

Addressing long term challenges in the Anglian Water region

An assessment of long term challenges in the Anglian Water region

July 2023

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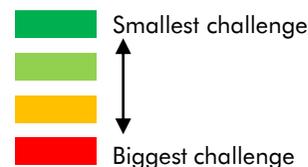
Executive summary

Anglian Water region faces a range of long term challenges, putting pressure on water supply

- Anglian Water provides services to a large and diverse area of England, spanning four regions: East of England, South East, East Midlands and Yorkshire and The Humber.
- The region that Anglian Water operates in, referred to as the 'Anglian Water region' in this report, faces a number of challenges that water supply has some role in addressing over the next 30 years. We have developed an index to identify and quantify the long-term challenges facing the region. This framework enables an assessment of the relative severity of the challenges within the region and compared to other regions of the country.
- According to the index, the Anglian Water region faces the second greatest long-term challenges of any English region. Challenges are particularly pronounced for the nature & environment pillar.
- The Anglian Water region's lowest ranking is in the nature & environment pillar, suggesting relatively more acute challenges compared to other regions. Challenges include low tree cover, high agricultural land use, more instances of poor water quality, and high average distance to public green space.
- The Anglian Water region ranks eighth out of eleven for the climate change pillar. The metrics show that the Anglian Water region is the driest region and is one of the highest greenhouse gas emitters.
- The Anglian Water region also ranks eighth out of eleven on the economy & society pillar. A relatively large reliance on the agricultural sector for economic output presents a key challenge for water supply in the region.
- Water supply challenges can stem from growth. The Anglian Water region ranks fifth out of eleven on sustainable growth, meaning that the growth challenge for the region is not as severe as it is in six other regions of the country.

Index ranking of relative region challenges (1 = least challenges, 11 = most challenges)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable growth	Nature & Environment	
North East	2	11	1	1	1
South East	11	2	4	2	2
North West	1	9	3	3	3
South West	7	5	7	4	4
England	4	3	10	6	5
West Midlands	5	7	9	5	6
East Midlands	6	6	8	7	7
East of England	10	4	6	9	8
Yorkshire and The Humber	3	10	2	11	9
Anglian Water region	8	8	5	10	10
London	9	1	11	8	11



Source: Capital Economics

1. Overview of the Anglian Water region

- Anglian Water provides services to a large and diverse area of England, spanning four regions: East of England, South East, East Midlands and Yorkshire and The Humber.
- The region's largest sectors relative to their share of activity nationally are agriculture and manufacturing. It has smaller than average financial services, information & communication and professional services sectors. The largest sectors in absolute terms are wholesale and retail, real estate and manufacturing.
- Total employment in the Anglian Water region is 4.2 million, with higher than average shares employed in agriculture, manufacturing and energy activities.
- The Anglian Water region has a diverse economy and is one of the country's major centres for research and development (R&D) and clean energy. Other key sectors for the region's economy include agriculture, logistics, high-tech and advanced manufacturing.

Anglian Water region comprises twelve geographical areas which span four regions of the country

Anglian Water services a large area

Anglian Water provides services to an area covering roughly 11,900 square miles. The service area does not neatly align with administrative boundaries but incorporates parts of four regions: East of England, South East, East Midlands and Yorkshire and The Humber. Equally, Anglian Water provides different levels of service and coverage across the counties that it operates in.

For the purposes of this report, we define the 'Anglian Water region' as the counties of Bedfordshire, Buckinghamshire, Cambridgeshire, Essex, Norfolk, Northamptonshire, Nottinghamshire, Suffolk, Rutland, the non-metropolitan county of Lincolnshire, and the two unitary authorities of North Lincolnshire and North East Lincolnshire.

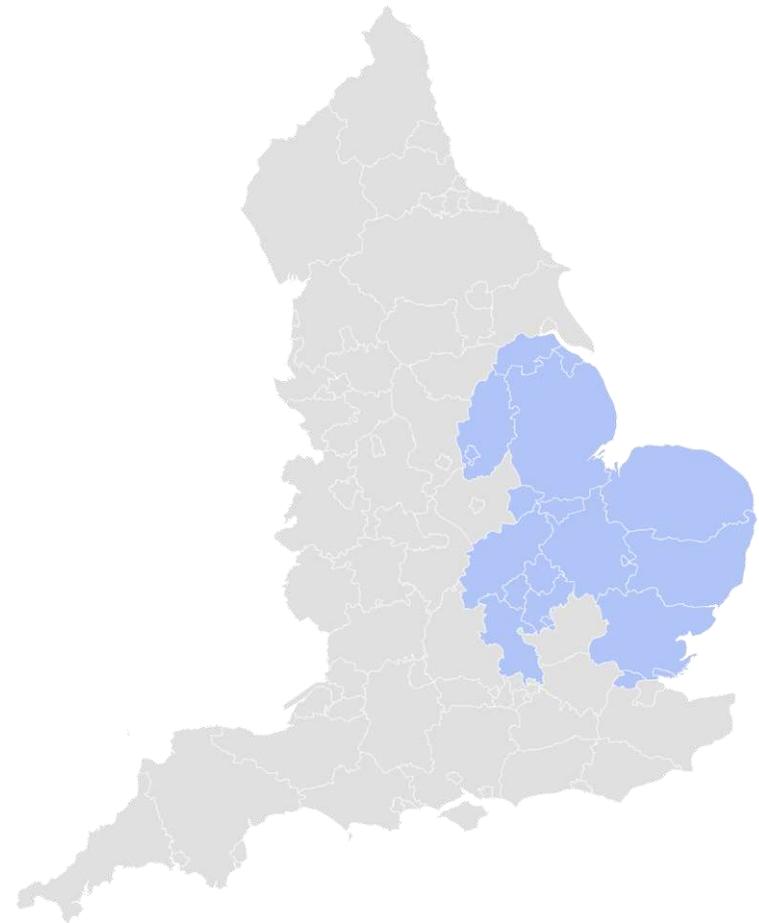
The Anglian Water region has a population of approximately nine million people. Essex is the most populous county within the Anglian Water region, with almost 1.9 million people, or twenty per cent of the region's overall population. Most counties have a population in the range of 0.7-1.2 million. Rutland county has a population of around 40 thousand while the unitary authorities of North and North East Lincolnshire which have populations of roughly 170 thousand.

The Anglian Water region is geographically diverse

The Anglian Water region has a diverse geography. Within the Anglian Water region is East Anglia (which comprises Cambridgeshire, Norfolk, and Suffolk), which is one of the driest areas in England.

Cambridgeshire, Nottinghamshire and Northamptonshire are landlocked counties, with a number of important rivers flowing through them. North Lincolnshire and North East Lincolnshire are located on the Humber estuary; Lincolnshire, which borders with the two unitary authorities, has a rolling countryside as well as a long coastline on the North Sea.

Anglian Water region



Source: Capital Economics and Bing

Wholesale and retail is the Anglian Water region's largest sector by economic output and employment

Retail, real estate and manufacturing are the Anglian Water region's largest sectors by GVA

In 2019, the value of the Anglian Water region's economy in gross value added (GVA) was around £220 billion in 2019 prices.

Wholesale and retail trade, real estate and manufacturing are the Anglian Water region's largest sectors by size, each accounting for around thirteen per cent of the region's economic output as measured by gross value added (GVA). That is equivalent to nearly £30 billion for each of these sectors.

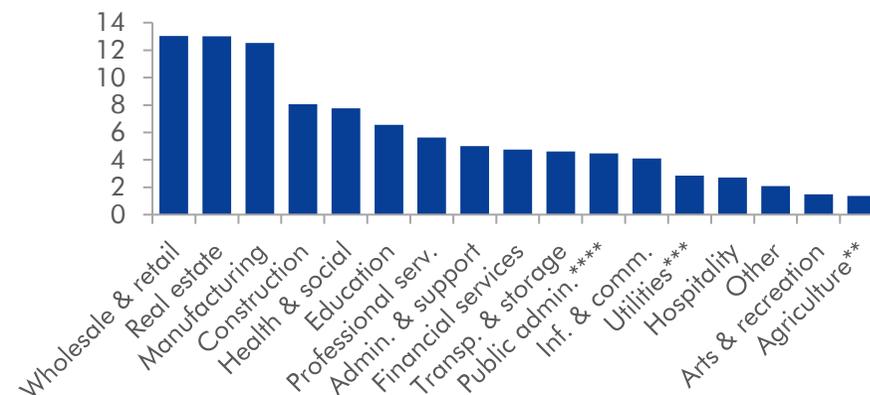
Retail, health and education are the region's largest sectors by employment

Employment in the Anglian Water region totalled nearly four million in 2019.

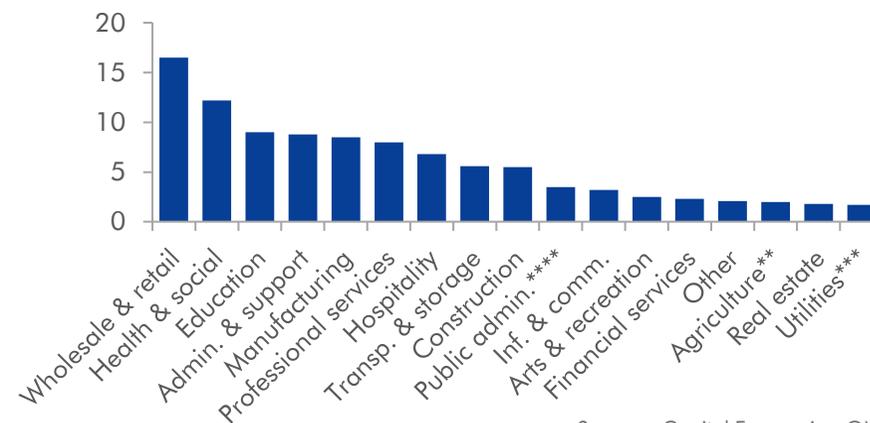
Wholesale and retail trade is again the largest sector in terms of employment in the Anglian Water region. Around 660 thousand people were employed in the sector in 2019, which is equivalent to seventeen per cent of total employment in the region.

Health and social sectors and education employed 490 thousand and 360 thousand people respectively.

Anglian Water region gross value added by sector, 2019 (share of total, %)



Anglian Water region employment by industry (share of total, %), 2019



Sources: Capital Economics, ONS.
 *Includes forestry, fishing, mining and quarrying. ***Includes , gas, water, sewerage and waste management. ****Includes defence.

Anglian Water region's economy is disproportionately agricultural

Anglian Water region's economy is more reliant on agriculture

Although agriculture is the Anglian Water region's smallest sector by gross value added, responsible for around 1.4% of the region's GVA, that share is larger than it is for England. Relative to overall economic activity, the agricultural sector in the Anglian Water region is roughly twice the size it is at the national level.

The Anglian Water region is relatively underweight in the information communications and the financial services sectors. As a share of gross value added, these sectors are approximately half the size in the Anglian Water region as they are nationally.

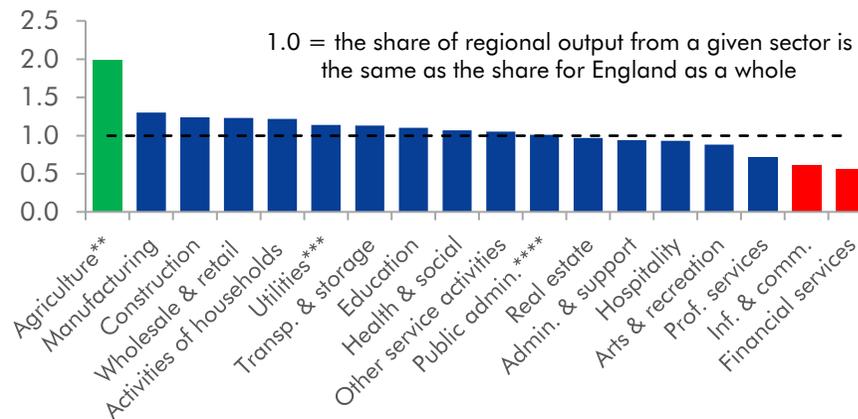
Region's agriculture sector also relatively large when assessing in terms of employment

Compared to the national average, employment in agriculture is also disproportionately high in the Anglian Water region. The share of employees working in agriculture is around 1.5 times as big as the national average.

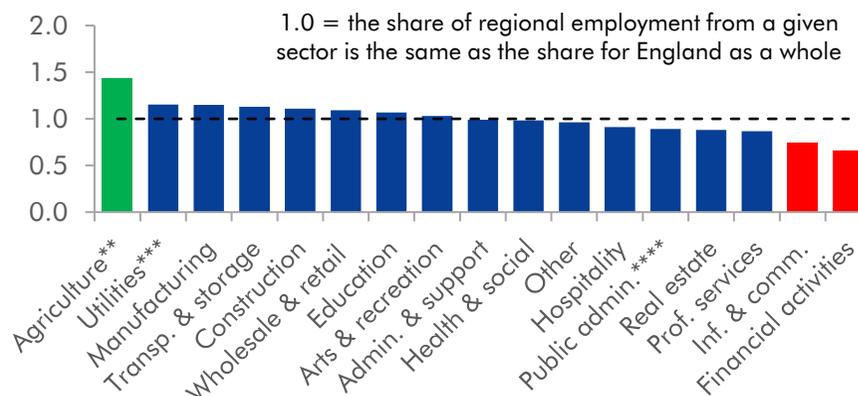
Utilities and manufacturing are also larger when comparing the share of employment in those sectors in the Anglian Water region to the share in England as a whole.

Employment in financial services and information & communication sectors in the region is relatively smaller when compared to the national average.

Anglian Water region share of GVA by industry relative to England share of GVA by industry (2019, %)



Anglian Water region employment by industry relative to England share of employment by industry* (2019, %)



Sources: Capital Economics, ONS. Note: *Red indicate that the region is particularly underweight compared to the national average, while green indicates the industry is relatively overweight compared to the national average. **Includes forestry, fishing, mining and quarrying. ***Includes gas, water, sewerage and waste management.****Includes defence.

The Anglian Water region has a diverse economy and is one of the country's major centres for R&D and clean energy

Anglian Water region excels at R&D and clean energy

The Anglian Water region has a diverse economy, with a number of competitive strengths.

The Anglian Water region has a rich research and development (R&D) ecosystem, largely due to Cambridge and its particularly vibrant life sciences and high-tech sectors. Although data are not available at the Anglian Water region level, data for the East of England – where Cambridgeshire is located – show that R&D expenditure per head in 2019 was higher than any other region of the country, and at £1,106 was almost twice the UK average of £577. The Cambridge Science Park is the largest commercial R&D centre in Europe.

Another strength for the region is clean energy, which predominantly comes from biomass, nuclear, solar, and wind, and is concentrated in Lincolnshire, North and North East Lincolnshire, Norfolk and Suffolk.

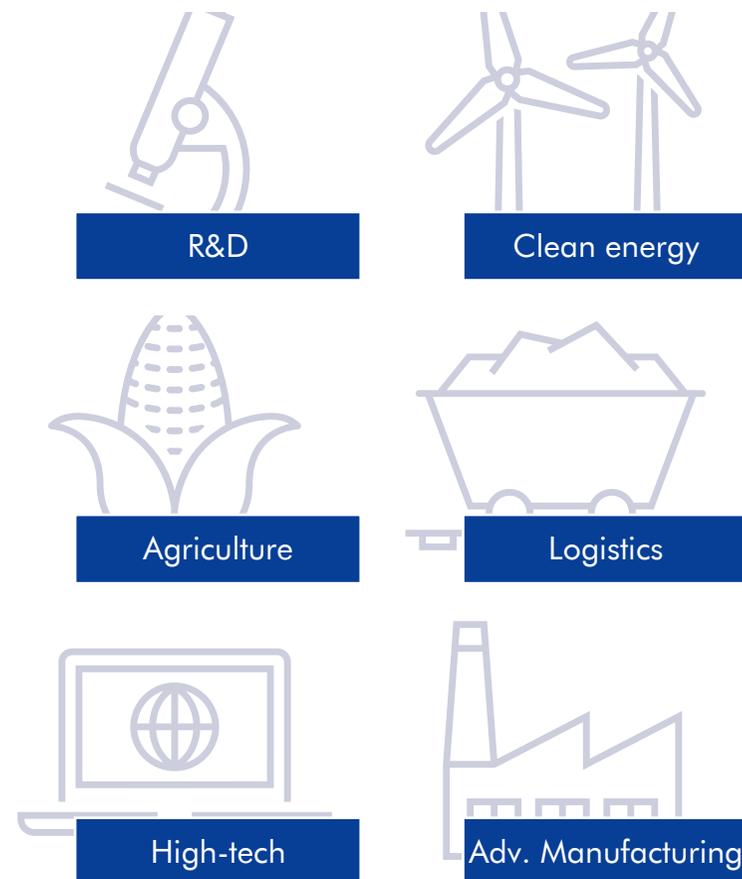
There are a diverse range of additional strengths within the region

Within the Anglian Water region, the area of East Anglia (area comprising of Cambridgeshire, Norfolk and Suffolk) has a large agricultural sector with a thriving agri-tech industry. Meanwhile, it is estimated that in Lincolnshire, around 70% of the UK's fish is processed and around 30% of England's vegetables are produced.

The Anglian Water region is a key transport and logistics hub for the country; facilitating transport links from key ports such as Port Felixstowe in Suffolk and Port of Immingham in North East Lincolnshire, and two of England's five busiest airports; Stansted Airport and Luton Airport. In addition, the A14 and A1(4) are major roads connecting the different regions of the country.

Adastral Park, located in Suffolk, is a cluster of high-tech telecommunication and technology companies (ICT), currently home to around 150 high-tech ICT companies. Buckinghamshire, Essex and Northamptonshire are some of the key advanced manufacturing centres across the UK, especially in aerospace engineering and automotive.

The Anglian Water region's key economic sectors



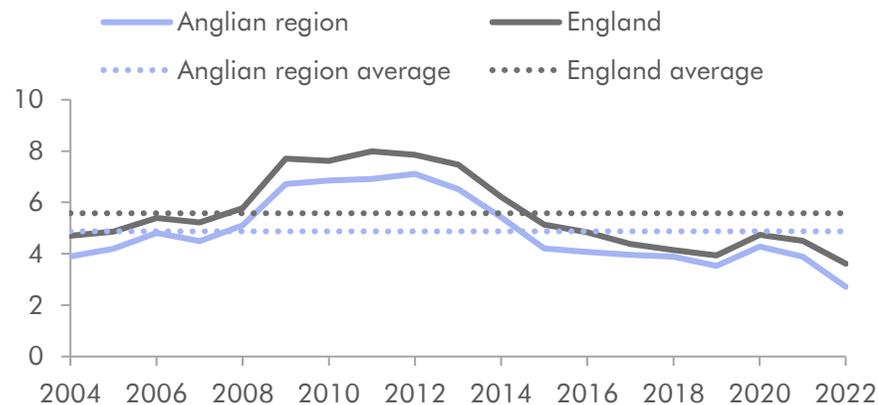
Source: Capital Economics

Economic growth in Anglian Water region slightly lower than in England over the past two decades

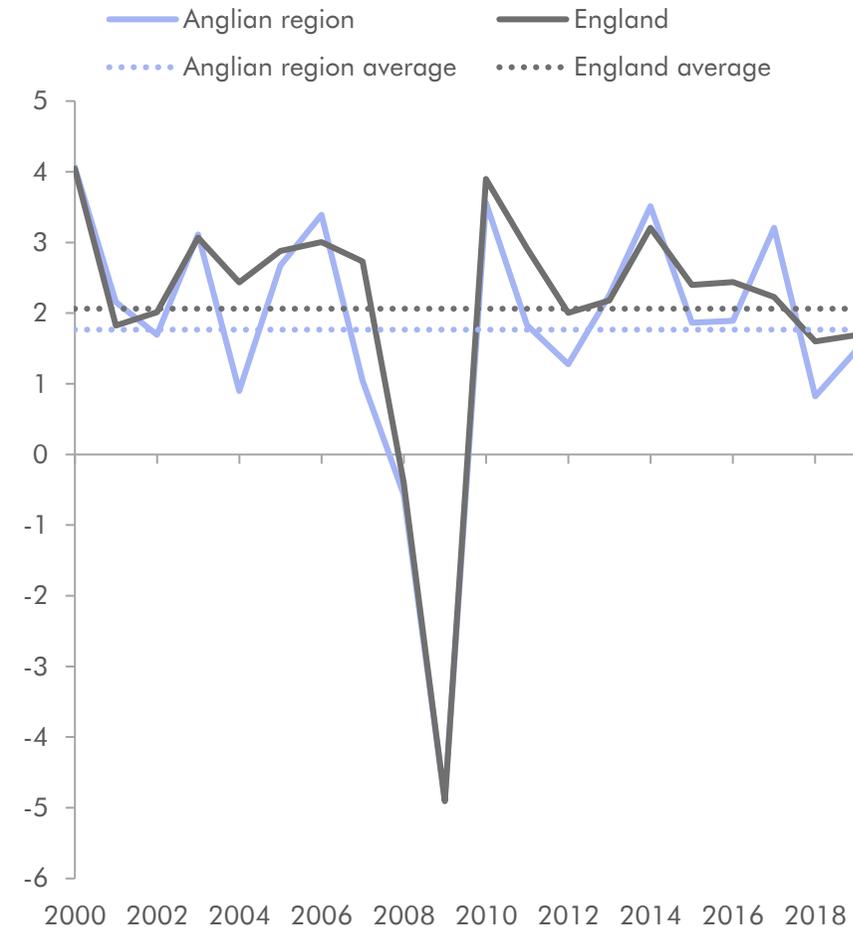
Between 2000 and 2019, real GDP growth in the Anglian Water region averaged 1.8% per year. That is 0.3 percentage points slower than the England average, which was around 2.1% over the same time period.

Between 2004 and 2022, the unemployment rate for the Anglian Water region averaged 4.9%, lower than the national average of 5.6%. The latest data are in line with this historical trend. At the end of 2022, the unemployment rate in the Anglian Water region was 2.7%, compared to 3.6% for England as a whole.

Unemployment rate (%)



Real GDP growth (year-on-year change, %)



Sources: Capital Economics, Nomis, ONS

Key projects and developments in the Anglian Water region

Buckinghamshire

Buckinghamshire reduced carbon dioxide emissions by 34% between 2005 and 2019, and it is continuing to exert efforts to further lower its carbon footprint.

By 2025, the county plans to plant more than 500,000 trees and promote electric vehicle adoption, with the ultimate goal of doubling electric charging points.

Cambridgeshire

Cambridgeshire is working to improve the transport networks across the county. The A141 St Ives Improvement Scheme, for example, includes a £6 million pound investment to lower traffic congestion between Huntingdon and St Ives. The New King's Dyke Bridge, which comprises a bridge over the Ely and two roundabouts, has been inaugurated in the summer of 2022, but more construction work is underway.

To reduce inter-county inequalities, investments have been geared towards improving education and skills in areas of higher deprivation. For example, it is estimated that the opening of Anglia Ruskin University (ARU) Peterborough in 2022 will generate additional economic activity for roughly £310 million over the next ten years, as well as bringing 5,600 higher value jobs in Peterborough.

Norfolk and Suffolk

Norfolk and Suffolk are two of the UK's centres of clean energy.

The counties have the potential to supply up to half of the UK's 40 gigawatt (GW) target from offshore wind by 2030. The Sizewell C nuclear power station is projected to supply seven per cent of the UK's low carbon power over the next 60 years. According to the New Anglia Local Economic Partnership's latest economic strategy report, clean energy will support 27,000 new job opportunities between 2019 and 2030.

Lincolnshire, North Lincolnshire, North East Lincolnshire and Rutland

North Lincolnshire, along with **Norfolk and Suffolk** are emerging as key hydrogen 'hubs', which will add to water demand in those areas.

Grimsby's offshore wind farm has a renewable electricity installed capacity of one GW, which is expected to grow to 8-10 GW by 2030.

Greater Lincolnshire also plays a key role in the country's decarbonisation plan: the Humber Zero Carbon Capture Project is projected to capture and store up to eight million tonnes of carbon dioxide per year by late 2020s.

Rutland County Council has developed a Highway Infrastructure Asset Management Strategy to ensure the condition of carriageways in 2026 will be maintained to the same standard as in 2021.

Essex

According to the Essex County Council's Sector Development Strategy, to achieve net-zero by 2050, Essex needs to improve the energy efficiency of its homes. It is estimated that 10,000 new construction sector jobs will be required to make the county more sustainable.

The county aims to expand its wind, solar, and nuclear energy production.

The index provides a framework to measure long term challenges

Over the next 30 years, the Anglian Water region faces a number of challenges that water supply has some role in addressing. These range from the impacts of climate change to delivering sustainable growth and improving the natural environment. While addressing long term challenges in the region requires input from a large number of stakeholders across a wide range of expertise, ensuring a reliable, clean and plentiful water supply has a role to play.

We have developed an index to identify the long term challenges facing the region and quantify them to allow comparison at the national, regional and county level. This provides a framework to assess the relative severity of the challenges within the region and compared to other areas of the country. The index is not designed to provide absolute quantification of the challenges but rather is a tool to assess their relative severity across geographies.

To build the index, we collated a wide range of metrics under four pillars that group the challenges into pillars: climate change, economy & society, sustainable growth and nature & environment. The indicators that we have used are a combination of historic data and forward-looking data. In total, the index is comprised of 28 indicators.

To ensure the index is an effective tool to highlight Anglian Water region's challenges and assess how their severity compares with other areas, the metrics we chose to incorporate in the index had to be quantitative, consistently measured across the country, available at the county level and highlight long-term challenges in the area.

The interpretation of the indicators is based on how they relate to water supply. For example, higher agricultural GVA is more of a challenge as it is water intensive, higher temperatures and more droughts are more of a challenge and poorer societal conditions are a greater challenge as more resources are needed to improve conditions.



Index allows for comparison across geographies

The index has been constructed using 22 different geographies. These are the twelve areas within the Anglian Water region (ten counties and two unitary authorities), the Anglian Water region (which has been constructed by aggregating the twelve Anglian areas), the nine official regions in England, and England.

To construct the index, the metrics are assigned scores in a consistent and systematic way; we have used an indexing methodology called 'distance to frontier score', which captures the gap between a geography's performance and the best performance in the sample. A score of 100 signifies greatest challenge, while a score of 0 least challenge.

The scores are then ranked with the lowest rank representing the area with the smallest challenge and the highest rank representing the area with the greatest challenge. Each of the four categories has been assigned an equal weight of 25%. Within each pillar, each metric has been assigned an equal weight unless the challenge it measures reflects a challenge similar to that of another metric. For example, "properties at risk from flooding" and "people at risk from flooding" are both measures related to flooding risk. In that case, metrics are assigned a lower weight. (Please see page 19 for more detail.)

Where county-level data were not available, metrics for the eleven Anglian areas have been constructed based on more granular data at the local authority district or unitary authority levels. Similarly, where only regional data were available, each Anglian area has been assigned the same value as its region. For the metric on bathing waters quality, only coastal areas have been included. For the purposes of the index, areas without coastal waters have been assigned the same value as the national average.

Table of geographies

Areas within the Anglian Water region	Regions
Bedfordshire	Anglian Water region
Buckinghamshire	England
Cambridgeshire	East Midlands
Essex	East of England
Lincolnshire	London
Norfolk	North East
North East Lincolnshire	North West
North Lincolnshire	South East
Northamptonshire	South West
Nottinghamshire	West Midlands
Rutland	Yorkshire and The Humber*
Suffolk	



Note: *In the charts of the report, Yorkshire and The Humber is referred to as "Yorkshire"

The four pillars of the index assess a range of challenges



Climate change

This pillar assesses relative challenges related to the impacts of changing climate patterns.

Metrics pointing to a region being relatively dry, with higher temperature projections, and higher flood risk represent a greater challenge. Meanwhile, higher emissions and lower renewable energy capacity represent a greater challenge as an area must direct resources to make improvements over time.



Economy & society

This pillar assesses relative challenges linked to poor social outcomes which hinder economic development, along with the impact of a geography's economic structure on the water industry.

Metrics pointing to lower development, such as higher income deprivation, lower skills and well-being represent a greater challenge. Larger agriculture sectors and higher non-domestic water consumption represent greater challenges, as they represent greater water intensity in producing output.



Sustainable growth

Water supply is essential for economies and societies to thrive. While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. The aim of the sustainable growth pillar is to assess the challenges these drivers of growth create for the water supply.

Metrics pointing to faster growth in demand for utilities, such as water, over the coming decades, present a greater challenge. That includes faster growth in populations, employment, and economic output, along with acute current housing shortages.



Nature & environment

Nature plays an important role in society's well-being, and water and nature are inexorably linked, as a thriving natural environment cannot exist without plentiful clean water. The aim of this pillar is to assess the challenges each geography faces in a wide range of metrics related to nature and the environment.

Metrics pointing to a geography requiring relatively more resource to raise the condition of its environment up to an excellent standard present a greater challenge. Examples of metrics include quality of air, river water and Sites of Special Scientific Interest.

Each of the four pillars has an equal weighting

Within each pillar, each metric has been assigned an equal weight unless the challenge it measures reflects a challenge similar to that of another metric, as indicated by the connecting brackets below.

1. Climate Change		25%	2. Economy & Society		25%
}	Rainfall projections	2.50%	Agricultural gross value added	3.57%	
	Precipitation rate index	2.50%	Bathing waters quality	3.57%	
	Temperature projections	5.00%	Workforce skills level	3.57%	
}	Properties at high risk from flooding	2.50%	Income deprivation	3.57%	
	People at high risk from flooding	2.50%	Social mobility	3.57%	
	Greenhouse gas emission	5.00%	Non-domestic water consumption	3.57%	
	Renewable electricity installed capacity	5.00%	Well-being estimates	3.57%	
3. Sustainable Growth		25%	4. Nature & Environment		25%
}	Population projections	2.78%	Public green space	3.57%	
	Over-65 population projections	2.78%	Private outdoor space	3.57%	
	Employment projections	2.78%	Tree cover	3.57%	
}	Housing stocks	4.17%	Agricultural land use	3.57%	
	Housing needs	4.17%	Air quality	3.57%	
}	GDP projections	4.17%	Water river quality	3.57%	
	Business stocks	4.17%	Sites of Special Scientific Interest	3.57%	

Note: Please see the Appendix for a detailed list of the specific metrics used for each indicator

3. Long term challenges for the Anglian Water region

- According to the index, the Anglian Water region faces the second greatest long term challenge related to water supply of any English region.
- The Anglian Water region's lowest ranking is in the nature & environment pillar, suggesting relatively more acute challenges compared to other regions. Challenges include low tree cover, high agricultural land use, more instances of poor water quality, and high average distance to public green space.
- The Anglian Water region ranks eighth out of eleven for the climate change pillar. The metrics show that the Anglian Water region is the driest region and is one of the highest greenhouse gas emitters.
- The Anglian Water region also ranks eighth out of eleven on the economy & society pillar. A relatively large reliance on the agricultural sector for economic output presents a key challenge for water supply in the region.
- Water supply challenges can stem from growth. The Anglian Water region ranks fifth out of eleven on sustainable growth, meaning that the growth challenge for the region is not as severe as it is in six other regions of the country.

Rankings suggest the Anglian Water region is the second most challenged region of England

Acute challenges highlighted in nature & environment pillar

The Anglian Water region ranks as the second most challenged region in the country. The region faces challenges, of varying degrees, across all four pillars of the index.

The Anglian Water region’s lowest ranking is in the nature & environment pillar, suggesting relatively more acute challenges compared to other regions. Within this pillar, the Anglian Water region faces challenges including low tree cover, high agricultural land use, relatively more instances of poor water quality, and high average distance to public green space.

Challenges evident across other three index pillars

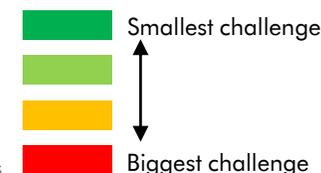
The Anglian Water region ranks eighth out of eleven for the climate change pillar. The Anglian Water region is the second highest greenhouse gas emitter after Yorkshire. The region is also one of the driest in the country, with the lowest rainfall projections and second lowest precipitation index score.

The Anglian Water region also ranks eighth out of eleven on the economy & society pillar, making it the fourth most challenged region on this pillar. A relatively large reliance on the agricultural sector for economic output presents a key challenge.

Water supply challenges can stem from growth. The Anglian Water region ranks fifth out of eleven on the sustainable growth pillar, meaning that the growth challenge for the region is not as severe as it is in six other regions of the country. Demographic dynamics, specifically population and employment projections, constitute the region’s greatest challenges within this pillar.

Index ranking of relative region challenges (1 = least challenges, 11 = most challenges)

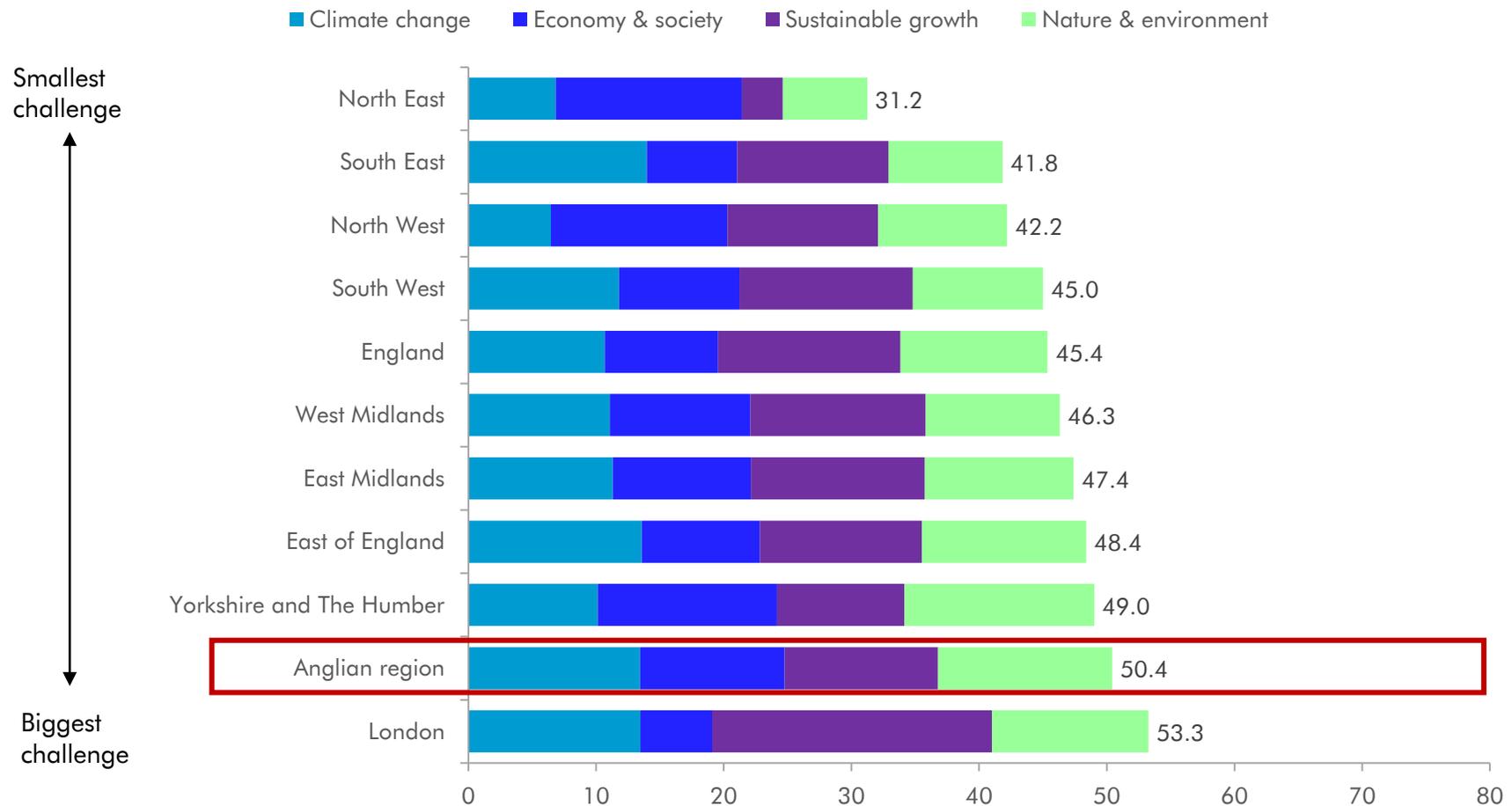
Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable growth	Nature & Environment	
North East	2	11	1	1	1
South East	11	2	4	2	2
North West	1	9	3	3	3
South West	7	5	7	4	4
England	4	3	10	6	5
West Midlands	5	7	9	5	6
East Midlands	6	6	8	7	7
East of England	10	4	6	9	8
Yorkshire and The Humber	3	10	2	11	9
Anglian Water region	8	8	5	10	10
London	9	1	11	8	11



Source: Capital Economics

The Anglian Water region's ranking is driven largely by challenges from the climate change and nature & environment pillars

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

Challenges from impacts of climate change disproportionately affect the Anglian Water region

Climate change and water resilience are inexorably linked

The climate change pillar of the index aims to assess the relative challenges related to the impacts of changing climate patterns. The pillar includes metrics covering rainfall, temperature, flooding, emissions and renewable energy.

Anglian ranks tenth out of the eleven regions on climate change metrics

The metrics used to assess relative challenges from climate change suggest that the Anglian Water region ranks eighth so is the fourth most challenged region in England on this pillar.

One particular challenge for water supply is the fact the Anglian Water region ranks as the driest region, with the lowest rainfall projections and second lowest precipitation index score. Temperature projections also show the Anglian Water region facing a greater challenge than the national average.

The Anglian Water region faces significant flood risk, ranking eighth on both flooding indicators, with the region's population and housing at greater risk of flooding than the England average.

The region is one of the highest greenhouse gas emitters, ranking tenth out of the eleven regions. In contrast, the Anglian Water region faces the least challenge in terms of renewable electricity capacity, as no other region has a higher per capita installed capacity.

Index ranking of relative region challenges – Climate change (1 = least challenges, 11 = most challenges)

Geography	Indicator ranking							Overall
	Precipitation index	Rainfall projections	Temperature projections	People at high risk from flooding	Properties at high risk from flooding	Greenhouse gas emissions	Renewable electricity capacity	
North West	1	1	2	4	3	7	8	1
North East	3	3	1	1	2	6	6	2
Yorkshire and The Humber	7	4	3	10	10	11	2	3
England	5	5	6	7	6	3	7	4
West Midlands	2	7	4	5	5	4	10	5
East Midlands	9	8	5	3	4	9	4	6
South West	6	2	8	9	9	5	5	7
Anglian Water region	10	11	7	8	8	10	1	8
London	8	9	11	2	1	1	11	9
East of England	11	10	9	6	7	8	3	10
South East	4	6	10	11	11	2	9	11

Source: Capital Economics

Anglian Water region has relatively high greenhouse gas emissions but high renewable electricity capacity

Anglian Water region well-placed for green future

The Anglian Water region has the highest per capita renewable electricity installed capacity amongst the English regions. At 1.2 megawatt per thousand people, renewable electricity installed capacity in the Anglian Water region is more than twice national average. What's more, there opportunity for renewables to continue to develop over the next few decades as the country moves towards net zero.

The main renewable energy sources are wind (both offshore and inshore), biomass and solar. Amongst the twelve areas in the Anglian Water region, renewable electricity installed capacity is primarily concentrated in Lincolnshire, North and North East Lincolnshire, Norfolk and Suffolk.

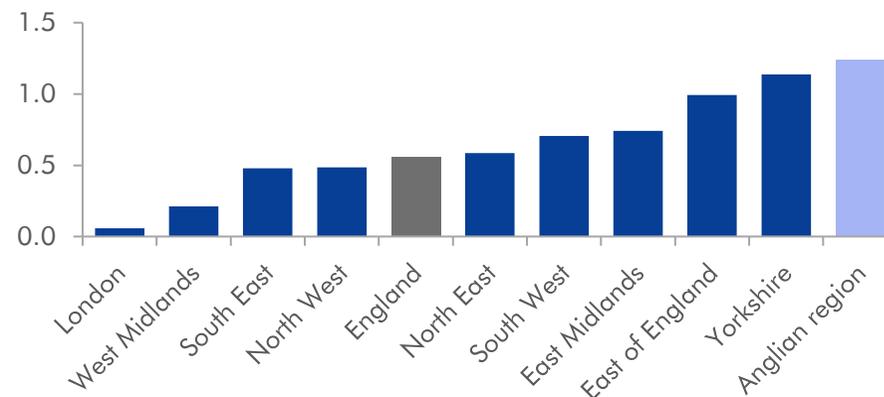
Greenhouse gas emissions present a key challenge

Greenhouse gas emissions present a key challenge for the Anglian Water region given that it has the second highest per capita emissions across the English regions. Per capita greenhouse gas emissions in the Anglian Water region were around 7.3 tonnes in 2019, compared to the national average of 5.7.

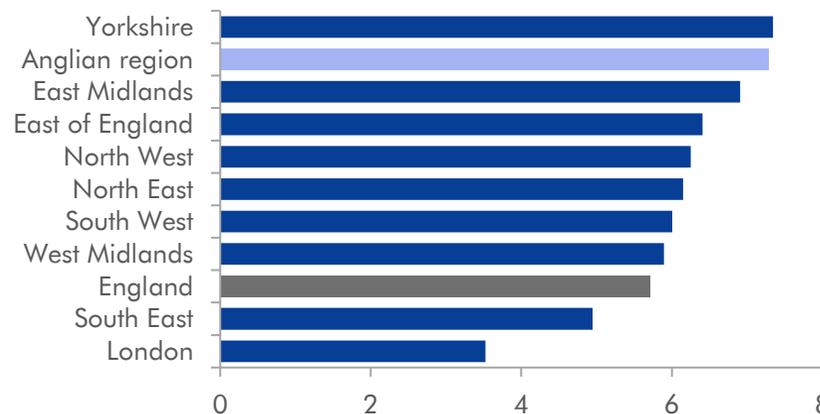
Transport and industry are the main sources of emissions, accounting for 30% and 20% respectively of the region's total. Given that transport emissions include both passenger and freight transport, it is worth noting that the Anglian Water region is home to some of the country's largest ports. These include the Port Felixstowe in Suffolk (48% of country's container trade) and the Port of Immingham in North East Lincolnshire (largest by tonnage in the UK).

Greenhouse gas emissions are particularly relevant to water supply in the Anglian Water region. Because of the region's flat geography, pumping water to customers in the Anglian Water region is relatively more energy consuming than in many other English regions.

Renewable electricity installed capacity (MW per 1,000 people), 2021



Greenhouse gas emissions (tonnes of CO2 equivalent per capita), 2019



Sources: Capital Economics, BEIS

Relatively high flood risk from seas and rivers in Anglian Water region

Climate change increases flooding risks

Many parts of the UK are likely to face increased flooding risk as a result of climate change. Rising temperatures are causing ice caps to melt and sea levels to rise, increasing the risk of coastal flooding.

Similarly, climate change is making heavy rainfalls more likely, which in turn increases the likelihood of flooding from rivers and surface water run off.

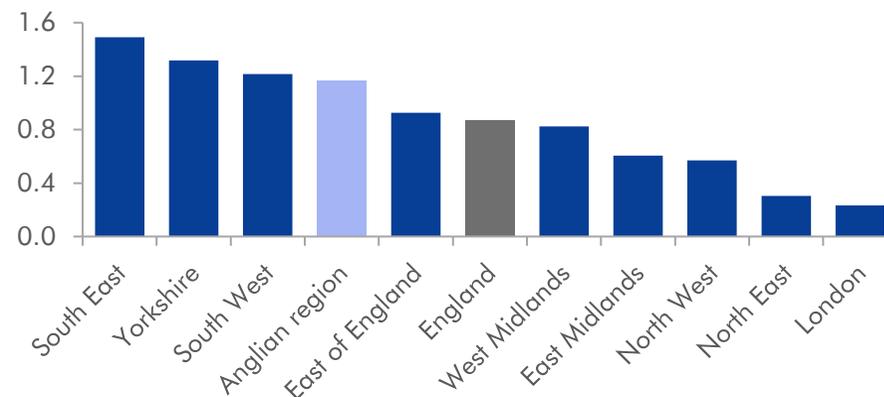
Flooding risk is relatively high in the Anglian Water region

Defra regularly publishes a national flood risk assessment. A “high” flood risk in this assessment indicates a one in thirty chance of a flood taking place in any given year.

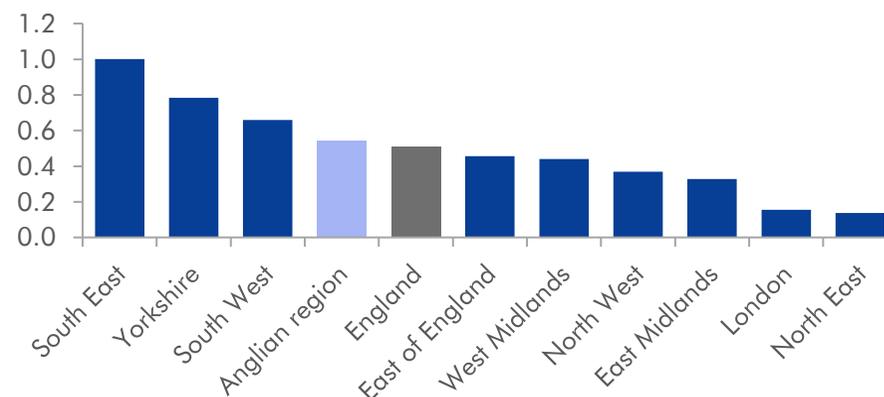
Close to 1.2% of properties in the Anglian Water region are at high risk from flooding, significantly above the average of 0.9% for England as a whole. (See top chart.) Meanwhile, at 0.5% of the region’s population, the number of people at high risk from flooding in the Anglian Water region is on par with the national average. (See bottom chart.)

The South East, Yorkshire and The Humber and the South West have the highest share of people and properties that are at a high risk of flooding.

Properties at high risk from flooding due to sea and rivers (% of total, 2022)



People at high risk from flooding due to sea and rivers (% of total, 2022)



Sources: Capital Economics, Defra

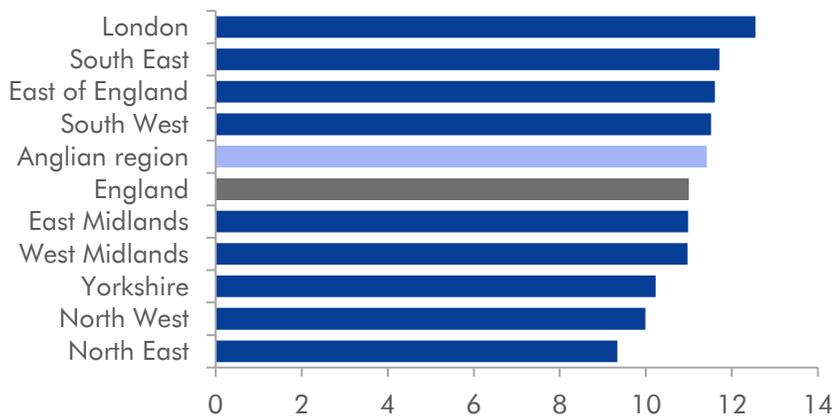
Projections suggest the Anglian Water region will remain one of the driest regions in England

Metrics within the index indicate that drought risk is a significant challenge for the region, both in terms of the region’s long-term prosperity, and the additional strain on water supply.

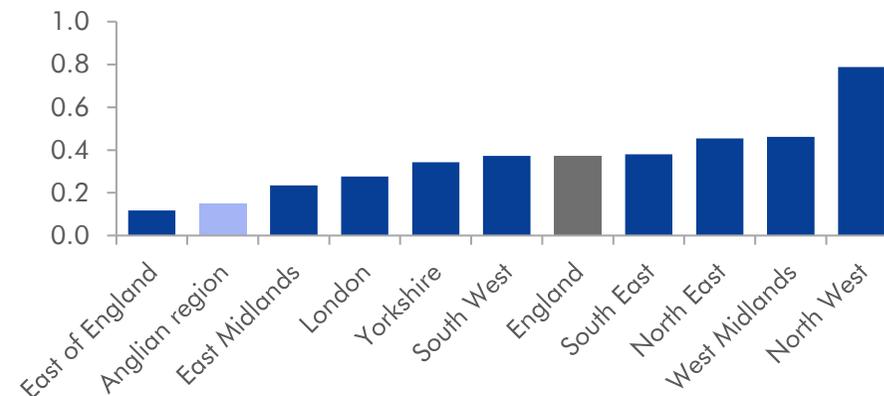
The Anglian Water region’s precipitation index averaged 0.15 between 2013 and 2023, suggesting that the region is one of the driest in England. With an index score of 0.12, only the East of England (which significantly overlaps with the Anglian Water region) has experienced lower levels of precipitation on average than the Anglian Water region.

According to Met Office projections, between 2023 and 2040 rainfall in the Anglian Water region will average 2.14mm per day, which is lower than in any other English region and significantly below the national average of 2.85mm. Temperature projections for the same period indicate that the Anglian Water region will be slightly hotter than the national average, at 11.4 degrees compared to 11.0 degrees for England.

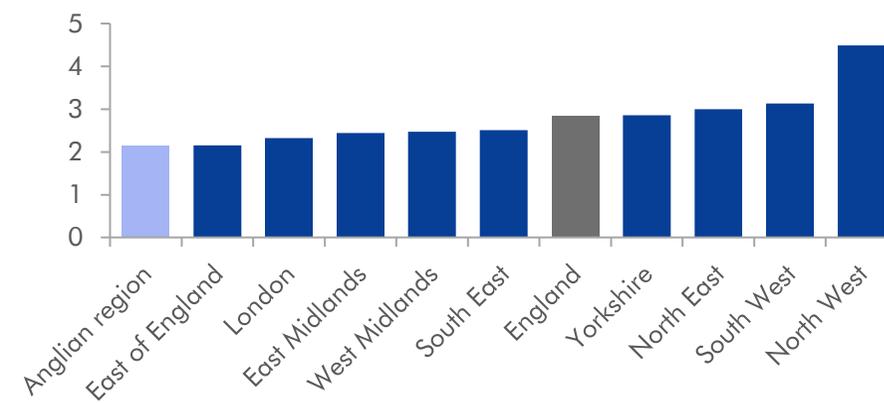
Temperature projections (degrees Celsius at 1.5 metres, 2023-2040 average)



Precipitation index (monthly average 2013-2023)



Rainfall precipitation projections (mm per day, 2023-2040 average)



Sources: Capital Economics, Met Office, UK Centre for Ecology and Hydrology

Anglian Water region amongst four most challenged regions on economy & society pillar

Economy & society assesses both social outcomes and water demand from the economy

The economy & society pillar aims to assess the relative challenges linked to poor social outcomes, which generally hinder economic development. The other goal of the pillar is to evaluate the impact of a geography's economic structure on the water industry. To do this, we analysed metrics such as the relative size of the agricultural sector (which is water-intensive) and overall non-domestic water demand.

Relatively large agriculture sector a key challenge for Anglian

The Anglian Water region ranks eighth out of eleven on the economy & society pillar, making it the fourth most challenged region. The North West, Yorkshire and The Humber, and the North East all face a greater challenge according to the index.

Across the seven metrics in this pillar, the Anglian Water region faces the greatest challenge from its relatively large agricultural sector. Agricultural output relative to overall output is larger in the Anglian Water region than in any other region of England. Given that the agricultural sector is relatively water intensive, this presents a significant challenge for water supply in the region.

The Anglian Water region ranks eighth for non-domestic water consumption (eleventh is most challenged).

In terms of social indicators, the Anglian Water region ranks around the middle of the table on metrics such as workforce skills level, well-being estimates, and income deprivation.

Index ranking of relative region challenges – economy & society (1 = least challenges, 11 = most challenges)

Geography	Indicator ranking							Overall
	Agricultural GVA	Non-domestic water consumption	Bathing waters quality	Workforce skills level	Well-being estimates	Income deprivation	Social mobility	
London	1	1	4	1	4	9	1	1
South East	2	2	7	2	1	1	3	2
England	5	4	4	4	6	4	4	3
East of England	9	3	9	3	2	3	5	4
South West	7	6	2	5	3	2	9	5
East Midlands	10	7	1	10	7	5	11	6
West Midlands	6	5	4	8	8	7	7	7
Anglian Water region	11	8	8	6	5	6	8	8
North West	3	9	11	7	9	10	6	9
Yorkshire and The Humber	8	10	10	9	10	8	10	10
North East	4	11	3	11	11	11	2	11

Source: Capital Economics

Agricultural sector requires water resilience to support regional economy and food security

Agriculture sector is proportionately larger in Anglian Water region

Agriculture is one of the Anglian Water region's major sectors. Within the region, the combined area of Cambridgeshire, Norfolk and Suffolk (also known as East Anglia), is often referred to as "Britain's breadbasket". Lincolnshire also contributes significantly to agricultural output, as it is responsible for producing around 30% of the UK's vegetables and almost 20% of the country's poultry.

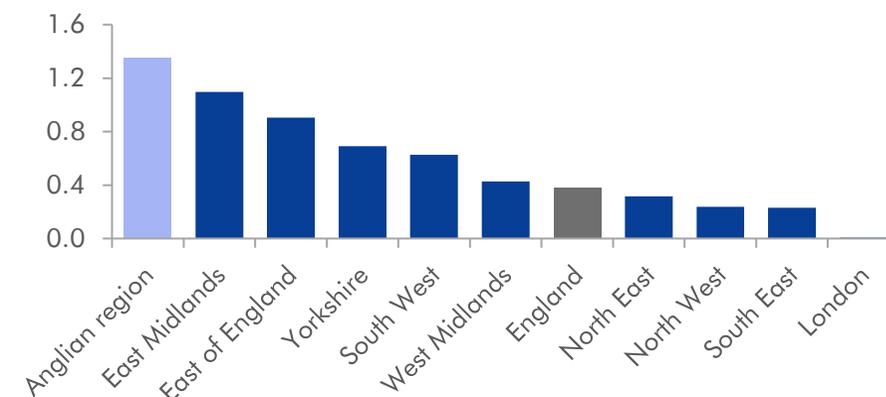
On average between 2015 and 2019, 1.4% of the Anglian Water region's economic output in terms of gross value added (GVA) came from the agriculture sector. That is the largest share amongst the regions of England and significantly higher than the England average of 0.4%.

Water is an essential input for agricultural production. According to the FAO, agriculture made up fourteen per cent of total water abstraction in the UK in 2016. Given that the size of the sector relative to the rest of the economy is larger in the Anglian Water region than elsewhere, the challenge for water supply on this metric is relatively greater. Ensuring the agricultural sector can rely on an efficient and resilient water supply is key to guarantee food security in the UK and therefore prosperity not only for the Anglian Water region, but for the country as a whole.

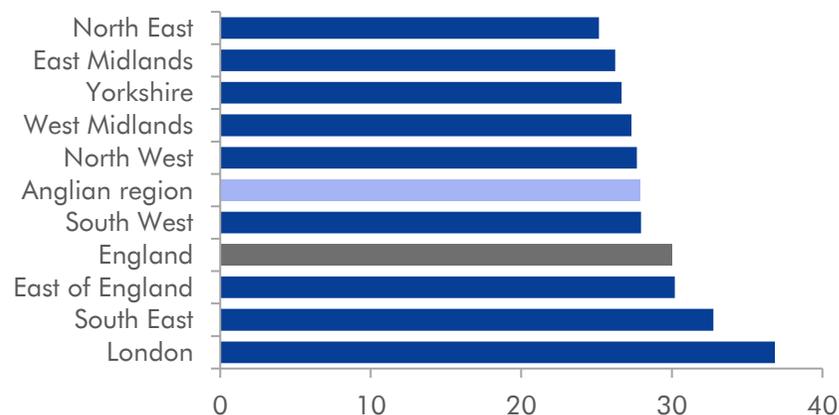
Skilled employment in Anglian Water region below national average

A highly skilled workforce is important to support a growing and prosperous economy, thus contributing to its long-term prosperity. The ONS' Annual Population Survey includes a dataset on the skills level of employed people across the English regions. The "highest skills level" refers to professional occupations and high-level managerial positions in the private and public sectors. It is estimated that around 28% of employment in the Anglian Water region has the highest skills level, lower than the national average (30%) but higher than the Midlands and northern regions.

Agricultural gross value added (% of total, 2015-2019 average)



Employment with highest skills level (% of total, 2019)



Sources: Capital Economics, ONS

Water supply to non-domestic entities is important to enable economic growth

Anglian economy appears more water intensive than average

According to our metric for non-domestic water consumption, industrial activity is relatively more water-intensive in the Anglian Water region than the national average. For the Anglian Water region, around 0.6 litres of water are consumed by non-domestic entities per day on average relative to economic output. That compares to 0.5 litres for England as a whole.

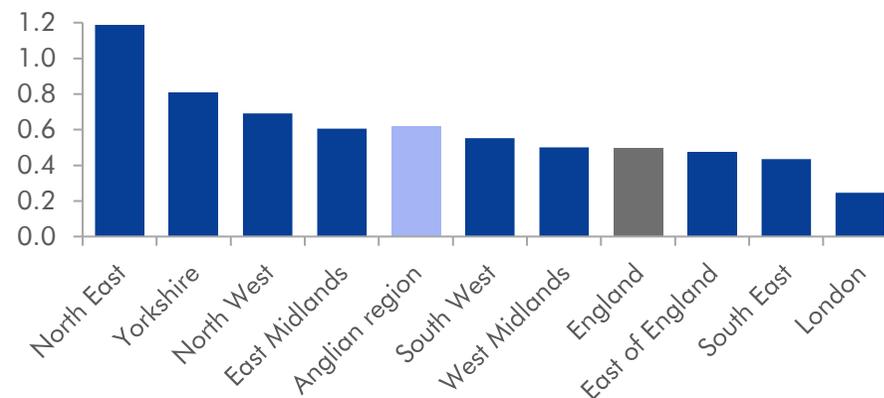
The intensity of water consumption is determined by either the industrial mix of businesses in the area which have different water demands, or by differences in productivity.

Over two-thirds of Anglian bathing waters “excellent” quality

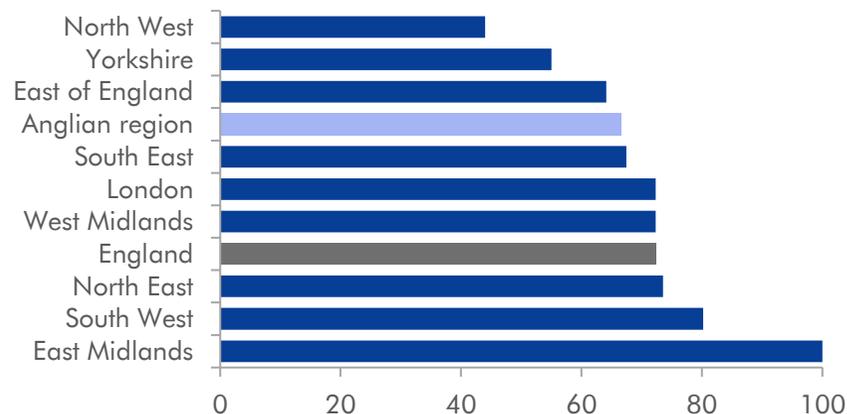
Attractive beaches and clean bathing waters can be an important driver of tourism, particularly on the coast. In turn, this can spur a region’s economy. With around ten million visits a year, it is estimated that the tourism industry in the East of England amounts to roughly £10 billion a year and employs around 240,000 people. Additionally, bathing waters can provide leisure activities for the local population, supporting happiness outside of work.

Around 67% of coastal bathing waters in the Anglian Water region have been deemed as “excellent” quality. That compares to 44% for the lowest score from the North West, or just below the 72% for England as a whole. Improving the quality of bathing waters could help bolster tourism and happiness within a given region, but often requires investment, which presents a challenge for local economies.

Non-domestic water consumption per unit of output (average litres used per day relative to GDP), 18-month average as of April 2023



“Excellent” quality bathing waters* as a % of total (2022)



Sources: Capital Economics, Defra, MOSL
Note: *Only coastal bathing waters are included

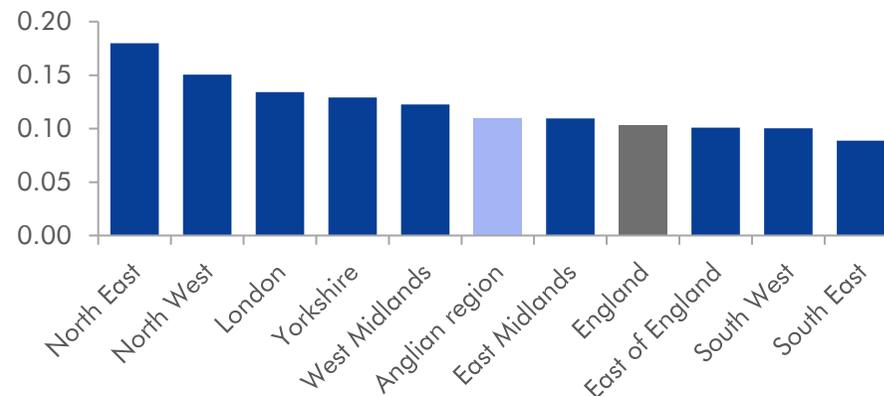
Social metrics show Anglian Water region to be only slightly behind the national average

The Anglian Water region performs relatively middle of the range on our social metrics, lagging only slightly behind the national average.

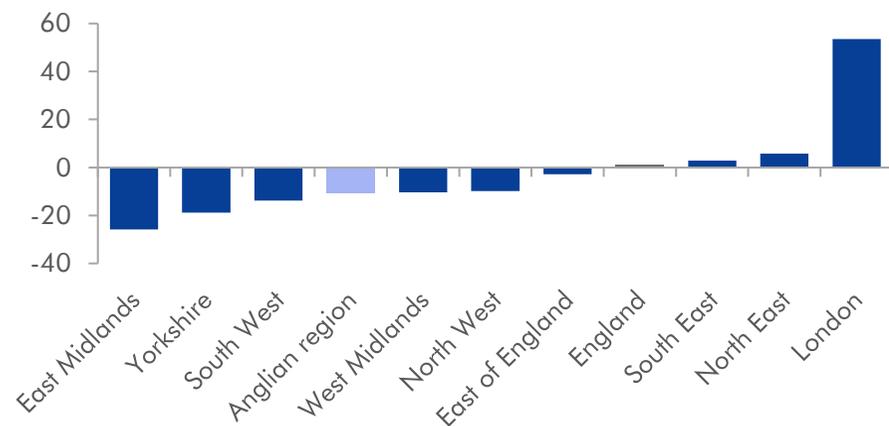
According to the ONS' social mobility index, the Anglian Water region scores -11, compared to +1 for England as a whole. With lower-than-average social mobility, there is a relatively greater challenge to address in the region in terms of achieving development and prosperity in the region.

There is little difference between the national average and the Anglian scores for our income deprivation and happiness metrics. The Anglian Water region scores 0.11 on the ONS' income deprivation index, compared to 0.10 for England, while 8.2% of the Anglian Water region's population reported "poor" happiness in the household survey on average between 2018 and 2022, compared to 8.5% for England.

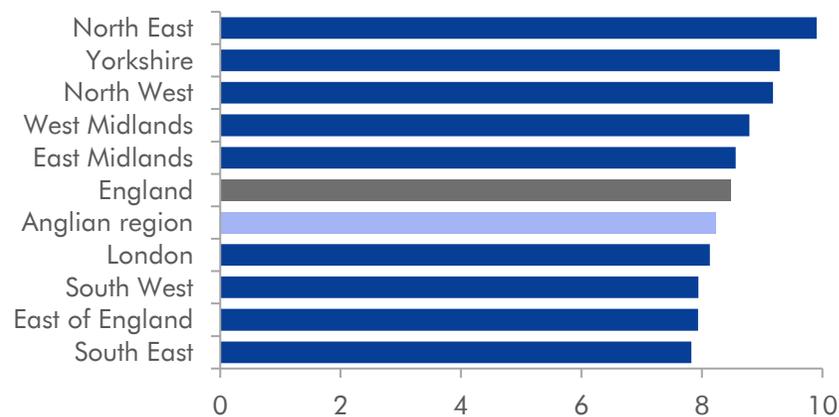
Income deprivation average score (2019)



Social mobility index , 2018



Population that reports "poor" happiness levels (% of total, 2018-2022 average)



Sources: Capital Economics, ONS

Anglian Water region ranks mid-table on challenges related to sustainable growth

Ensuring water resilience is key for sustainable growth

Water supply is essential for economies and societies to thrive. But while economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. The aim of the sustainable growth pillar is to assess the challenges these drivers of growth and prosperity create for the water supply.

Population and employment growth most acute

The Anglian Water region ranks fifth out of eleven on sustainable growth, meaning that this challenge for the region is not as severe as it is in six other regions of the country.

Within the sustainable growth pillar, demographic dynamics present the most significant challenge for water supply in the Anglian Water region. It is projected to experience relatively fast population growth over the next two decades, and in turn, employment growth. The index suggests that the challenge for the Anglian Water region is relatively more acute than it is for the country on average, with the region ranking eighth on these metrics.

Geographies experiencing housing supply shortages are likely to face challenges in the coming decades, as resources will be required to meet the excess demand for homes. The Anglian Water region is in a reasonably healthy position on this front. The region ranks sixth out of eleven on our housing stock metric, while the region ranks second out of eleven in terms of the number of households on social housing waiting lists (eleventh indicating shortages are most acute).

Rapid economic growth can put an unsustainable strain on water supply. We expect GDP in the Anglian Water region to grow by around 33% between 2023 and 2043, compared to 35% for England as a whole. Compared to other regions, these forecasts put growth of the Anglian Water region around the middle of the pack.

Index ranking of relative region challenges – Sustainable growth (1 = least challenges, 11 = most challenges)

Geography	Indicator ranking							Overall
	Population projections	Over 65 population projections	Employment projections	GDP projections	Business stocks	Housing stocks	Households in social housing waiting lists	
North East	1	1	1	1	1	2	1	1
Yorkshire and The Humber	2	3	3	5	3	4	7	2
North West	4	2	4	8	6	3	9	3
South East	3	10	2	4	10	7	3	4
Anglian Water region	8	6	8	6	5	6	2	5
East of England	6	5	5	10	7	5	4	6
South West	9	8	9	7	8	1	8	7
East Midlands	11	9	10	2	4	9	6	8
West Midlands	10	4	11	3	2	10	5	9
England	7	7	6	9	9	8	10	10
London	5	11	7	11	11	11	11	11

Source: Capital Economics

Housing supply shortages are less acute in Anglian Water region than in many other regions

Reasonably healthy housing stock per household

Domestic water consumption accounts for a large share of total water usage in England. Therefore, building new homes results in more pressure on the local sewer and water networks.

Geographies experiencing housing supply shortages are likely to face challenges in the coming decades, as resources will be required to meet the excess demand for homes. That in turn offers insight into the extent to which increased housing demand in the future poses a threat to water resilience. Within the index, more acute housing shortages pose a greater challenge for water supply.

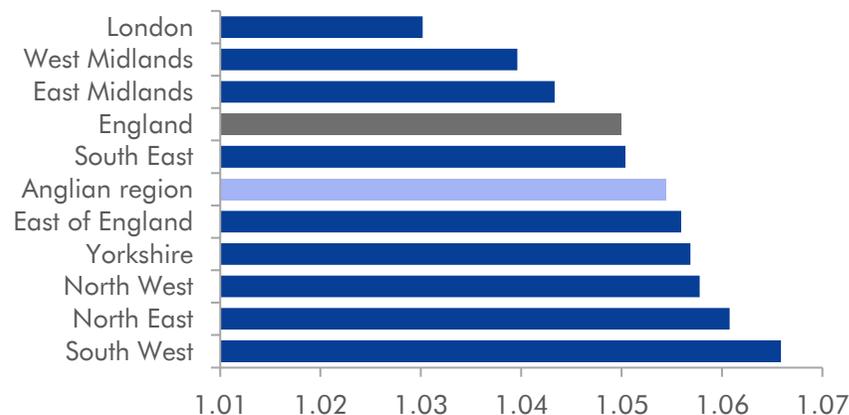
One measure of housing shortages is housing stock per household, where a lower value indicates a more acute housing shortage. According to this metric, the Anglian Water region faces a marginally smaller shortage than England as whole, translating to a slightly smaller challenge from this metric.

A relatively smaller social housing waiting list than most

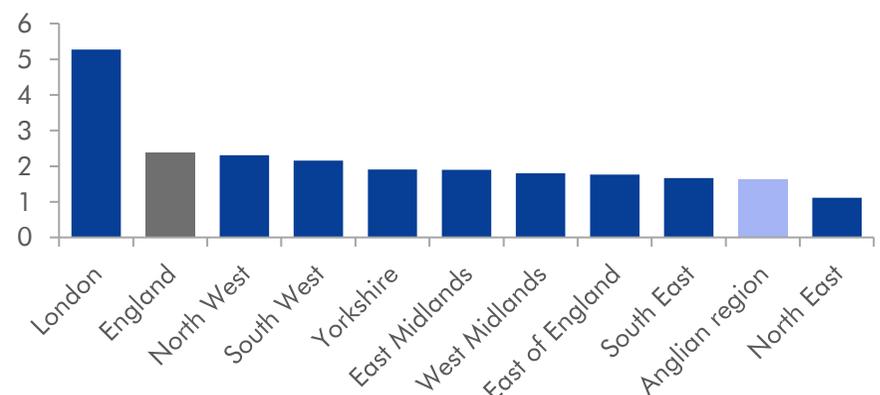
Another important metric related to housing shortages is the number of households in social housing waiting lists. While this metric is also linked to housing affordability, areas with a larger proportion of households in social housing waiting lists tend to experience more severe housing shortages.

Around 1.6% of households in the Anglian Water region are on social housing waiting lists, compared to the average for England of 2.4%. By far the challenge on this metric is highest in London, with the highest proportion of households on waiting lists, at 5.3%.

Housing stock per household (2021)



Households in social housing waiting lists (% of total, 2022)



Sources: Capital Economics, DLUHC, ONS

Economic growth puts pressure on water supply

Anglian Water region's economy to grow by 33% over next 20 years

Economic growth improves prosperity and standards of living but it also puts more pressure on water networks.

We expect GDP in the Anglian Water region to grow by around 33% between 2023 and 2043, compared to 35% for England as a whole. Compared to other regions, these forecasts put growth of the Anglian Water region around the middle of the pack.

Within the index, faster growth presents more of a challenge for water supply, with London facing the greatest challenge on this metric. The regions of the East of England, the North West and South West are all expected to grow at a faster pace than the Anglian Water region.

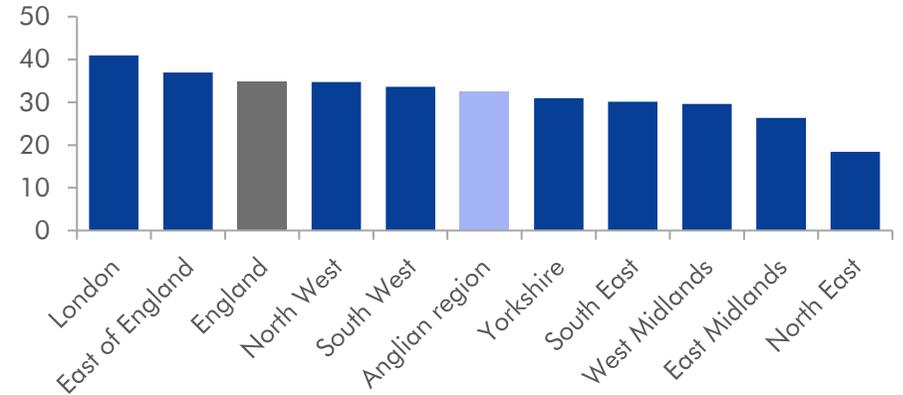
Business concentration lower in Anglian Water region than in many regions

The number of businesses in a given region offers insight into economic activity taking place. To allow for meaningful geographical comparison, business stocks relative to population have been used in the index. Higher business stocks per 10,000 people are associated with a greater challenge for water resilience.

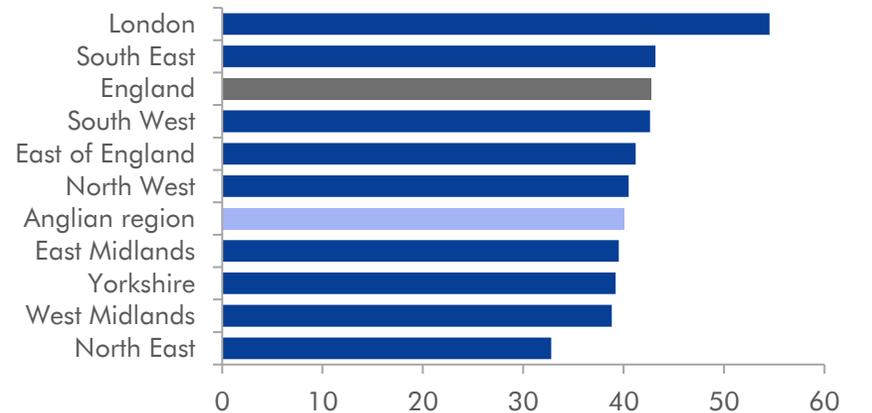
The relative ranking of the Anglian Water region on this metric is similar to the GDP growth metric; the Anglian Water region is in a better position than many other regions.

Most regions have between 39 and 43 active businesses per 10,000 people. The Anglian Water region sits around the middle of that range, at 40. That is slightly lower than the national average, 43, but significantly less than London, which boasts 55 active businesses per 10,000.

Real GDP projections (cumulative growth between 2023-2043, %)



Business stocks per 10,000 people, 2021



Sources: Capital Economics, ONS

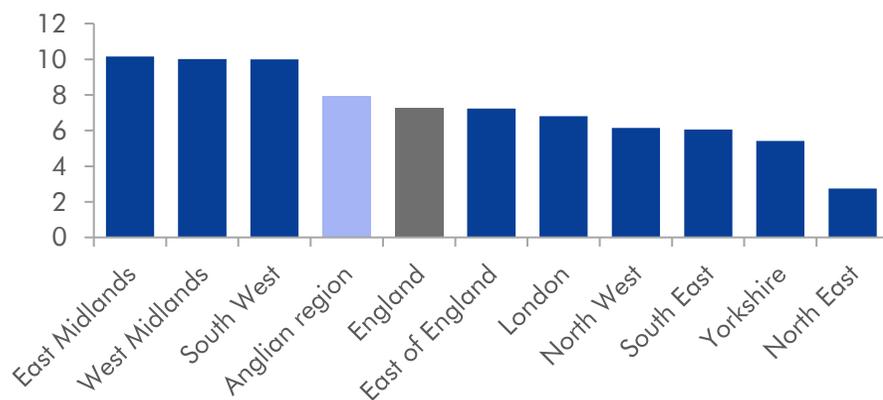
Population of the Anglian Water region is projected to increase by more than 700,000 people over the next twenty years

Strong population and employment growth, along with a growing number of those over age 65 tends to result in rising demand for additional homes. That represents a challenge in the index, as water supply must keep up with rapid growth in water demand.

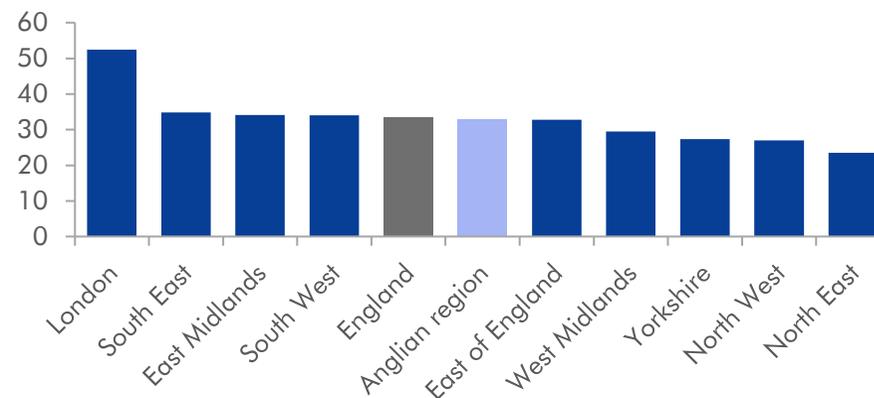
Within the sustainable growth pillar of the index, demographic dynamics present the most significant challenge for water supply in the Anglian Water region. But there are still at least three other regions facing a greater challenge based on each of these metrics.

Total population in the Anglian Water region is projected to rise by eight per cent between 2023 and 2043; faster than the England average of seven per cent but slower than the East Midlands, West Midlands and South West. At 721,000, no region is projected to add more people than the Anglian Water region. Meanwhile, the number of over-65s in both the Anglian Water region and England as a whole is set to rise by 33%.

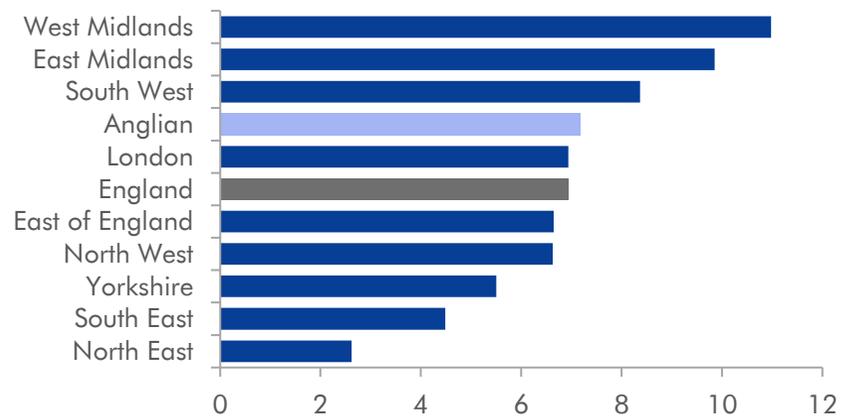
Population projections (cumulative growth between 2023-2043, %)



Over-65 population projections (cumulative growth between 2023-2043, %)



Employment projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, ONS

Challenges related to nature & environment pillar disproportionately affect Anglian Water region

Nature and the environment are important to local economies

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society's overall well-being. The aim of the nature & environment pillar is to assess the challenges each geography faces in a wide range of metrics related to the natural environment.

Anglian Water region ranks as second most challenged on this pillar

The Anglian Water region ranks tenth out of eleven regions on the nature & environment pillar of the index, making it the second most challenged region on this pillar.

The region's ranking is largely driven by acute challenges showing up on metrics including tree cover, agricultural land use, distance to green space, and river water quality, where the Anglian Water region ranks in the top two most challenged regions across these four metrics.

Within the index, lower areas of tree cover represent more of a challenge, as greater tree cover brings added benefits to the region, including providing habitats for a range of biodiversity, capturing and storing carbon, and reducing flood risk.

A larger share of land being used for agriculture is associated with greater challenge in the index due to the dual mandate of ensuring food security while maintaining water resilience.

The index shows the Anglian Water region to be amongst the least challenged on metrics such as access to private outdoor green space, whereby 91% of addresses in the region have access to private outdoor green space, compared to 88% for England as a whole. Meanwhile, a larger share of the area of the Sites of Special Scientific Interest in the Anglian Water region is in "favourable" than the England average and than in all other regions except for London and the South East.

Index ranking of relative region challenges – Nature & environment (1 = least challenges, 11 = most challenges)

Geography	Indicator ranking							Overall
	Distance to public green space	Private outdoor space	Tree cover	Air quality index	Agricultural land use	Sites of Special Scientific Interest	River water quality	
North East	3	1	2	1	2	10	5	1
South East	4	9	1	8	4	1	9	2
North West	2	4	6	9	3	5	8	3
South West	7	6	3	2	7	6	4	4
West Midlands	6	5	5	3	8	9	2	5
England	5	10	4	5	6	8	6	6
East Midlands	10	2	11	4	10	4	2	7
London	1	11	7	10	1	2	11	8
East of England	8	8	8	6	9	7	7	9
Anglian Water region	11	3	10	7	11	3	10	10
Yorkshire and The Humber	9	7	9	11	5	11	3	11

Source: Capital Economics

Index indicates that the Anglian Water region faces challenges from high agricultural land use and low woodland coverage

Almost 75% of land is used for agriculture in Anglian Water region

A larger share of land being used for agriculture is associated with greater challenge in the index as the right balance must be struck between guaranteeing the country’s food security while ensuring water resilience.

Agricultural land use, which is defined as land used for “planting, growing, cultivating, harvesting, pasturing or yarding livestock”, accounts for almost 75% of land in the Anglian Water region. That is higher than any other region in the country and eleven percentage points higher than the national average.

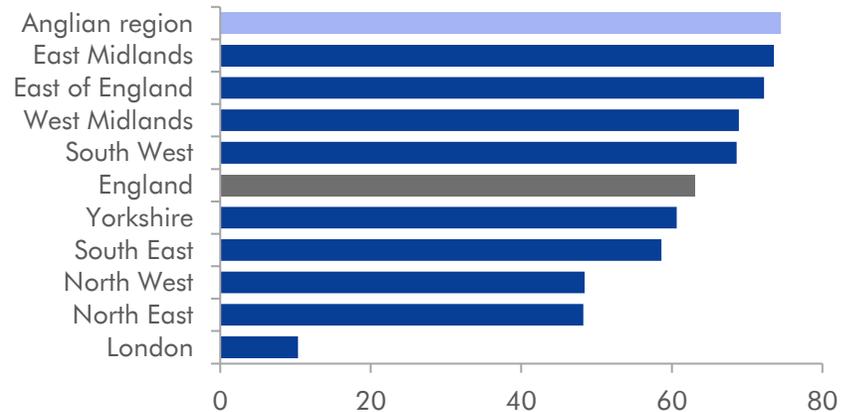
Anglian Water region has the second lowest tree cover in the country

Within the index, lower areas of tree cover represent more of a challenge, as greater tree cover brings added benefits to the region.

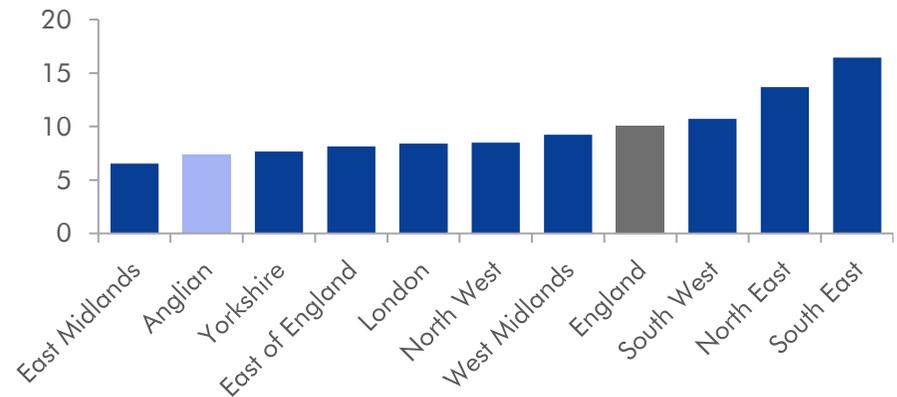
Woodlands help foster biodiversity by supporting various species of plants, birds, invertebrates as well as other animals. Moreover, woodlands can help fight climate change as they naturally capture and store carbon. They can also mitigate the risks of river flooding. This is because woodland soil tends to be more permeable than other grounds. This means that when it rains, more of the water will be absorbed by the ground, instead of draining into water courses, thus lowering the risk of flooding.

Seven per cent of the Anglian Water region’s land area is covered in woodland. This compares with a national average of more than ten per cent, and makes the Anglian Water region the second least woodland-intensive in the country, after East Midlands.

Agricultural land use (% of total, 2022)



Woodland (% of total area, 2019)



Sources: Capital Economics, DEFRA, ONS

Condition of natural resources is important for both supporting biodiversity and the well-being of society

SSSIs in relatively “favourable” condition in Anglian Water region

The condition of natural resources is important for supporting biodiversity and enhancing societal well-being. In the index, metrics that signal an element of the natural environment within a geography is in poorer condition than elsewhere represent a greater challenge.

Sites of Special Scientific Interest (SSSI) are designated to maintain and protect a specific aspect of biological or earth heritage interest. The features that make each site “special” include individual plant or animal species, historical landscapes, habitats and geological formations. As an essential part of any ecosystem, water plays a key role in enhancing the condition of many SSSIs across the country.

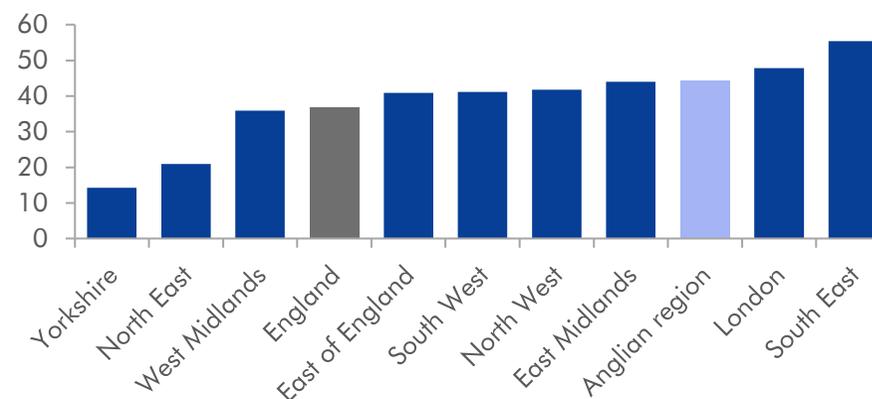
In the Anglian Water region, around 44% of the area of SSSI units are in “favourable” condition – the highest condition category available. Only the East Midlands, London and the South East have a higher score so face a smaller challenge on this metric. Anglian Water is responsible for 49 SSSIs, with 99% of these in favourable condition.

River water quality metric in index signals challenge

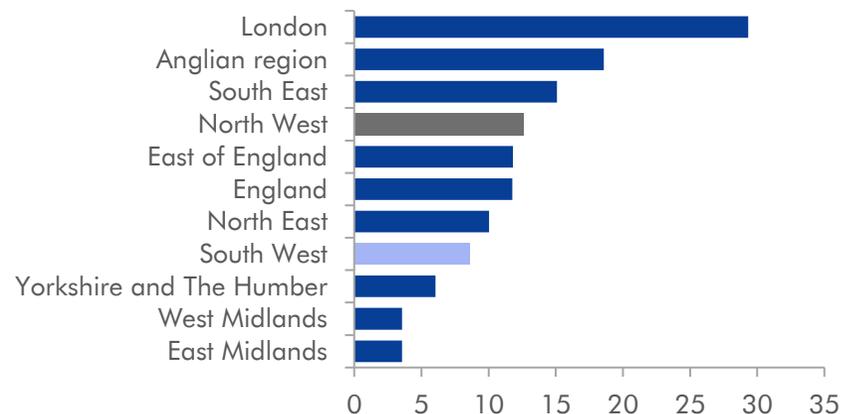
According to the Environment Agency, there are a number of issues that limit the uses and potential benefits of the water environment. Most of these challenges stem from human developments, industrial activity or agriculture.

The Reasons for Not Achieving Good (RNAG) dataset identifies issues preventing waters across England from reaching “good” status. There are some limitations to this data, for example, difficulties with normalising the data and the ways in which samples of larger sites are used to assess quality. Relative to square metres of land in a region, the Anglian Water region has the second highest “reasons for not achieving good water quality”, highlighting the extent to which water quality is a major challenge the region faces.

Sites of Special Scientific Interest (“favourable” SSSI area as a share of total, %, April 2023)



Reasons for not achieving good water quality (number of times per square metre of land in the region, 2022)



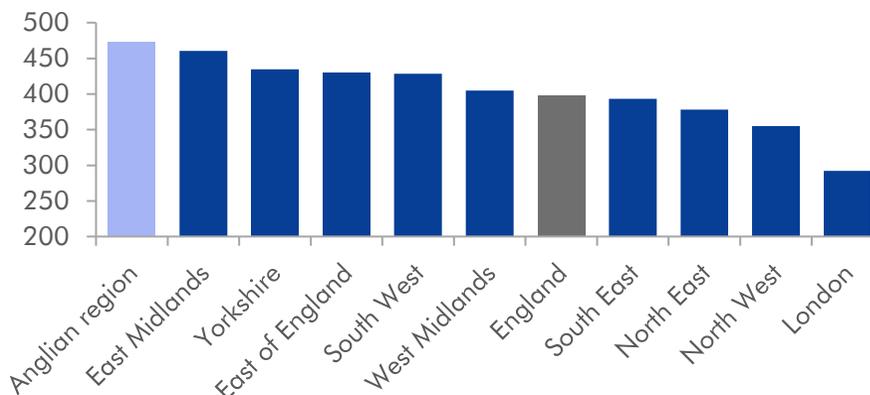
Sources: Capital Economics, DEFRA Reasons for Not Achieving Good Dataset

Challenge on air quality and distance to public green space metrics slightly higher than national average, but lower for access to private outdoor space

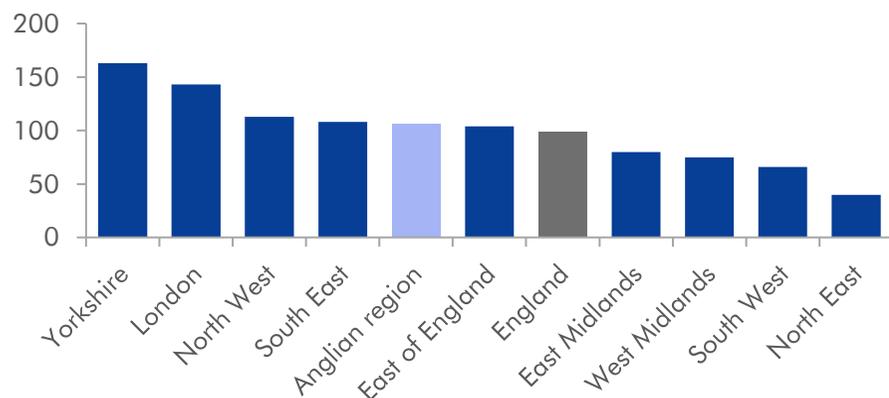
Higher air pollution represents a challenge in the index, as resources will be required over the next few decades to reduce pollution and offset its impacts. Since the year 2000, air pollution levels in the Anglian Water region, as measured by Defra’s Daily Air Quality Index, have been deemed “high” 106 times. While that is not far from the national average (99), it is higher than five of England’s regions.

Access to green space, both private and public, is included in the index as a measure of well-being, with less access representing a greater challenge. For the Anglian Water region, the average distance to public green space is relatively further away than the England average. In contrast, the share of addresses with private outdoor space is relatively higher. More than 91% of addresses in the Anglian Water region boast access to a private outdoor space. The region has the third highest value, behind the North East and the East Midlands.

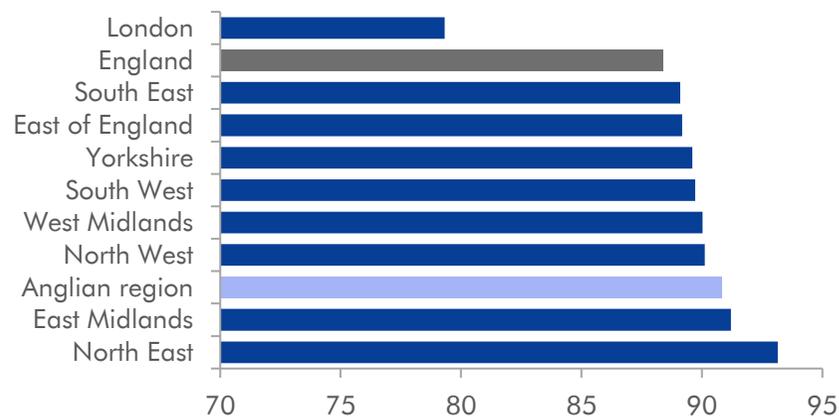
Average distance to public green space (metres, 2020)



Number of times air pollution level as been deemed “high” since 2000



Addresses with private outdoor space (% of total, 2020)



Sources: Capital Economics, DEFRA, ONS

4. Long term challenges within the Anglian Water region

Bedfordshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Bedfordshire ranks second out of fourteen areas in the index, with relatively smaller challenge than regional and national average
- Within Bedfordshire's index score, it fares the worst on the climate change pillar.

Bedfordshire ranks second on index scores, with relatively smaller challenges than the Anglian Water region as a whole

Challenge from climate change and nature & environment greater than national average

Bedfordshire ranks second out of fourteen on the index, making it the second least challenged area in the Anglian Water region. Overall, the county is slightly less challenged than England as a whole.

Within the climate change and nature and environment pillars, the index results suggest that challenges are greater for Bedfordshire than the national average.

Bedfordshire ranks seventh out of fourteen on the climate change pillar. One particular challenge for water supply is the fact Bedfordshire ranks as one of the driest and hottest areas in the Anglian Water region.

Although Bedfordshire ranks fourth out of fourteen on the nature & environment pillar and is less challenged than the Anglian Water region average, the challenges are still greater than the national average.

Bedfordshire in top half on economy and society and sustainable growth pillars

Bedfordshire ranks fourth out of fourteen for the economy & society pillar. The rankings point to the challenge for Bedfordshire being smaller than for the Anglian Water region and country as a whole. Bedfordshire scores relatively well on societal measures of social mobility and well being.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Bedfordshire ranks sixth out of the fourteen on the sustainable growth pillar, which is slightly less challenged than the regional and national average.

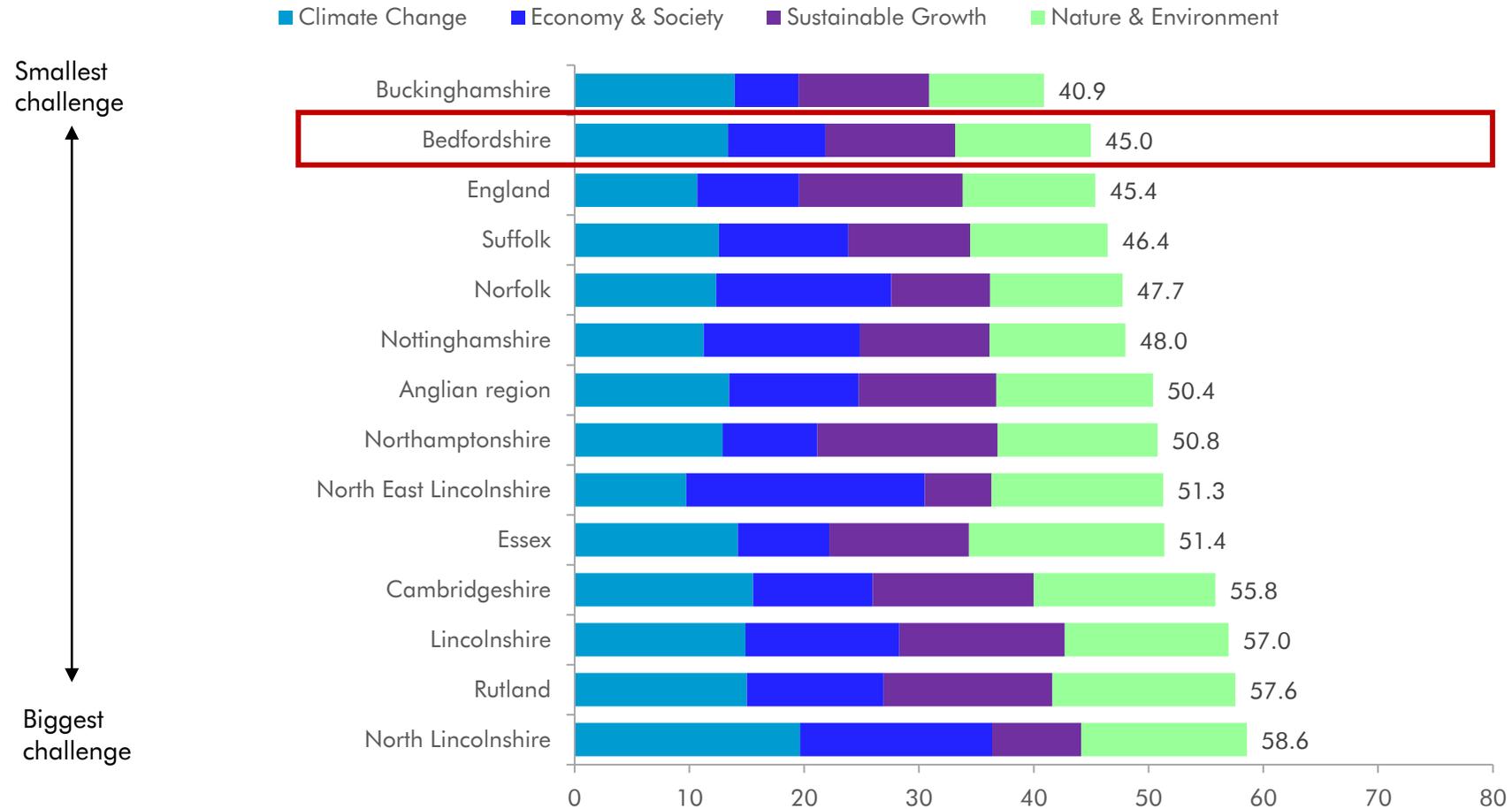
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Bedfordshire second least challenged area in Anglian Water region but close to national average

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

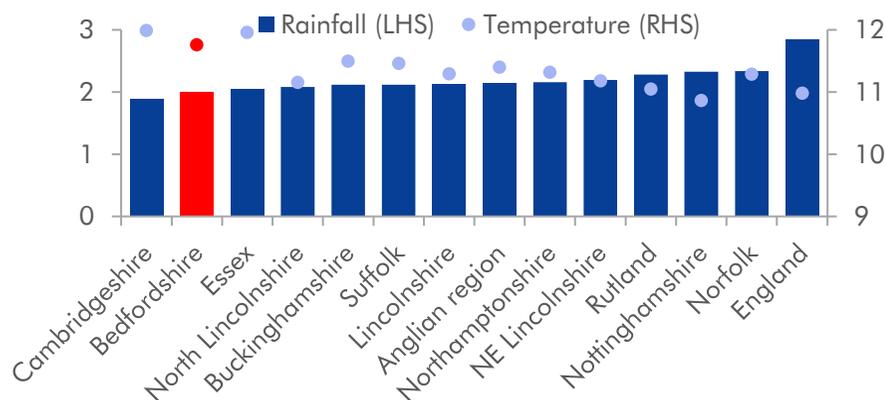
Bedfordshire is in the middle of the pack on challenges related to climate change

Bedfordshire ranks seventh out of fourteen on the climate change pillar. According to the index, the challenges are less pronounced than the Anglian average but still greater than the national average.

One particular challenge for water supply is the fact Bedfordshire ranks as one of the driest and hottest areas in the Anglian Water region. Rainfall projections for 2023-2040 predict an average of 2.0 mm of rainfall per day in Bedfordshire compared to the national average of 2.8mm. Meanwhile, average temperatures are projected to be 11.8 degrees Celsius for Bedfordshire compared to 11.0 for the national average.

Bedfordshire currently has the lowest greenhouse gas emissions of an area in the Anglian Water region. It also has a relatively low risk from flooding compared to other areas in the region.

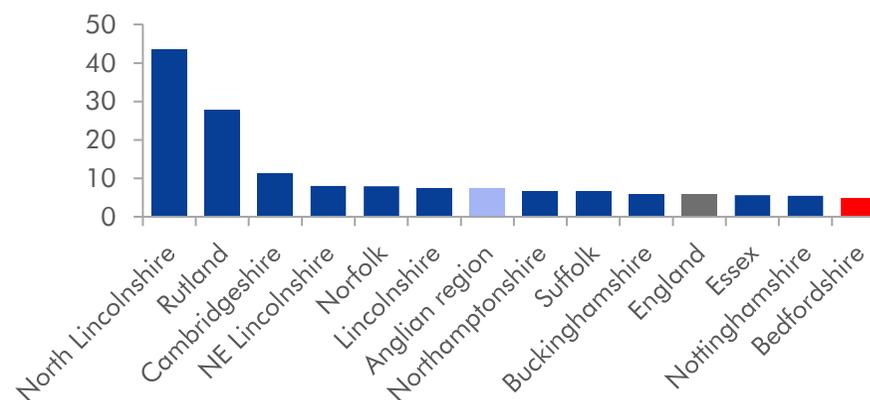
Rainfall precipitation projections (mm per day, 2023-2040 average) and temperature projections (degrees Celsius at 1.5 metres, 2023-2040 average)



Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Bedfordshire	Anglian Water region	England
Overall	7	8	2
Precipitation index	10	9	1
Rainfall projections	13	7	1
Temperature projections	12	9	2
People at high risk from flooding	2	10	9
Properties at high risk from flooding	2	11	6
Greenhouse gas emissions	1	8	4
Renewable electricity capacity	11	6	9

Greenhouse gas emissions (tonnes of CO2 equivalent per capita), 2019



Sources: Capital Economics, BEIS, Met Office

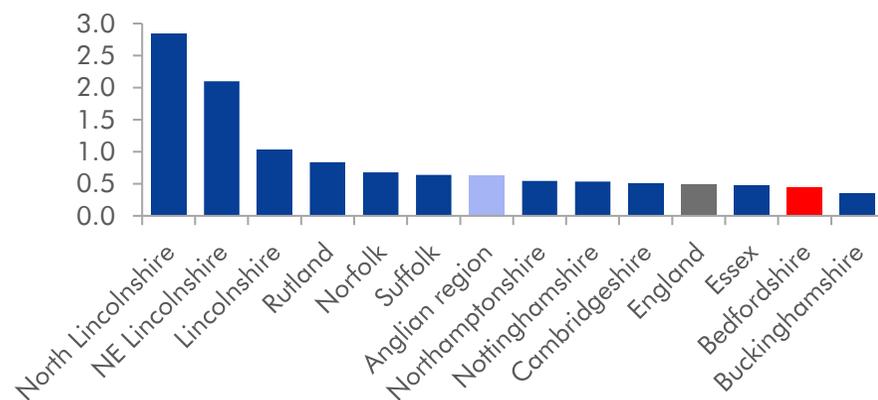
Challenges linked to economy & society lower in Bedfordshire than for England as a whole

Bedfordshire ranks fourth out of fourteen for the economy & society pillar. The rankings point to the challenge for Bedfordshire being smaller than for the Anglian Water region and country as a whole.

Bedfordshire scores relatively well on societal measures of social mobility and well being. Over recent years, the share of residents reporting ‘poor’ levels of happiness has been lower than the average for the Anglian Water region.

The composition of Bedfordshire’s economy contributes to a relatively low water intensity in producing output. In Bedfordshire 0.43 litres of water is used per unit of output, which compares to the national average of 0.49 and the Anglian Water region average of 0.62. Bedfordshire is the second lowest of the Anglian Water region areas on this metric.

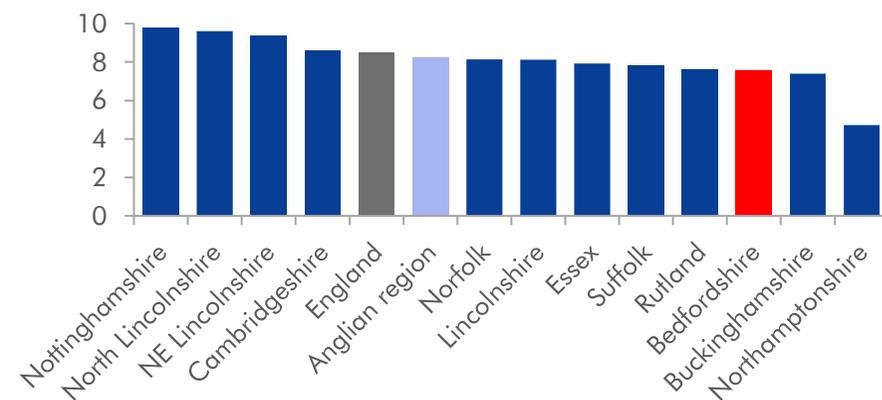
Non-domestic water consumption per unit of output (average litres used per day relative to GDP), 18-month average as of April 2023



Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Bedfordshire	Anglian Water region	England
Overall	4	8	5
Agricultural GVA	5	9	3
Non-domestic water consumption	2	8	4
Bathing waters quality	3	12	3
Workforce skills level	5	8	3
Well-being estimates	3	9	10
Income deprivation	9	7	5
Social mobility	4	7	5

Population that reports “poor” happiness levels (% of total, 2018-2022 average)



Sources: Capital Economics, MOSL, ONS

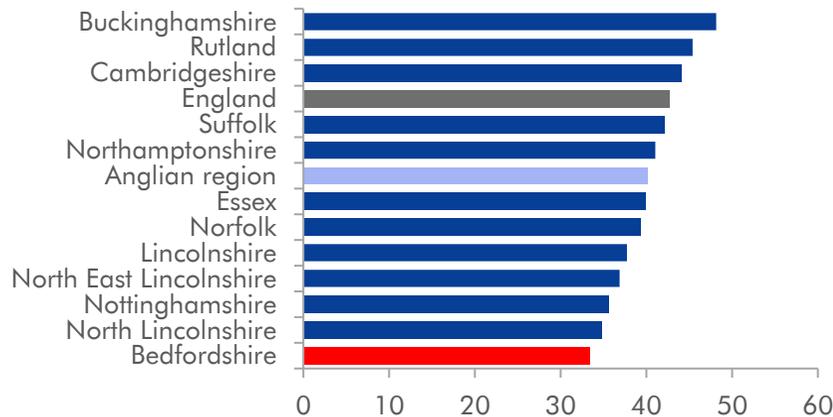
Bedfordshire ranks sixth on sustainable growth pillar

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Bedfordshire ranks sixth out of the fourteen on the sustainable growth pillar, which is slightly less challenged than the regional and national average.

One area of relatively greater challenge for Bedfordshire within this pillar is the number of households on social housing waiting lists. In 2022, 2.5% of households were on this list compared to 2.4% in England and 1.6% in the Anglian Water region.

Bedfordshire has a lower concentration of businesses than any other area in the Anglian Water region. In 2021, there were around 33 businesses per 10,000 people in Bedfordshire, compared to 40 across the entire Anglian Water region.

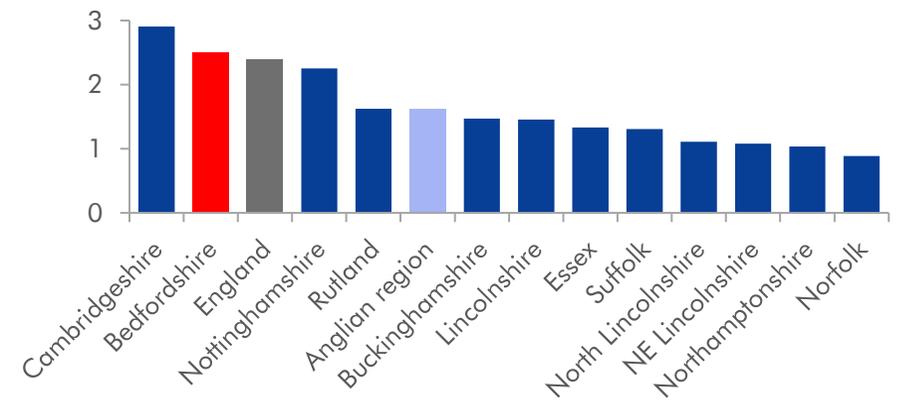
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Bedfordshire	Anglian Water region	England
Overall	6	8	11
Population projections	4	8	7
Over 65 population projections	12	8	9
Employment projections	5	9	7
GDP projections	9	6	10
Business stocks	1	8	11
Housing stocks	5	7	8
Households in social housing waiting lists	13	9	12

Households in social housing waiting lists (% of total, 2022)



Sources: Capital Economics, DLUHC, ONS

Challenges related to nature and environment are greater than national average

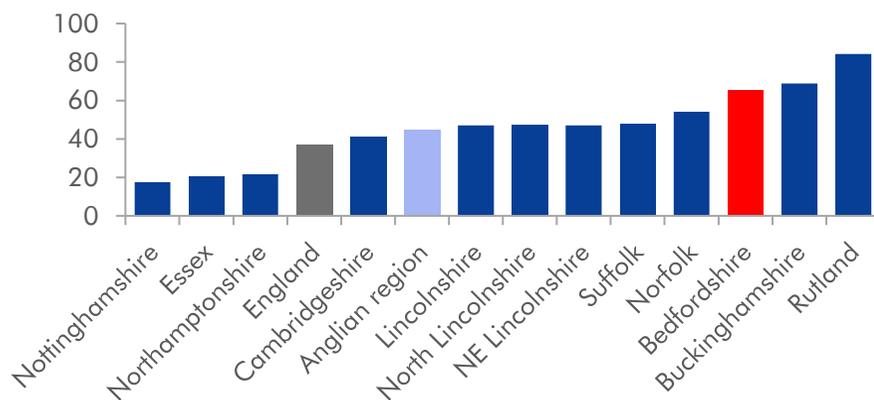
Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Although Bedfordshire ranks fourth out of fourteen on the nature & environment pillar and is less challenged than the Anglian Water region average, the challenges are still greater than the national average.

Within this pillar, Bedfordshire has the third lowest average distance to public green space and also scores well on the condition of its Sites of Special Scientific Interest (SSSI), with 65% of its SSSI area deemed to be in “favourable” condition.

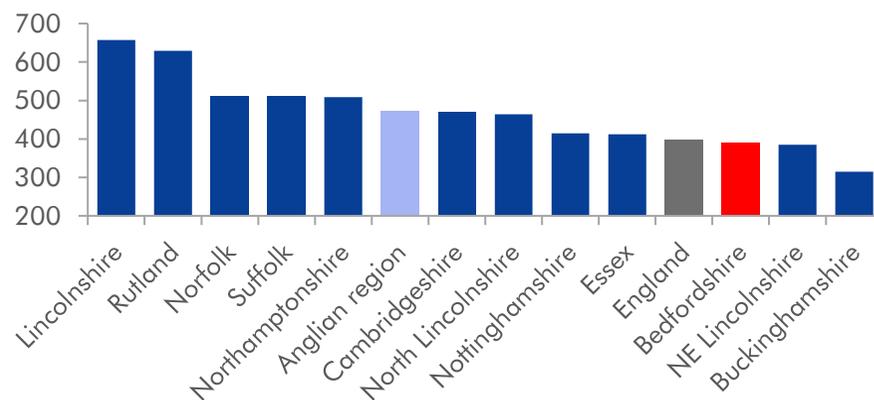
Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Bedfordshire	Anglian Water region	England
Overall	4	7	3
Distance to public green space	3	9	4
Private outdoor space	10	7	13
Tree cover	6	7	3
Air quality index	8	11	5
Agricultural land use	6	10	2
Sites of Special Scientific Interest	3	9	11
River water quality	11	8	5

Sites of Special Scientific Interest (“favourable” SSSI area as a share of total, %, April 2023)



Average distance to public green space (metres, 2020)



Sources: Capital Economics, DEFRA, ONS

4. Long term challenges within the Anglian Water region

Buckinghamshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Buckinghamshire ranks first out of fourteen areas in the index, making it the least challenged in the Anglian Water region
- Within Buckinghamshire's index score, the greatest challenges are related to the climate change pillar.

Buckinghamshire is the least challenged area of the Anglian Water region

Greatest challenge from climate change pillar

Buckinghamshire ranks first on the index, making it the least challenged area in the Anglian Water region.

The county's challenges are most severe in the climate change pillar where it ranks ninth. Within this pillar, Buckinghamshire is among the areas which have the highest average temperature projections and the lowest rainfall projections. At an average of 2.1mm per day between 2023 and 2040, it is projected to have less rainfall than the national average of 2.8mm per day.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Buckinghamshire ranks seventh out of the fourteen on the sustainable growth pillar.

Buckinghamshire ranks first on two of the four pillars

Buckinghamshire ranks first on both the nature and environment and economy and society pillars. The composition of Buckinghamshire's economy results in the lowest water intensity of output in the Anglian Water region. Meanwhile, Buckinghamshire ranks well on measures of green space, the condition of its Sites of Special Scientific Interest and tree cover.

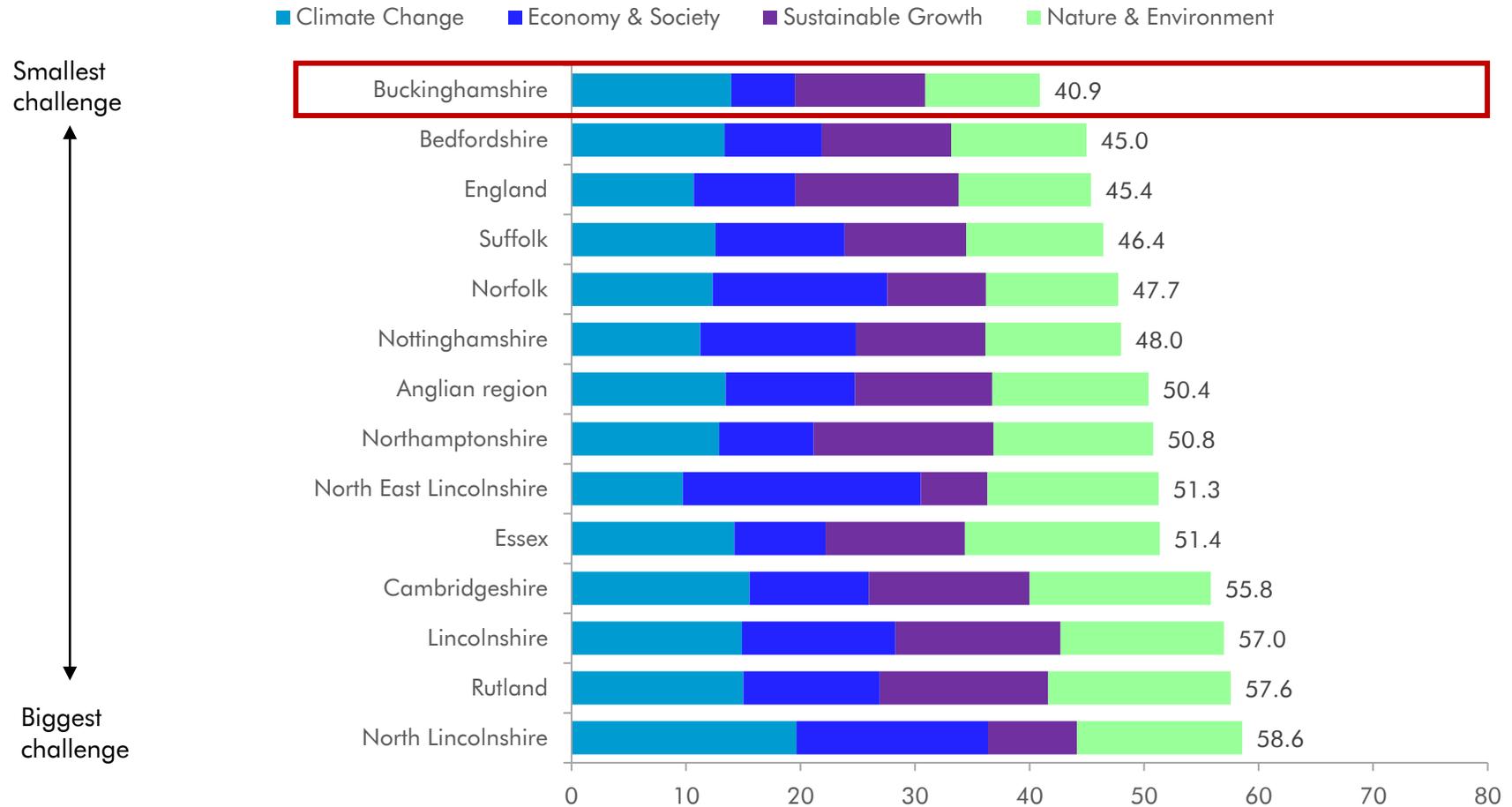
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Buckinghamshire ranks as less challenged than the national average

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

Buckinghamshire is relatively exposed to challenges related to climate change

Buckinghamshire ranks ninth out of fourteen on the climate change pillar. According to the index, the challenges are more pronounced than both the Anglian and national average.

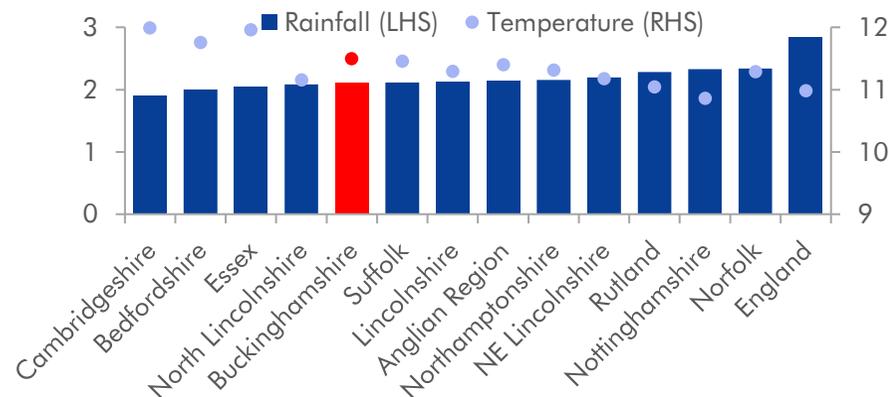
Temperature projections suggest that Buckinghamshire is among the areas that will see the largest increases up to 2040. It is projected to average 11.5 degrees compared to 11.0 degrees across England as a whole. What's more, at an average of 2.1mm per day between 2023 and 2040, it is projected to have less rainfall than the national average of 2.8mm per day.

Adding to the challenge, Buckinghamshire has the smallest renewable electricity installed capacity of any area in the Anglian Water region.

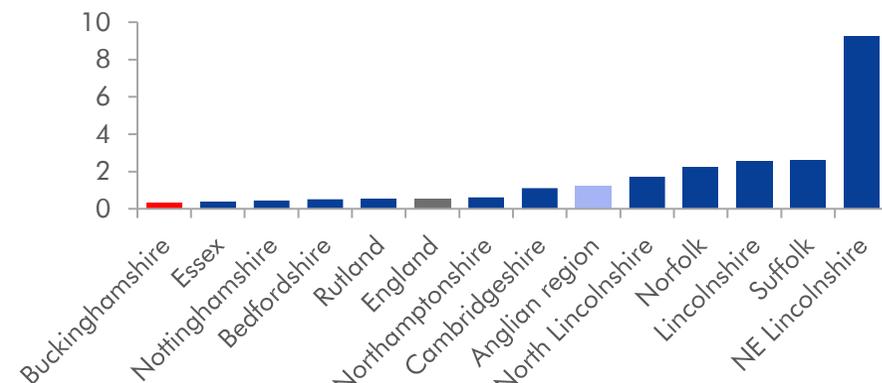
Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Buckinghamshire	Anglian Water region	England
Overall	9	8	2
Precipitation index	13	9	1
Rainfall projections	10	7	1
Temperature projections	11	9	2
People at high risk from flooding	6	10	9
Properties at high risk from flooding	3	11	6
Greenhouse gas emissions	5	8	4
Renewable electricity capacity	14	6	9

Rainfall precipitation projections (mm per day, 2023-2040 average) and temperature projections (degrees Celsius at 1.5 metres, 2023-2040 average)



Renewable electricity installed capacity (MW per 000's), 2021



Sources: Capital Economics, BEIS, Met Office

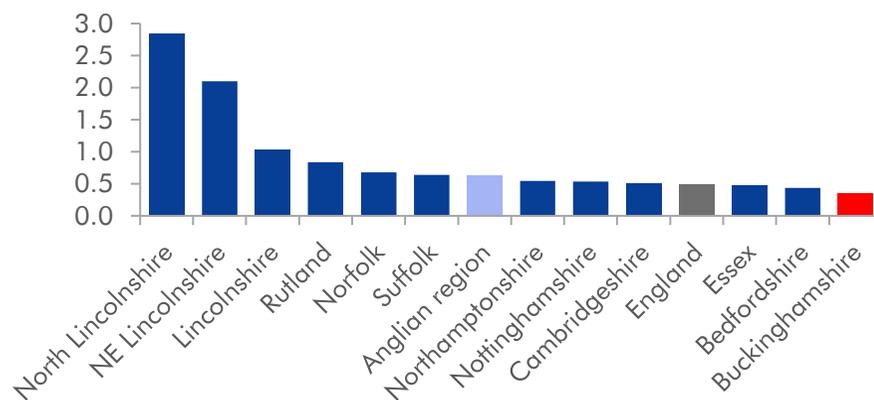
Challenges linked to economy & society are smallest of any area in the Anglian Water region

Buckinghamshire ranks first for the economy & society pillar, implying that the challenges are less acute than for any other area in the Anglian Water region and England as a whole.

The composition of Buckinghamshire’s economy results in the lowest water intensity of output in the Anglian Water region. Producing each unit of output uses 0.35 litres in Buckinghamshire compared to 0.49 litres for England and 0.62 litres for the Anglian Water region.

One driver of lower water usage by businesses is the non-agricultural nature of the economy. Agriculture accounts for just 0.1% of the Buckinghamshire economy compared to 1.4% across the Anglian Water region.

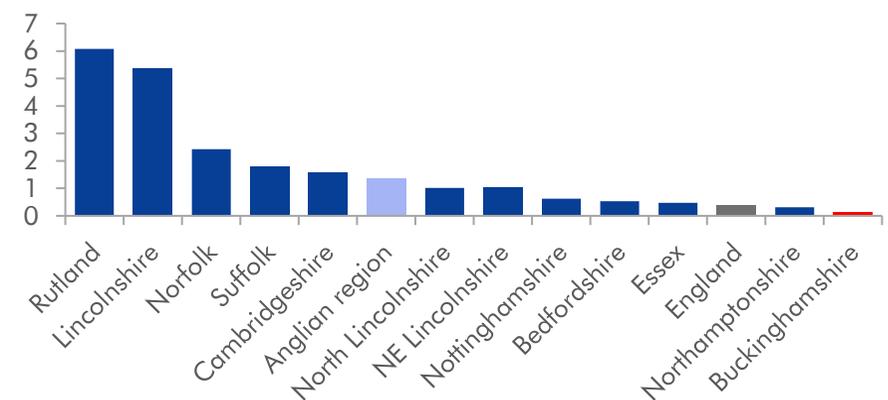
Non-domestic water consumption per unit of output (average litres used per day relative to GDP), 18-month average as of April 2023



Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Buckinghamshire	Anglian Water region	England
Overall	1	8	5
Agricultural GVA	1	9	3
Non-domestic water consumption	1	8	4
Bathing waters quality	3	12	3
Workforce skills level	2	8	3
Well-being estimates	2	9	10
Income deprivation	8	7	5
Social mobility	1	7	5

Agricultural gross value added (% of total, 2015-2019 average)



Sources: Capital Economics, MOSL, ONS

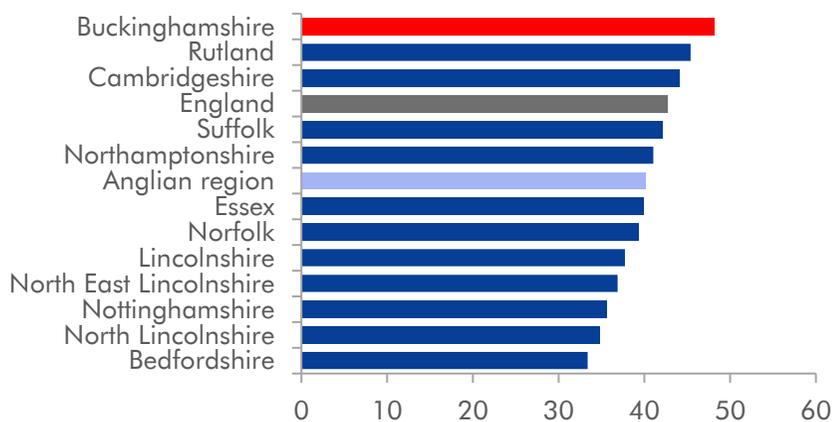
Buckinghamshire ranks in the middle of the pack for challenges related to ensuring sustainable growth

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Buckinghamshire ranks seventh out of the fourteen on the sustainable growth pillar.

Buckinghamshire has relatively low projected population growth; the total population is projected to increase by 4.2% between 2023 and 2043 compared to 8.0% across the Anglian Water region as a whole.

However, Buckinghamshire does have the most businesses relative to its population of any area in the Anglian Water region. In 2021, there were 48 businesses per 10,000 people compared to the regional average of 40.

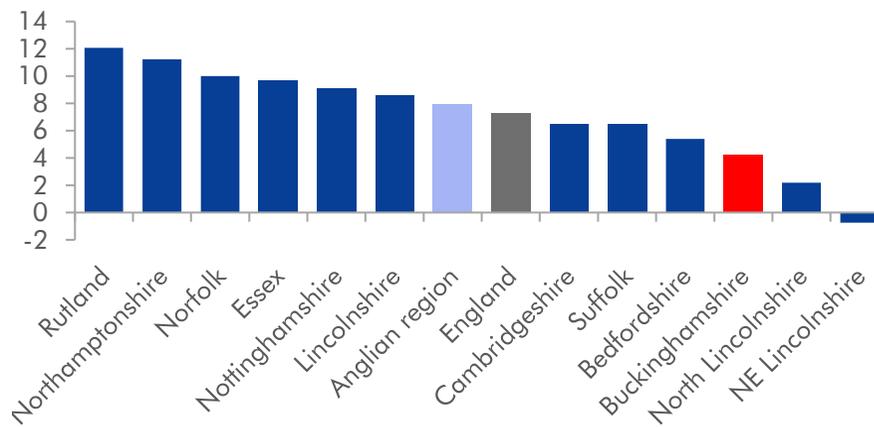
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Buckinghamshire	Anglian Water region	England
Overall	7	8	11
Population projections	3	8	7
Over 65 population projections	10	8	9
Employment projections	4	9	7
GDP projections	7	6	10
Business stocks	14	8	11
Housing stocks	3	7	8
Households in social housing waiting lists	8	9	12

Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, ONS

Buckinghamshire faces relatively smaller challenges than other areas of the Anglian Water region related to nature and the environment

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Buckinghamshire ranks first on the nature & environment pillar, meaning that its challenges are smaller than for all other areas of the Anglian Water region.

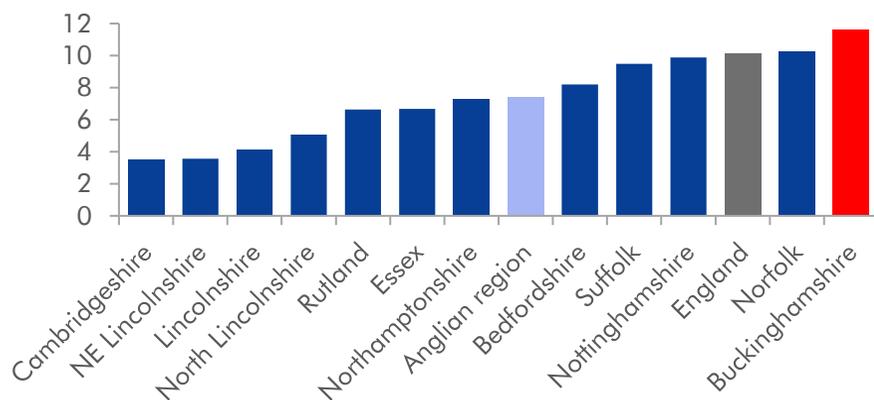
Buckinghamshire ranks well on measures of green space, the condition of its Sites of Special Scientific Interest and tree cover. As of 2019, 11.6% of its land area was covered by woodland compared to 7.4% of the Anglian Water region as a whole.

The metrics within this pillar do highlight access to private outdoor space and air quality as some areas in which Buckinghamshire has relatively more severe challenges.

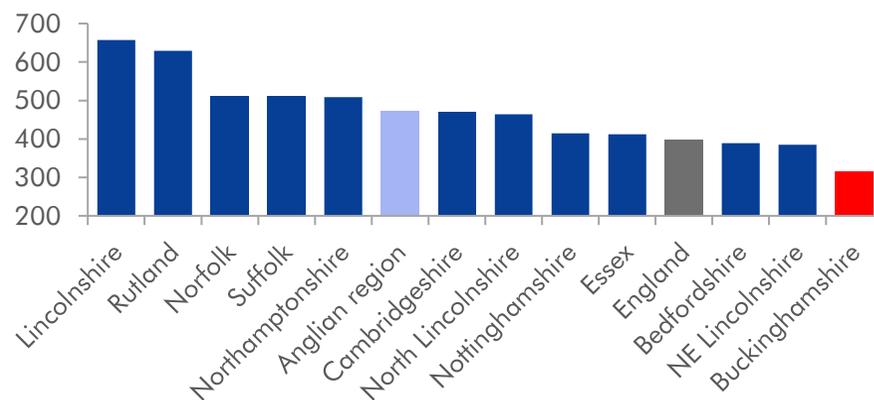
Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Buckinghamshire	Anglian Water region	England
Overall	1	7	3
Distance to public green space	1	9	4
Private outdoor space	14	7	13
Tree cover	1	7	3
Air quality index	12	11	5
Agricultural land use	3	10	2
Sites of Special Scientific Interest	2	9	11
River water quality	9	8	5

Woodland (% of total area, 2019)



Average distance to public green space (metres, 2020)



Sources: Capital Economics, DEFRA, ONS

4. Long term challenges within the Anglian Water region

Cambridgeshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Cambridgeshire ranks eleventh out of fourteen areas in the index, with relatively greater challenge than regional and national average
- Within Cambridgeshire's index score, it fares the worst on the climate change and the nature & environment pillars.

Cambridgeshire fourth most challenged area, suggesting greater challenges than the Anglian Water region as a whole

Greatest challenge from climate change and nature & environment pillars

Cambridgeshire ranks eleventh out of fourteen on the index, making it the fourth most challenged area in the Anglian Water region. The county is relatively more challenged than the Anglian Water regional average.

Challenges are most severe within the climate change and the nature & environment pillars. The county ranks thirteenth and twelfth for these pillars respectively.

Within the climate change pillar, Cambridgeshire ranks as one of the driest areas in the Anglian Water region. Rainfall projections for 2023-2040 point to an average of 1.9 mm of rainfall per day in Cambridgeshire, compared to the England average of 2.8mm.

Key challenges within the nature & environment pillar include the fact 79% of land in Cambridgeshire is used for agriculture, which is a relatively water-intensive industry, compared to just 63% for England. Meanwhile, tree cover as measured by the share of land that is woodland is lower than in the Anglian Water region and England.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Cambridgeshire ranks tenth on sustainable growth, which is more challenged than the Anglian Water region as a whole. Business count per capita is higher than the Anglian Water region.

Cambridgeshire less challenged than Anglian Water region for economy & society pillar

Cambridgeshire ranks sixth (fourteenth being the most challenged) for the economy & society pillar. Cambridgeshire's large agricultural sector is one of the county's greatest challenges, but it performs well on the workforce skills metric.

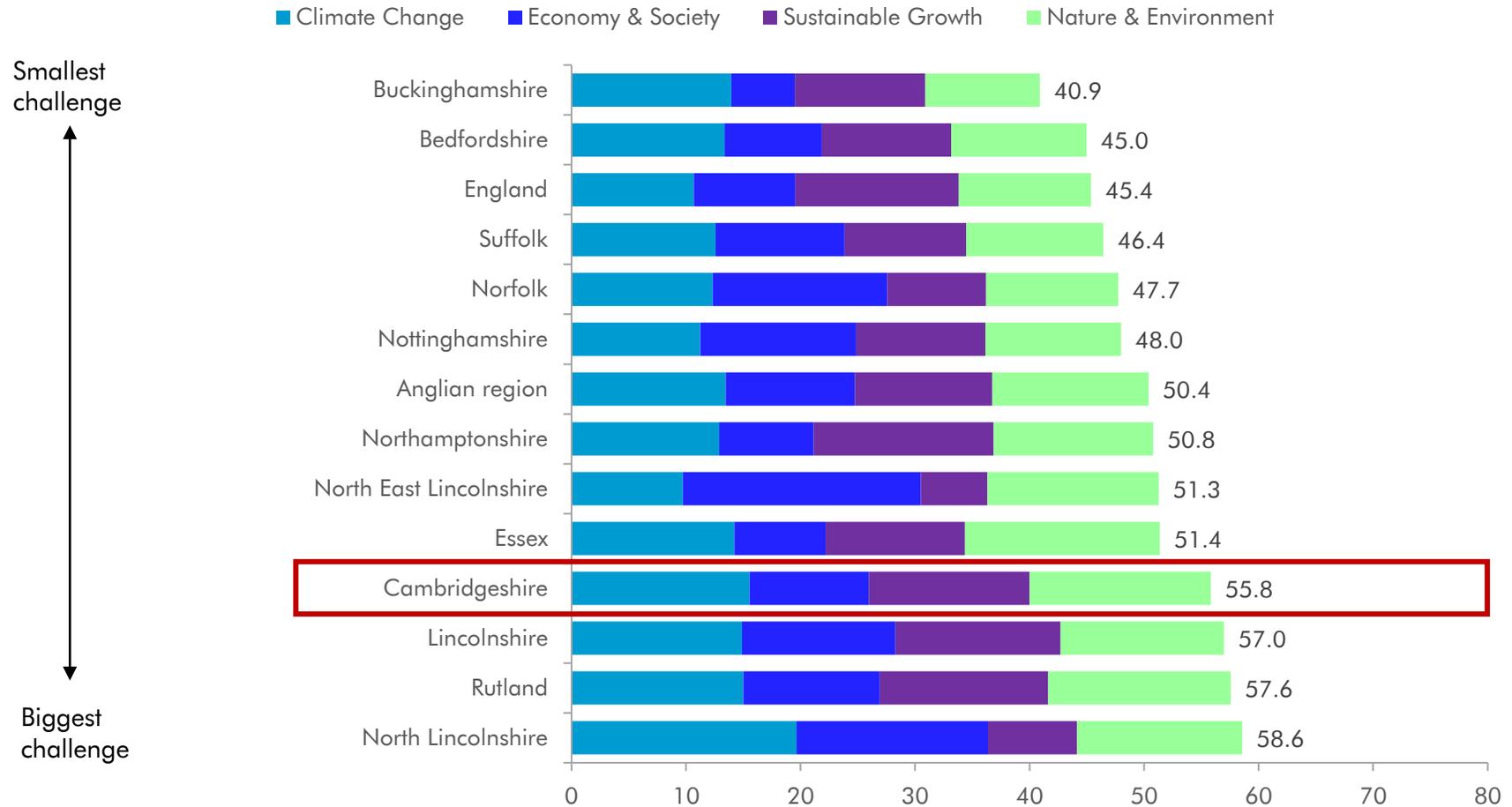
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Cambridgeshire to face biggest challenge in the climate change pillar

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

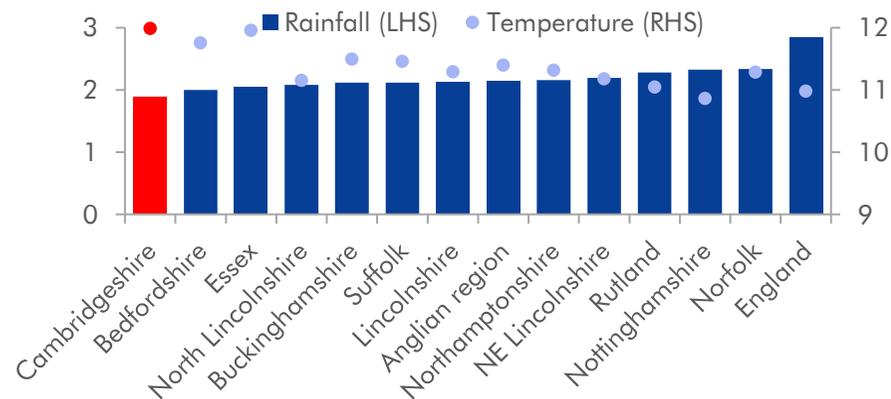
Cambridgeshire is relatively exposed to challenges related to climate change

Cambridgeshire ranks thirteenth out of fourteen on the climate change pillar. According to the index, the challenges are more pronounced than both the Anglian and national average.

One particular challenge for water supply is the fact Cambridgeshire ranks as one of the driest areas in the Anglian Water region. Rainfall projections for 2023-2040 point to an average of 1.9 mm of rainfall per day in Cambridgeshire, compared to the national average of 2.8mm. Average temperatures are projected to be 12.0 degrees Celsius for Cambridgeshire compared to 11.0 for the national average. Cambridgeshire is most challenged area on these metrics.

Greenhouse gas emissions in Cambridgeshire were 11.2 tonnes of CO2 equivalent per capita in 2019, which is higher than for the 7.3 tonnes for the Anglian Water region and 5.7 tonnes for England. Reducing emissions requires resources and represents a challenge.

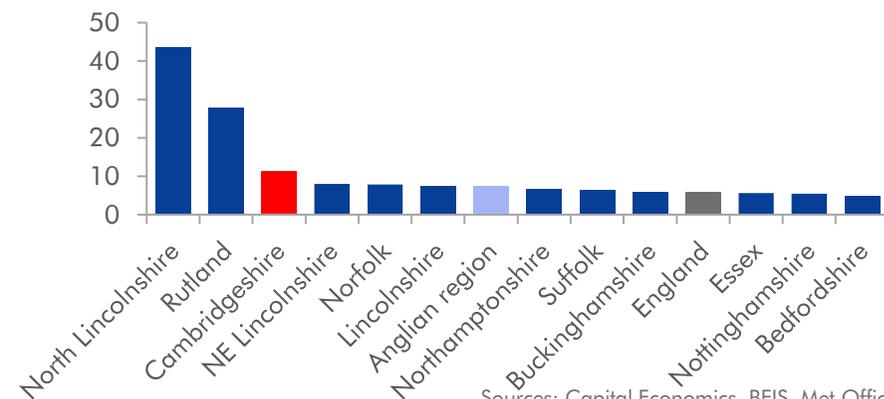
Rainfall precipitation projections (mm per day, 2023-2040 average) and temperature projections (degrees Celsius at 1.5 metres, 2023-2040 average)



Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Cambridgeshire	Anglian Water region	England
Overall	13	8	2
Precipitation index	11	9	1
Rainfall projections	14	7	1
Temperature projections	14	9	2
People at high risk from flooding	8	10	9
Properties at high risk from flooding	4	11	6
Greenhouse gas emissions	12	8	4
Renewable electricity capacity	7	6	9

Greenhouse gas emissions (tonnes of CO2 equivalent per capita), 2019



Sources: Capital Economics, BEIS, Met Office

Challenges linked to economy & society lower in Cambridgeshire than for the Anglian Water region as a whole

Cambridgeshire ranks sixth out of fourteen for the economy & society pillar. The rankings point to the challenge for Cambridgeshire being lower than for the Anglian Water region as a whole but greater than the national average.

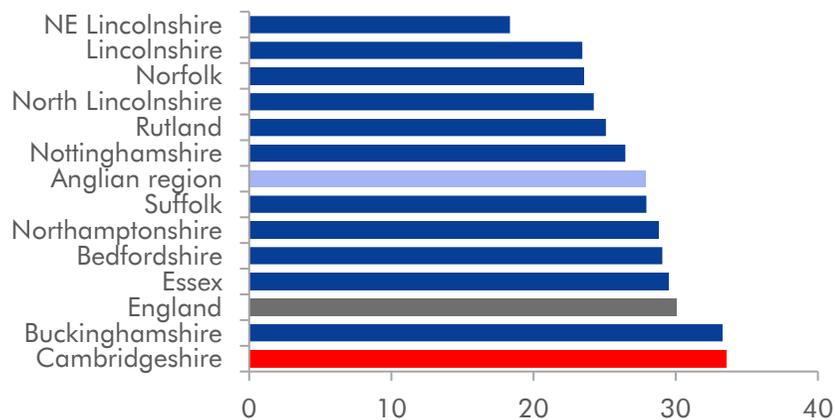
Cambridgeshire’s large agricultural sector is one of the county’s greatest challenges related to water supply, as the sector tends to be more water-intensive than most. On average between 2015 and 2019, 1.6% of Cambridgeshire’s economic output, as measured by gross value added came from the agriculture sector. That compares to 1.4% for the Anglian Water region, and 0.4% for England.

Well-being and social mobility in the county is lower than the Anglian average. But Cambridgeshire performs well on the workforce skills metric, with 34% of employment in 2019 having the highest skills level compared to 30% for England and 28% for the Anglian Water region.

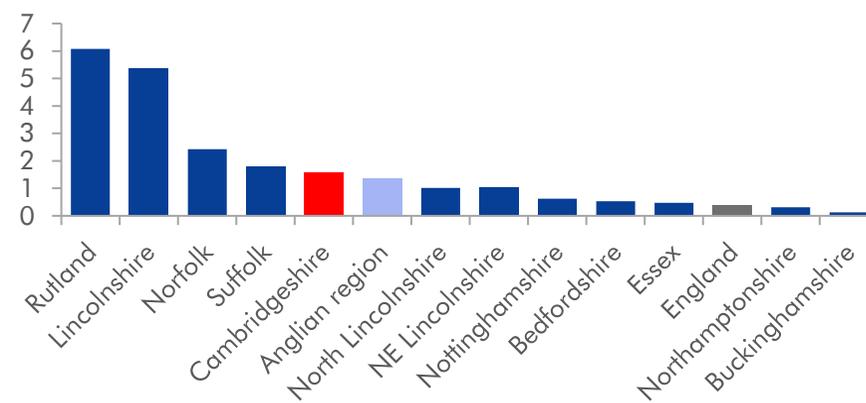
Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Cambridgeshire	Anglian Water region	England
Overall	6	8	5
Agricultural GVA	10	9	3
Non-domestic water consumption	5	8	4
Bathing waters quality	3	12	3
Workforce skills level	1	8	3
Well-being estimates	11	9	10
Income deprivation	3	7	5
Social mobility	10	7	5

Employment with highest skills level (% of total, 2019)



Agricultural gross value added (% of total, 2015-2019 average)



Sources: Capital Economics, ONS

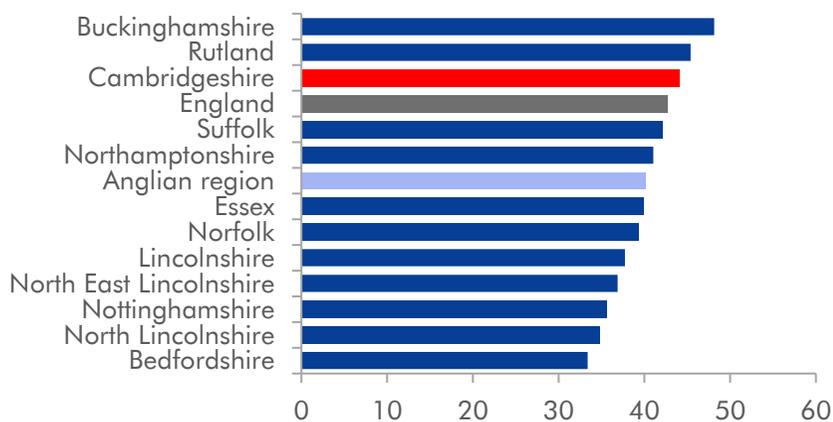
Ensuring sustainable growth presents greater challenge for water supply in Cambridgeshire than for the Anglian Water region on average

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Cambridgeshire ranks tenth out of the fourteen on the sustainable growth pillar, which is slightly more challenged than the regional average, but less so than the national average.

Cambridgeshire’s population is projected to rise by six per cent between 2023 and 2043, compared to eight per cent for the Anglian Water region and seven per cent for England. Cambridgeshire is set to see a 34% rise in the number of people over age 65, which is above the 33% for the Anglian Water region and England. That could mean more single households and greater need for housing and water supply.

There were around 44 businesses per 10,000 people in Cambridgeshire in 2021, compared to 40 for Anglian. Strong business activity presents a challenge for water supply.

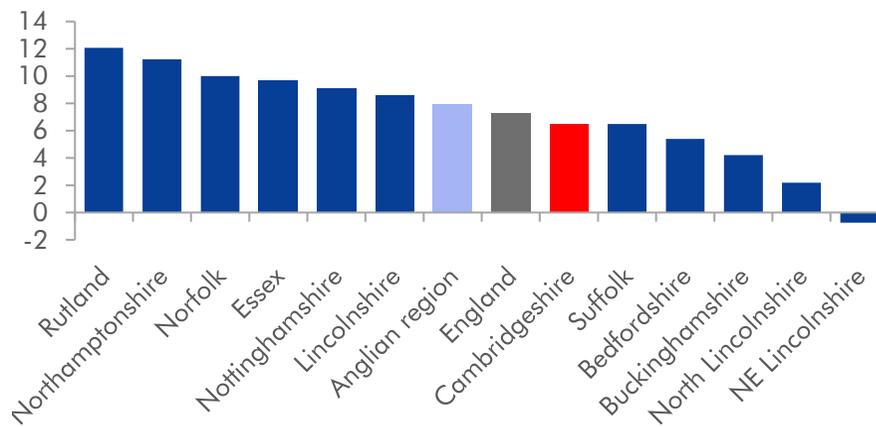
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Cambridgeshire	Anglian Water region	England
Overall	10	8	11
Population projections	6	8	7
Over 65 population projections	11	8	9
Employment projections	6	9	7
GDP projections	13	6	10
Business stocks	12	8	11
Housing stocks	1	7	8
Households in social housing waiting lists	14	9	12

Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

Cambridgeshire is the third most challenged amongst all areas in the Anglian Water region on nature & environment metrics

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Cambridgeshire ranks twelfth out of fourteen on the nature & environment pillar and is more challenged than the Anglian Water region average.

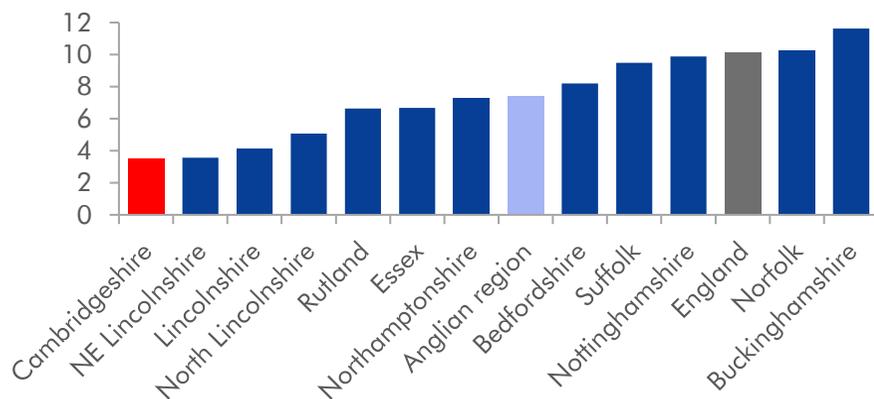
The county’s ranking is largely driven by challenges on metrics assessing tree cover and agricultural land use, along with the condition of Sites of Special Scientific Interest and river water quality.

Within the index, lower areas of tree cover represent more of a challenge, as tree cover brings added benefits to the region such as supporting biodiversity, capturing carbon, and mitigating flood risk. In Cambridgeshire, 3.5% of the area is woodland; the lowest in the sample. Meanwhile, 79% of the land is used for agriculture, a relatively water-intensive industry, compared to just 63% for England.

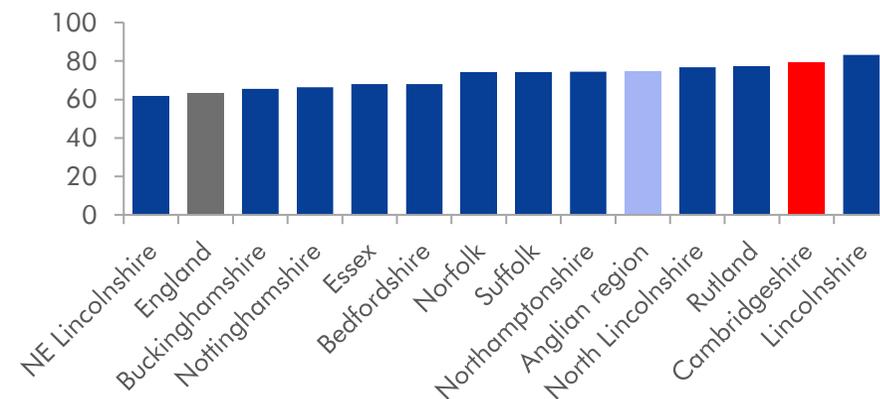
Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Cambridgeshire	Anglian Water region	England
Overall	12	7	3
Distance to public green space	8	9	4
Private outdoor space	9	7	13
Tree cover	14	7	3
Air quality index	8	11	5
Agricultural land use	13	10	2
Sites of Special Scientific Interest	10	9	11
River water quality	10	8	5

Woodland (% of total area, 2019)



Agricultural land use (% of total area, 2022)



Sources: Capital Economics, DEFRA, Reasons for Not Achieving Good Dataset

4. Long term challenges within the Anglian Water region

Essex

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Essex ranks tenth out of fourteen areas in the index, with relatively greater challenge than regional and national average
- Within Essex's index score, it fares the worst on the nature & environment pillar.

Essex ranks tenth out of fourteen suggesting greater challenges than the Anglian Water region as a whole

Greatest challenge from nature & environment pillar

Essex ranks tenth out of fourteen on the index, making it the fifth most challenged area in the Anglian Water region. The county ranks as relatively more challenged than the Anglian Water regional average.

The county's challenges are most severe within the nature & environment pillar relative to other areas in the Anglian Water region, with the county ranking as the most challenged on these metrics.

In particular, ensuring that the condition of Sites of Special Scientific Interest and river water quality are brought up to excellent standards could put a relatively larger strain on resources in Essex than in most other areas of the Anglian Water region. For example, around 20% of the area of the Sites of Special Scientific Interest (SSSIs) in Essex are deemed to be in "favourable" condition compared to 44% for the Anglian Water region.

Meanwhile, metrics within the climate change pillar shows that Essex is drier than most other Anglian areas, with rainfall projected to be lower and temperatures higher in Essex than the Anglian Water regional average.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. With the population of Essex expected to rise by ten per cent between 2023 and 2043, faster growth in water demand is likely.

Essex second least challenged on economy & society

Essex ranks second (fourteenth being the most challenged) in the economy & society category. Economic development is generally stronger than the Anglian average on metrics such as social mobility, workforce skills, and general well-being. Additionally, our metric in the index suggests economic activity in Essex is less water intensive than the Anglian Water regional and national average.

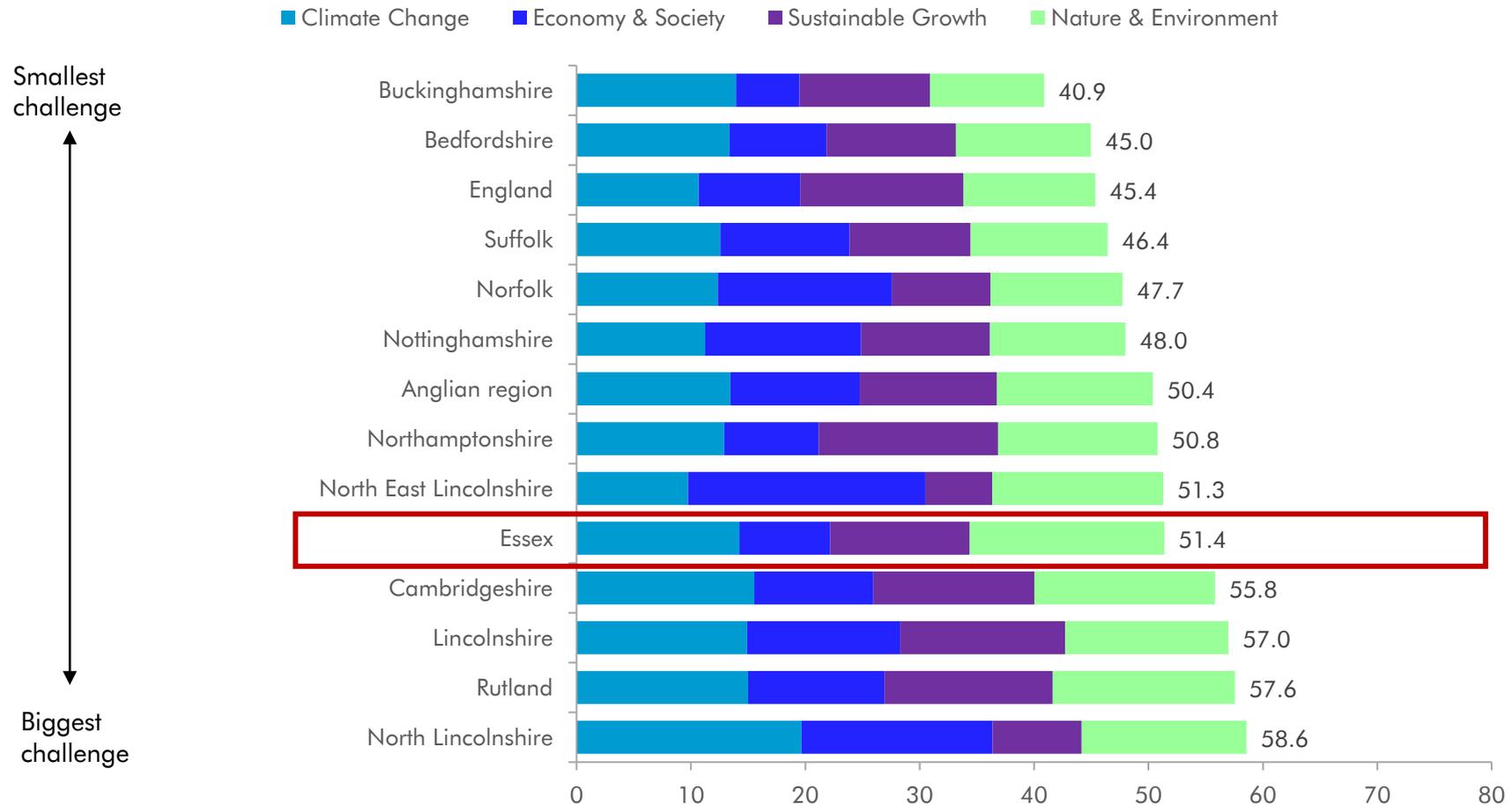
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Essex to face biggest challenge in the nature & environment pillar

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

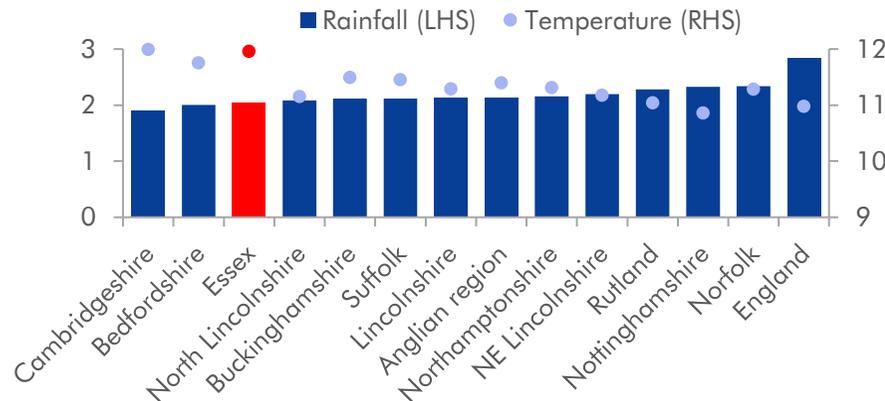
Essex ranks tenth out of fourteen on climate change metrics

Essex ranks tenth out of fourteen on the climate change pillar. According to the index, the challenges are more pronounced than both the Anglian and national average.

One particular challenge for water supply is the fact Essex ranks as one of the driest areas in the Anglian Water region. Rainfall projections for 2023-2040 point to an average of 2.0mm of rainfall per day in Essex, compared to the national average of 2.8mm. Average temperatures are projected to be 12.0 degrees Celsius for Essex compared to 11.0 for the national average. Essex is the fourth and third most challenged area on these metrics respectively.

The Anglian Water region has higher renewable electricity capacity than the national average, at 1.2 megawatts per thousand people. That compares to 0.4 for Essex, which puts the county as the second most challenged on this metric.

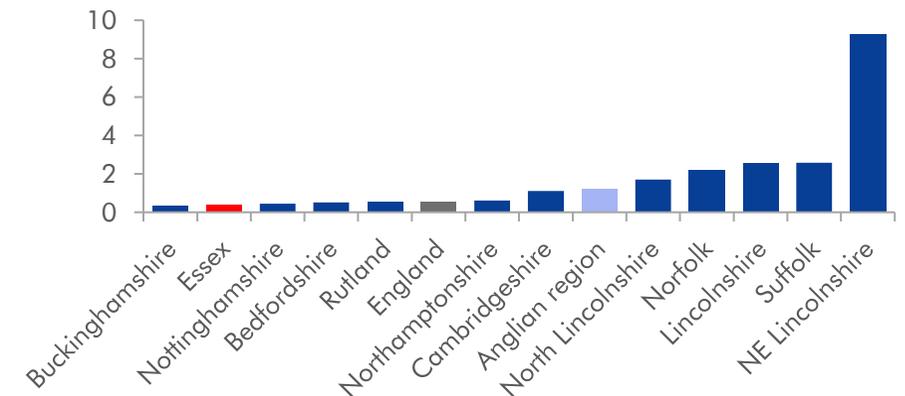
Rainfall precipitation projections (mm per day, 2023-2040 average) and temperature projections (degrees Celsius at 1.5 metres, 2023-2040 average)



Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Essex	Anglian Water region	England
Overall	10	8	2
Precipitation index	5	9	1
Rainfall projections	12	7	1
Temperature projections	13	9	2
People at high risk from flooding	4	10	9
Properties at high risk from flooding	5	11	6
Greenhouse gas emissions	3	8	4
Renewable electricity capacity	13	6	9

Renewable electricity installed capacity (MW per 000's), 2021



Source: Capital Economics, BEIS, Met Office

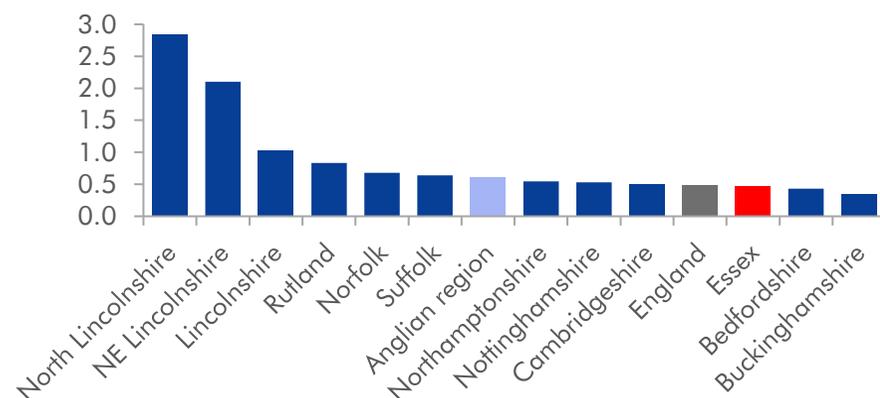
Essex scores well on metrics related to economy and society

Essex scores well on metrics related to the economy and society. The county ranks second out of fourteen and faces a smaller challenge than the average for the Anglian Water region and for England.

The index suggests that Essex has stronger economic development than most other areas in the Anglian Water region. Essex scores +13 on the social mobility index, compared to -11 for the Anglian Water region and +1 for England. Workforce skills and income deprivation are in-line with the national average.

Economic activity in the county is less water intensive than the Anglian average according to our metric of non-domestic water consumption. In Essex, around 0.5 litres of water on average per day by non-domestic entities relative to economic output, compared to 0.6 for the Anglian Water region.

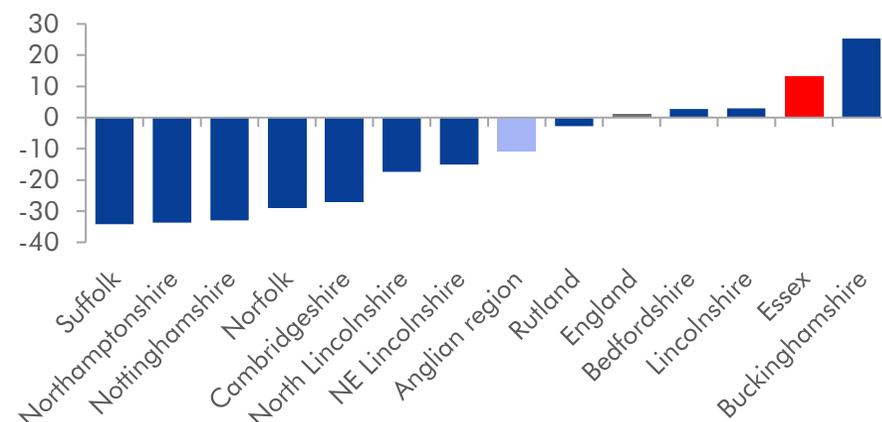
Non-domestic water consumption per unit of output (average litres used per day relative to GDP), 18-month average as of April 2023



Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Essex	Anglian Water region	England
Overall	2	8	5
Agricultural GVA	4	9	3
Non-domestic water consumption	3	8	4
Bathing waters quality	11	12	3
Workforce skills level	4	8	3
Well-being estimates	6	9	10
Income deprivation	6	7	5
Social mobility	2	7	5

Social mobility index, 2018



Sources: Capital Economics, MOSL, ONS

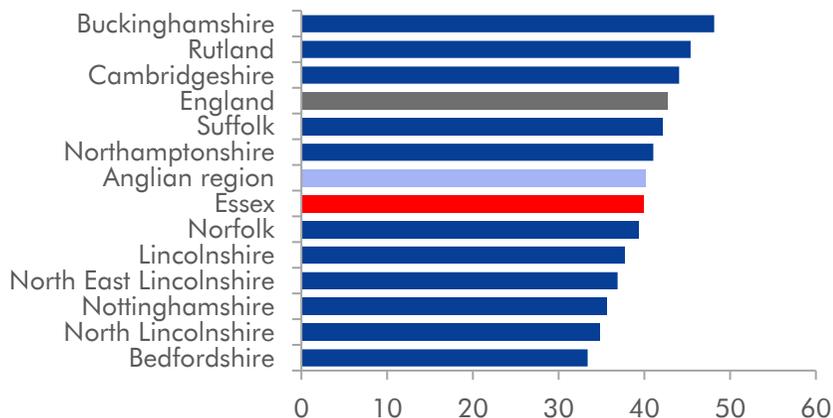
Ensuring sustainable growth presents greater challenge for water supply in Essex than for the Anglian Water region on average

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Essex ranks ninth out of the fourteen on the sustainable growth pillar, which is slightly more challenged than the regional average, but less so than the national average.

The total population of Essex is projected to increase by ten per cent between 2023 and 2043, compared to eight per cent for the Anglian Water region and seven per cent for England. That is likely to add to water demand over the next few decades, putting pressure on resources.

According to the metric of business stocks per 10,000 people, business activity in the Anglian Water region is lower than the England average, meaning the challenge is lower. There are around 43 businesses per 10,000 people in England. That compares to around 40 businesses per 10,000 in the Anglian Water region and in Essex.

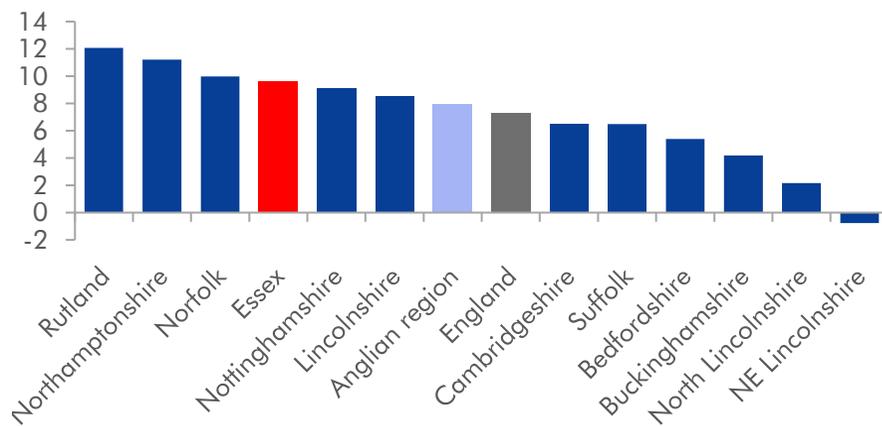
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Essex	Anglian Water region	England
Overall	9	8	11
Population projections	11	8	7
Over 65 population projections	3	8	9
Employment projections	12	9	7
GDP projections	3	6	10
Business stocks	7	8	11
Housing stocks	11	7	8
Households in social housing waiting lists	6	9	12

Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

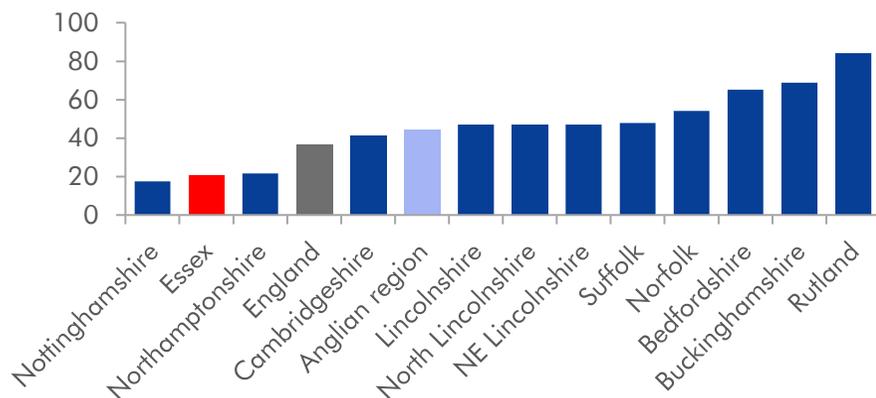
The index results suggest that Essex faces the greatest challenge related to nature and the environment

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Essex is one of the most challenged areas of the Anglian Water region according to the nature & environment pillar. The county ranks fourteenth out of fourteen.

The county’s ranking is largely driven by challenges showing up on metrics assessing the condition of Sites of Special Scientific Interest and river water quality, along with access to private outdoor space.

Around 20% of the area of the Sites of Special Scientific Interest (SSSIs) in Essex are deemed to be in “favourable” condition (“favourable” is the highest rating). That compares to 37% for England as a whole and 44% for the Anglian Water region.

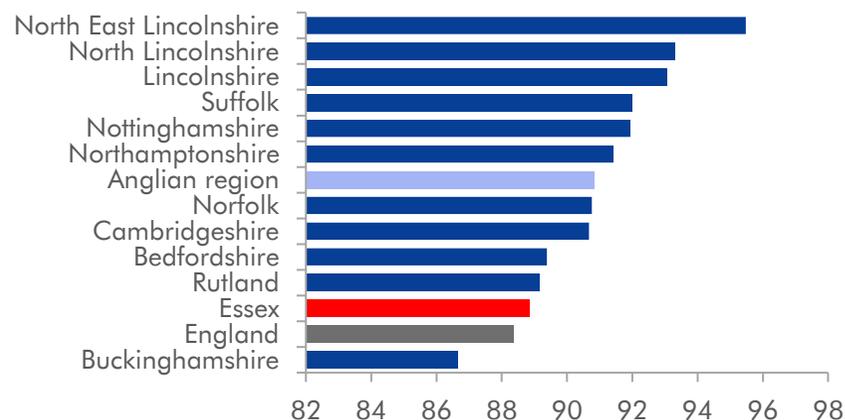
Sites of Special Scientific Interest (“favourable” SSSI area as a share of total, %, April 2023)



Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Essex	Anglian Water region	England
Overall	14	7	3
Distance to public green space	5	9	4
Private outdoor space	12	7	13
Tree cover	9	7	3
Air quality index	8	11	5
Agricultural land use	5	10	2
Sites of Special Scientific Interest	13	9	11
River water quality	14	8	5

Addresses with private outdoor space (% of total, 2020)



Sources: Capital Economics, DEFRA, Reasons for Not Achieving Good Dataset

4. Long term challenges within the Anglian Water region

Lincolnshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Lincolnshire ranks twelfth out of fourteen areas in the index, with relatively greater challenge than regional and national average
- Challenges are particularly pronounced for climate change and nature & environment.

Lincolnshire third most challenged area, suggesting greater challenges than the Anglian Water region as a whole

Greatest challenges from sustainable growth and climate change pillars

Lincolnshire ranks twelfth out of fourteen on the index, making it the third most challenged area in the Anglian Water region. The county is relatively more challenged than the average for the Anglian Water region.

The county's challenges are most severe within the sustainable growth and the climate change pillars.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Lincolnshire ranks twelfth on sustainable growth; it is projected to see stronger population growth between 2023 and 2043 than the national average.

One particular challenge within the climate change pillar is flood risk, with a larger proportion of the population and properties in Lincolnshire estimated to be at risk of flooding compared to the average for the Anglian Water region.

Lincolnshire ranks in bottom five areas on all pillars

Lincolnshire is also more challenged than the Anglian average according to the economy & society pillar, where the county ranks tenth. The index suggests that economic activity in Lincolnshire is relatively water intensive, with a large share of economic output coming from agriculture and non-domestic water consumption is relatively high.

Lincolnshire ranks ninth in the nature & environment pillar. A large share of land used for agriculture, low tree cover and high average distance to public green space present challenges.

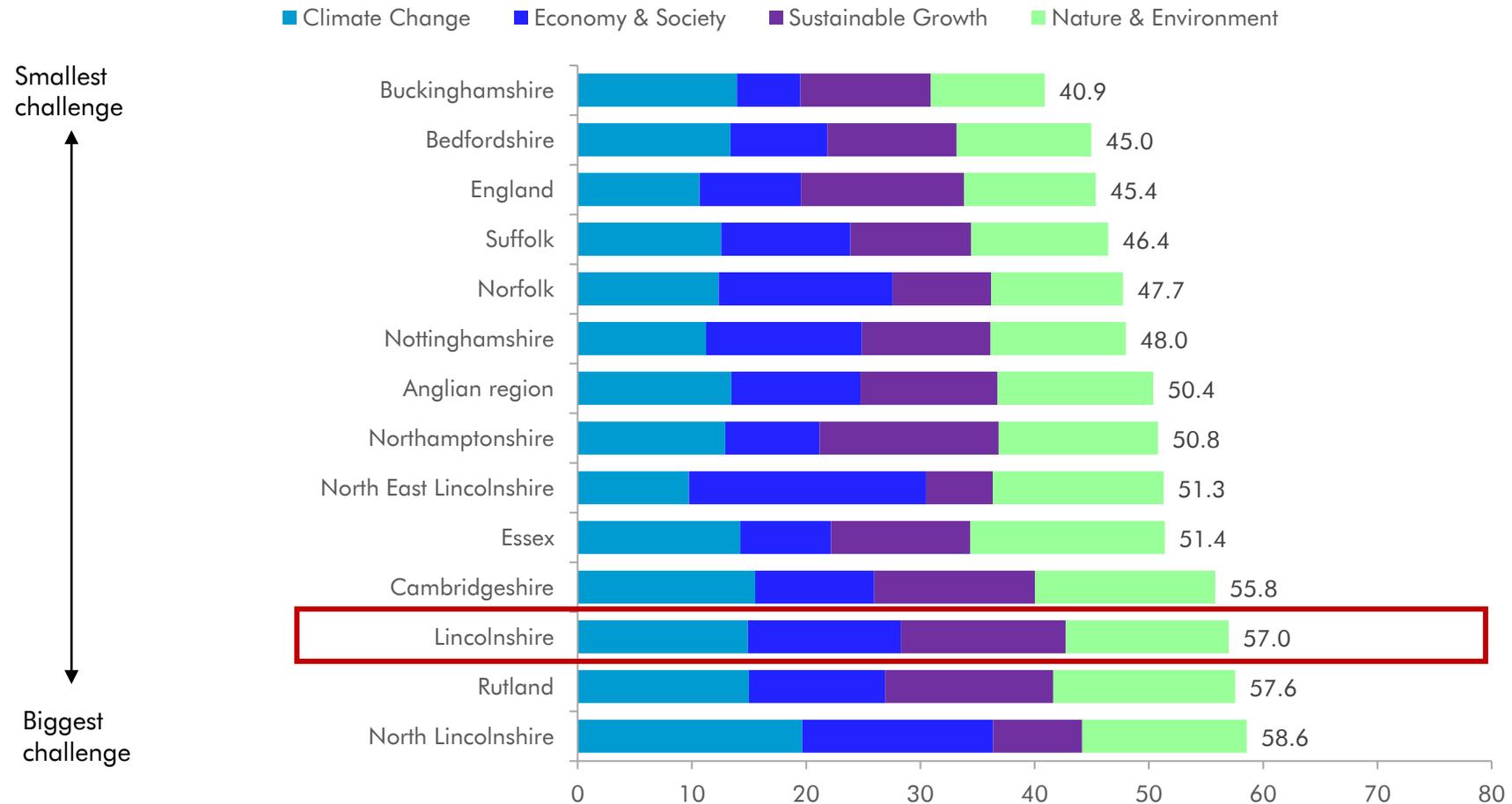
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Lincolnshire's challenge is greatest for the sustainable growth pillar

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

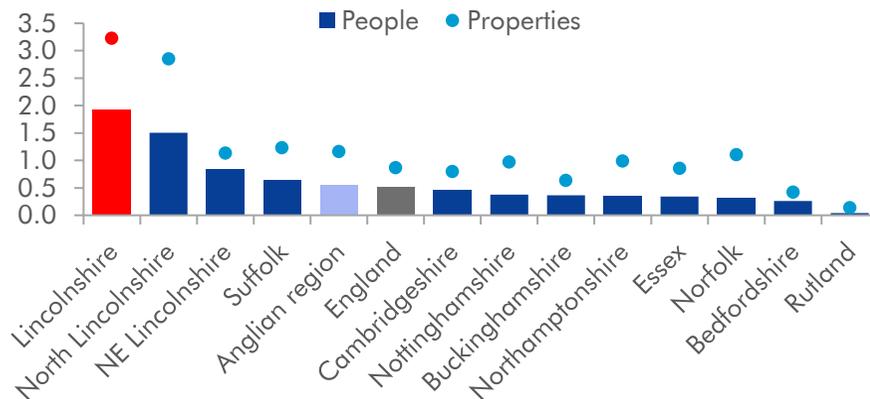
Lincolnshire is relatively exposed to challenges related to climate change

Lincolnshire ranks eleventh out of fourteen on the climate change pillar. According to the index, the challenges are more pronounced than both the Anglian and national average.

One particular challenge for the county is flood risk. The National Receptor Dataset produces estimates of people and properties at risk from flooding due to sea and rivers. In 2022, 1.9% of people in Lincolnshire were at risk and 3.2% of properties. That is significantly higher than the estimates for the Anglian Water region as a whole, where 0.5% of people are at risk and 1.2% of properties.

The Anglian Water region has higher renewable electricity capacity than the country average, at 1.2 megawatts per thousand people. That compares to 2.6 for Lincolnshire, which puts the county as the third least challenged on this metric.

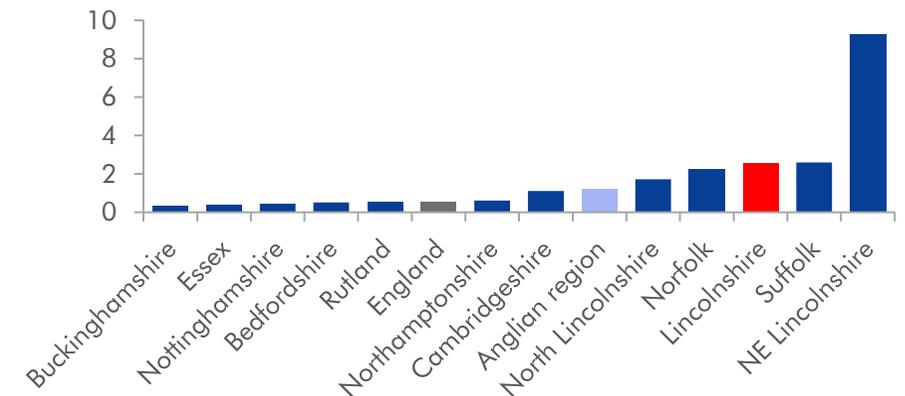
People and properties at high risk from flooding due to sea and rivers (% of total, 2022)



Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Lincolnshire	Anglian Water region	England
Overall	11	8	2
Precipitation index	7	9	1
Rainfall projections	8	7	1
Temperature projections	7	9	2
People at high risk from flooding	13	10	9
Properties at high risk from flooding	13	11	6
Greenhouse gas emissions	9	8	4
Renewable electricity capacity	3	6	9

Renewable electricity installed capacity (MW per 000's), 2021



Sources: Capital Economics, BEIS, ONS

Challenges linked to economy & society greater in Lincolnshire than for the Anglian Water region as a whole

Lincolnshire ranks tenth out of fourteen for the economy & society pillar. The rankings point to the challenge for Lincolnshire being greater than for the Anglian Water region and the national average.

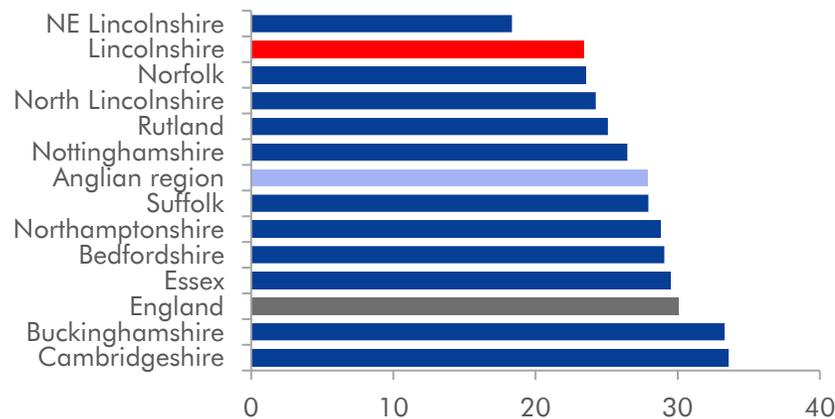
The index suggests that economic activity in Lincolnshire is relatively water intensive. On average between 2015 and 2019, 5.4% of Lincolnshire’s economic output as measured by gross value added came from the agriculture sector. That compares to 1.4% for the Anglian Water region, and 0.4% for England. Our non-domestic water consumption metric also shows non-domestic activity in the county to be more water-intensive than the Anglian and country average.

Improving skills levels in the county over the next thirty years presents a challenge, with around 23% of employment in Lincolnshire having the highest skills level in 2019, compared to 30% for England.

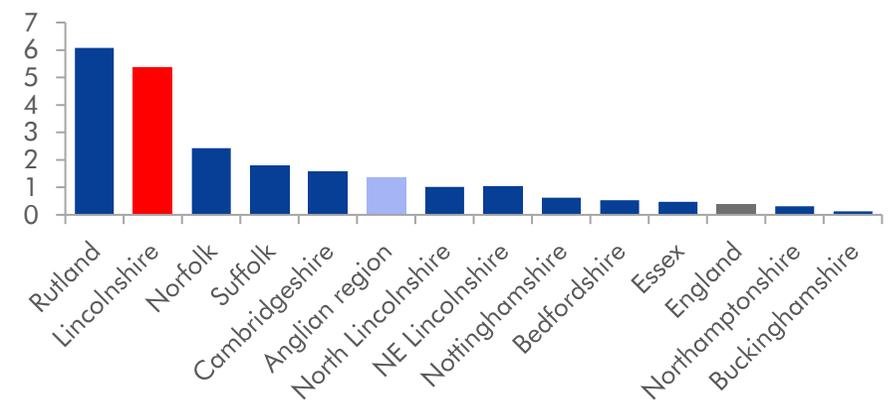
Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Lincolnshire	Anglian Water region	England
Overall	10	8	5
Agricultural GVA	13	9	3
Non-domestic water consumption	12	8	4
Bathing waters quality	1	12	3
Workforce skills level	13	8	3
Well-being estimates	7	9	10
Income deprivation	11	7	5
Social mobility	3	7	5

Employment with highest skills level (% of total, 2019)



Agricultural gross value added (% of total, 2015-2019 average)



Sources: Capital Economics, ONS

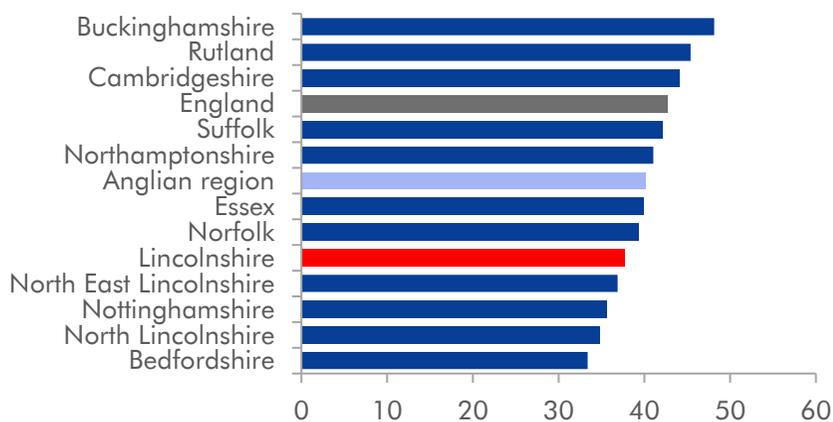
Ensuring sustainable growth presents greater challenge for water supply in Lincolnshire than for the Anglian Water region on average

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Lincolnshire ranks twelfth out of the fourteen on the sustainable growth pillar.

Lincolnshire’s population is projected to rise by nine per cent between 2023 and 2043, compared to eight per cent for the Anglian Water region and seven per cent for England. Relatively strong population growth could add to stronger employment growth, economic growth, and therefore growth in demand for housing and water supply.

The county ranks fifth on business stocks, meaning that current business activity poses relatively less of a challenge to water supply than in many other areas of the region. As of 2021, there were around 38 businesses per 10,000 people in the county, compared to 40 for Anglian and 43 for England.

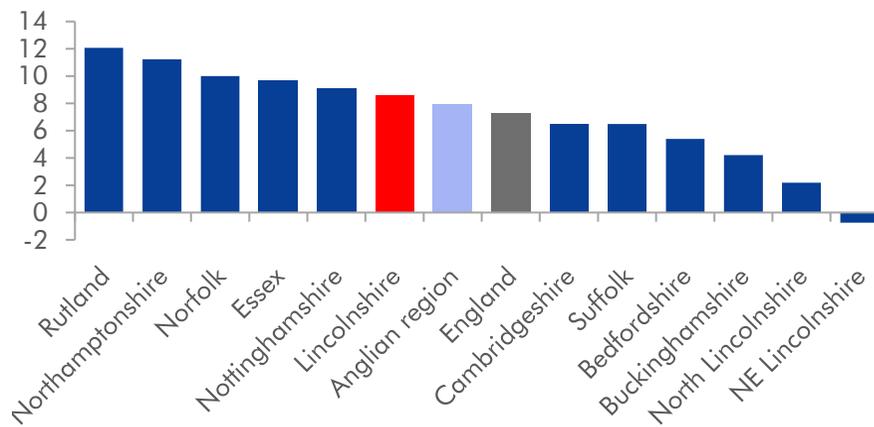
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Lincolnshire	Anglian Water region	England
Overall	12	8	11
Population projections	9	8	7
Over 65 population projections	7	8	9
Employment projections	8	9	7
GDP projections	14	6	10
Business stocks	5	8	11
Housing stocks	12	7	8
Households in social housing waiting lists	7	9	12

Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

Significant challenges related to nature and the environment

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Lincolnshire ranks ninth out of fourteen on the nature & environment pillar and is more challenged than the Anglian Water region average.

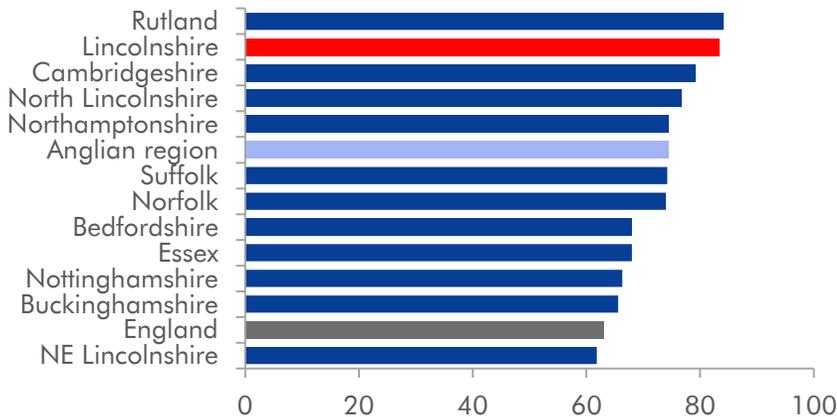
Within the index, lower areas of tree cover represent more of a challenge, as tree cover brings added benefits to the region such as supporting biodiversity, capturing carbon, and mitigating flood risk. In Lincolnshire, 4.1% of the area is woodland; compared to 10.1% for England. Meanwhile, 83% of the land is used for agriculture, a relatively water-intensive industry, compared to just 63% for England.

The share of properties with private outdoor space is above the national average, but average distance to public green space is below, at 658 metres for Lincolnshire and 398 metres for England.

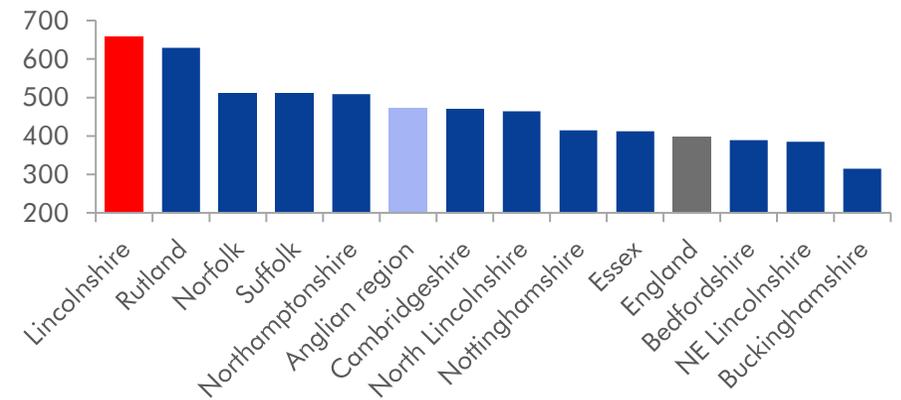
Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Lincolnshire	Anglian Water region	England
Overall	9	7	3
Distance to public green space	14	9	4
Private outdoor space	3	7	13
Tree cover	12	7	3
Air quality index	3	11	5
Agricultural land use	14	10	2
Sites of Special Scientific Interest	7	9	11
River water quality	1	8	5

Agricultural land use (% of total, 2022)



Average distance to public green space (metres, 2020)



Sources: Capital Economics, DEFRA, ONS

4. Long term challenges within the Anglian Water region

Norfolk

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Norfolk ranks fifth out of fourteen areas in the index, with a relatively smaller challenge than the regional average but a greater challenge than the national
- Norfolk's highest ranking is in the economy & society pillar, where it ranks twelfth.

Norfolk ranks below the national average

Norfolk faces greatest challenge from economy & society pillar

Norfolk ranks fifth out of fourteen on the index, making it more challenged than three other areas of the Anglian Water region and the national average.

The county's challenges are most severe within the economy & society pillar, where it ranks twelfth. This is primarily due to the county's higher agricultural output relative to other areas, more instances of poor bathing waters quality relative to the size of the county, and a smaller share of the workforce that is highly skilled.

Challenges relatively less severe for remaining three pillars

Norfolk ranks fourth on the climate change pillar. Metrics where challenges are relatively low include renewable energy capacity relative to population size and metrics related to drought risk. Rainfall projections for 2023-2040 point to the county being the wettest area in the region over the next thirty years. One challenge for Norfolk will be the risk to properties from flooding.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Norfolk ranks third out of fourteen on the sustainable growth pillar.

Norfolk ranks second on the nature & environment pillar and is less challenged than the Anglian Water region and England average. Norfolk faces a smaller challenge than the national average on our metric for river water quality and on the condition of Sites of Special Scientific Interest. 54% of the area of Norfolk's SSSIs is deemed to be in "favourable" condition, compared to 37% for England.

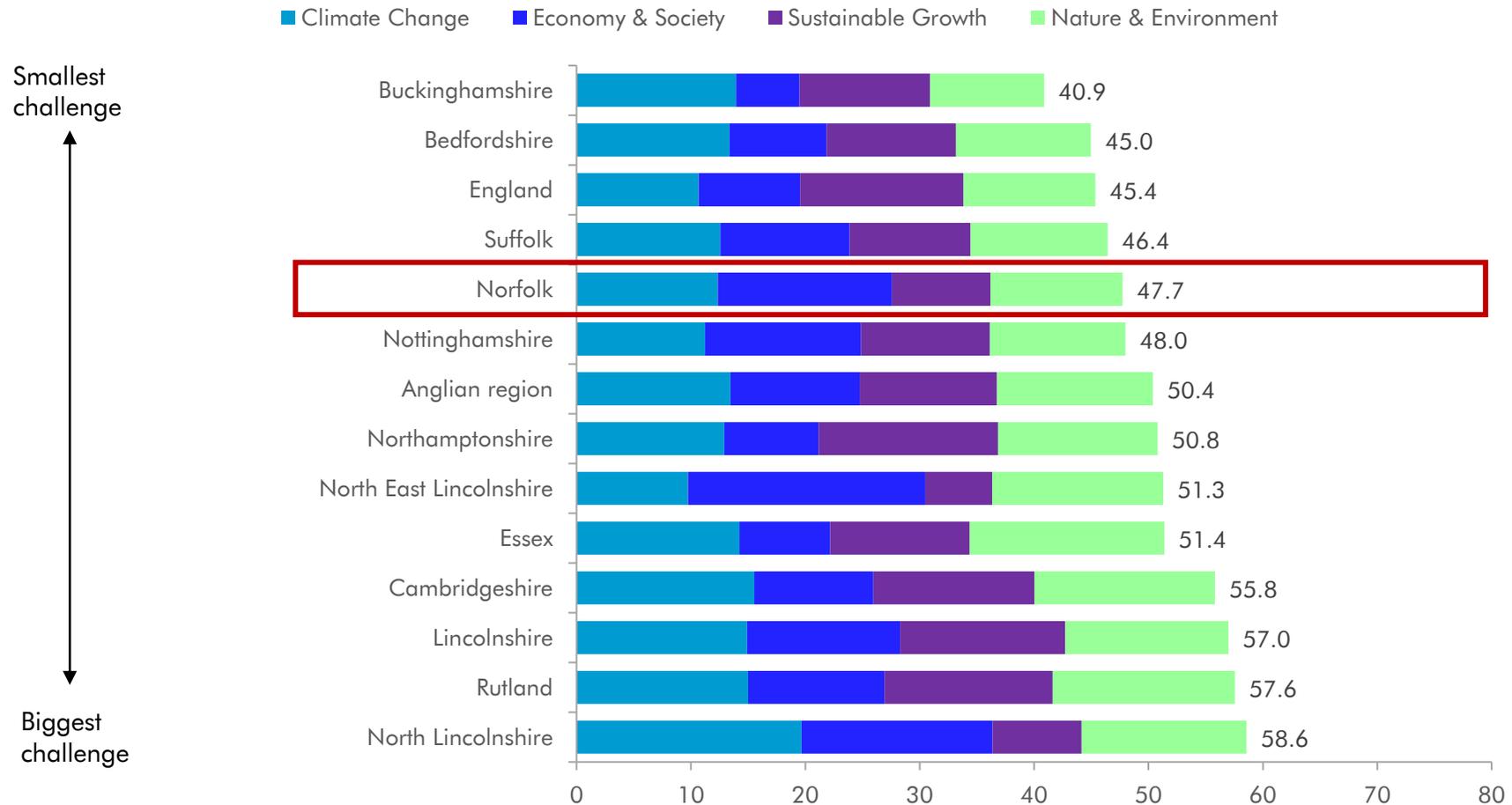
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Norfolk faces a greater challenge than the national average

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

Norfolk ranks fourth out of fourteen on climate change metrics

Norfolk ranks fourth out of fourteen on the climate change pillar. Although it is in the least challenged half of the Anglian Water region, the challenges are more pronounced than the national average.

The share of properties at risk from flooding is higher in Norfolk than the national average, but the share of people at risk is lower.

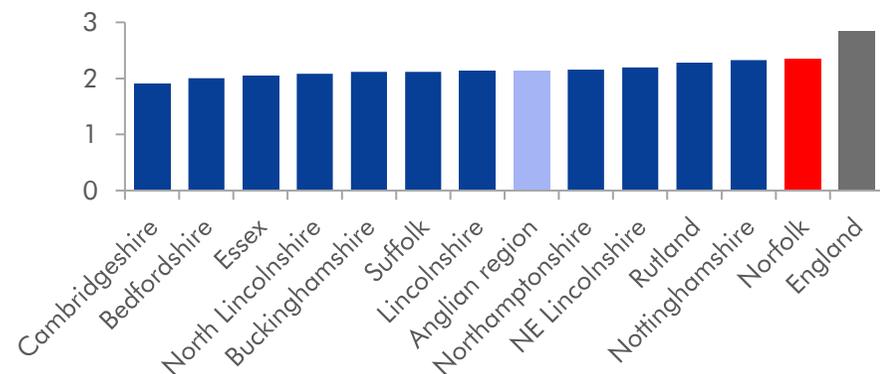
Drought risk is less of a challenge for the county than for many other Anglian areas. Although the average precipitation index between 2013 and 2023 suggests Norfolk has been the driest area in the Anglian Water region, rainfall projections for 2023-2040 point to the county being the wettest area in the region over the next thirty years.

The Anglian Water region has higher renewable electricity capacity than the national average, at 1.2 megawatts per thousand people. That compares to 2.2 for Norfolk, which is less challenged on this metric.

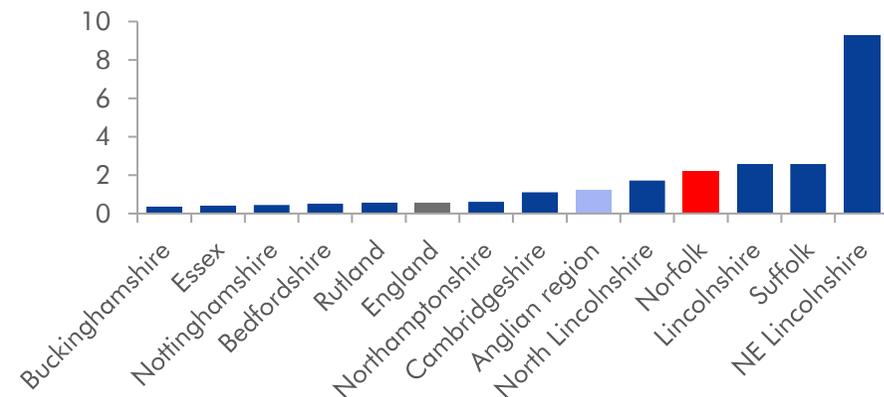
Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Norfolk	Anglian Water region	England
Overall	4	8	2
Precipitation index	14	9	1
Rainfall projections	2	7	1
Temperature projections	6	9	2
People at high risk from flooding	3	10	9
Properties at high risk from flooding	9	11	6
Greenhouse gas emissions	10	8	4
Renewable electricity capacity	4	6	9

Rainfall precipitation projections (mm per day, 2023-2040 average)



Renewable electricity installed capacity (MW per 000's), 2021



Sources: Capital Economics, Defra, Met Office

Norfolk faces significant challenges from the economy & society pillar

Norfolk ranks twelfth out of fourteen for the economy & society pillar. The rankings point to the challenge for Norfolk being greater than for the Anglian Water region and the country average.

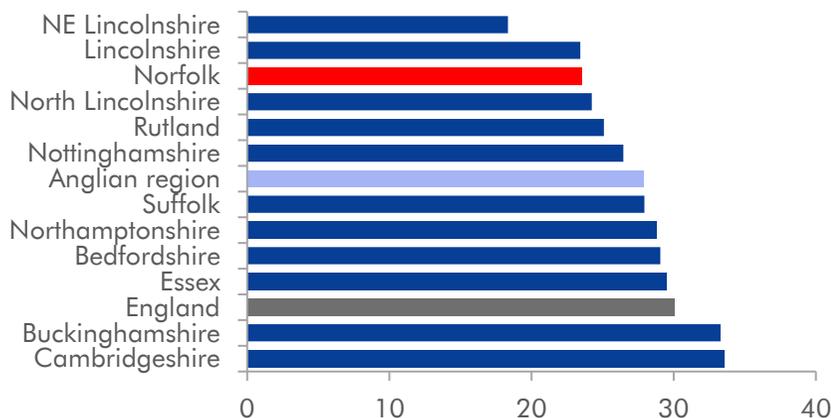
The index suggests that economic activity in Norfolk is relatively water intensive. On average between 2015 and 2019, 2.4% of Norfolk’s economic output as measured by gross value added came from the agriculture sector. That compares to 1.4% for the Anglian Water region and 0.4% for England. Our non-domestic water consumption metric also shows non-domestic activity in the county to be more water-intensive than the Anglian and country average.

Improving skills levels in the county over the next thirty years presents a challenge, with around 24% of employment in Norfolk having the highest skills level in 2019, compared to 30% for England.

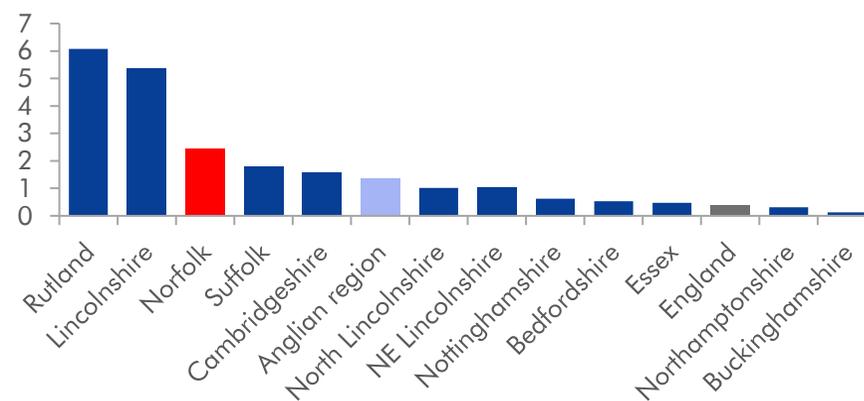
Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Norfolk	Anglian Water region	England
Overall	12	8	5
Agricultural GVA	12	9	3
Non-domestic water consumption	10	8	4
Bathing waters quality	13	12	3
Workforce skills level	12	8	3
Well-being estimates	8	9	10
Income deprivation	10	7	5
Social mobility	11	7	5

Employment with highest skills level (% of total, 2019)



Agricultural gross value added (% of total, 2015-2019 average)



Sources: Capital Economics, ONS

Ensuring sustainable growth poses a smaller challenge in Norfolk than the Anglian average

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Norfolk is the third least challenged area out of fourteen on the sustainable growth pillar.

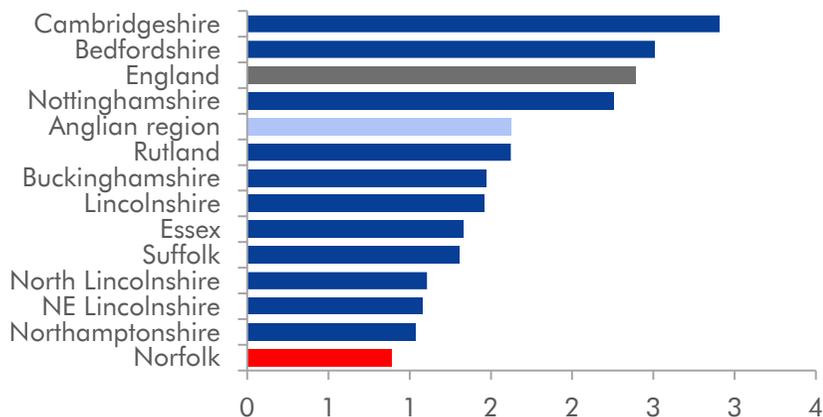
Population growth poses a greater challenge for the county than most areas of the Anglian Water region. Norfolk’s population is projected to rise by nine per cent between 2023 and 2043, compared to eight per cent for the Anglian Water region and seven per cent for England.

Norfolk is the least challenged area on our social housing metric, with 0.9% of households in the county on social housing waiting lists in 2022, compared to 2.4% for England as a whole.

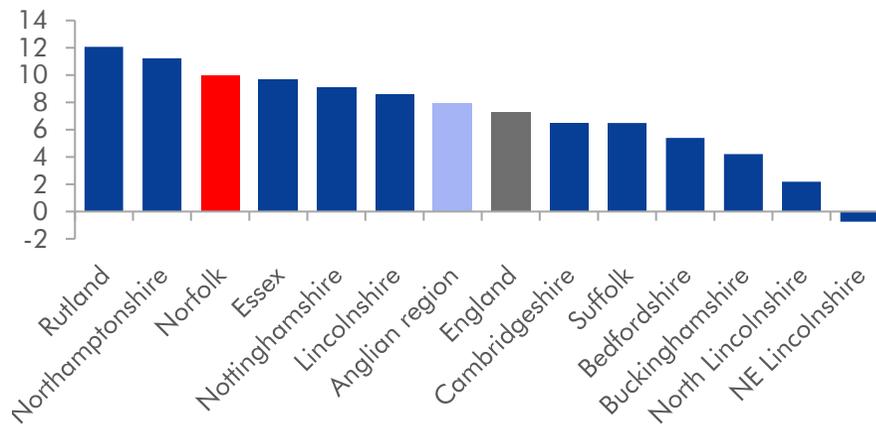
Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Norfolk	Anglian Water region	England
Overall	3	8	11
Population projections	12	8	7
Over 65 population projections	4	8	9
Employment projections	11	9	7
GDP projections	4	6	10
Business stocks	6	8	11
Housing stocks	1	7	8
Households in social housing waiting lists	1	9	12

Households in social housing waiting lists (% of total, 2022)



Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

Norfolk is the second least challenged on the nature & environment pillar

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Norfolk ranks as the second least challenged area on the nature & environment pillar and is less challenged than the Anglian Water region and England average.

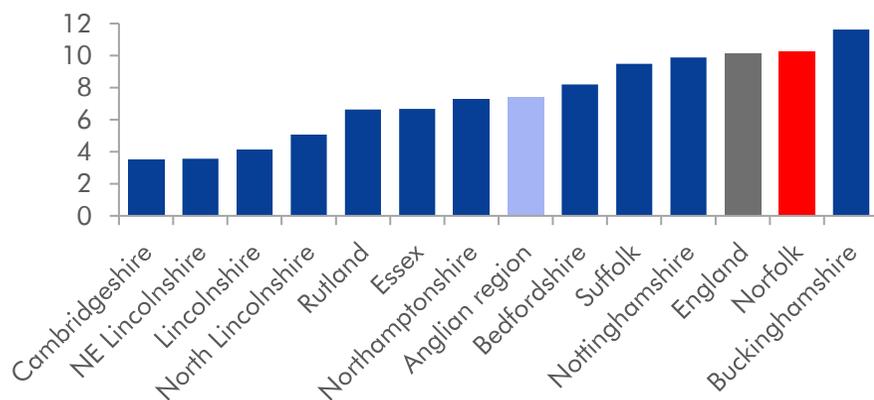
Norfolk’s greatest challenge within this pillar is on the metric of average distance to public green space, which comes in at 512 metres, compared to 398 metres for the national average.

Norfolk faces a relatively smaller challenge on metrics relating to the condition of the natural environment. Norfolk faces a smaller challenge than the national average on our metric for river water quality and on the condition of Sites of Special Scientific Interest. 54% of the area of Norfolk’s SSSIs is deemed to be in “favourable” condition, compared to 37% for England.

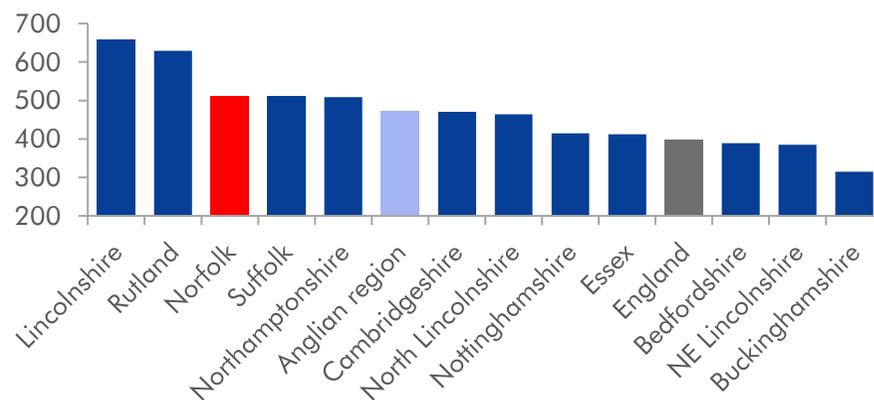
Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Norfolk	Anglian Water region	England
Overall	2	7	3
Distance to public green space	12	9	4
Private outdoor space	8	7	13
Tree cover	2	7	3
Air quality index	8	11	5
Agricultural land use	7	10	2
Sites of Special Scientific Interest	4	9	11
River water quality	2	8	5

Woodland (% of total area, 2019)



Average distance to public green space (metres, 2020)



Sources: Capital Economics, DEFRA, Reasons for Not Achieving Good Dataset

4. Long term challenges within the Anglian Water region

North East Lincolnshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- North East Lincolnshire ranks ninth out of fourteen areas in the index, with relatively greater challenge than regional and national average
- North East Lincolnshire is the most challenged relative to other regions on metrics in the economy & society pillar

North East Lincolnshire ranks ninth out of fourteen, suggesting greater challenges than the Anglian Water region as a whole

Greatest challenge from society & economy pillar

North East Lincolnshire ranks ninth out of fourteen on the index, making it the sixth most challenged area in the Anglian Water region. The unitary authority is relatively more challenged than the Anglian average.

The challenges are relatively more severe within the economy & society and the nature & environment pillars.

North East Lincolnshire ranks fourteenth for the economy & society pillar. Economic activity in North East Lincolnshire is relatively water intensive, presenting a challenge for supply. Resources over the next thirty years will also be required to improve the relatively low scores on income deprivation and workforce skills metrics.

Challenges from the nature & environment pillar are also more acute than in most areas of the Anglian Water region. North East Lincolnshire ranks eleventh on this pillar. The county is relatively more challenged on metrics assessing tree cover, air quality and counts of 'reasons for not achieving good' river water quality due to the activities of a range of industries.

Least challenged on climate change and sustainable growth

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. North East Lincolnshire ranks first so is the least challenged out of the fourteen geographies in the index for the sustainable growth pillar.

North East Lincolnshire also ranks first on the climate change pillar, with the highest renewable electricity capacity per capita amongst the fourteen geographies.

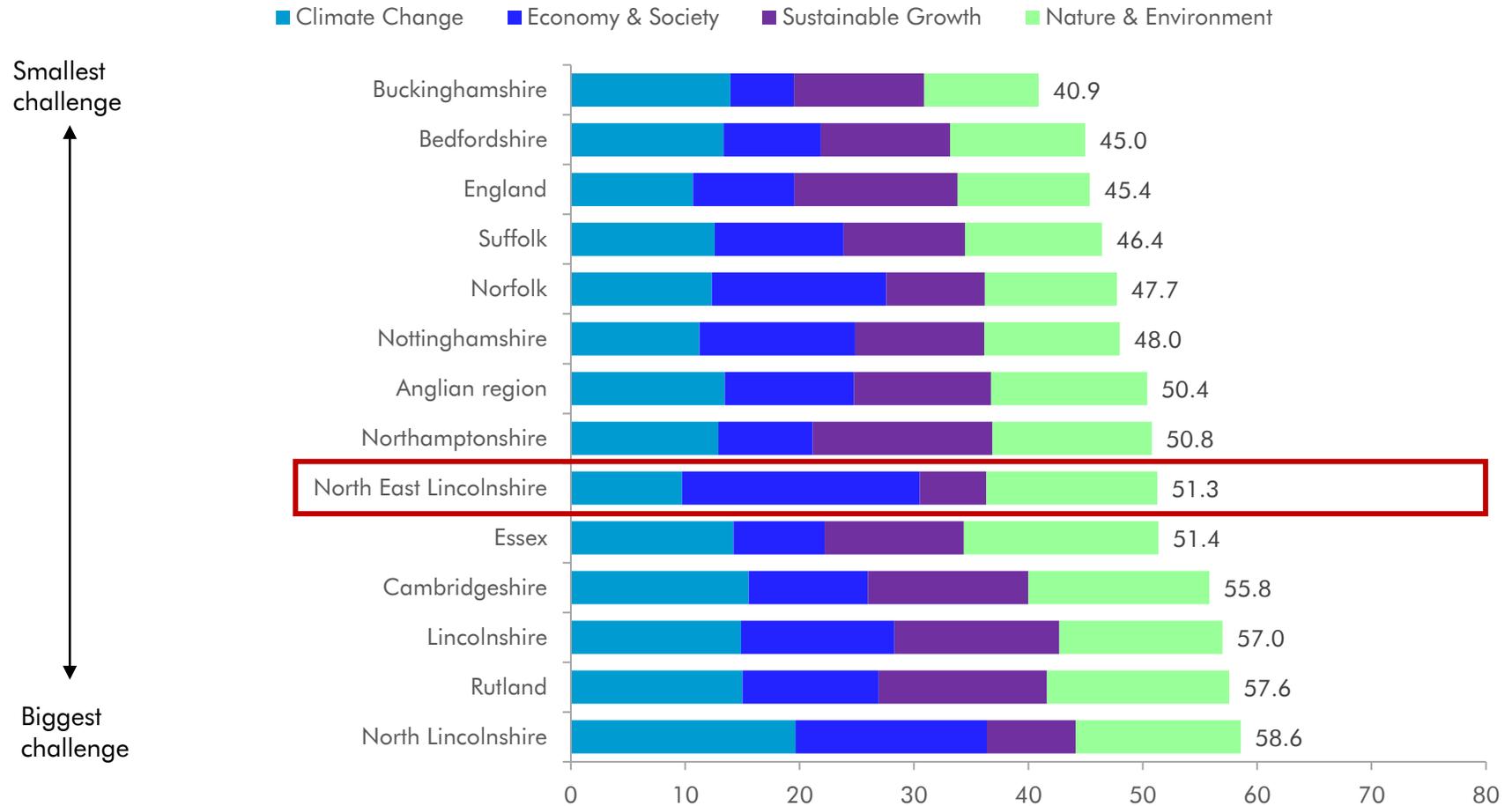
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

North East Lincolnshire is the most challenged on the economy & society pillar

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

North East Lincolnshire ranks as least challenged on climate change metrics

North East Lincolnshire ranks first out of fourteen on the climate change pillar. According to the index, the challenge is smaller than for the other areas of the Anglian Water region and the national average.

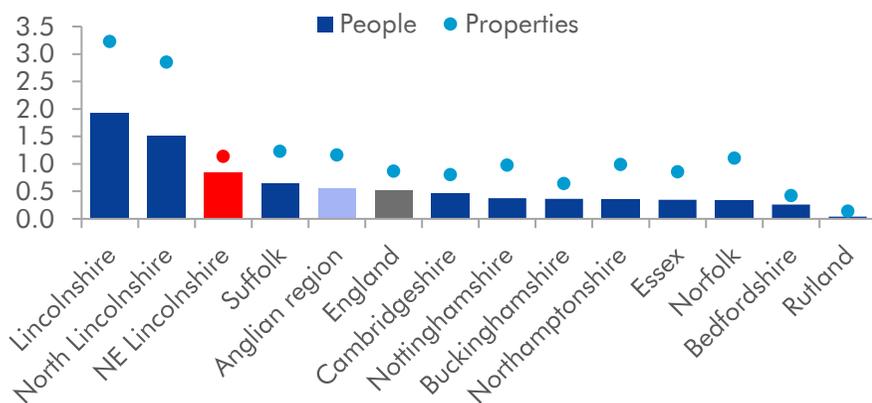
The Anglian Water region has higher renewable electricity capacity than the country average, at 1.2 megawatts per thousand people. That compares to 9.3 for North East Lincolnshire, which puts the unitary authority as the least challenged on this metric.

Although North East Lincolnshire ranks as the least challenged overall on the climate change pillar, it does face relatively high risk from flooding. According to The National Receptor Dataset, in 2022, 0.8% of people in North East Lincolnshire were at risk from flooding, which is higher than the estimates for the Anglian Water region as a whole, where 0.5% of people were at risk.

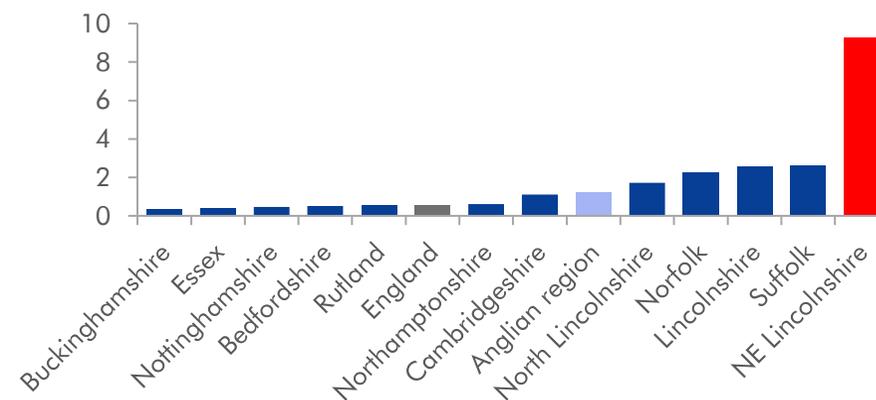
Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	North East Lincolnshire	Anglian Water region	England
Overall	1	8	2
Precipitation index	8	9	1
Rainfall projections	5	7	1
Temperature projections	5	9	2
People at high risk from flooding	12	10	9
Properties at high risk from flooding	10	11	6
Greenhouse gas emissions	11	8	4
Renewable electricity capacity	1	6	9

People and properties at high risk from flooding due to sea and rivers (% of total, 2022)



Renewable electricity installed capacity (MW per 000's), 2021



Sources: Capital Economics, BEIS, DEFRA

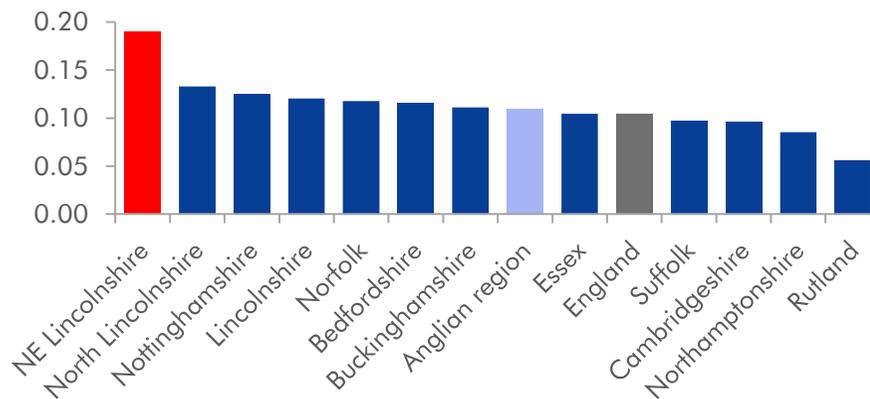
Challenges linked to economy & society are greatest in North East Lincolnshire

North East Lincolnshire ranks fourteenth for the economy & society pillar, making it the most challenged area on the index.

The index suggests that economic activity in North East Lincolnshire is relatively water intensive. Our non-domestic water consumption metrics shows non-domestic activity in the county to be more water-intensive than the Anglian and national average.

Improving income deprivation and the skills of the workforce over the next thirty years presents a challenge. According to the English Indices of Deprivation, with a score of 0.19, North East Lincolnshire suffers from greater income deprivation than the Anglian average of 0.11 and the national average of 0.10. Around 18% of employment in North East Lincolnshire had the highest skills level in 2019, compared to 30% for England.

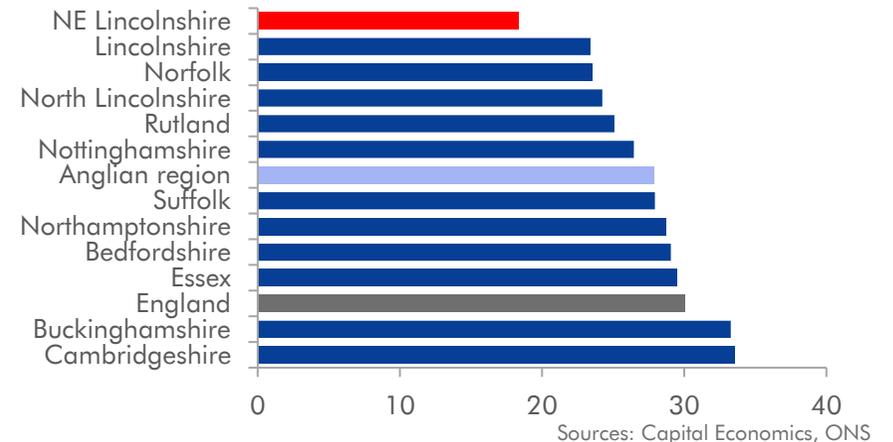
Income deprivation average score (2019)



Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	North East Lincolnshire	Anglian Water region	England
Overall	14	8	5
Agricultural GVA	7	9	3
Non-domestic water consumption	13	8	4
Bathing waters quality	14	12	3
Workforce skills level	14	8	3
Well-being estimates	12	9	10
Income deprivation	14	7	5
Social mobility	8	7	5

Employment with highest skills level (% of total, 2019)



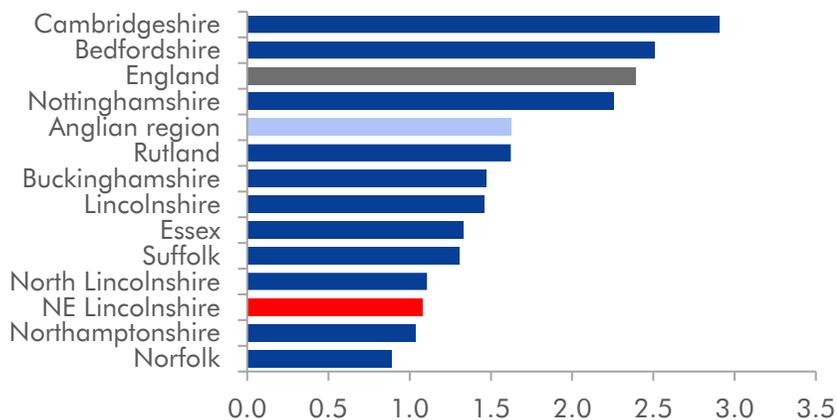
North East Lincolnshire is relatively less exposed to challenges related to the sustainable growth pillar

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. North East Lincolnshire ranks first out of fourteen on the sustainable growth pillar, suggesting the challenge is smaller than for other areas in the index.

The population of North East Lincolnshire is projected to decline by nearly one per cent between 2023 and 2043, compared to increases of eight per cent for the Anglian Water region and seven per cent for England. Slower population growth is correlated with slower growth in demand for homes and water.

North East Lincolnshire is the third least challenged area on our social housing metric, with 1.1% of households in the county on social housing waiting lists in 2022, compared to 2.4% for England as a whole.

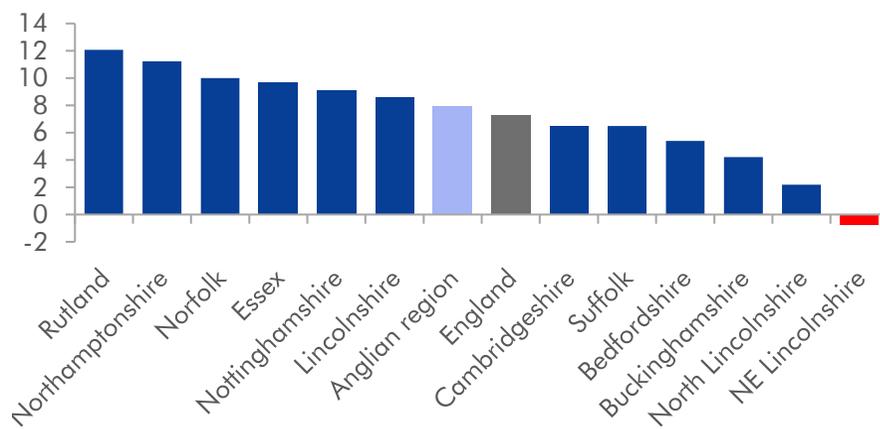
Households in social housing waiting lists (% of total, 2022)



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	North East Lincolnshire	Anglian Water region	England
Overall	1	8	11
Population projections	1	8	7
Over 65 population projections	1	8	9
Employment projections	1	9	7
GDP projections	11	6	10
Business stocks	4	8	11
Housing stocks	4	7	8
Households in social housing waiting lists	3	9	12

Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

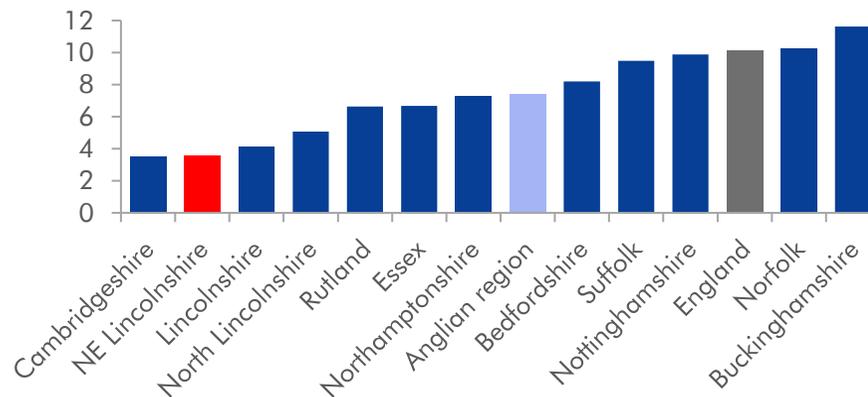
North East Lincolnshire ranks eleventh on nature & environment pillar

North East Lincolnshire ranks eleventh out of fourteen on the nature & environment pillar and is more challenged than the average for the Anglian Water region.

The county is relatively more challenged on metrics assessing tree cover, air quality and counts of 'reasons for not achieving good' river water quality due to the activity of a range of industries. Within the index, lower areas of tree cover represent more of a challenge, as tree cover brings added benefits to the region such as supporting biodiversity, capturing carbon, and mitigating flood risk. In North East Lincolnshire, 3.6% of the area is woodland, which is below the average for the Anglian Water region of 7.4%.

In North East Lincolnshire, around 62% of the land is used for agriculture, a relatively water-intensive industry. That makes it the least challenged area in the sample on this metric.

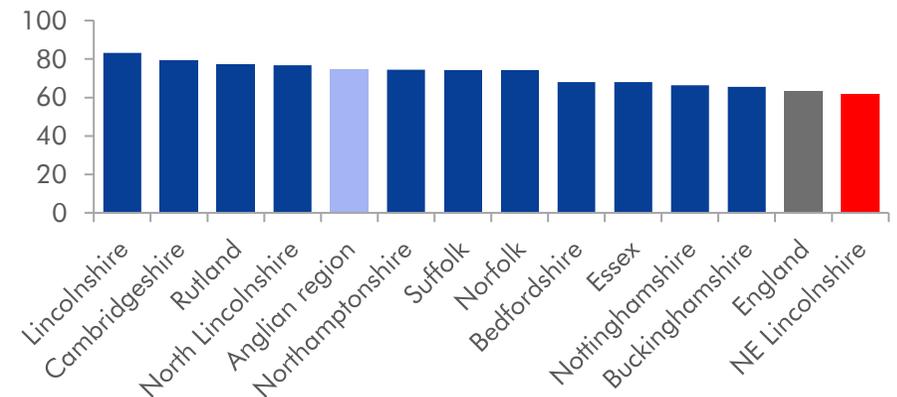
Woodland (% of total area, 2019)



Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	North East Lincolnshire	Anglian Water region	England
Overall	11	7	3
Distance to public green space	2	9	4
Private outdoor space	1	7	13
Tree cover	13	7	3
Air quality index	14	11	5
Agricultural land use	1	10	2
Sites of Special Scientific Interest	7	9	11
River water quality	12	8	5

Agricultural land use (% of total area, 2022)



Sources: Capital Economics, DEFRA, ONS

4. Long term challenges within the Anglian Water region

North Lincolnshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- North Lincolnshire ranks fourteenth out of fourteen areas in the index, with a greater challenge than all other areas in the Anglian Water region and than the national average
- North Lincolnshire's highest ranking is in the climate change pillar, where it ranks fourteenth.

North Lincolnshire ranks as the most challenged out of fourteen geographies

Relative challenge greatest from climate change pillar

North Lincolnshire ranks fourteen out of fourteen on the index. According to the rankings, it is the most challenged area in the Anglian Water region and is more challenged than the national average.

North Lincolnshire's challenges are most severe in the climate change pillar, where it ranks fourteenth. A greater share of properties and people in North Lincolnshire are at risk from flooding compared to the national average. Greenhouse gas emissions relative to population are higher than any other area of the Anglian Water region.

Challenges from the economy & society pillar are also more acute than in most areas of the Anglian Water region. North Lincolnshire ranks thirteenth on this pillar. Challenges stem from higher income deprivation and a relatively water intensive local economy. Non-domestic water consumption relative to economic output in North Lincolnshire is over five times the value of the national average.

North Lincolnshire ranks tenth in the nature & environment pillar, with a larger share of land being used for agriculture, which is relatively water intensive, and with lower tree cover as indicated by the share of land that is woodland.

Smallest challenge from sustainable growth pillar

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. North Lincolnshire ranks second on this pillar, with population growth between 2022 and 2043 projected to be slower than the average for the Anglian Water region and for England.

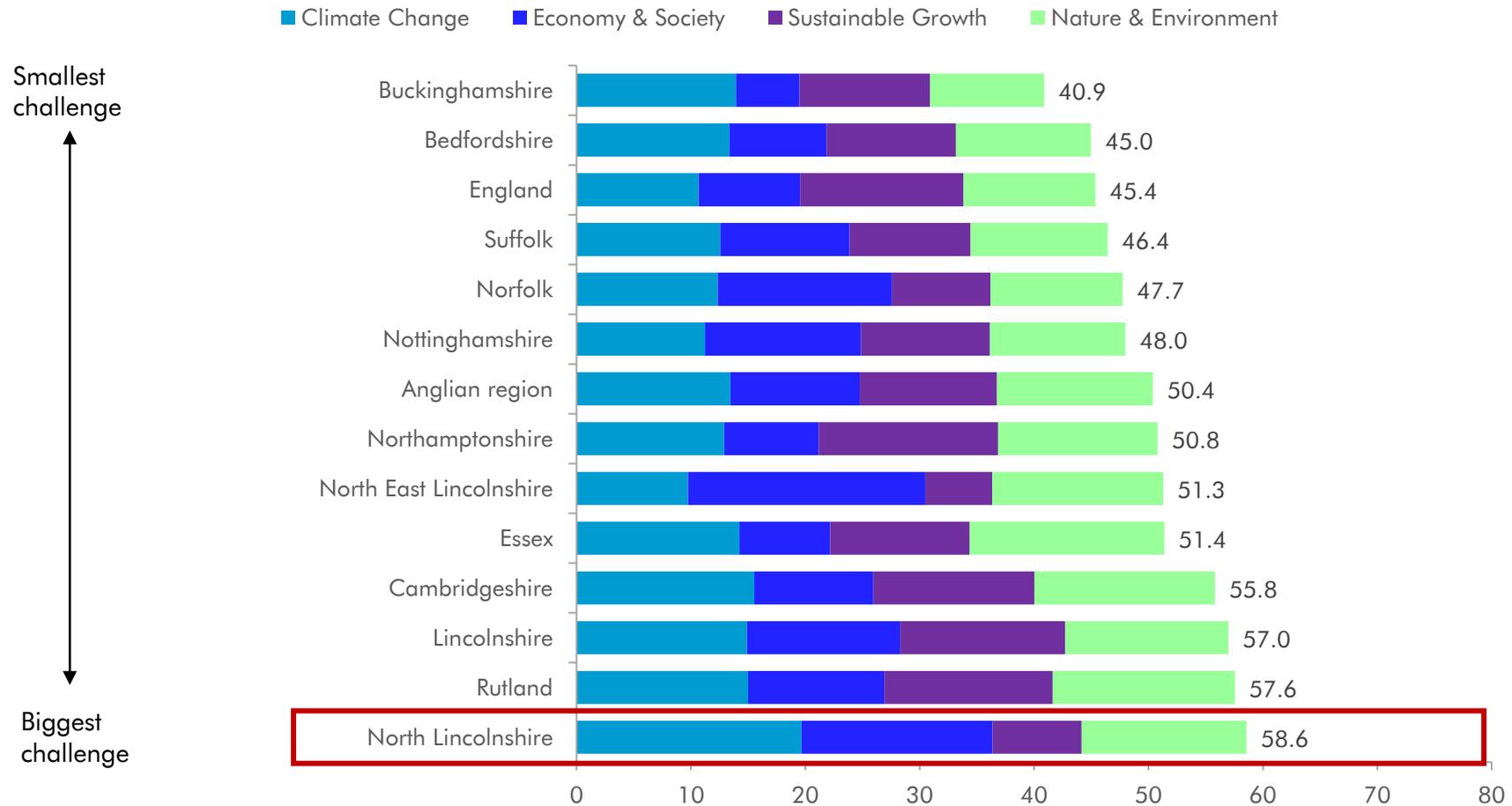
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

North Lincolnshire's challenge is greatest for the climate change pillar

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

North Lincolnshire ranks as the most challenged out of fourteen geographies on metrics related to climate change

North Lincolnshire ranks fourteen out of fourteen on the climate change pillar. According to the index, the challenges are more pronounced than both the Anglian and national average.

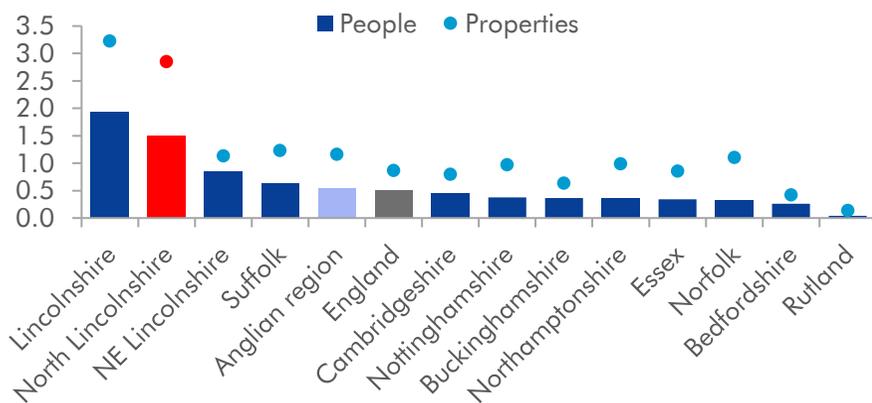
One particular challenge for the area is flood risk. The National Receptor Dataset produces estimates of people and properties at risk from flooding due to sea and rivers. In 2022, 1.5% of people in North Lincolnshire were at risk and 2.9% of properties. That is significantly higher than the estimates for the Anglian Water region as a whole, where 0.5% of people are at risk and 1.2% of properties.

In 2019, greenhouse gas emissions per capita were 43.5 tonnes of CO2 equivalent in North Lincolnshire, which is higher than any other area of the Anglian Water region and above the national average of 5.7.

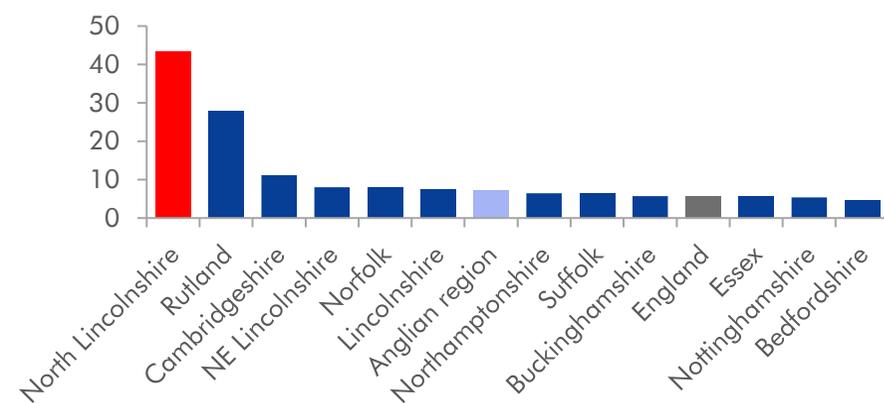
Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	North Lincolnshire	Anglian Water region	England
Overall	14	8	2
Precipitation index	6	9	1
Rainfall projections	11	7	1
Temperature projections	4	9	2
People at high risk from flooding	13	10	9
Properties at high risk from flooding	13	11	6
Greenhouse gas emissions	13	8	4
Renewable electricity capacity	5	6	9

People and properties at high risk from flooding due to sea and rivers (% of total, 2022)



Greenhouse gas emissions (tonnes of CO2 equivalent per capita), 2019



Sources: Capital Economics, BEIS, ONS

Significant challenges related to economy & society

North Lincolnshire ranks thirteenth out of fourteen for the economy & society pillar. The rankings show the challenge to be greater for North Lincolnshire than the Anglian Water region and national average.

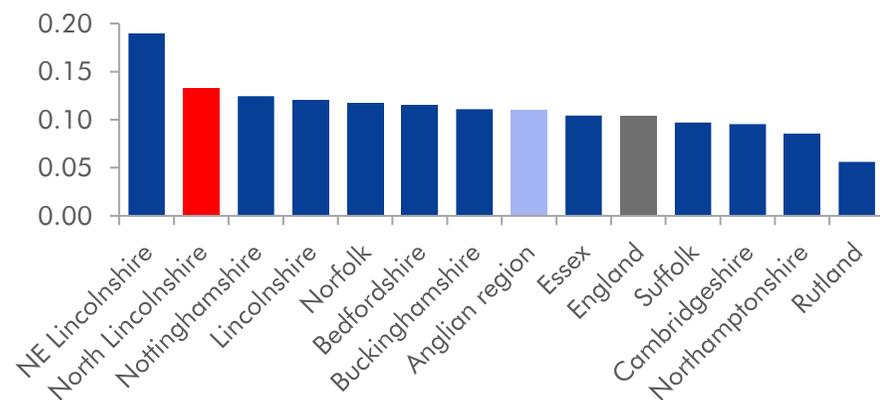
According to the English Indices of Deprivation, with a score of 0.13, North Lincolnshire suffers from greater income deprivation than the Anglian average of 0.11 and the national average of 0.10.

The index suggests that economic activity in North Lincolnshire is relatively water intensive. Non-domestic water consumption relative to economic output in North Lincolnshire is over five times the value of the national average.

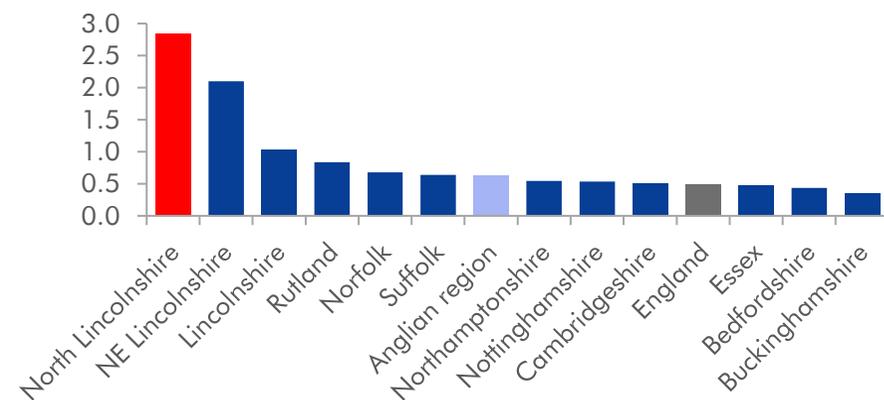
Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	North Lincolnshire	Anglian Water region	England
Overall	13	8	5
Agricultural GVA	7	9	3
Non-domestic water consumption	13	8	4
Bathing waters quality	3	12	3
Workforce skills level	11	8	3
Well-being estimates	13	9	10
Income deprivation	13	7	5
Social mobility	9	7	5

Income deprivation average score (2019)



Non-domestic water consumption per unit of output (average litres used per day relative to GDP), 18-month average as of April 2023



Sources: Capital Economics, ONS

North Lincolnshire is relatively less exposed to challenges related to sustainable growth pillar

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. North Lincolnshire ranks second out of fourteen on the sustainable growth pillar, suggesting the challenge is relatively small compared to other areas.

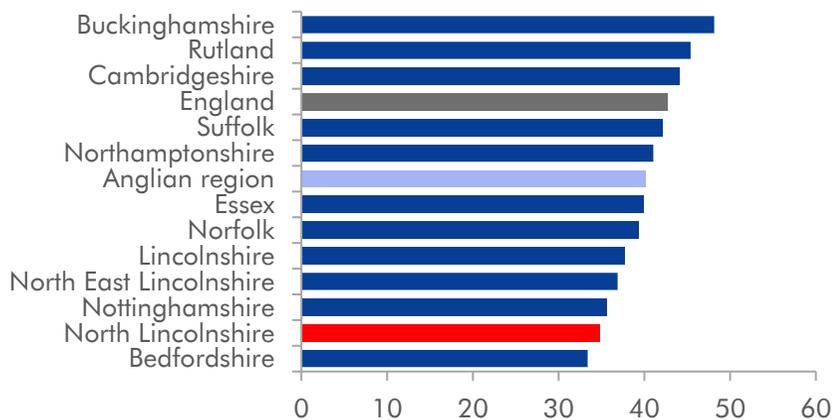
North Lincolnshire’s population is projected to rise by two per cent between 2023 and 2043, compared to eight per cent for the Anglian Water region and seven per cent for England. Slower population growth is often correlated with slower growth in demand for homes and water.

North Lincolnshire ranks second on the business stocks metric, meaning that current business activity poses relatively less of a challenge to water supply than in many other areas of the region. As of 2021, there were around 33 businesses per 10,000 people in North Lincolnshire, compared to 40 for Anglian and 43 for England.

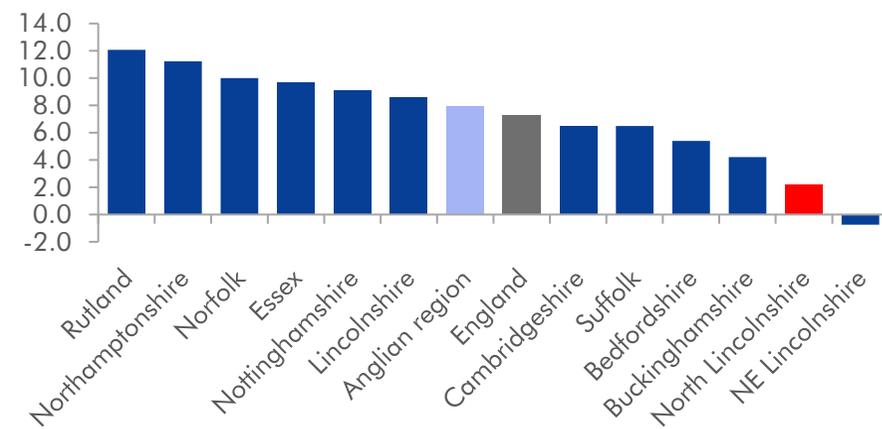
Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	North Lincolnshire	Anglian Water region	England
Overall	2	8	11
Population projections	2	8	7
Over 65 population projections	2	8	9
Employment projections	2	9	7
GDP projections	11	6	10
Business stocks	2	8	11
Housing stocks	10	7	8
Households in social housing waiting lists	4	9	12

Business stocks per 10,000 people, 2021



Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

Significant challenges related to nature and the environment

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. North Lincolnshire ranks tenth out of fourteen on the nature & environment pillar and is more challenged than the Anglian Water region average.

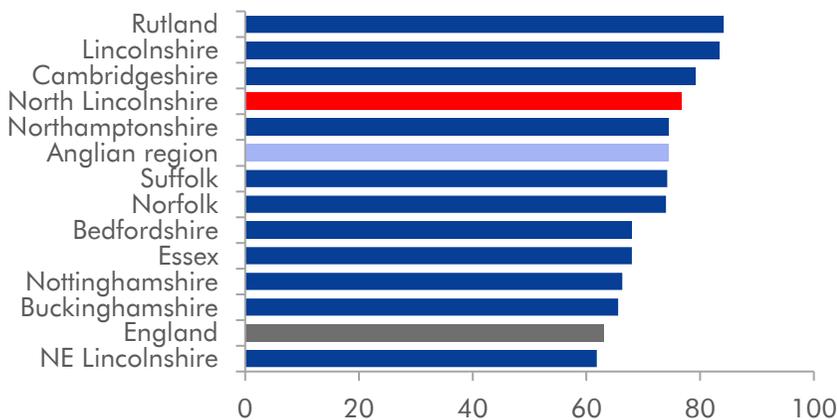
In North Lincolnshire, 77% of the land is used for agriculture, compared to just 63% for England. Given that the industry is relatively water-intensive, a larger agriculture sector represents a greater challenge for water supply in the index.

Within the index, lower areas of tree cover represent more of a challenge, as tree cover brings added benefits to the region such as supporting biodiversity, capturing carbon, and mitigating flood risk. In North Lincolnshire, 5.1% of the area is woodland; compared to 10.1% for England.

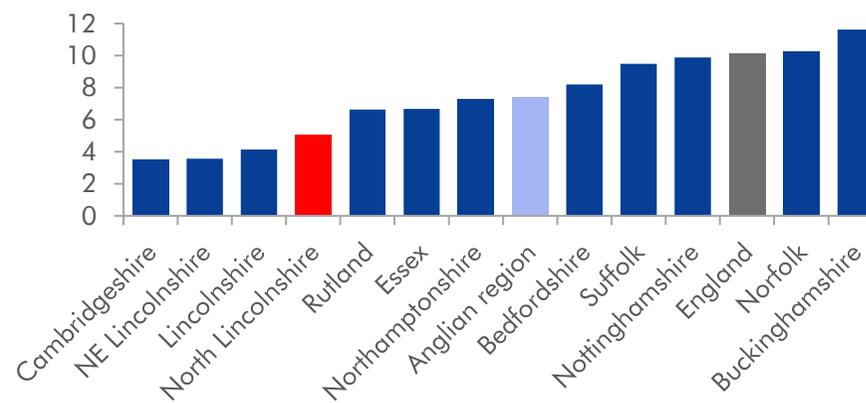
Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	North Lincolnshire	Anglian Water region	England
Overall	10	7	3
Distance to public green space	7	9	4
Private outdoor space	2	7	13
Tree cover	11	7	3
Air quality index	14	11	5
Agricultural land use	11	10	2
Sites of Special Scientific Interest	7	9	11
River water quality	3	8	5

Agricultural land use (% of total, 2022)



Woodland (% of total area, 2019)



Sources: Capital Economics, DEFRA, ONS

4. Long term challenges within the Anglian Water region

Northamptonshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Northamptonshire ranks eighth out of fourteen areas in the index, with relatively greater challenge than regional and national average
- Northampton faces the greatest relative challenge on the sustainable growth pillar.

Northamptonshire ranks eighth out of fourteen, suggesting greater challenges than the Anglian Water region as a whole

Greatest challenge from sustainable growth pillar

Northamptonshire ranks eighth out of fourteen on the index. The county is relatively more challenged than the Anglian average, which ranks seventh.

The challenges are relatively more severe for Northamptonshire within the sustainable growth pillar, where it ranks fourteenth, making it the most challenged area of the Anglian Water region. While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Population growth and in turn employment growth in Northamptonshire is projected to be stronger than the average for England and the Anglian Water region for the period 2023 to 2043.

Challenges from the nature & environment pillar are also more acute than the average for the Anglian Water region. Northamptonshire ranks eighth on this pillar. A smaller proportion of the area of Sites of Special Scientific Interest (SSSIs) in Northamptonshire are in “favourable” condition than for England and the Anglian Water region.

Less challenged on climate change and economy & society

Northamptonshire ranks sixth on climate change, compared to eighth for the Anglian Water region. The share of properties at risk from flooding is one challenge for the county.

It faces the smallest relative challenge on the economy & society pillar, ranking third, compared to the average for the Anglian Water region which comes in at eighth. The county is relatively less challenged on economic development metrics such as income deprivation and well-being.

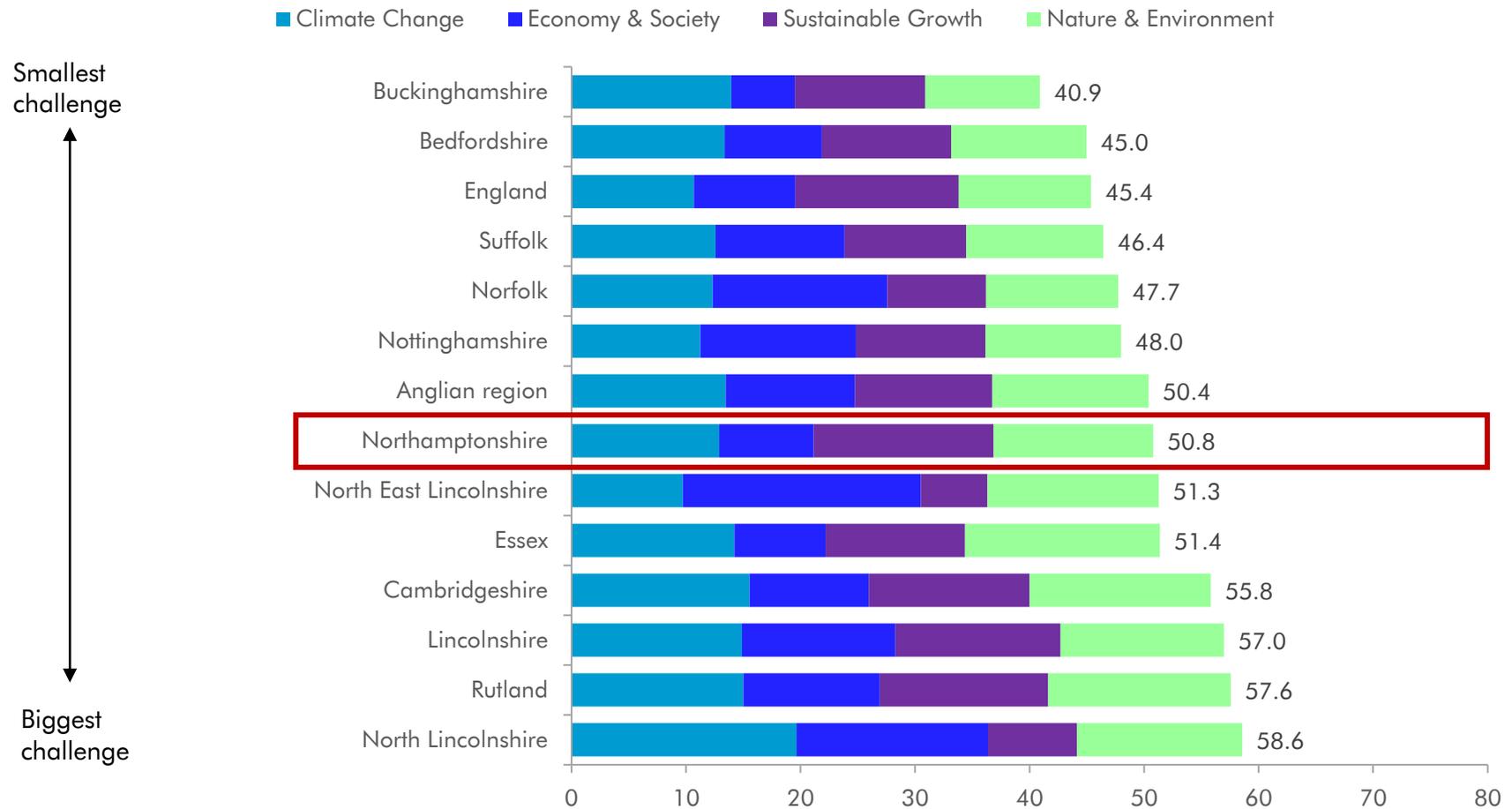
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East	1	14	1	11	9
Lincolnshire	10	2	9	14	10
Essex	13	6	10	12	11
Cambridgeshire	11	10	12	9	12
Lincolnshire	12	9	13	13	13
Rutland	14	13	2	10	14
North Lincolnshire					

Source: Capital Economics

Greatest challenge for Northamptonshire from sustainable growth pillar

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

Northamptonshire ranks sixth on climate change pillar

Northamptonshire ranks sixth out of fourteen on the climate change pillar. According to the index, the challenges are more pronounced than the national average but less than for the Anglian Water region.

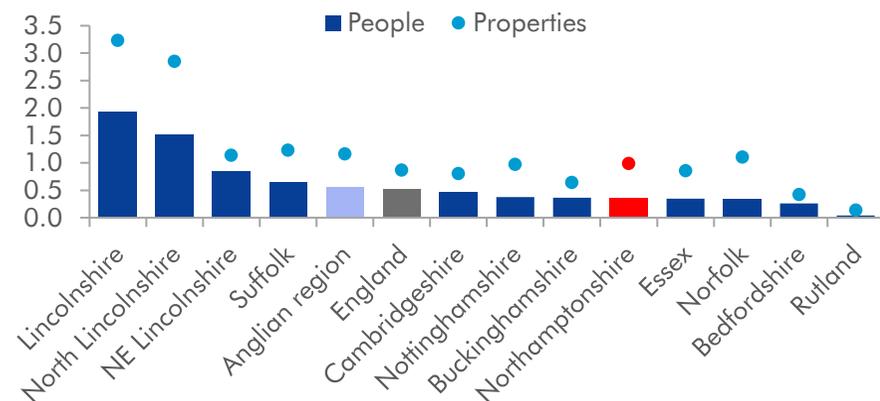
The precipitation index and rainfall projection metrics suggest that it faces relatively lower drought risk compared to the average for the Anglian Water region.

One challenge over the next thirty years will be addressing risks from flooding. According to The National Receptor Dataset, in 2022, 1.0% of properties in Northamptonshire were at risk from flooding, which is slightly higher than the national average of 0.9%.

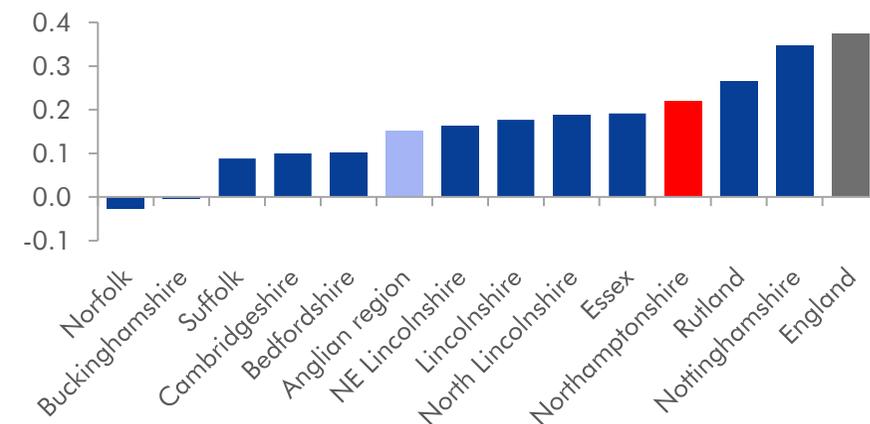
Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Northamptonshire	Anglian Water region	England
Overall	6	8	2
Precipitation index	4	9	1
Rainfall projections	6	7	1
Temperature projections	8	9	2
People at high risk from flooding	5	10	9
Properties at high risk from flooding	8	11	6
Greenhouse gas emissions	7	8	4
Renewable electricity capacity	8	6	9

People and properties at high risk from flooding due to sea and rivers (% of total, 2022)



Precipitation index (index value of -2 is the driest +2 is the wettest, monthly average 2013-2023)



Sources: Capital Economics, BEIS, Met Office

Northamptonshire performs relatively well on metrics related to the economy & society

Northamptonshire ranks third out of eleven on the economy & society pillar. The rankings point to the challenge for the county being lower than for the Anglian Water region and the national average.

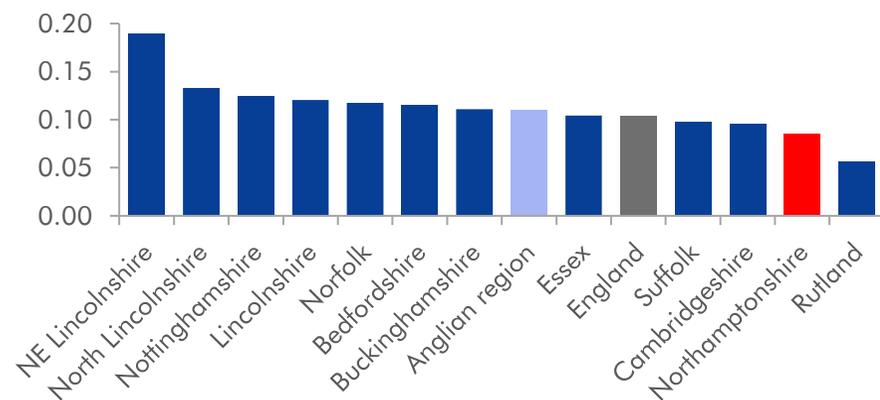
The metrics point to economic development being stronger, on average, than the Anglian Water region and the national average. According to the English Indices of Deprivation, with a score of 0.09, Northamptonshire suffers from lower income deprivation than the Anglian average of 0.11 and the national average of 0.10.

On average between 2018 and 2022, around 4.7% of Northamptonshire’s population reported “poor” happiness levels, which is the lowest score amongst the areas within the Anglian Water region, and lower than the national average of 8.5%.

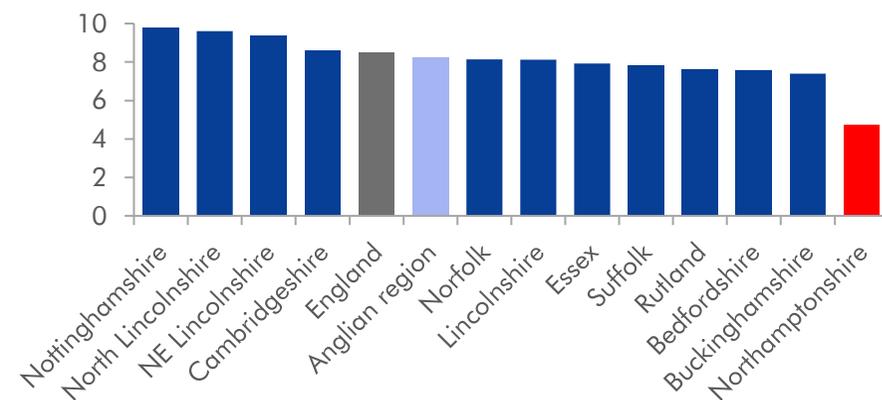
Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Northamptonshire	Anglian Water region	England
Overall	3	8	5
Agricultural GVA	2	9	3
Non-domestic water consumption	7	8	4
Bathing waters quality	3	12	3
Workforce skills level	6	8	3
Well-being estimates	1	9	10
Income deprivation	2	7	5
Social mobility	13	7	5

Income deprivation average score (2019)



Population that reports “poor” happiness levels (% of total, 2018-2022 average)



Sources: Capital Economics, ONS

Challenge most acute for Northamptonshire on the sustainable growth pillar

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Northamptonshire ranks fourteenth out of the fourteen on the sustainable growth pillar, which makes it the most challenged area of the Anglian Water region.

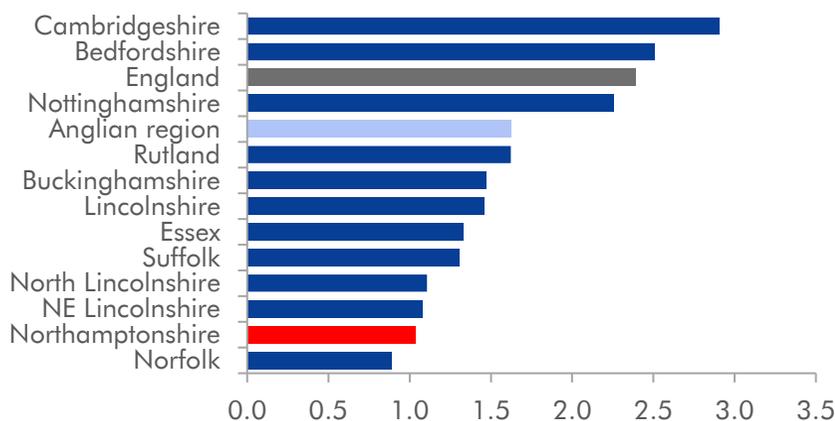
Its population is projected to rise by eleven per cent between 2023 and 2043, compared to eight per cent for the Anglian Water region and seven per cent for England. Paired with strong growth in the working age population and employment, demand for housing is likely to receive a boost, putting water supply put under increased pressure.

The smallest relative challenge for Northamptonshire comes from a low share of households on social housing waiting lists, at 1.0% of total households in the area, compared to 2.4% for England.

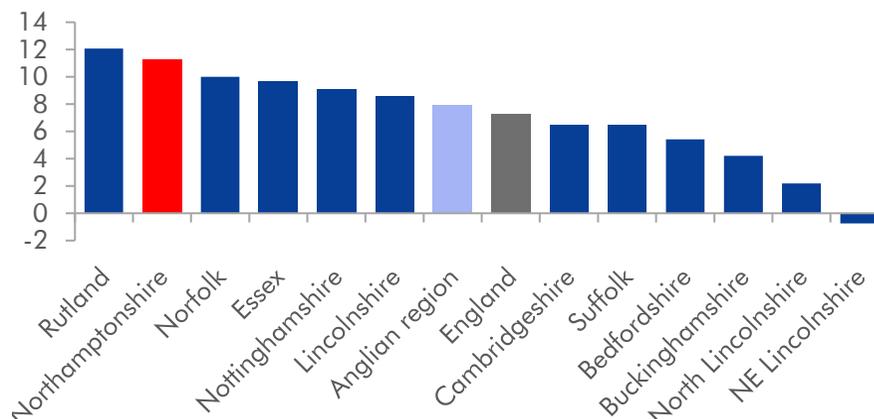
Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Northamptonshire	Anglian Water region	England
Overall	14	8	11
Population projections	13	8	7
Over 65 population projections	14	8	9
Employment projections	14	9	7
GDP projections	5	6	10
Business stocks	9	8	11
Housing stocks	14	7	8
Households in social housing waiting lists	2	9	12

Households in social housing waiting lists (% of total, 2022)



Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

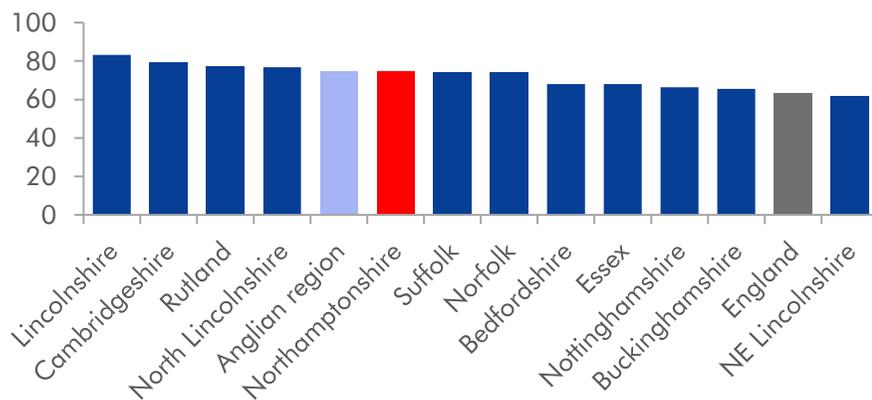
Northamptonshire faces similar challenge on nature and environment pillar as the average for the Anglian Water region

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Northamptonshire ranks eighth out of fourteen on the nature & environment pillar and is more challenged than the Anglian average, which ranks seventh.

Around 22% of the area of the Sites of Special Scientific Interest (SSSIs) in Northamptonshire is in “favourable” condition, which is a poorer score than the 37% for England and 44% for the Anglian Water region.

Within the index, lower areas of tree cover represent a greater challenge as tree cover brings benefits, including supporting biodiversity, capturing carbon, and reducing flood risk. In Northamptonshire, 7.3% of the area is woodland. Meanwhile, 74% of land is used for agriculture; a relatively water-intensive industry. Both metrics are in-line with the average for the Anglian Water region.

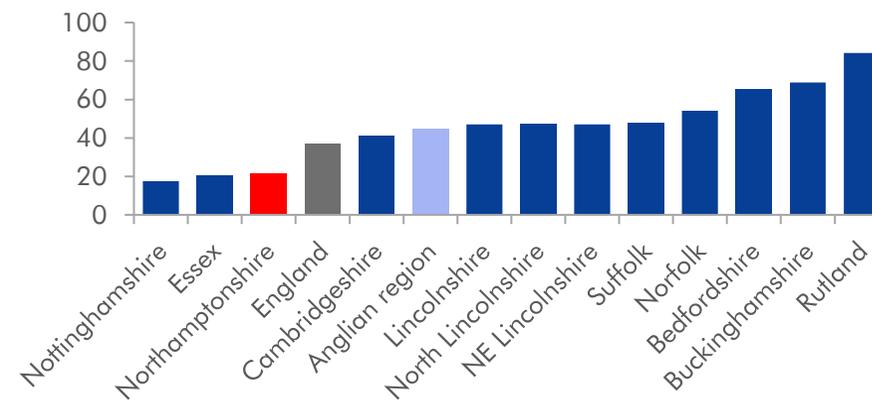
Agricultural land use (% of total area, 2022)



Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Northamptonshire	Anglian Water region	England
Overall	8	7	3
Distance to public green space	10	9	4
Private outdoor space	6	7	13
Tree cover	8	7	3
Air quality index	3	11	5
Agricultural land use	9	10	2
Sites of Special Scientific Interest	12	9	11
River water quality	6	8	5

Sites of Special Scientific Interest (“favourable” SSSI area as a share of total, %, April 2023)



Sources: Capital Economics, DEFRA, ONS

4. Long term challenges within the Anglian Water region

Nottinghamshire

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Nottinghamshire ranks sixth out of fourteen areas in the index, with relatively greater challenge than the national average
- Within Nottinghamshire's index score, it fares the worst on the economy and society pillar.

Nottinghamshire ranks sixth on the index

Greatest challenge from economy and society pillar

Nottinghamshire ranks sixth out of fourteen on the index. This implies that the county's long term challenges are slightly less severe than the Anglian Water region as a whole but still relatively greater than the average for England.

The county's challenges are most severe within the economy and society pillar. The county ranks eleventh on this pillar. It ranks lowest on societal measures related to well-being, deprivation and social mobility. Over recent years, 9.8% of Nottinghamshire's residents reported 'poor' happiness levels, which is higher than any other are within the Anglian Water region.

Mixed picture across other three pillars

Nottinghamshire ranks third out of fourteen on the climate change pillar. According to the index, the challenges are less pronounced than the Anglian Water region average but still more pronounced than the national average. Only Norfolk is projected to have more rainfall than Nottinghamshire out to 2040.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Nottinghamshire ranks fifth out of the fourteen on the sustainable growth pillar.

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society's overall well-being. Nottinghamshire ranks fifth out of fourteen on the nature & environment pillar and is more challenged than the national average. The county's most severe challenge in this pillar relative to other areas in the Anglian Water region is the condition of its Sites of Special Scientific Interest (SSSI).

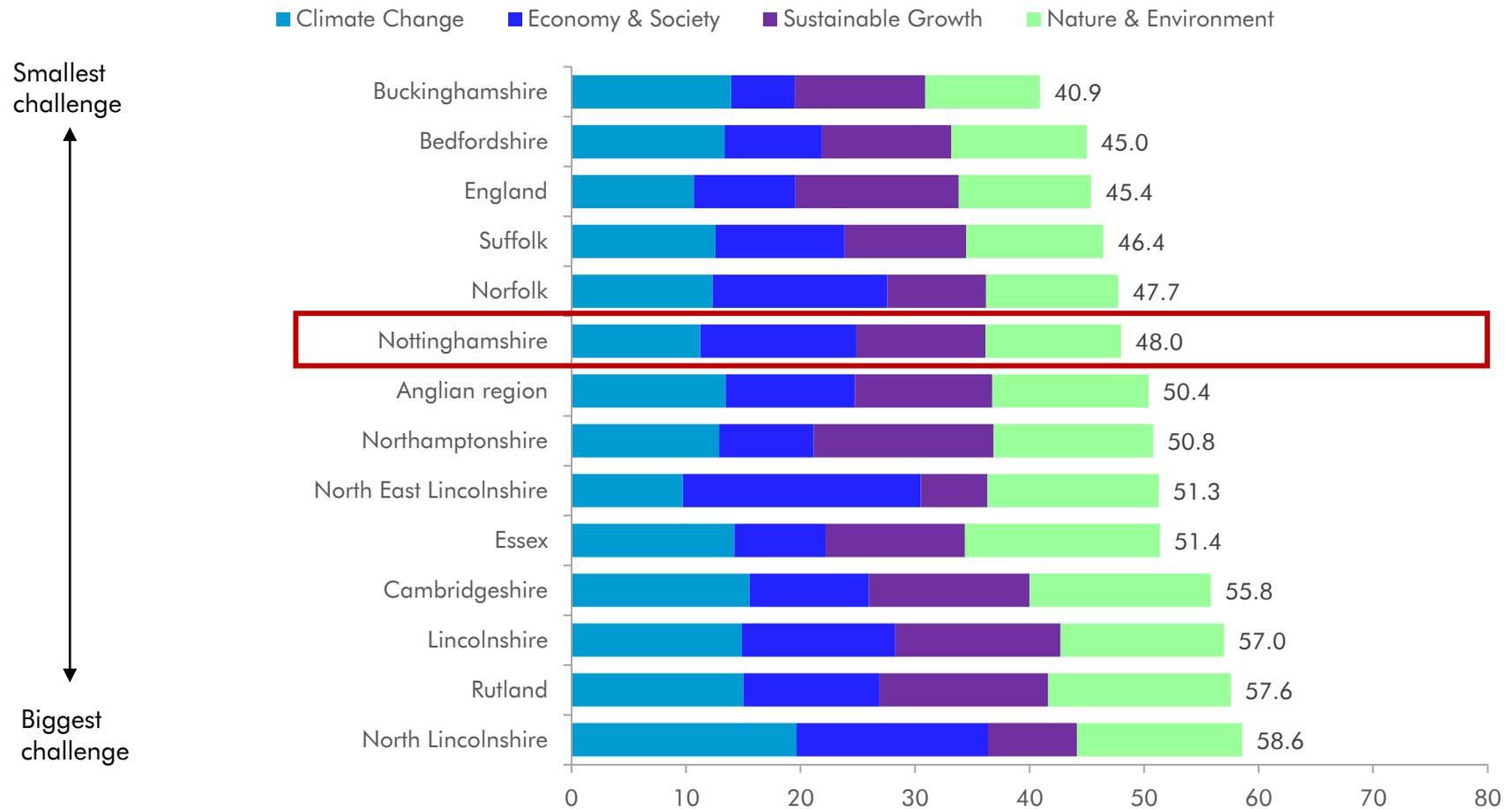
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Challenges in Nottingham are greater than the national average

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

Metrics related to climate change suggest Nottinghamshire isn't as challenged as many other areas in Anglian

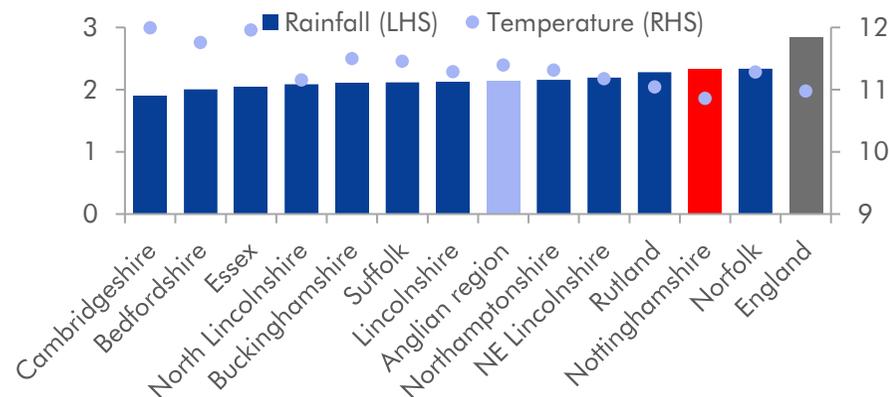
Nottinghamshire ranks third out of fourteen on the climate change pillar. According to the index, the challenges are less pronounced than the Anglian Water region average but still more pronounced than the national average.

Only Norfolk is projected to have more rainfall than Nottinghamshire out to 2040. However, at an average of 2.3mm per day, this is still below the national average of 2.8mm per day.

Nottinghamshire is projected to have the lowest average temperatures in the Anglian Water region which is also projected to be just below the national average temperature.

Renewable energy is an area in which Nottinghamshire is relatively more challenged, with the third lowest capacity installed as of 2021.

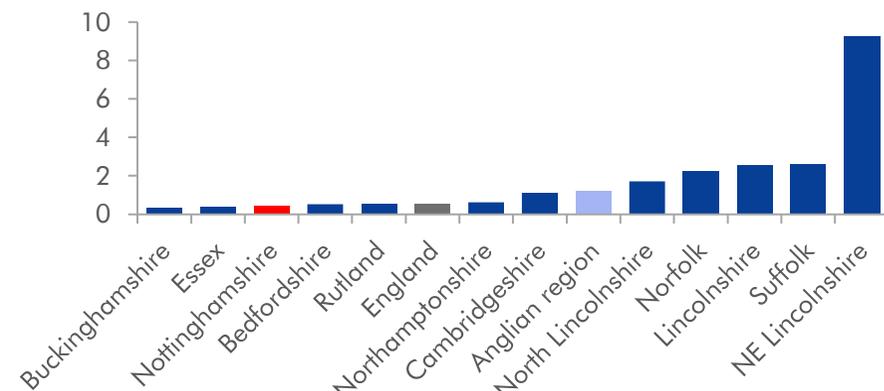
Rainfall precipitation projections (mm per day, 2023-2040 average) and temperature projections (degrees Celsius at 1.5 metres, 2023-2040 average)



Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Nottinghamshire	Anglian Water region	England
Overall	3	8	2
Precipitation index	2	9	1
Rainfall projections	3	7	1
Temperature projections	1	9	2
People at high risk from flooding	7	10	9
Properties at high risk from flooding	7	11	6
Greenhouse gas emissions	2	8	4
Renewable electricity capacity	12	6	9

Renewable electricity installed capacity (MW per 000's), 2021



Sources: Capital Economics, BEIS, Met Office

Nottinghamshire is fourth most challenged area in Anglia on measures related to economy and society

Nottinghamshire ranks eleventh out of fourteen for the economy & society pillar. The rankings point to the challenge for Nottinghamshire being greater than for the Anglian Water region as a whole as well as the national average.

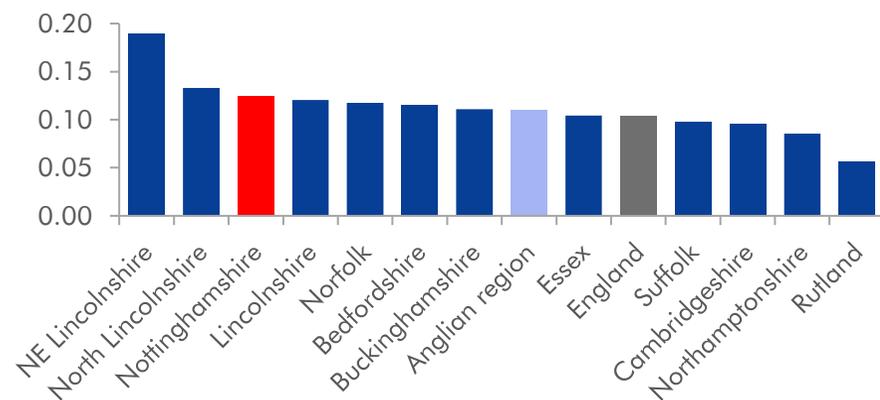
Nottinghamshire’s ranks lowest on societal measures related to well-being, deprivation and social mobility. Over recent years, 9.8% of Nottinghamshire’s residents reported ‘poor’ happiness levels, which is higher than any other area within the Anglian Water region.

Meanwhile, the county’s average income deprivation score from the Office for National Statistics’ Index of Multiple Deprivation was third highest in the region and above the national average.

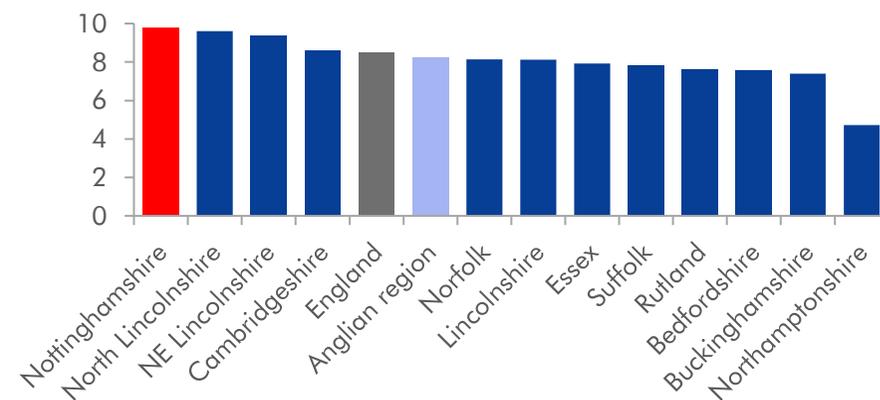
Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Nottinghamshire	Anglian Water region	England
Overall	11	8	5
Agricultural GVA	6	9	3
Non-domestic water consumption	6	8	4
Bathing waters quality	3	12	3
Workforce skills level	9	8	3
Well-being estimates	14	9	10
Income deprivation	12	7	5
Social mobility	12	7	5

Income deprivation average score (2019)



Population that reports “poor” happiness levels (% of total, 2018-2022 average)



Sources: Capital Economics, ONS

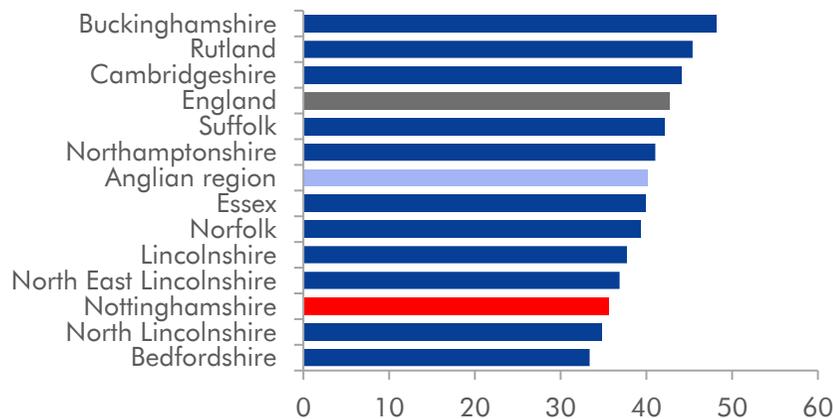
Nottinghamshire ranks fifth on Sustainable growth pillar

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Nottinghamshire ranks fifth out of the fourteen on the sustainable growth pillar.

Nottinghamshire’s projected population growth is the fifth highest in the Anglian Water region and this supports strong projected employment growth, which is only higher in Northamptonshire.

However, the concentration of businesses in Nottinghamshire is lower than in many other areas. In 2021, there were around 36 businesses per 10,000 people compared to an average of 42 across England.

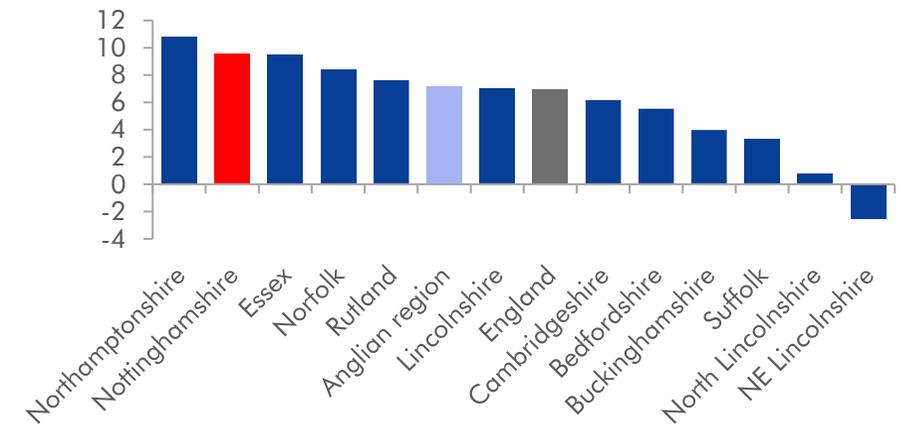
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Nottinghamshire	Anglian Water region	England
Overall	5	8	11
Population projections	10	8	7
Over 65 population projections	6	8	9
Employment projections	13	9	7
GDP projections	1	6	10
Business stocks	3	8	11
Housing stocks	9	7	8
Households in social housing waiting lists	11	9	12

Employment projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, ONS

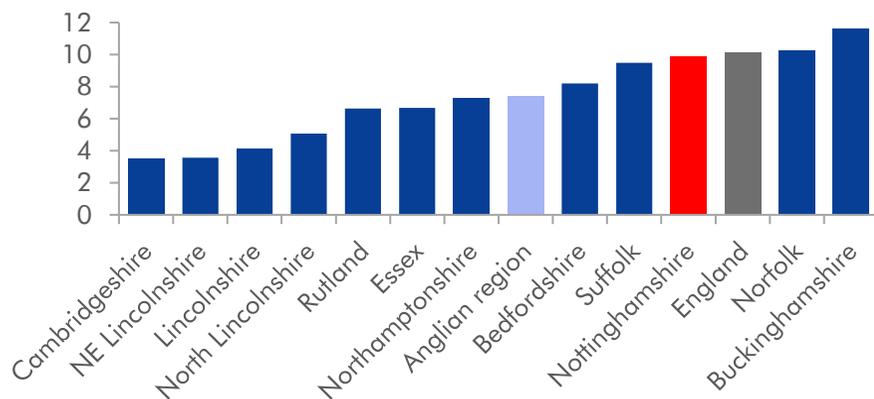
Challenges related to nature and environment are more pronounced than they are nationally

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Nottinghamshire ranks fifth out of fourteen on the nature & environment pillar and is more challenged than the national average.

The county’s most severe challenge in this pillar relative to other areas in the Anglian Water region is the condition of its Sites of Special Scientific Interest (SSSI). According to data from DEFRA, seventeen per cent of Nottinghamshire’s SSSIs are in favourable condition compared to 4 per cent across the entire Anglian Water region.

At ten per cent of its total land area, Nottinghamshire has relatively high levels of woodland coverage. It is in line with the national average and is higher than coverage for the Anglian Water region as a whole.

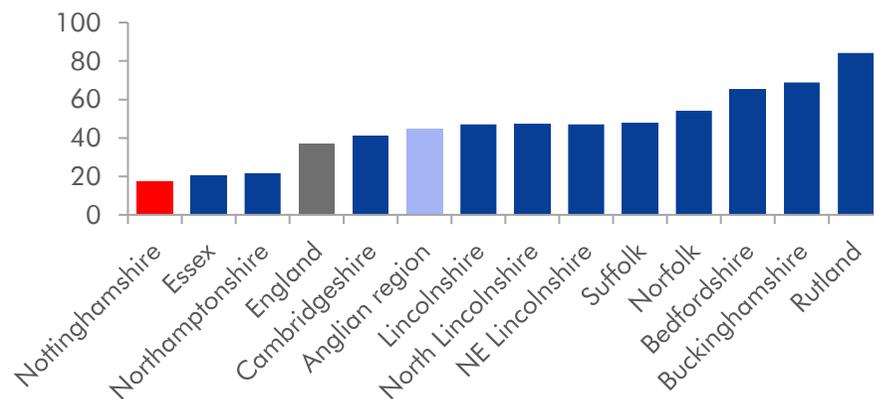
Woodland (% of total area, 2019)



Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Nottinghamshire	Anglian Water region	England
Overall	5	7	3
Distance to public green space	6	9	4
Private outdoor space	5	7	13
Tree cover	4	7	3
Air quality index	3	11	5
Agricultural land use	4	10	2
Sites of Special Scientific Interest	14	9	11
River water quality	7	8	5

Sites of Special Scientific Interest (“favourable” SSSI area as a share of total, %, April 2023)



Sources: Capital Economics, DEFRA

4. Long term challenges within the Anglian Water region

Rutland

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Rutland ranks thirteenth out of fourteen areas in the index, with relatively greater challenge than regional and national average
- Rutland ranks in the bottom three in three out of the four pillars.

Rutland ranks as the second most challenged area in the Anglian Water region

Rutland ranks in three most challenged areas in three of four pillars

Rutland ranks thirteenth out of fourteen on the index, making it the second most challenged area in the Anglian Water region. The county is relatively more challenged than the Anglian Water regional average.

The county ranks in the three most challenged areas in three out of the four pillars of the index.

Rutland ranks twelfth out of fourteen on the climate change pillar. It is the second highest area for greenhouse gas emissions, with 28 tonnes of CO₂ equivalent per person compared to just over seven tonnes across the Anglian Water region as a whole.

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Rutland ranks thirteenth out of the fourteen on the sustainable growth pillar, with the fastest projected population growth of any area in the Anglian Water region.

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society's overall well-being. Rutland ranks thirteenth out of fourteen on the nature & environment pillar and is more challenged than the Anglian Water region average.

Rutland ranks ninth in economy and society pillar

On this pillar, the rankings point to the challenge for Rutland being greater than for the Anglian Water region and country as a whole. Rutland's large agricultural sector is one of the county's greatest challenges related to water supply, as the sector tends to be more water-intensive than most.

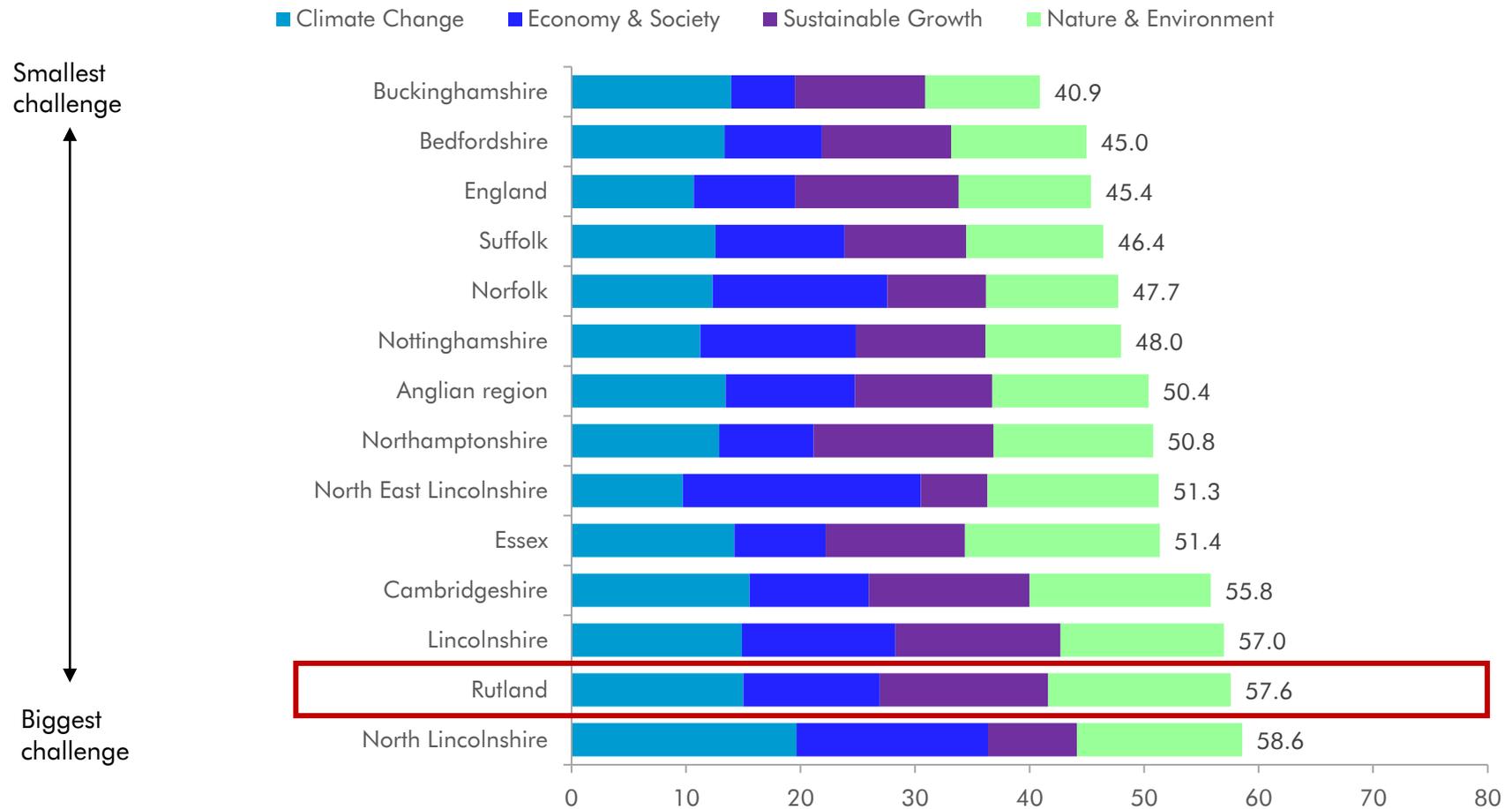
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Rutland is the second most challenged area in the Anglian Water region

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

Rutland is relatively exposed to challenges related to climate change

Rutland ranks twelfth out of fourteen on the climate change pillar. According to the index, the challenges are more pronounced than both the Anglian and national average.

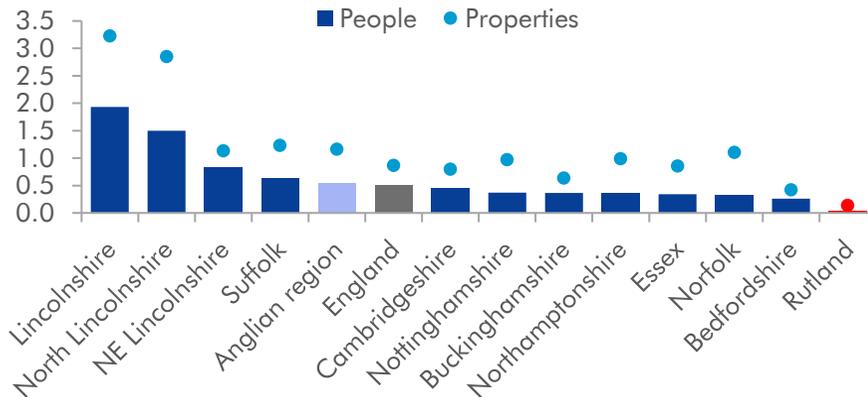
Rutland is the second highest area for greenhouse gas emissions, with 28 tonnes of CO2 equivalent per person compared to just over seven tonnes across the Anglian Water region as a whole.

One area where it is less challenged is flooding. It has the lowest share of people and properties that are at high risk from flooding due to the sea or rivers.

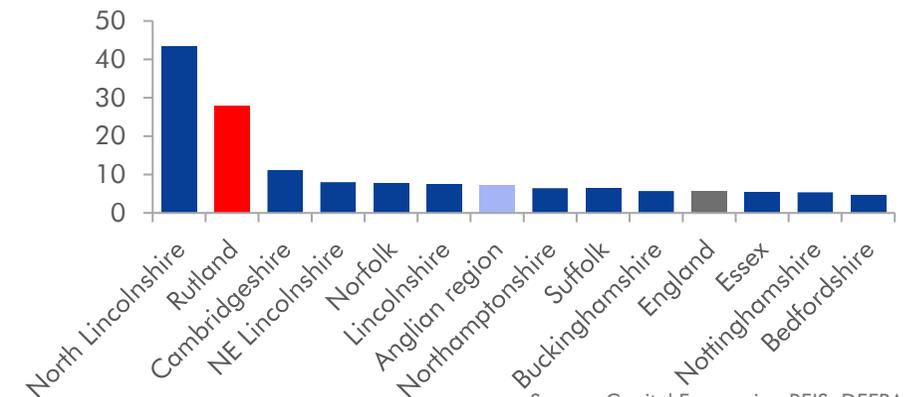
Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Rutland	Anglian Water region	England
Overall	12	8	2
Precipitation index	3	9	1
Rainfall projections	4	7	1
Temperature projections	3	9	2
People at high risk from flooding	1	10	9
Properties at high risk from flooding	1	11	6
Greenhouse gas emissions	13	8	4
Renewable electricity capacity	10	6	9

People and properties at high risk from flooding due to sea and rivers (% of total, 2022)



Greenhouse gas emissions (tonnes of CO2 equivalent per capita), 2019



Source: Capital Economics, BEIS, DEFRA

Challenges linked to economy & society greater than for the Anglian Water region as a whole

Rutland ranks ninth out of fourteen for the economy & society pillar. The rankings point to the challenge for Rutland being greater than for the Anglian Water region and country as a whole.

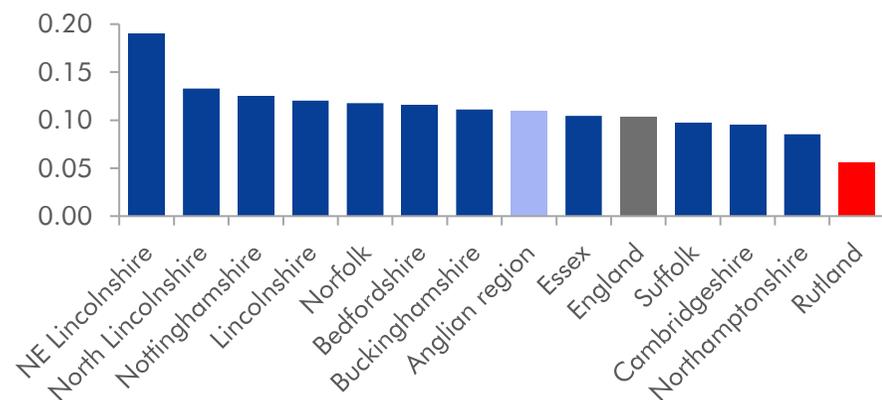
Rutland’s large agricultural sector is one of the county’s greatest challenges related to water supply, as the sector tends to be more water-intensive than most. On average between 2015 and 2019, 6.5% of Rutland’s economic output came from the agriculture sector. That compares to 1.4% for the Anglian Water region and 0.4% for England.

Rutland is the county with the lowest levels of income deprivation according to the Office for National Statistics’ Index of Multiple Deprivation. Meanwhile, well-being and social mobility in the county is higher than the Anglian Water region average

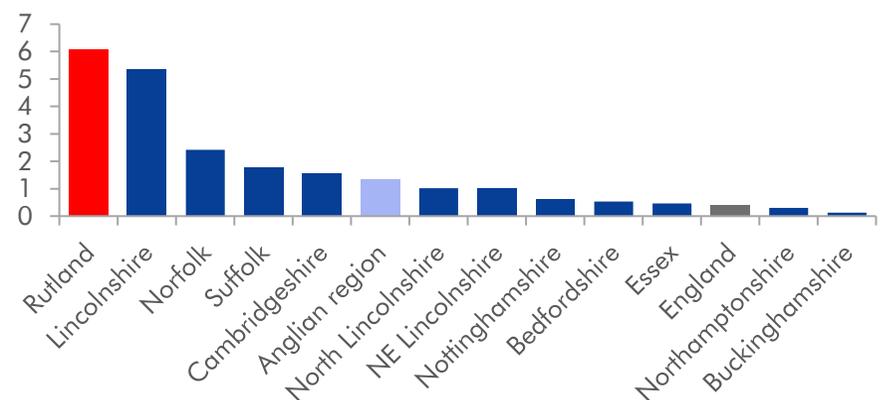
Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Rutland	Anglian Water region	England
Overall	9	8	5
Agricultural GVA	13	9	3
Non-domestic water consumption	11	8	4
Bathing waters quality	3	12	3
Workforce skills level	10	8	3
Well-being estimates	4	9	10
Income deprivation	1	7	5
Social mobility	6	7	5

Income deprivation average score (2019)



Agricultural gross value added (% of total, 2015-2019 average)



Sources: Capital Economics, ONS

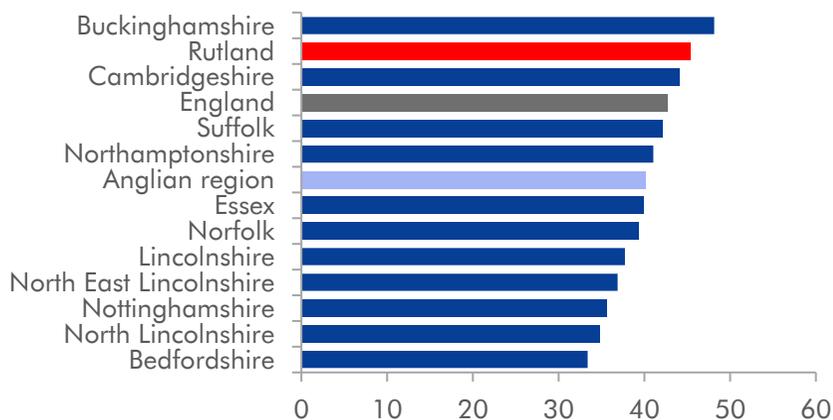
Growth presents greater challenge for water supply in Rutland than in most other areas

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Rutland ranks thirteenth out of the fourteen on the sustainable growth pillar, which implies that it faces greater challenges than the region and country as a whole.

Rutland’s population is projected to rise by 12.1% between 2023 and 2043, compared to 8.0% for the Anglian Water region and 7.3% for England. This is the fastest growth of any of the areas in the Anglian Water region.

Rutland also has a high concentration of businesses. In 2021, there were 44 businesses per 10,000 people in Rutland compared to 40 across the Anglian Water region.

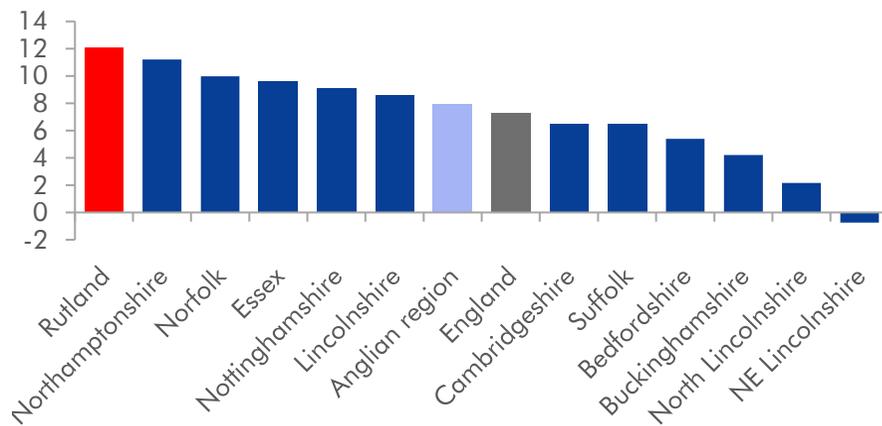
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Rutland	Anglian Water region	England
Overall	13	8	11
Population projections	14	8	7
Over 65 population projections	13	8	9
Employment projections	10	9	7
GDP projections	2	6	10
Business stocks	13	8	11
Housing stocks	13	7	8
Households in social housing waiting lists	9	9	12

Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, ONS

Rutland is second most challenged area on the nature and environment pillar

Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Rutland ranks thirteenth out of fourteen on the nature & environment pillar and is more challenged than the Anglian Water region average.

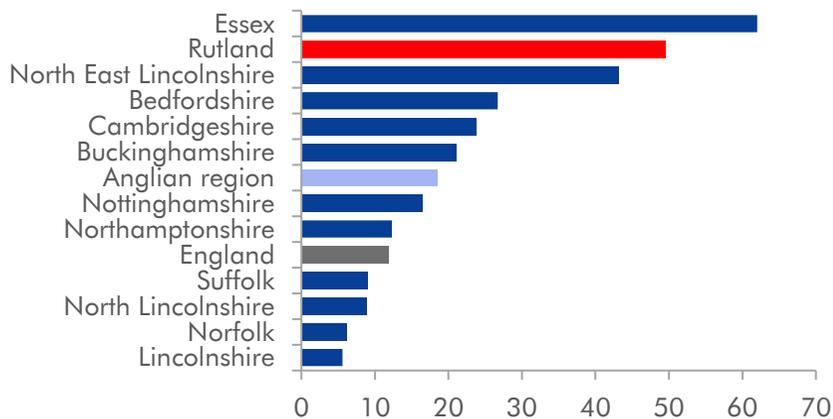
Rutland is a relatively agricultural economy, with the third highest agriculture output as a share of total gross value added. The overall ranking is also driven by a relatively large average distance to public green space and more instances of poor river quality.

On the other hand, Rutland has the highest share of its Sites of Special Scientific Interest that are in favourable condition of any of the areas in the Anglian Water region.

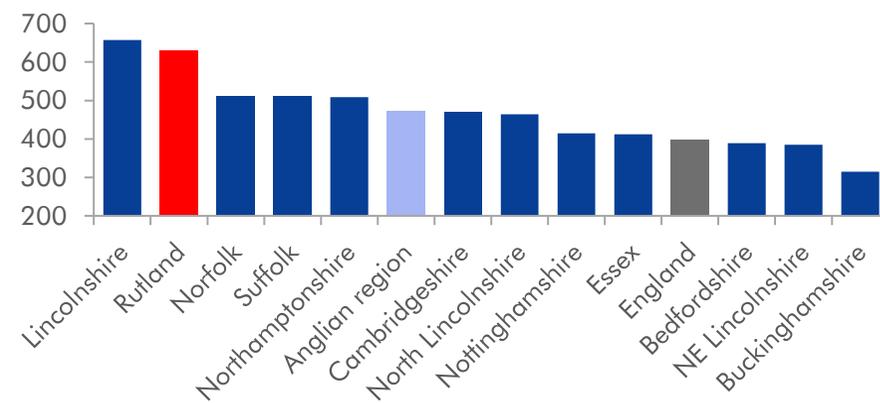
Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Rutland	Anglian Water region	England
Overall	13	7	3
Distance to public green space	14	9	4
Private outdoor space	11	7	13
Tree cover	10	7	3
Air quality index	3	11	5
Agricultural land use	12	10	2
Sites of Special Scientific Interest	1	9	11
River water quality	14	8	5

Reasons for not achieving good water quality (number of times per square metre of land in the region, 2022)



Average distance to public green space (metres, 2020)



Sources: Capital Economics, DEFRA, Reasons for Not Achieving Good Dataset

4. Long term challenges within the Anglian Water region

Suffolk

- Anglian Water region ranks tenth out of eleven in the index, making it the second most challenged region
- Suffolk ranks fourth out of fourteen areas in the index, with a relatively smaller challenge than the regional average but a greater challenge than the national
- Suffolk's highest ranking is in the economy & society pillar, where it ranks seventh.

Suffolk ranks fourth out of fourteen on our index, facing a greater challenge than the national average

Suffolk's highest ranking is in the economy & society pillar

Suffolk is the third least challenged area within the Anglian Water region but does face a slightly greater challenge than the national average.

Suffolk's highest ranking is in the economy & society pillar, where it ranks seventh. Social mobility is a key challenge for Suffolk, as it scores -34 on the social mobility index, compared to -11 for the Anglian Water region and +1 for England.

Within the nature & environment pillar, the county ranks sixth. A longer average distance to green public space, along with a relatively larger agricultural sector both present challenges within this pillar.

Suffolk ranks fifth on the climate change pillar, facing the third greatest risk of flooding compared to other areas of the Anglian Water region on both of our flood risk metrics.

Relatively smaller change from sustainable growth pillar than national average

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Suffolk is less challenged than the average for England, ranking fourth out of fourteen on the sustainable growth pillar. Suffolk is projected to see slower population growth between 2023 and 2043 than the national average.

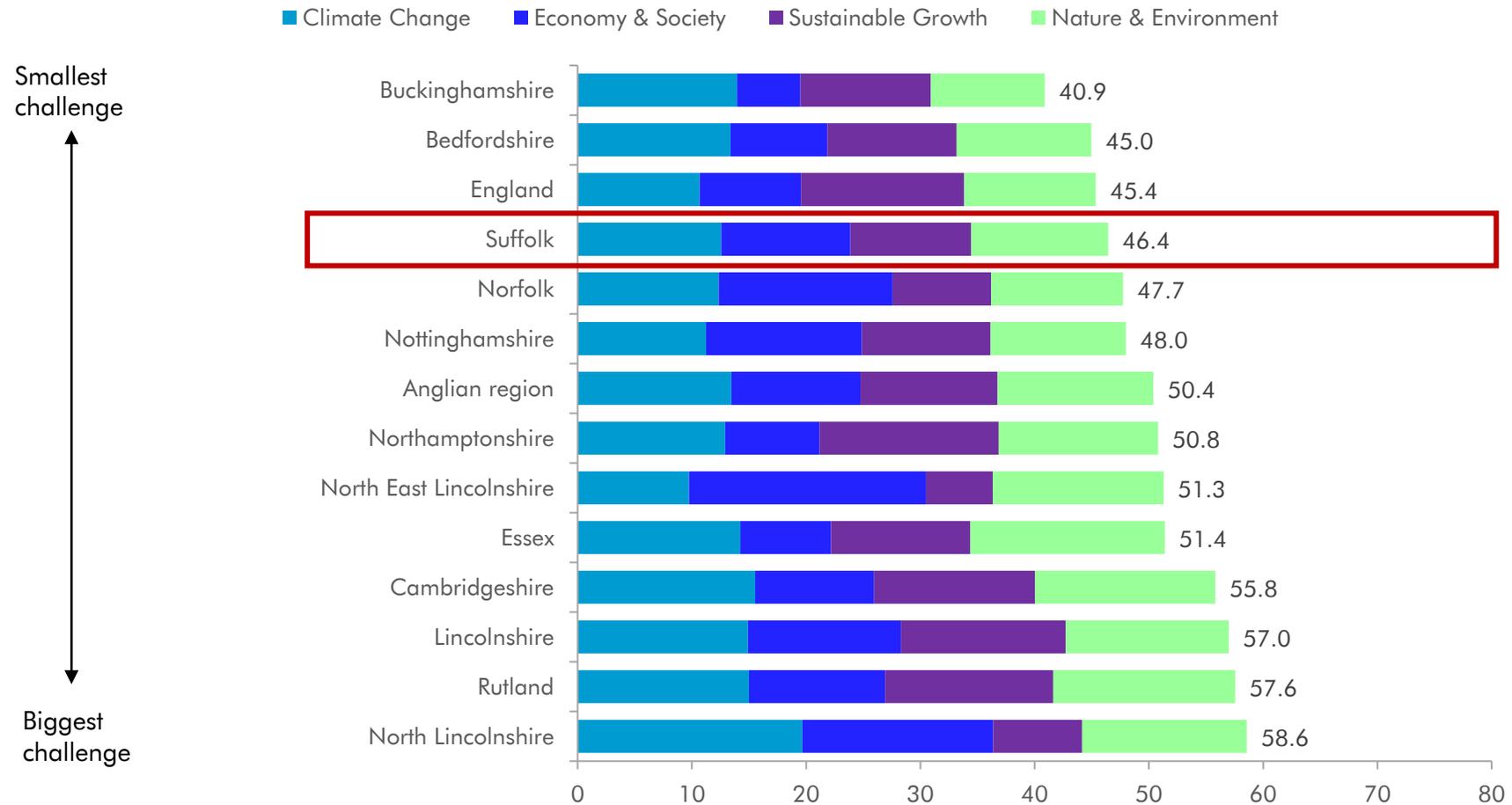
Index ranking of relative Anglian areas challenges (1 = smallest challenge, 14 = biggest challenge)

Geography	Pillar ranking				Overall
	Climate Change	Economy & Society	Sustainable Growth	Nature & Environment	
Buckinghamshire	9	1	7	1	1
Bedfordshire	7	4	6	4	2
England	2	5	11	3	3
Suffolk	5	7	4	6	4
Norfolk	4	12	3	2	5
Nottinghamshire	3	11	5	5	6
Anglian Water region	8	8	8	7	7
Northamptonshire	6	3	14	8	8
North East Lincolnshire	1	14	1	11	9
Essex	10	2	9	14	10
Cambridgeshire	13	6	10	12	11
Lincolnshire	11	10	12	9	12
Rutland	12	9	13	13	13
North Lincolnshire	14	13	2	10	14

Source: Capital Economics

Suffolk more challenged than national average

Challenges index scores (scores range from 0 to 100, with higher scores indicating greater challenge)



Source: Capital Economics

Suffolk ranks fifth on climate change pillar

Suffolk ranks fifth out of fourteen on the climate change pillar. According to the index, the challenges are less pronounced than for the Anglian Water region, but more than for England on average.

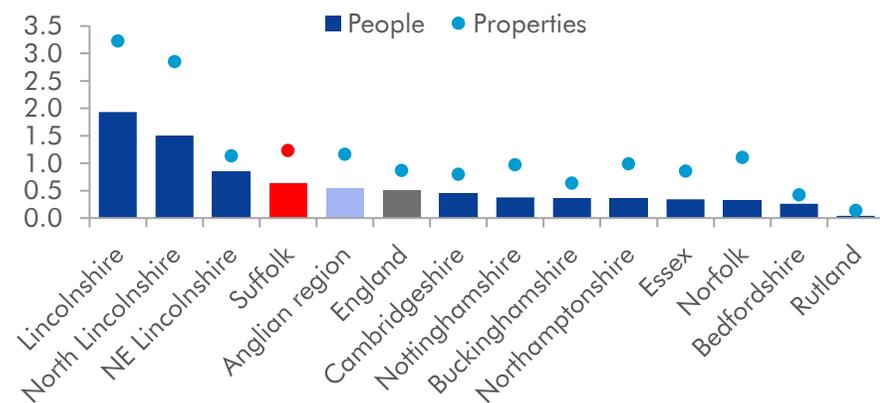
One particular challenge for the county is flood risk. The National Receptor Dataset produces estimates of people and properties at risk from flooding due to sea and rivers. In 2022, 0.6% of people in Suffolk were at risk and 1.2% of properties. That is significantly higher than the estimates for the Anglian Water region as a whole, where 0.5% of people are at risk and 1.2% of properties.

The Anglian Water region has higher renewable electricity capacity than the national average, at 1.2 megawatts per thousand people. That compares to 2.6 for Suffolk, which puts the county as the second least challenged on this metric.

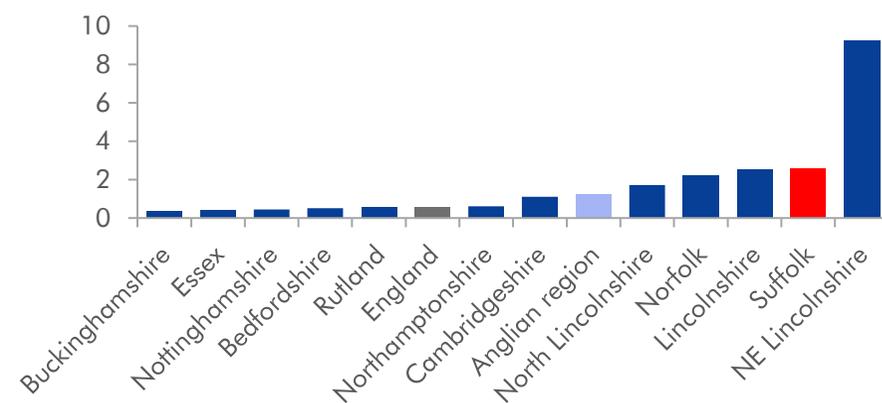
Index ranking of relative Anglian areas challenges – Climate Change (1 = smallest challenge, 14 = biggest challenge)

	Suffolk	Anglian Water region	England
Overall	5	8	2
Precipitation index	12	9	1
Rainfall projections	9	7	1
Temperature projections	10	9	2
People at high risk from flooding	11	10	9
Properties at high risk from flooding	12	11	6
Greenhouse gas emissions	6	8	4
Renewable electricity capacity	2	6	9

People and properties at high risk from flooding due to sea and rivers (% of total, 2022)



Renewable electricity installed capacity (MW per 000's), 2021



Sources: Capital Economics, BEIS, ONS

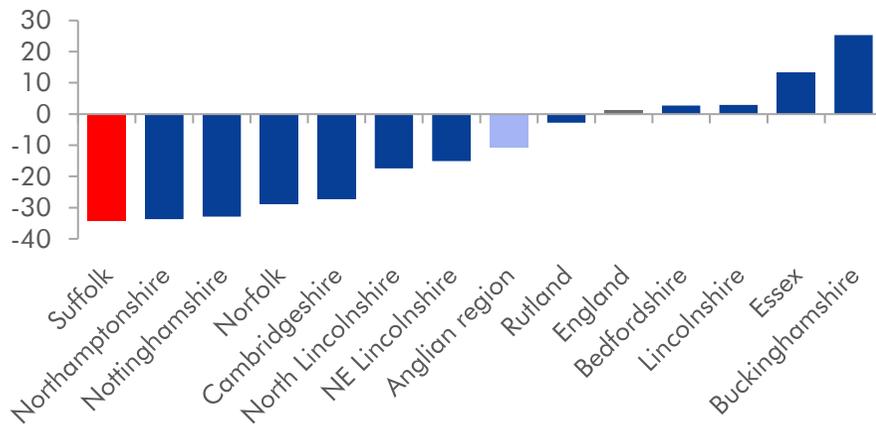
Suffolk's challenge related to economy & society is of a similar magnitude to the average for the Anglian Water region

Suffolk ranks seventh out of fourteen for the economy & society pillar. The rankings point to the challenge for Suffolk being slightly smaller than for the Anglian Water region but greater than the national average.

Social mobility is a key challenge for the county according to the index. Suffolk scores -34 on the social mobility index, compared to -11 for the Anglian Water region and +1 for England.

Meanwhile, the index suggests that economic activity in Suffolk is relatively water intensive. On average between 2015 and 2019, 1.8% of Suffolk's economic output as measured by gross value added came from the agriculture sector. That compares to 1.4% for the Anglian Water region, and 0.4% for England. Our non-domestic water consumption metric also shows non-domestic activity in the county to be more water-intensive than the Anglian and national average.

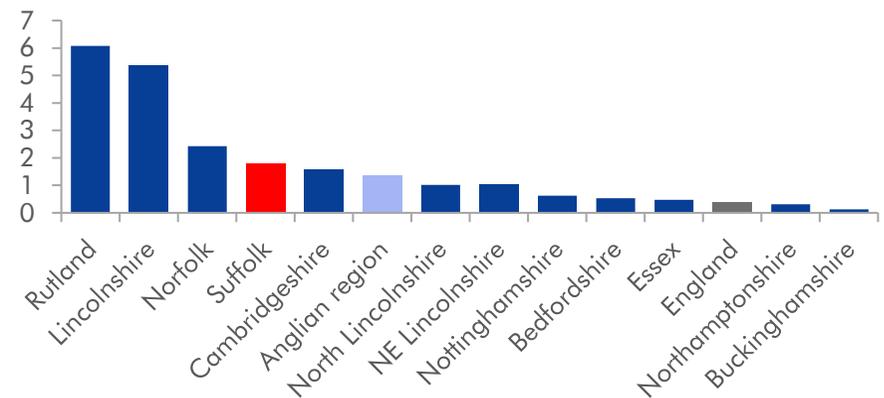
Social mobility index, 2018



Index ranking of relative Anglian areas challenges – Economy & Society (1 = smallest challenge, 14 = biggest challenge)

	Suffolk	Anglian Water region	England
Overall	7	8	5
Agricultural GVA	11	9	3
Non-domestic water consumption	9	8	4
Bathing waters quality	2	12	3
Workforce skills level	7	8	3
Well-being estimates	5	9	10
Income deprivation	4	7	5
Social mobility	14	7	5

Agricultural gross value added (% of total, 2015-2019 average)



Sources: Capital Economics, ONS

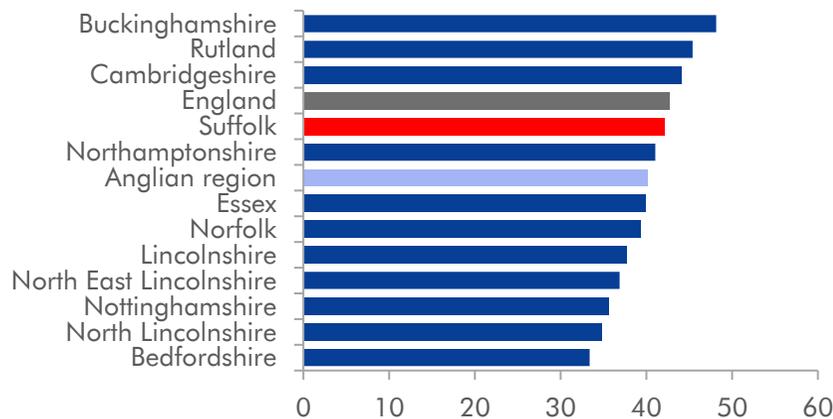
Ensuring sustainable growth presents smaller challenge for water supply in Suffolk than the national average

While economic, demographic, and housing growth all play a role in fostering prosperity, they also add pressure to the water supply. Suffolk is less challenged than the average for England, ranking fourth out of fourteen on the sustainable growth pillar.

Suffolk’s population is projected to rise by six per cent between 2023 and 2043, compared to eight per cent for the Anglian Water region and seven per cent for England. That should mean Suffolk sees relatively less upward pressure on demand for water from population growth.

The county ranks tenth on business stocks, meaning that current business activity poses relatively more of a challenge to water supply than in many other areas of the region. As of 2021, there were around 42 businesses per 10,000 people in the county, compared to 40 for the Anglian Water region on average.

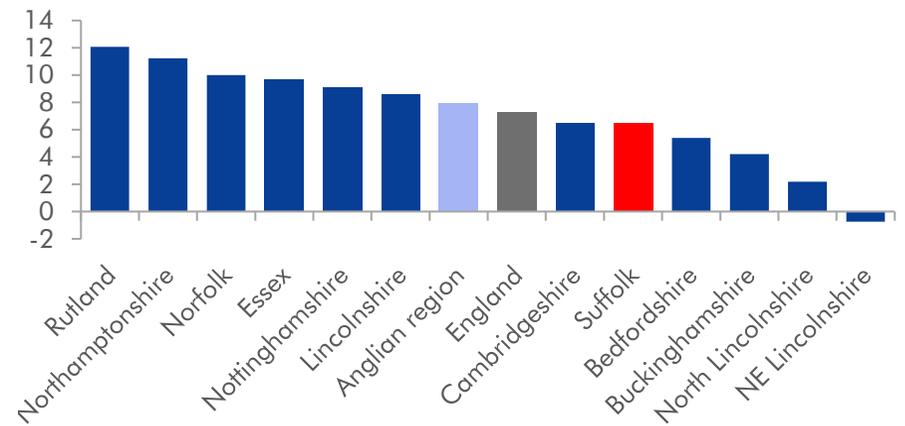
Business stocks per 10,000 people, 2021



Index ranking of relative Anglian areas challenges – Sustainable Growth (1 = smallest challenge, 14 = biggest challenge)

	Suffolk	Anglian Water region	England
Overall	4	8	11
Population projections	5	8	7
Over 65 population projections	5	8	9
Employment projections	3	9	7
GDP projections	8	6	10
Business stocks	10	8	11
Housing stocks	6	7	8
Households in social housing waiting lists	5	9	12

Population projections (cumulative growth between 2023-2043, %)



Sources: Capital Economics, DLUHC, ONS

Challenges related to nature and the environment in Suffolk are in line with Anglian average

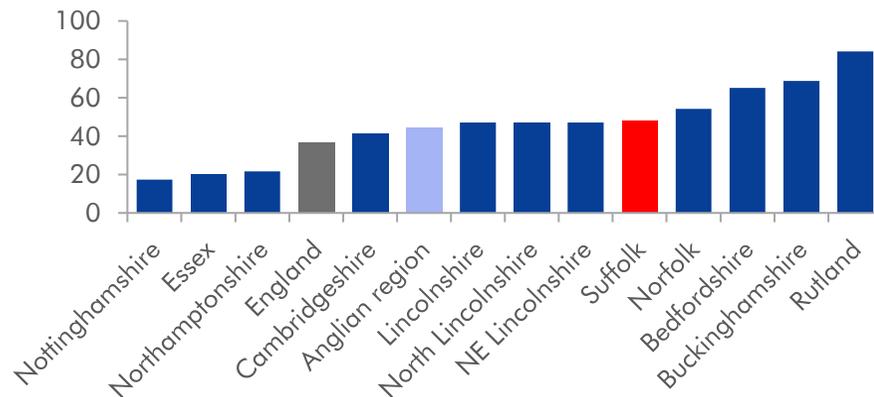
Water and nature are inexorably linked, as a thriving natural environment cannot exist without water. In turn, nature plays an important role in society’s overall well-being. Suffolk ranks sixth out of fourteen on the nature & environment pillar.

In Suffolk, 74% of the land is used for agriculture, a relatively water-intensive industry, compared to just 63% for England.

The share of properties with private outdoor space is above the national average, but average distance to public green space is below, at 510 metres for Suffolk and 398 metres for England.

Around 48% of the area of the Sites of Special Scientific Interest (SSSIs) in Suffolk are in “favourable” condition, which is better than 37% for England.

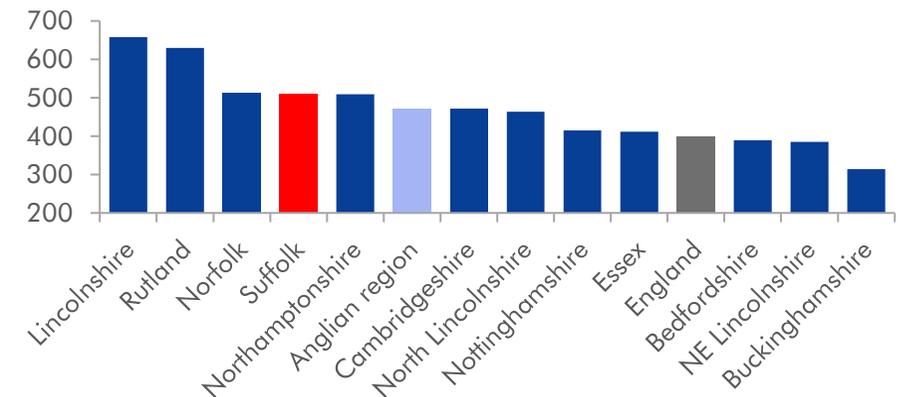
Sites of Special Scientific Interest (“favourable” SSSI area as a share of total, %, April 2023)



Index ranking of relative Anglian areas challenges – Nature & Environment (1 = smallest challenge, 14 = biggest challenge)

	Suffolk	Anglian Water region	England
Overall	6	7	3
Distance to public green space	11	9	4
Private outdoor space	4	7	13
Tree cover	5	7	3
Air quality index	8	11	5
Agricultural land use	8	10	2
Sites of Special Scientific Interest	5	9	11
River water quality	4	8	5

Average distance to public green space (metres, 2020)



Sources: Capital Economics, DEFRA, ONS

Appendix

Index: indicators and metrics

1. Climate change	
Indicator	Metric
Rainfall projections	Precipitation rate 2023-2040 average (mm per day)
Temperature projections	Mean air temperature at 1.5 meters 2023-2040 average (degrees Celsius)
Properties at high risk from flooding due to sea and rivers	Properties at high risk from flooding (% of total)
People at high risk from flooding due to sea and rivers	People at high risk from flooding (% of total)
Precipitation rate index	Precipitation rate index (ranges from below -2 (extremely dry) and above +2 (extremely wet), monthly average 2013-2023)
Greenhouse gas emission	Per capita tonnes of carbon dioxide equivalent emissions (tCO ₂ e)
Renewable electricity installed capacity	Renewable electricity installed capacity, megawatt per 1,000 people
2. Economy & society	
Indicator	Metric
Agricultural gross value added	Agricultural gross value added as a share of total (%)
Bathing waters quality	Bathing waters quality deemed "excellent" (% of total bathing waters)
Workforce skills level	Employment with highest skills level (% of total)
Income deprivation	Income deprivation score (larger value means higher income deprivation)
Social mobility	Social mobility index (smaller value means lower social mobility)
Non-domestic water consumption	Non-domestic water consumption per unit of output (litres per day as a share of GDP)
Well-being estimates	Residents who report being unhappy (% of total)

Index: indicators and metrics

3. Sustainable growth

Indicator	Metric
Population projections	Cumulative growth in population between 2023-2043 (%)
Over-65 population projections	Cumulative growth in over-65 population between 2023-2043 (%)
Household projections	Cumulative growth in number of households between 2023-2043 (%)
Business stocks	Business count per 10,000 people
Housing needs	Households on the housing waiting list in a reasonable preference category (% of total)
GDP projections	Cumulative growth in real gross domestic product between 2023-2043 (%)
Employment projections	Cumulative growth in number of persons employed between 2023-2043 (%)

4. Nature & environment

Indicator	Metric
Public green space	Average distance to nearest park, public garden, or playing field (metres)
Private outdoor space	Addresses with private outdoor space (% of total)
Tree cover	Woodland (% of total area)
Agricultural land use	Agricultural land (% of total)
Air quality	Number of times air pollution level has been deemed "high" since 2000
Water river quality	Reasons for not achieving good water status (number of times per square metre of land in the area)
Sites of Special Scientific Interest	Area of Sites of Special Scientific Interest classified as "favourable" (share of total SSSI area)