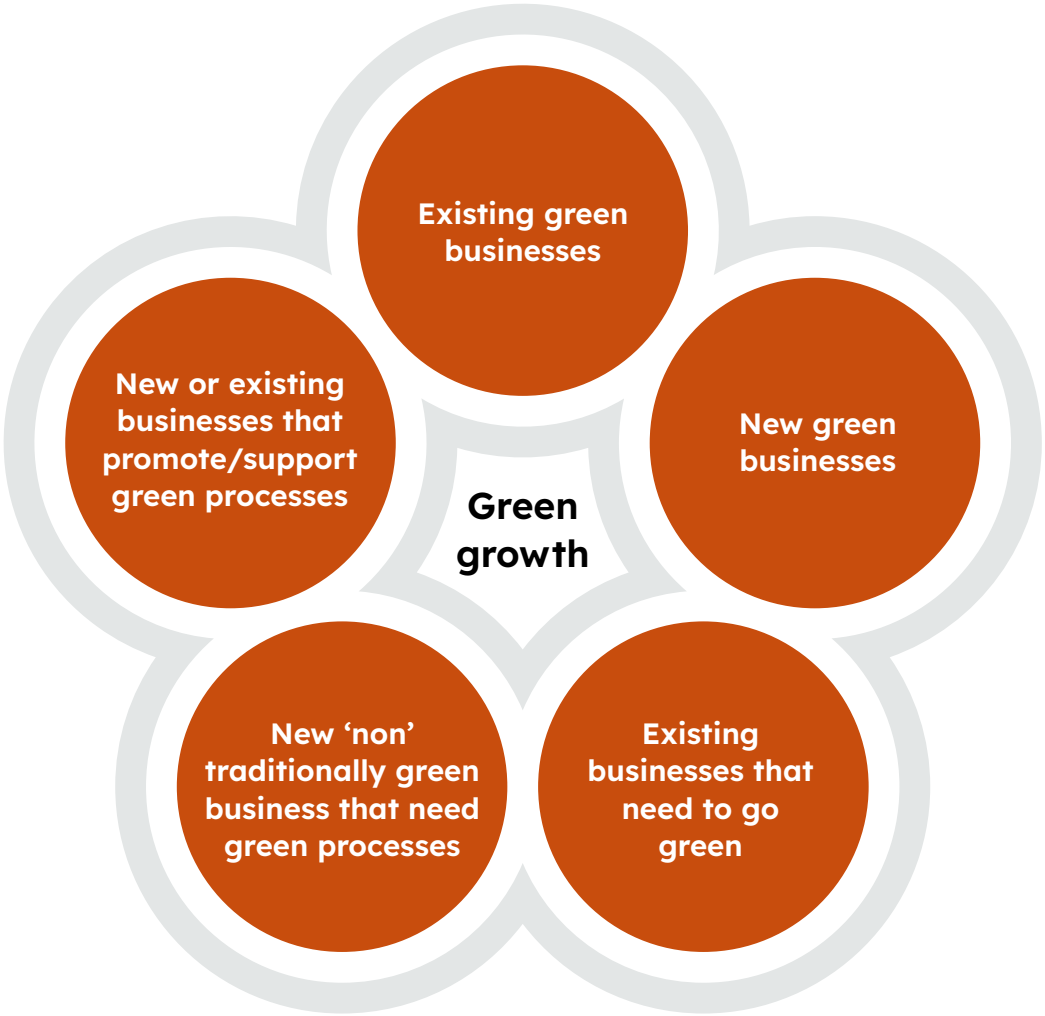
10. Equality of opportunity within our in growth sectors.

Strategic goal 3: An economy fit for the future

Making green growth intrinsic to all future growth to ensure we meet our target for a net zero county by 2035

Green growth will be crucial to the future of every economy and in line with national policy and global thinking we are clear that Essex will play its part. It is not only a matter of growing 'green' sectors as an individual part of the economy – **we will need to make every part of the economy as sustainable as possible**, from the largest corporation to the smallest local business in order to meet our ambitious net zero targets and deliver the massive potential in jobs and investment.

Our definition of 'green growth' promotes all activities, businesses, jobs, and processes that reduce or avoid detriment to our environment or natural resources, and those which actively seek to redress the balance. This includes being on the front foot with identifying and reporting on our own emissions (both direct and indirect) all the way through the value chain (Scope 3) and supporting partners and businesses to do likewise. All Essex based businesses have a responsibility to play a role in building a green circular economy, through their supply chains and through the manufacture or delivery of products and services:



Our recent research with over 600 growth sector businesses shows that the nearly half of Essex businesses surveyed have either already taken action (42 per cent) or are planning to take action (41 per cent) to address their environmental footprint. (QA Research & Ortus Economic Research, 2021) Actions taken/planned include:

- **Monitoring and reducing energy usage 33/31 per cent**
- **Changed transport methods to ultra-low emissions methods 22/51 per cent**
- **Setting targets to reduce carbon emissions 15/27 per cent**
- **Installing clean energy generation solutions at business premises (eg solar PV, heat pump) 13/22 percent**

There are significant opportunities available to the businesses that are able to pivot to more sustainable practices and sectors – the Government Plan for Growth and Ten-Point Plan will mobilise **£12 billion of government investment nationally**, with potentially 3 times as much in the private sector to create and support up to 250,000 green jobs nationally. Initial modelling from Cambridge Econometrics suggests that a green recovery aligned to the UK Governments Ten Point Plan for a Green Industrial Revolution could support the creation of **84,700 jobs** and drive **£6.2 billion** of economic growth in Essex by 2030.

Outcomes

To capture these opportunities for Essex and embed a truly sustainable economy for the county the outcomes this strategy seeks to deliver are:

11. Reduced emissions in line with our ambition to become net zero

12. Decentralised and de-carbonised energy system

13. Sustainable new homes and a thriving retrofit sector to improve existing homes

14. Essex at the forefront of low carbon (solar, offshore wind, nuclear and hydrogen) energy development and employment

15. Harnessing innovation to reach our net zero ambitions.

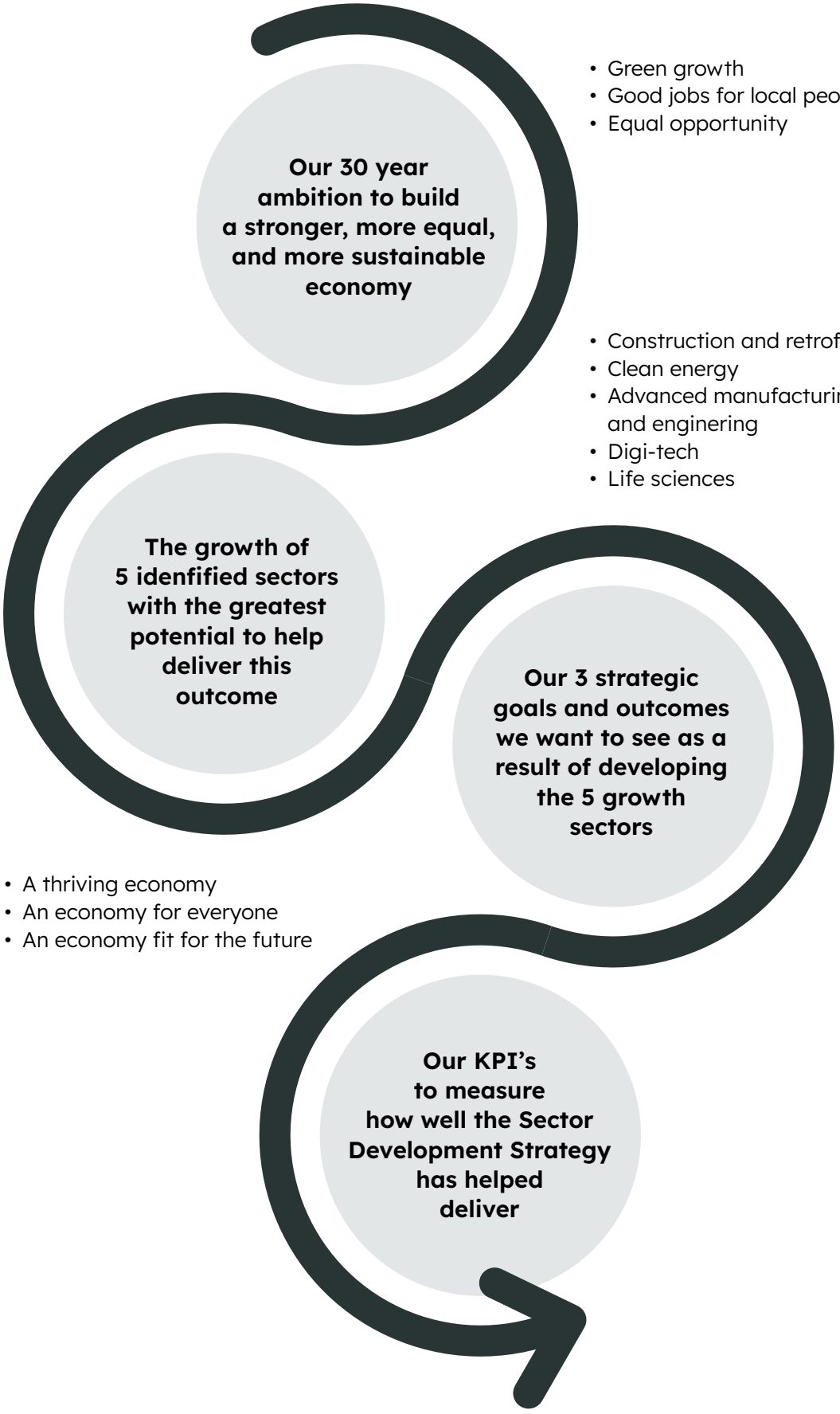
From theory to reality

While Essex County Council itself may not be the organisation primarily responsible for the delivery of all actions recommended by this strategy, we nonetheless need to track how the whole system is delivering against both our strategic goals and outcomes.

Throughout the strategy we have been clear that everything we do must support the creation of a stronger, more equal, and more sustainable economy that works for everyone. To that end we are also clear that the performance of the strategy feeds into the performance of the wider organisation and its delivery on the commitments in The Plan for Essex.

The connection between this strategy and our Levelling Up agenda is also crucial – understanding how we can deliver opportunities in the growth sectors of the future to the places in Essex that need them most is an important consideration for the actioning the recommendations of the strategy.

The Key Performance Indicators and recommendations of the strategy are set out in the separate Delivery and Action Plan.


Our 30 year ambition to build a stronger, more equal, and more sustainable economy
• Green growth
• Good jobs for local people
• Equal opportunity
The growth of 5 idenfified sectors with the greatest potential to help deliver this outcome
• Construction and retrofit
• Clean energy
• Advanced manufacturing and enginering
• Digi-tech
• Life sciences
Our 3 strategic goals and outcomes we want to see as a result of developing the 5 growth sectors
• A thriving economy
• An economy for everyone
• An economy fit for the future
Our KPI's to measure how well the Sector Development Strategy has helped deliver

Glossary

AI – Artificial Intelligence
Anchor Institution – A large, generally non-profit institution which relies on the locality it serves, such as an NHS trust, university etc.
AR – Augmented Reality
ARU – Anglia Ruskin University
CBI – Confederation of British Industry
CEBR – Centre for Economics and Business Research
CITB – Construction Industry Training Board
COP26 – 2021 United Nations Climate Change Conference
DIT – Department for International Trade
DIZ - Digital Innovation Zone
ECC – Essex County Council
EEFM – East of England Foresting Model
EGSS – Environmental Goods and Services Sectors
EPC – Energy Performance Certificate
ESA – European Space Agency
FEDEC - Federation of Essex Colleges
Freeport – A port where normal tax and customs rules do not apply
FSB – Federation of Small Businesses
GDP – Gross Domestic Product
GHG – Green House Gas
GVA – Gross Value Added
HMG – Her Majesty's Government
IUK – Innovate UK
LCREE – Low Carbon, Renewable Energy & Environment
LEP – Local Enterprise Partnership
LGA – Local Government Association
MHCLG – The Ministry of Housing Communities and Local Government
MMC – Modern Methods of Construction
NASA – National Aeronautics and Space Administration
NZIN – Net Zero Innovation Network
O&M – Operations and Maintenance
ONS – Office for National Statistics
POCT - Point of Care Tests
R&D – Research and Development
SME – Small and Medium-sized Enterprise
UKIC – UK Innovation Corridor
VR – Virtual Reality

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Annex A: CBI Analysis of Essex

Table 1 sources

It is important to note that each line of the CBI report is sourced individually and cannot be grouped.

[1] **ONS** – Gross disposable household income per capita.
[2] **ONS** – Employment rate for 16-64 year-old residents.
[3] **MHCLG** – Index of Multiple Deprivation Average Score.
[4] **ONS** – Life satisfaction index.
[5] **ONS** – Gross value added per hour worked in £.
[6] **DfE** – Percentage of schools categorised as above floor standard.
[7] **ONS** – Percentage of 16-64 year-olds population with NVQ4+.
[8] **DfE** – Percentage of firms offering management training.
[9] **Ofcom** – Median download speed in megabits per second.
[10] **ONS** – Usual home to work travel time in minutes.
[11] **CBI** – Index of ability to home work.
[12] **ONS** – Median price paid (all house types).
[13] **Eurostat** – Gross domestic R&D expenditure (GERD).
[14] **BEIS** – Percentage of businesses that are classified as innovation active.
[15] **ONS** – Pecentage of businesses that are classified as “high growth”.
[16] **ONS & HMRC** – Exports of goods and services as a per cent of gross value added.

Haven Gateway (Colchester, Tendring, Braintree)

According the CBI analysis of government data, the Essex Haven Gateway region has been classed as **below average and losing ground** – due to it being behind on the majority of metrics when compared to the East of England region.

In terms of economic and social outcomes, it is average in terms of household income, has a below average employment rate, is average on the deprivation index and scores one of the lowest for life satisfaction in the East of England.

Haven Gateway's local labour market has an average level of schools above standard, a low level of graduates in the workforce, and low levels of people in in-work training. The working age population is projected to grow by 5.1 per cent by 2030.

The accessibility of Haven Gateway is also lacking, with low broadband speeds, long commutes, a low level of people able to work from home, and average house prices compared to the rest of the East of England.

In terms of innovation, Haven Gateway has a low number of high growth firms, and very low intensity of exports.

West Essex: (Epping Forest, Harlow, Uttlesford)

According to the CBI analysis, West Essex is classified as **above average but losing ground** – on the majority of factors, West Essex does particularly well on the majority of metrics.

In terms of economic and social outcomes, West Essex has one of the highest household income levels in the East of England, a high employment rate, scores low on the deprivation index and has above average life satisfaction.

West Essex's local labour market has an average level of schools above standard, an above average level of graduates in the workforce, and a below average level of people in in-work training. The working age population is projected to grow by 2.8 per cent by 2030.

West Essex is a reasonably accessible and connected region, with average broadband speeds, a high commute time, a high level of people able to work from home and has some of the highest house prices in the East of England.

In terms of innovation, West Essex has the highest level of high growth firms in the East of England, and a high intensity of exports.

Heart of Essex (Brentwood, Maldon, Chelmsford)

The Heart of Essex is classified as **below average but gaining ground**, due to it being below average in many metrics, while others are above average.

In terms of economic and social outcomes, the Heart of Essex has a very high household income, an average rate of employment, and has the lowest deprivation score in the East of England. It also has a high level of life satisfaction.

The Heart of Essex's local labour market has an average level of schools above standard, an average level of graduates in the workforce, and a below average number of people in in-work training. The working age population is projected to increase by 2.9 per cent by 2030. The Heart of Essex is a reasonably accessible and connected region, with below average broadband speeds, the highest commute time in the East of England, a very high level of people able to work from home, and very high house prices.

In terms of innovation, the Heart of Essex has a below average number of high growth firms and has a below average intensity of exports.

Essex Thames Gateway (Basildon, Castle Point and Rochford)

The CBI analysis classifies the Essex Thames Gateway region as **below average and losing ground**.

In terms of economic and social outcomes, Thames Gateway has a slightly above average household income, and high employment rate, and has an average score on the deprivation index, it also scores highly on the life satisfaction index.

The Thames Gateway local labour market has an average number of schools above standard, the lowest level of graduates in the workforce in the East of England, and a below average level of people in in-work training. The working population is projected to grow by 2.9 per cent by 2030.

In terms of accessibility and connectivity, Thames Gateway has below average broadband speeds, one of the highest commute times in the East of England, an average level of people able to work from home, and high house prices.

In terms of innovation, Thames Gateway has a slightly above average number of high growth firms, and a very high intensity of exports.

Annex B: Essex all sector employment and GVA data

The full list of sectors in Essex measured by total employment and GVA contribution is shown below:

Industry	Essex employment	Essex GVA 2019(£m)
A: Agriculture, forestry and fishing	5,000	220
B: Mining and quarrying	250	33
C: Manufacturing	40,000	4,124
D: Electricity, gas, steam and air conditioning supply	450	250
E: Water supply; sewerage, waste management and remediation activities	5,000	648
F: Construction	46,000	5,461
G: Wholesale and retail trade; repair of motor vehicles and motorcycles	97,000	5,583
H: Transportation and storage	30,000	2,270
I: Accommodation and food service activities	41,000	1,226
J: Information and communication	20,000	1,551
K: Financial and insurance activities	17,000	1,890
L: Real estate activities	11,000	7,381
M: Professional, scientific and technical activities	52,000	2,820
N: Administration and support service activities	48,000	2,089
O: Public administration and defence; compulsory social security	18,000	1,640
P: Education	54,000	2,185
Q: Human health and social work activities	78,000	3,488
R: Arts, entertainment and recreation	15,000	569
S: Other service activities	12,000	677

Sources
Employment: ONS Business Register and Employment Survey 2019 data.
GVA: ONS Regional gross value added (balanced) by industry 2019 data.

Annex C: Sector definitions

The breakdown of how we have identified businesses (by SIC code) and occupations (by SOC code) in specific sectors is shown below:

Sector	Industry (SIC)	Occupation (SOC)
Advanced manufacturing and engineering	25: Manufacture of fabricated metal products, except machinery and equipment 26: Manufacture of computer, electronic and optical products 27: Manufacture of electrical equipment 28: Manufacture of machinery and equipment n.e.c. 29: Manufacture of motor vehicles, trailers and semi-trailers 30: Manufacture of other transport equipment	212 Engineering Professionals 2121 Civil engineers 2122 Mechanical engineers 2123 Electrical engineers 2124 Electronics engineers 2126 Design and development engineers 2127 Production and process engineers 2129 Engineering professionals n.e.c.

Sector	Industry (SIC)	Occupation (SOC)
Care	87: Residential care activities	61 Caring personal service occupations 612 Childcare and Related Personal Services 6121 Nursery nurses and assistants 6122 Childminders and related occupations 6123 Playworkers 6125 Teaching assistants 6126 Educational support assistants

Sector	Industry (SIC)	Occupation (SOC)
Construction	41: Construction of buildings 42: Civil engineering 43: Specialised construction activities	53 Skilled construction and building trades 531 Construction and Building Trades 5311 Steel erectors 5312 Bricklayers and masons 5313 Roofers, roof tilers and slaters 5314 Plumbers and heating and ventilating engineers 5315 Carpenters and joiners

Sector	Industry (SIC)	Occupation (SOC)
Construction continued		5316 Glaziers, window fabricators and fitters 5319 Construction and building trades n.e.c. 532 Building Finishing Trades 5321 Plasterers 5322 Floorers and wall tilers 5323 Painters and decorators 533 Construction and Building Trades Supervisors 5330 Construction and building trades supervisors

Sector	Industry (SIC)	Occupation (SOC)
Energy	35: Electricity, gas, steam and air conditioning supply	8124 Energy plant operatives

Sector	Industry (SIC)	Occupation (SOC)
Life sciences	21100: Manufacture of basic pharmaceutical products 21200: Manufacture of pharmaceutical preparations 32500: Manufacture of medical and dental instruments and supplies 72110: Research and experimental development on biotechnology 72190: Other research and experimental development on natural sciences and engineering 72200: Research and experimental development on social sciences and humanities	211 Natural and science professionals 2111 Chemical scientists 2112 Biological scientists and biochemists 2113 Physical scientists 2114 Social and humanities scientists 2119 Natural and social science professionals n.e.c.

Sector	Industry (SIC)	Occupation (SOC)
Telecoms and digital technology	61: Telecommunications 62: Computer programming, consultancy and related activities 63: Information service activities	213 Information technology and telecommunications professionals 2133 IT specialist managers 2134 IT project and programme managers 2135 IT business analysts, architects and systems designers 2136 Programmers and software development professionals 2137 Web design and development professionals 2139 Information technology and telecommunications professionals n.e.c.

Essex County Council

Where to go next

Below you'll find a whole host of links to help you take the next step on making your new dream career a reality:

Government Careers Service – https://nationalcareers.service.gov.uk/
Essex Opportunity Portal – https://www.essexopportunities.co.uk/
Essex Business Support – https://backingessexbusiness.co.uk/
Adult Community Learning Essex – https://aclessex.com/
Federation of Essex Colleges – https://www.federationofessexcolleges.org/
Essex Provider Network – https://essexprovidernetwork.com/

This information is issued by:
Essex County Council
Sustainable Growth

Contact us:
sector.development@essex.gov.uk
03330 135888

Sector Development Business and Innovation
Essex County Council
County Hall, Chelmsford
Essex, CM1 1QH

Essex_CC
facebook.com/essexcountycouncil

The information contained in this document can be translated, and/or made available in alternative formats, on request.

Published May 2022

If you'd like to know more about our plans for developing the sectors of the future and to read our strategy, scan this QR code: