

Essex Climate Action Annual Report

2022-23



Gaia exhibition at Chelmsford Cathedral



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Foreword

The Essex Climate Commission, launched in 2020, called on Essex County Council (ECC), district, borough, city, town and parish councils; our colleagues in the NHS and local universities; our local businesses and of course our residents to help build a cleaner, low carbon future for Essex.

Whether changes are small at a very local level, or large on a countywide level, we all contribute to helping tackle climate change in our own way. This includes volunteers, giving up their own time to plant trees and pick litter; community groups, giving strong climate advice to residents to improve the energy efficiency of homes; farmers, who have adapted their farming practice to be more sustainable; businesses, who are utilising the opportunity that a green economy can bring; residents, working hard to recycle their waste and travel in a more sustainable way; our NHS and public sector colleagues, who have invested in reducing the carbon footprint of their buildings; and ECC colleagues who have led on many initiatives this year to reduce carbon emissions in the county and also to protect neighbourhoods from flooding. I would like to thank everybody for their continued efforts to reach our net zero target by 2050.

This report includes a great deal of progress this year across Essex, including the incredible feats we have achieved in tree planting; the progress made in developing a more biodiverse county, including the release of additional Eurasian beavers back into the wild in Essex; the emergence of local heat networks; the continued success of the Solar Together scheme; and the pioneering work of the Essex Developers Guide.

The progress this year has been fantastic right across the county, but there is a lot more to be done to ensure that Essex is net zero by 2050.

Cllr Peter Schwier
Essex Climate Czar and Cabinet Member for Climate, Environment, Waste Reduction and Recycling at Essex County Council



A Year Of Climate Action

Essex County Council

2022-23

Communities

547 social houses retrofitted with renewable technologies to improve the Energy Performance Certificate to at least grade C.

Over **7,000 registrations of interest in Solar Together** in 2023
438+ installs delivered as of June 23, forecast 700 by October generating a **saving of 32%** with a 12 panel system.

£500k awarded through the **Climate Action Challenge Fund**
89 applications receive
41 applications approved

Essex Housing installed **PV solar panels** in all their new developments, plus two new schemes delivering an EPC of A.

£2.6m awarded to 397 businesses via **Low Carbon Across the South and East** since 2016. Supported **20 small and midsize businesses**, and **11 organisations** received funding for a **further 50 retrofit training courses** in 2023

£992,534 savings per year in Greater Essex.

Retrofit Academy exceeded its target: 240+ individual participants

Schools

An average **17% saved on energy bills** for Essex schools involved in the **"2IMPREZS" Energy Challenges project** in comparison to the same period last year

66 School Energy Surveys completed across Essex by the School Energy Team **28% of the maintained estate.** Over **200t CO₂e saved**, over 1500 MWh produced.

8 Schools in Basildon were adapted to cope with flooding risks.

The Community Energy Pathways programme raised **£1.9m in grant funding for local energy projects.**

Bio Diversity

Essex is working to **increase natural green infrastructure** by **2,000 hectares** over the next two years.

Impressive progress has been made through the **Essex Forest Initiative** and **Biodiversity Net Gain**, with current plans meeting 32% of the target, **635 hectares**, by the end of next year.

Energy

Waste

18,500+ people received the **Love Essex newsletter**

500,000+ visitors to the **LOVE ESSEX website**

Tree Planting

Through the **Essex Forest Initiative** launched in October 2019:

- 100,624 Trees** planted this year
- 21.7 hectares** and **13,803m** of **Hedgerow** planted
- 485 Volunteers** supported the project this winter, with **2,425 hours** spent tree planting.
- A new tree survey system** set up in 7 local Authority areas where ECC manage the tree stock.

Essex Climate Focus Area

1. Introduction

What is the Climate Annual report?

ECC has committed, as part of its £250m [climate action plan](#), to track progress to net zero across Essex. We prepare an annual report, which shows the great work happening across the county to reduce greenhouse gas emissions and to make the county more resilient to climate risks such as flooding, overheating and water scarcity.

In 2020, Essex County Council (ECC) formed the Essex Climate Action Commission. This is an independent, cross-party body of experts which was formed to advise on how Essex can become a net zero emissions county. In July 2021, the Commission published [Net Zero: Making Essex Carbon Neutral](#) which set out over 100 recommendations for organisations, business, communities and residents. We all have a role to play in tackling the climate challenge in Essex.

ECC have set out our response to the commission's recommendation in the Climate Action Plan: first agreed in November 2021, with a revised and updated version agreed in July 2023. ECC received an 'A' rating in 2022 from the internationally recognised benchmarking organisation [CDP](#) (formerly known as the Carbon Disclosure Project) for our work on tackling climate. However, we are only one small part of the climate story in Essex.

This is the second annual climate report in Essex and aims to show progress against the commission's recommendations right across the county. It includes examples of actions across the county, district, borough and city councils, the NHS, universities, private businesses as well as third sector and local community groups.

2022 was a benchmark year for the UK, suffering with 40-degree heat for the first time. Essex suffered wildfires which destroyed homes and saw farmers wrestling with severe drought. The [Intergovernmental Panel on Climate Change \(IPCC\)](#) highlighted the impact that human related climate change has had on the world, with rising temperatures and sea levels, adverse weather, as well as impact on food and freshwater scarcity. It is no coincidence that during the five heat-periods between June and August 2022, deaths in the UK were 6.2% above the five-year average ([ONS](#)). The UK has committed in law to become a net zero country by 2050. This means reducing our greenhouse gas emissions to a low enough level that they are absorbed. Internationally 197 countries have signed the Paris agreement to cut emissions so that the average increase in global temperatures is limited to well below 2 degrees – the aim is to limit the worst damage from our changing climate.

However, UNEP's [Emissions Gap Report \(EGR\) 2022](#) highlighted that the international community is falling far short of the goals made in the Paris agreement. Globally there is a realisation that action on climate needs to accelerate. The International Climate Conference (COP27) held in November 2022, saw nations – including the UK – agree an ambitious target for global greenhouse gas to be reduced by 43% by 2030.

In 2022, Governments including the UK also agreed to the '30 by 30' target, to protect 30% of the planet for nature by the end of the decade, reform \$500bn (£410bn) of environmentally damaging subsidies, and restore 30% of the planet's degraded terrestrial, inland water, coastal and marine ecosystems. These international agreements have had impact on national policy through the government's [Environmental Improvement Plan \(Jan 2023\)](#).

In the UK, Rt Hon Chris Skidmore MP, led the UK's [Review of Net Zero](#) (January 2023). This report noted that the transition to net zero was 'the biggest economic opportunity this century' and concluded that the UK could do more to reap economic benefits and opportunities of green growth. We certainly aim to do so in Essex.

Wildflowers at Sandford Mill in Chelmsford

Governments agreed to the '30 by 30' target



Protect 30% of the planet for nature by the end of the decade



Restore 30% of the planet's degraded ecosystem



2. Natural Green Infrastructure

Natural Green Infrastructure is key to tackling climate change in the county. Green Infrastructure which includes trees, meadows, wetlands, and marshes absorbs carbon dioxide but also increases our resilience in the face of changing weather patterns. Planting more trees, creating more green space, rewilding and sustainable farming practices all helps our landscape absorb heavier rainfall. This reduces flood risks, prevents soil loss and damage, protects from overheating and stores water in the landscape, reducing water stress. The Essex Climate Commission identified this, setting a target of 30% of all land in the county to be natural green infrastructure by 2040, which ECC have adopted. To meet this target, Essex would require an additional 585km² of natural green infrastructure, virtually doubling the total area across Essex to 1,103km².

Green space can also be a community resource, providing recreational benefits, whilst aiding social cohesion and improving health and quality of life. Not only does green infrastructure help address climate change and associated issues, but it also contributes to happier and more active communities.

Tree Planting

The Essex Forest Partnership, which is led by ECC in partnership with, city, district, borough and parish councils, local charities and businesses, has an ambition to plant 375,000 trees by spring 2025 and 1 million trees by 2030. By 2022/23, the project oversaw the planting of 240,000 trees, which far exceeded the target set for the first 3 years. The project has seen 485 volunteers this winter, a six-fold increase since last year, which translates to a remarkable 2,425 volunteer hours spent planting and caring for new trees in Essex.



By 2022/23 the project
oversaw the planting of
240,000 trees



2,425 volunteer hours
spent planting and caring
for new trees

Eurasian Beavers - Spain's Hall, Finchingfield



City, district and borough councils are also contributing to increasing the tree population in the county, through many local initiatives. Chelmsford City Council for example have pledged to plant 175,000 trees over a 10-year period as part of the Tree and Woodland Planting Programme, which started in 2018. Colchester City Council planted 7,170 trees across 11 different council spaces between November 2021-February 2022, along with 23,000 trees given to community groups, parish councils and schools, as part of the Woodland and Biodiversity Project.

More than 140,000 trees have been planted as part of the Big Green Internet project, mostly in Tendring. National Highways plan to create the UK's newest public forest in partnership with Forestry England at Hole Farm in Brentwood, with plans to plant 150,000 trees and to build new facilities for the community.

Flooding and Water

[Spain's Hall Estate](#) in Finchingfield have introduced four new Eurasian beavers into two new 50-acre enclosures. The beavers have created dams and wetlands, holding back flood water, and protecting communities downstream.

ECC and external partners have invested around £4m of capital funding in 2022/23, completing 6 schemes with 2 projects on site being constructed which will be completed in the early part of 2023/24. The 6 completed schemes have provided increased flood risk benefits to 119 residential properties across Essex. ECC have identified a further 8 schemes for the next financial year, which if successfully completed will bring in an estimated £2million of external funding.

The schemes this year include two raingarden projects, which provide much needed surface water flood risk reduction. They also provide environmental benefits such as habitat creation, improved water, and air quality.

ECC, working in partnership with Basildon Borough Council, have introduced two sections of raingarden on Tyrrells Road in Billericay. Another raingarden has been developed at Springfield Road on Canvey Island. Raingarden's take excess water off the highway, where it will be stored, treated, and managed more efficiently.

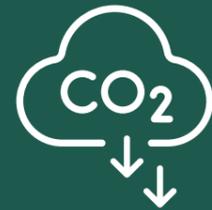
The town of Wivenhoe has been highlighted as an area of flood risk. ECC has worked with a landowner to deliver a leaky dam scheme designed to slow the flow of surface water and create extra storage by increasing capacity within the current ditch system.



More than
61%
of Essex is
farmland



£1 million
of potential
investments
on offer



Part of industry
efforts to reach

**net-zero carbon
emissions** by 2040

Climate Focus Area

A [Climate Focus Area \(CFA\)](#), covering nearly a third of the county, has been established within the Blackwater and River Colne Catchment areas. This area is piloting accelerated climate action schemes, in collaboration with local councils, charities, residents, landowners and businesses. Targeting a designated area within the county allows for more focused, ambitious, and intensive action to be delivered within shorter time frames, and where new knowledge about positive impacts can quickly be spread across the county.

In the CFA this year, ECC is working with Downforce Technologies and Finance Earth to unlock private and public investment in natural capital assets and ecosystem services at four sites covering 1,560 ha. The project aims to reduce flood and drought risks, water and air pollution, and address biodiversity loss and habitat fragmentation, whilst aiming to bring sufficient financial return for the landowners so that the financial models can be replicated by other landowners across the rest of Essex.

The role of farmers in making landscape scale change is critical as they are custodians of 61% of Essex. The North Essex Farm Cluster, was set up in 2022. This group of over 40 farmers provides access to expert advice, funding, project management and events. With over £1m of potential investments on offer to farmers for nature-based solutions, a Cluster Coordinator was appointed in September 2022, to work with farmers to design, manage and deliver environmental projects at scale, and at pace. ECC and the Local Nature Partnership, are now developing other clusters that will become active over the coming year.

Spain's Hall estate, also in the CFA, have been involved in several innovative approaches to sustainable land stewardship. This includes their recent work with land agents, WS Atkins, to use farm-scale nature-based solutions to help tackle two of the biggest challenges of climate change – increasing water shortage due to hotter summers and reducing the risk of flooding during winter storms, identifying zones across the landscape that could be used for storage of rainfall and river water.

Fairfield's Farm on the headwaters of the River Colne, maintain over 5% of land as a carbon-capturing wild bird habitat. The farm has created a water management system complete with reservoirs to store excess water for use in the summer months. Tiptree Farm has also invested in highly efficient micro-irrigation systems for monitoring and controlling water and fertiliser use within crops, whilst Otto's Pumpkin Patch, in Braintree, have added a new rotation of crops to an existing farming field.

Finally, Grays Farm, near Braintree is to transform the 120ha of arable land and woodland into the largest rewilding site in the county and open a centre on the site to share the best biodiversity and sustainability practices in land management. The new Wildfell Centre for Environmental Recovery, based in the heart of the CFA, will be dedicated to helping landowners unlock the potential of their land to use it more effectively as part of industry efforts to reach net-zero carbon emissions by 2040 and boost biodiversity.

Nature Recovery

[The Essex Nature Partnership](#) continues to work with partners across Essex to support development of a new Local Nature Recovery Strategy for Essex, which is expected to be completed by Summer 2024.

In May 2023, as part of Involve's Local Climate Engagement Programme, workshops were held on how to enable resident collaboration on climate matters, in Stisted, Tiptree and Wivenhoe. The outcomes of these workshops will inform the parishes Local Nature Plans.



Water management system at Fairfield's Farm, Colchester



3. Built Environment

Our homes and businesses are the largest source of climate emissions after surface transport, with 25% of UK emissions being directly attributable to the built environment. ([Climate Change Mitigation | UKGBC](#))

New Builds

New legislation came into effect in June 2023, for new-build homes to produce at least 31% less carbon emissions than previously. From 2025, developers will need to improve further and comply with the new Future Homes Standard (FHS), where new homes will produce 75-80% less carbon emissions by having higher energy efficiency standards and low carbon heating systems such as heat pumps.

Planning authorities and ECC continue to work to ensure the [Essex Design Guide](#) provides best practice advice in low carbon and climate resilient developments, to encourage a move to net zero developments across the county. ECC published a study on the costs of building low carbon homes. The [Net Zero Evidence shows](#) that for the same cost as a FHS home it is possible to build Net Carbon Zero passivhaus style homes. Legal advice provides assurance to Local Planning Authorities (LPA) that they can set net zero carbon new housing policies in their Local Plan.

ECC published the new [Green Infrastructure Standards](#) - which garnered a [Building with Nature policy award](#). Developed in partnership with experts and industry, the standards give practical best practise guidance to Essex housing developers.

The Essex Developers Group have pledged to work together to meet climate goals having signed up to the Developers Climate Charter, the first agreement of its kind in the Country.

Brentwood Borough Council, as part of their corporate strategy to 'identify opportunities for low emission and green developments' and their affordable housing scheme, were granted planning permission in July 2023 to regenerate land near Harewood Road in Pilgrims Hatch. This will provide a minimum of 40 new zero carbon affordable homes for Brentwood residents.

Essex Housing (EH) who are ECC's award-winning in-house developer, are pioneering an even more ambitious approach and bringing forward a pilot development which is net zero for operation and in embodied carbon - meaning they have considered the production of all the materials going into the building as well as how energy will be used by the occupants.

The Essex Climate Commission set a target that by 2022 all permissions for new schools will be Net Zero. This recommended target is now being achieved for all new school buildings in Essex.

Retrofitting

Upgrading housing stock to use less energy is a significant challenge. However, where residents have retrofitted to be more energy efficient, they have benefitted from significant savings on their energy bills, while living in a warm and comfortable home.

This challenge also presents a unique economic opportunity, for large scale, low carbon domestic retrofit programmes in the County to unlock new jobs in this growing market in Essex as set out in the [Essex Sector Development Plan](#).

College Gardens, Rocheway, Rochford



New homes built from 2025 will produce **75-80% less carbon**



A minimum of 40 new **zero carbon affordable homes**



Leanne Madden, Director of Essex based business L Retrofit

Case Study

L RETROFIT is an Essex based Retrofit Consultancy, founded in 2022 by Architectural Technologist, Leanne Madden. Leanne completed the fully funded Retrofit Assessment online course and within five months was able to complete the Level 4 Award in Domestic Retrofit and Level 5 Diploma in Retrofit Coordination and Risk Management.

Upon completion of her training, Leanne launched a new company, leaving her previous role as a Project Manager for a career as a Retrofit Assessor and Retrofit Coordinator. Since then, L RETROFIT has worked with private homeowners and on Government funded schemes, tackling issues with internal comfort, poor air quality and high fuel costs, resulting in healthier homes and reduced carbon emissions.

After a successful first year, L RETROFIT are entering a growth phase to prepare for increasing demand. Leanne's priority is to build a team of dependable retrofit professionals, offering high quality services across Essex and Greater London. It is hoped that as the scale of retrofitting increases across the County, L RETROFIT will be able to support newly qualified retrofit professionals by offering workplace mentoring and practical training on projects based within Essex.

To date, L RETROFIT has saved each home on average £1,127.86p/yr on fuel bills and reduced each home's carbon emissions by 4.12tonnes annually, which is the equivalent amount of carbon which 187 mature trees would remove from the atmosphere each year.

Grants

The government has grant support packages for local authorities and social housing providers, to help improve homes for those on low incomes. Social housing providers Sanctuary Housing and Eastlight Community Homes have unlocked grant funding from the Social Housing Decarbonisation Fund to upgrade their homes.

ECC, district, borough and city councils have worked with the local net zero hub to secure a further £18.7m of this funding, bringing the total grant support over the last 3 years to over £32m. Families with an income of under £30k per annum and who live in a cold home (EPC D or below) can unlock grants of up to £10k for insulation and new heating systems.

The Smart Heat and Intelligent Energy in Low-Income Districts project ([SHIELD](#)), funded by £82,163 from the Ofgem Strategic Innovation Fund, helps disadvantaged, fuel poor or off the gas grid residents reduce their carbon emissions. The scheme helps residents install energy efficient technologies such as solar panels, wind generation storage and electric vehicles.

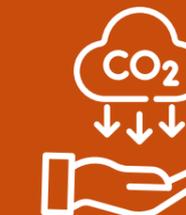
Citizen's advice provide advice to Essex residents via the [Warm Homes Essex website](#) and have also provided intensive and personalised support to improve the circumstances of those whose health is adversely affected or at risk from living in a cold home.

One of the community energy projects in Essex has attracted nearly £1m in funding to support a Local Energy Advice Decarbonisation programme (LEAD), where members of community groups are trained up to achieve a nationally recognised retrofit assessor qualification. Once they complete the training, they can perform assessments as part of the whole area retrofit plan. LEAD also supports community energy groups to create local energy champions, to provide face to face retrofit advice, and whole area decarbonisation plans (in Saffron Walden and surrounding parishes, Maldon, Danbury, Jaywick, Colchester and surrounding communities).



Grants of up to **£10,000** for insulation and new heating systems

SHIELD helps disadvantaged, fuel poor or off the gas grid residents reduce their carbon emissions



Heat pump installation at an Essex home

Public Sector Buildings

The public sector in Essex is also committed to reducing carbon emissions and energy bills from our own buildings.

Case Study

Essex County Council has retrofitted the Essex Record Office (ERO) alongside other office buildings such as Goodman House and buildings used by the residents of Essex, including the Great Notley Discovery Centre and the Witham Adult Community Learning building. This includes installing solar panels on 17 buildings.

ECC have also continued their programme of LED street light conversion. All 130,000 units are expected to have been converted to LED in 2024, driving savings of £39m over the next 25 years and carbon reduction of 6,500 tonnes per year.

Other public sector bodies are also decarbonising their estate. Colchester City Council has set up a decarbonisation project, including retrofitting their main office building at Rowan House. This includes the installation of a heat pump, mechanical ventilation and heat recovery system, roof insulation, LED lighting, and installation of 12 electric vehicle charge points. This has happened alongside a major refurbishment of the whole building. The new heating system is expected to save an estimated 108.7 tonnes of CO₂e and the LED lighting 30.9 tonnes of CO₂e, per annum, contributing significantly towards the council's aims to achieve carbon neutrality by 2030.



Broomfield Hospital, Chelmsford

Case Study

Mid and South Essex NHS Foundation Trust have completed works at Broomfield and Basildon hospitals. The purpose of this work was to improve their energy efficiency, lower bills and reduce their annual carbon emissions by over 2,421 tonnes.

Schools

Since May 2022, ECC's School Energy Team has offered bespoke recommendations to schools across all aspects of energy usage from lighting to student engagement. They have completed 66 school energy surveys across Essex, 27.6% of the maintained schools' estate. This has saved over **200t Co₂e**, over **1500 MWh** produced. The team surveyed one third of the entire maintained school estate by June 2023.

The "2IMPREZS" Energy Challenges Essex project ran across nine schools in Essex, enabling pupils to become the 'owner of the school's energy bill'. It challenged children to campaign, in their own way, for energy savings in their school by doing surveys and monitoring, understanding how different equipment and lighting uses energy, and leading on changing behaviours. On average, the schools involved saved 17% on their energy bills in comparison to the same period last year.

Local energy schemes have also been supported by Essex County Council's Climate Action Grant fund such as Rayne Village Hall, which was awarded £18,359.10 to install a 12kWp solar panel system. ECC has also been supporting Ashden's Let's Go Zero campaign for schools. There are now around 30 Essex schools signed up to the campaign.

Earlier in 2023, ECC began working with the Design Council as part of a project called 'Design, Differently' to support the Commission's young co-chair in setting up a network of climate ambassadors from Essex schools.

Case Study

ECC continues to invest in upgrading Essex schools, retrofitting four schools, and installing solar panels on 12 schools in the past 12 months. Work included installing heat pumps to replace heating, solar panels, and LED conversion at one of the sites, saving a total of 355 tonnes of CO₂ a year. ECC expects to have installed low carbon heating at 11 further core sites by the end of 2023.



Saving a total of **355 tonnes** of CO₂ a year

4. Energy

There has been a big step change towards renewable sources of energy in recent years in the UK. Zero-carbon sources provided 48.5% of the electricity used in 2022 with 28.6% of the UK's total energy generation being from wind power alone ([national grid 2023](#)).

Essex is playing its part, securing increasing amounts of renewable generation across the county, and delivering on our ambition to be a hub for clean energy.

Solar farms planned in Essex

In March 2022 [Cray's Hill Billericay](#) received planning permission for a solar farm on approximately 37.5 hectares of land, and could generate capacity of up to 25.6 megawatts (MWp) for distribution to the national grid.

In August 2022 [Hartley Wood Solar Farm](#) received planning permission for a site with approximate capacity of 22.5 MW which is enough renewable energy to meet the annual electricity needs of approximately 4,720 homes, plus offsetting approximately 4,102 tonnes of CO₂ each year, the equivalent to taking around 1,000 cars off the road each year. [Maldon Wycke](#) also received planning permission for a site with capacity of approximately 25 megawatts (MW) to produce clean renewable electricity by photovoltaic (PV) solar panels, enough to power over 8,300 homes and save over 5,600 tonnes of CO₂ each year.

In March 2023 [Birch Solar Farm](#) received planning approval to build a solar farm over 82 Hectares in total, north of Hardys Green in Colchester. The proposed site would produce close to 40 Megawatts of power, providing enough electricity for 12,850 homes.

Birch Solar Farm, Colchester

In June 2023, the Secretary of State for Energy Security granted development consent for a solar and battery storage farm with a capacity of 400MW to be built at [Longfield Solar Farm](#), by EDF Renewables to the north-east of Chelmsford in Essex. The 453 hectare site will produce enough energy to power 96,000 homes per year, making the proposed site the largest operational solar park in the UK. Essex County Council, and Chelmsford City Council have secured a £5.72M community benefit fund and £2.1M in education, skills, supply chain and employment investment to support the local communities hosting infrastructure in the national interest.

Other schemes in the planning process include [Burstead Solar Farm](#) which if agreed, is expected to be built in 2024 and would provide renewable electricity for distribution to the National Grid at the Rayleigh Substation. [Pelham Spring Solar Farm](#) if agreed is to be constructed in 2024 generating approximately 49.9 megawatts (MW), producing enough renewable energy to cover the annual electrical consumption of approximately 16,500 homes each year.

Wind Power

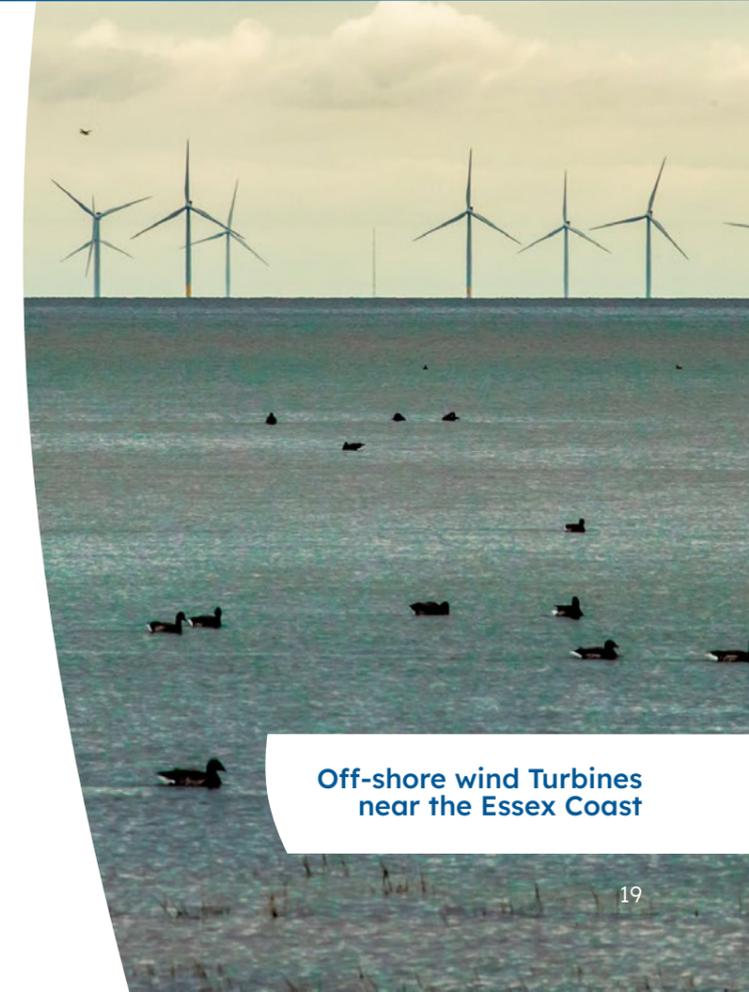
With Essex having the 2nd longest coastline in the UK, the county has several offshore projects and lends itself well to future development. The Five Estuaries Offshore Windfarm proposes to extend the existing £1.5 billion, 353MW Galloper Offshore Wind Farm located in the southern North Sea. The Five Estuaries project will comprise of several wind turbines in addition to offshore and onshore electrical infrastructure. A grid connection for this project is due to link into the proposed East Anglia Green substation within the Tendring District.

Five Estuaries is currently in the development phase. A first stage of consultation was held in summer 2022 and further consultation is anticipated in early 2023, with the view to submit an application for a Development Consent Order (DCO) in late 2023.

North Falls Offshore Wind Farm, is an extension project to the existing 504 MW Greater Gabbard Offshore Wind Farm and is being developed in the southern North Sea more than 20km off the UK coast. Its site is in two parts which together cover a total area of 150km². The project has an agreement with National Grid to connect to the national electricity network at a new substation in Tendring, Essex.



28.6%
of the UK's total
energy generation
being from wind
power alone



Off-shore wind Turbines
near the Essex Coast

Community Energy

Community energy is the delivery of community-led renewable energy, energy demand reduction and energy advice projects. Activities provided by community energy groups can include energy audits, providing energy saving services and the installation of solar panels on community buildings and members' homes.

The Southeast New Energy (SENE) project, funded by £6.4m of European Regional Development Funding (ERDF) and led by the University of East London, is a project that helps deliver pathfinder projects on affordable net zero housing. It offers free energy audits and surveys for renewable energy projects to businesses and grants of up to £30,000 towards investment in energy projects across the project regions (Essex, Kent, East Sussex). SENE is working with 23 parishes in Essex and has worked with local communities and Parishes in Essex on local energy feasibility studies including community solar and storage at Colne Valley, Witham Town Council and Manningtree PACE rooftop.

The Pathways Project, which was created by ECC and Community Energy South with grant funding in August 2020, has nurtured eight groups and mentored and established four community interest companies across Essex. The groups have unlocked grant funding and local investment totalling £740k and are delivering a range of projects including renewable energy projects, as well as offering a wide range of advice around energy and fuel poverty in local communities. Due to the success of the project, the government have commissioned Community Energy South to roll out the model across the country. In January 2023, Community Energy South received 3 national awards in recognition of their work supporting the growth of community energy groups.

[The Tollesbury Climate Partnership](#) which launched the Tollesbury Primary decarbonisation project was the first Essex community energy share offer to be launched in April to raise £250,000 match funding, with over 100k pledged so far. The project has supported the installation of solar panels, heat pumps, insulation, and LEDs. The support also enabled the delivery of Energy Advice service in 2 communities, which resulted in £130,000 savings for residents (Tollesbury and CE Colchester).

Grants of up to
£30,000
towards investment
in energy projects



£130,000
savings for residents



Colchester Community Energy fitting radiator reflectors

[Saffron Walden Community Energy](#) secured £20k from the Essex Climate Challenge Fund. This enabled the group to work with a nearby Parish Council to investigate village decarbonisation.

[Sustainable Danbury](#) also secured £5k from the Essex Climate Action Challenge fund, to employ staff to help them engage their community and develop locally led projects.

[Colchester Community Energy](#) secured £30,000 from the Essex Climate Challenge Fund. They have been running a free energy advice service since February 2022 providing impartial advice to residents on how they can improve the efficiency of their home and save energy. So far, they have provided advice to over 140 households in the Colchester and Tendring area, including installing and fitting free energy saving measures in some homes (including draft excluders around doors and windows, radiator reflectors, lining curtains and thin film secondary glazing). They are also working with Citizens Advice in Tendring to support low-income households. Colchester Community Energy have supported 3 primary schools with energy saving and educational activities (Colchester and Tendring) and coordinated the installation of EV charge points on behalf of 2 Parish Councils.

Local heat networks and smart local energy systems

Colchester Amphora Energy Ltd is developing a low-carbon heat network in partnership with Colchester City Council (CCC) called The Northern Gateway Heat Network. This innovative flagship project uses an open loop ground source heat pump as the primary heat source to provide a low carbon heat solution to residents, businesses, and other commercial users. In total, the scheme will provide heat to 200 houses, 450 flats, 35,000m² of office space and 9,000m² of healthcare facilities. The project is the first of its kind to be used on this scale in the UK, using a confined chalk aquifer, and will deliver 5.5 GWhrs of heat a year with 75% of hot water for heating and washing being generated by the heat pump.

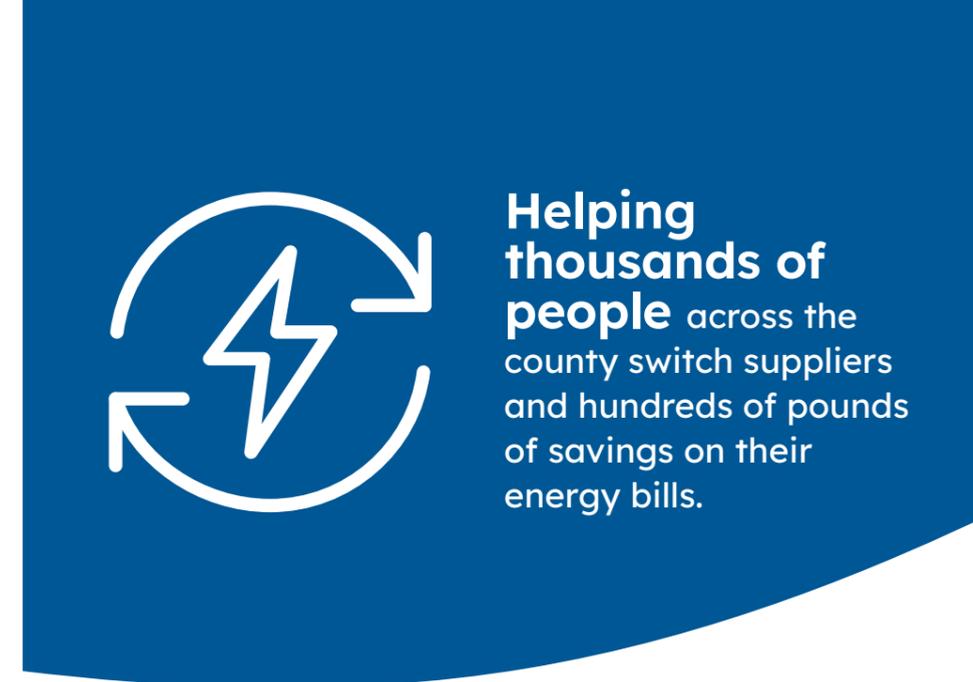


Solar panels at Hadleigh Country Park

Group purchasing Schemes

[Solar Together](#) is a straightforward way to make a significant impact on carbon reduction targets through private resident investment in renewable energy generation. Solar Together bulk-purchase schemes make it easy for UK homeowners to install solar panels and storage for a competitive price with a trustworthy, pre-vetted installer. In 2022, this scheme helped over 600 residents to source solar panels and battery storage. The scheme secures significant discounts (20 to 37%) for residents from reliable suppliers. The 2023 Solar Together scheme is now underway and expects to deliver a further 600 solar rooftop installations. As of June 2023, there were over 7000 registrations of interest, 680 installs so far with a projection of 734 installs by the end of the year and 68 battery installs. This demonstrates not only the huge demand for solar energy, but the expansion of the scheme each year. Since the first scheme launched in August 2018, Solar Together Essex has delivered 1,352 Solar PV installs on roofs in Essex. This will avoid over 1,200 tonnes of CO₂e annually and over 30,000 tonnes of CO₂e across the 25-year system lifetime. The below table shows how the scheme has expanded:

	2021	2022	2023
Registrations	5605	6400	7104
Total installs	520	703	680
Solar PV installs	467	624	612
Battery storage installs	53	79	68



Helping thousands of people across the county switch suppliers and hundreds of pounds of savings on their energy bills.

Essex Energy Switch

The Essex Energy Switch scheme returns this year, helping thousands of people across the county switch suppliers and save hundreds of pounds on their energy bills.

The Essex Energy Switch, which was launched in 2014, is a group buying scheme for gas and electricity. It is free for residents to register and there is no obligation to accept an offer. The more people that register, the greater the collective buying power of the group.



Solar panel installation, Hadleigh Country Park



Colchester City Centre

5. Transport

Transport is responsible for 49% of CO₂e emissions in the county, over half of these emissions are from cars. Encouraging people to take more sustainable methods of transport and to leave the car at home is key to decarbonising transport and meeting the UK's climate commitments.

In February 2023, Transport East (which is a partnership of local transport authorities and operators in the eastern region) launched their [Transport Strategy](#). This strategy sets an ambitious target for the region to meet net zero transport by 2040, ahead of the government target. To ensure that residents prioritise the most sustainable means of travel, the strategy commits to 12 goals that underpins thinking in Essex to 'Avoid, shift and improve'. The strategy looks to do this by:



Avoid

Looking to reduce carbon intensive trips through local living, making it easier for people to access jobs and services more locally so they don't have to travel in the first place.



Shift

To make sustainable modes of transport attractive to all, but supporting people to switch from private cars to active and passenger transport, and businesses to more sustainable modes like rail and net zero carbon fuels.



Improve

To improve the efficiency of existing modes of travel. (e.g. electric vehicles)

Bus Transport

The average petrol car emits 170g of carbon dioxide per passenger km, whilst the average bus emits 96g per passenger km. ([source: BEIS/DEFRA](#)). Encouraging more people to take the bus rather than drive, would help in reducing emissions levels in the county.

Recovering passenger numbers following the pandemic has been a key ambition of the government, the council and bus operators. In March 2021, the government launched the 'Bus Back Better' strategy. A key part of this strategy was for local authorities to develop a [Bus Service Improvement Plan](#) (BSIP) which sets out local issues relating to bus networks and how local authorities can tackle them.

Essex's BSIP, was published in October 2021 and sets out a range of measures to build back bus usage including, rebuilding the Essex bus network to recover from the impact of the Covid 19 pandemic, and developing an attractive, sustainable, affordable bus network offering a realistic alternative to car use for as many people as possible. As of March 2023, passenger numbers were forecast to be 29 million which is roughly 75% of pre-covid levels. This is forecast to grow to 40 million by 2027. Punctuality of buses has improved since the pandemic with 91.2% of services running on time. This is again getting back towards pre-covid levels. In 2019, 86% of passengers were satisfied with bus services in Essex. TravelEssex have commissioned a trial survey to understand customer satisfaction of bus services in 2023 which will be published in the annual BSIP report.

TravelEssex

TravelEssex is the Enhanced Partnership brand for all buses and routes on the Essex network. It is used on information material, the new travel planning app, the new website, bus roadside infrastructure and marketing material to encourage bus travel across Essex. Working in partnership with bus operators, TravelEssex have led a Marketing Campaign to encourage people to move from their car to using the bus. This includes, £2 single fare promotions, group tickets to families and couples, ticket bundles for commuters, and reasons to travel for concessionary bus users. Community Engagement projects have included the 'Chatty Bus' and 'Meet the Manager'.

The average petrol car emits **170g** of carbon dioxide per passenger km



Whilst the average bus emits **96g**

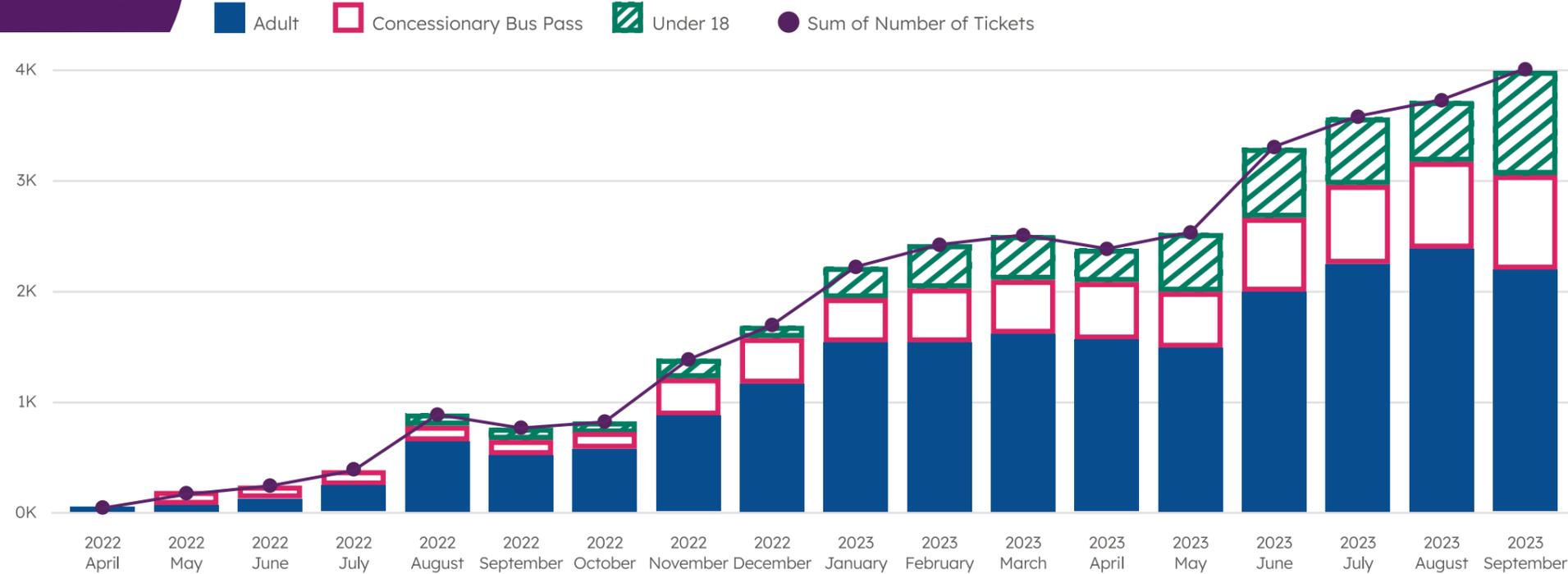
DigiGo

DigiGo is a fully electric shared public transport service which offers on-demand or pre-bookable travel in parts of Essex. This helps reduce emissions and congestion in the operating area. The service uses electric vehicles and has no fixed route or timetable.

The service has transported over 35,000 passengers since its commencement with more capacity for growth within its existing fleet. It is on-target to deliver its revised forecast to transport around 39,000 passengers during 2023/24. Like for like growth in passenger numbers (August 2022 to August 2023) is 348%.



Profile Fare



Bus and Rail Operators

Bus Transport

In 2021, [FirstGroup](#) were one of the first bus and rail operators in the UK to formally commit to setting a science-based target to achieve net zero emissions by 2050 or earlier. Pledging to:

- Invest only in zero-emission vehicles from December 2022, with a 100% zero-emission fleet by 2035
- Support for the UK Government’s challenge to take all diesel-only trains out of service by 2040
- Sign up to become an official Supporter of the Task Force on Climate-related Financial Disclosures (TCFD)
- Support continued electrification of the UK rail network, with hydrogen, battery-electric and hybrid trains playing a significant role where electrification is not possible.

First Bus also has invested £2.5m in solar power with the installation of over 6,000 solar photovoltaic (PV) panels across 20 depot sites, including 2 Essex sites (Colchester and Chelmsford).

Rail Transport

Essex has an extensive rail network, with most services currently operated by either Greater Anglia or C2C. C2C already have a fully electric fleet of trains running in the south of the county, including their new Class 720 fleet of trains that are more electrically-efficient per passenger kilometre than the older Class 357. C2C are exploring further opportunities to reduce their carbon use by increasing their use of electricity from renewable sources and match customer demand to reduce unnecessary train movements.

Greater Anglia have developed “regenerative braking” in their new trains, which harnesses energy produced by braking and returns it to the power network. The company’s new Intercity and Stansted Express electric trains can generate more instantaneous power when braking than they need while accelerating.

The Essex and South Suffolk Community Rail partnership developed six new garden areas at stations across the county (at Alresford, Cressing, Rayleigh, Battlesbridge, Weeley and Ingatestone Station).



Wickford station



Wivenhoe Cycleway, Colchester

6. Active Travel

Active travel describes everyday journeys made by sustainable forms of transport such as walking or cycling. It includes trips that are made by foot, pedal-cycles, e-cycles, adapted cycles, wheelchairs, mobility scooters and push-scooters. Active travel is a low-carbon way to get around and offers many benefits compared with other forms of transport. Government believes active travel has potential to support its wider strategic priorities to increase physical activity, tackle obesity, improve air quality, level up, and achieve net zero carbon emissions by 2050. (<https://www.nao.org.uk/reports/active-travel-in-england/>)

In May 2021, Essex received £7m from the government’s active travel fund to roll-out new cycling and walking routes in Braintree, Brentwood, Chelmsford, Colchester, and Wickford, with works continuing this year. This included, in 2022, £1.3m of funding for cycling and walking routes from Colchester town centre towards Greenstead and the University of Essex campus. The fund supported the creation of Healthy School Streets in Essex, which is a programme where measures are introduced to reduce car use at the school gates. It also supported Liveable Neighbourhoods, where through-traffic and rat-running is tackled through introducing measures which reduce and restrict cars from certain areas.

In May 2023, it was announced that Essex received a further £5.27m of funding to support further active travel schemes. The funding will fund further projects in Basildon, Brentwood, Chelmsford, Colchester, and Harlow.

Cycling and Walking

Braintree, Chelmsford, Colchester, Witham, and other councils are updating their Local Cycling Walking and Infrastructure Plans. Uttlesford District Council are developing their plan building on the active travel survey already undertaken by the council late last year. There will be a shortlist of schemes that will put the council in a good place to access future allocations of funding, so that they can deliver further infrastructure around walking and cycling. The study on this will be published by late summer.

Colchester are running a number of bike schemes around the city, including offering a free short term electric cargo (eCargo) bike loan scheme to businesses called the eCargo bike library. Further projects have been developed including trialling an eCargo bike delivery scheme run over the 2022 Christmas period where e-cargo bikes delivered shopping to people’s homes for a small charge. The trial helped replaced 61 miles of van deliveries, reducing emissions produced within the city centre. Colchester is building further on this trial working with the City Centre Business Improvement District (BID) and other organisations, including exploring the possibility of putting parcel lockers in outlying City Centre car parks where shopping can be delivered to, to help reduce the need for people to drive into the city to do their shopping.

Colchester are also offering a pay as you go bike hire scheme from the new Secure Bike Hub. This opened in October 2023 in Portal Precinct off Sir Isaac’s Walk in the City Centre. It will include an electric bike, an electric longtail cargo bike (with extra carrying capacity at the back) and two electric two wheeled cargo bikes with carrying capacity at the front. Also in the secure bike hub, is a place for people to lock their bikes in an enclosed, pin locked facility alongside Colchester Bike Kitchen, giving access to work stands, tools and some spare parts so residents can learn to fix their own bike on a donation basis. Volunteers in the community are also setting up a shared electric cargo bike hub on Old Heath Recreation Ground.



E-Cargo Bike Colchester



Cycle lane, Chelmsford

RHS Hyde Hall in Chelmsford are piloting a shuttle bus to their site from Shenfield station throughout the school summer holidays, to reduce car use. Hyde Hall are also offering a 30% discount on entry if visitors travel by bus, bike or foot.

Mid and South Essex Integrated Care System (MSE ICS), as part of their [Green Plan](#), are increasing the use of sustainable and active modes of travel, whilst decarbonising travel and transport relating to their operational activity. They are also developing a Travel Plan, to promote the use of electric vehicles to save on mileage claims, and active travel.

ECC's Sustainable Transport team launched the walking and nature app GoJauntly, which is a pocket-sized encyclopaedia of over a hundred carefully chosen urban walks. Nearly 1 million people have been reached via the app with over 14,000 residents inspired to walk more locally. Using the GoJauntly app, over 213 million steps were walked as part of the recent 3k steps a day walking challenge, the equivalent of walking 25 times around the radius of the Earth. This equates to a carbon saving of over 40,000kg in emissions and a saving of £6,378.20 of petrol by walking instead of driving. The Sustainable Transport Team also successfully delivered 42 cycle courses across the county this summer holidays. Over 200 participants of various ages took part in courses in Colchester, Chelmsford, Harlow and Uttlesford. They also ran an additional 51 courses through Essex Pedal Power and Chelmsford City Council over the summer with 243 participants. This created 35% more training courses and a 110% increase in the number of participants overall compared to last summer. Next year, this training will be expanded to include the Easter holidays too.



Over **14,000** residents inspired to walk more locally



a saving of **£6,378.20** of petrol by walking instead of driving

Walking to School

The school run alone is responsible for generating half a million tonnes of CO₂ per year, contributing to high levels of carbon emissions and air pollution ([sports England](#)). Most pupils live in walking distance from school, and promoting active methods of travel is key to not only reducing the levels of air pollution but also to improve the health and wellbeing of students.

23 Primary Schools in Essex took part in 'Walk with Wildlife' which was a walking week coordinated by charity organisation Living Streets. The schools that participated encouraged pupils to travel actively to school every day of the week. Meeting various animals along the way, they learnt about the important reasons to walk and the difference it can make for individuals, communities, and the planet.

To help with active travel to school, ECC secured Active Travel 2 funding to implement several infrastructure projects across five locations in Braintree, Brentwood, Chelmsford, Colchester, and Wickford. All these projects have been designed to make the road network safer and more accessible for pedestrians and cyclists.

Healthy school streets, where the street is closed to traffic during school run times, have also been introduced along Sawyers Hall Lane and Middleton Hall Lane in Brentwood, Lancaster Way and Gilchrist Avenue in Braintree and Lexden Road in Colchester. Whilst temporary street art, 20mph signage, new 'pencil' bollards and resurfaced or widened pavements have been installed on sites across Essex, to alert drivers to slow down and encourage parents or carers and their children to walk, cycle or scoot to school.



23 Primary Schools in Essex took part in 'Walk with Wildlife'

Projects designed to make the road network safer and more accessible for pedestrians and cyclists

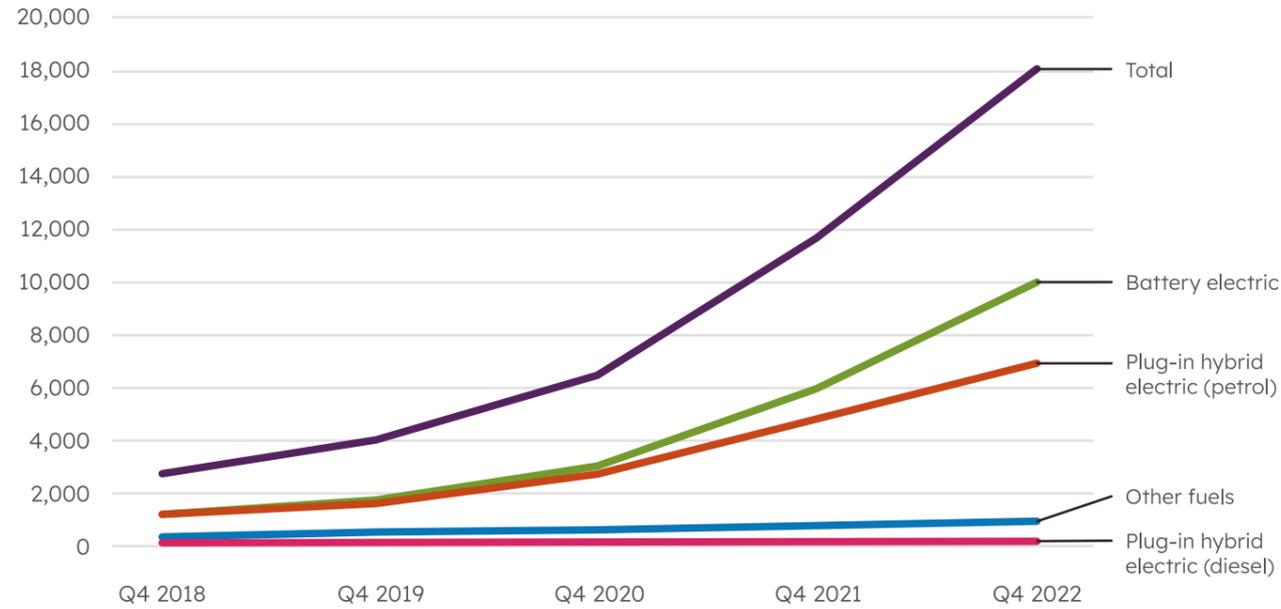


Healthy school streets where the street is closed to traffic during school run times

Zero Emission Cars

Essex has seen a gradual increase in ownership of electric and ultra-low emission vehicles (ULEVs) in recent years, rising from 2,760 registered keepers at the end of 2018 to 18,094 in 2022. Whilst owners of electric battery powered vehicles has increased from 2,760 to 10,028 during the same period. (source: [DfT 2023](#))

Licensed ultra low emission vehicles (ULEVs) in Essex



ECC has produced their first [Essex Electric Vehicle Charge Point Strategy](#), which went out to public consultation in June and July 2023. Although ECC anticipate that most of Essex's charging infrastructure will be delivered by the private sector, the public sector has a key role to play in setting out the vision and strategy.

Ownership of electric and ultra-low emission vehicles has risen to

18,094

in 2022



Whilst owners of electric battery powered vehicles has increased to

10,028

Current charging locations

All plug-in EVs, particularly Battery Electric Vehicles, rely on a comprehensive private and public-facing charging network. In 2022, there were over 3006 registered publicly accessible charge points across Essex including 50 'ultra-rapid' (100kW), 50 'rapid' (50kW), 60 'fast' (22kW), and 150 'slow' (<7kW). These include a mix of publicly and commercially operated sites at car parks, petrol filling stations and a purpose-built GRIDSERVE® Electric Forecourt at Braintree, the first electric forecourt in the UK. The site utilises renewable energy sources and provides the opportunity to lease EV's. The Government has awarded £236,000 as part of the electric vehicle (EV) residential charge point scheme. This will fund approximately 60 charging points across 30 locations in the county from summer 2023 onwards.

Public sector vehicle decarbonisation

Local authorities across the county are starting to transition their operational fleets to EVs. Braintree District Council now have between four and eight electric charging points in every council car park and are now investigating the introduction of rapid charging points. They are also supporting several parish councils to help introduce EV charging points within their own car parks.

Maldon District Council have made 'kicking the car habit' one of their five key pledges to tackle climate change. This means promoting and increasing car sharing, the roll out of electric charging points and increased use of electric vehicles. The council will roll out the installation of EV Charging infrastructure in their council owned assets, town centre public car parks in Maldon, and within car parks such as Promenade Park, Maldon and Riverside Park and Burnham on Crouch.

Basildon Borough Council have installed eight chargers (six rapid, two fast) in four of their car parks, with a further two rapid chargers awaiting installation. They are currently reviewing their approach to the installation of charging points on their own estate/assets.



GRIDSERVE Forecourt, Braintree



An E-scooter, Colchester



Colchester City Council have launched Colchester's first all-electric car club



1.7 million e-scooter trips were recorded by June 2023

Shared & Future Mobility

Other rideable micro-mobility options are becoming commonplace in the county, providing zero emission solutions for shorter and first or last mile connections. This includes transport methods such as e-scooters, e-bikes, e-cargo bikes and the setting up of e-Car Clubs.

Colchester City Council have been working with the Enterprise Car Club and have launched Colchester's first all-electric car club in the city centre. This is the beginning of a growing network of car club cars across Colchester that will be rolled out over the next few years.

Brentwood Borough Council have been working with Co Wheels, launching a new car club scheme that allows residents to book one of three on-street cars within 15 minutes of making a journey.

E-scooter trials have been running since 2020 in Colchester and 2021 in Chelmsford and Basildon. 1.7 million trips were recorded by June 2023 with plans to extend the trials, which are run by TIER Mobility, until 2024. Colchester City Council has had an eCargo bike library hire scheme since 2020, helping to remove delivery vans from local roads. Chelmer Valley and Sandon Park and Ride sites have now installed three slow on-site charging points.

Saffron Walden's clean air project will see the introduction of e-transport schemes to the town, including an EV car club. They are also exploring the opportunities around an EV bike share scheme and e-cargo schemes.

7. Waste

Waste management is a major contributor to climate change and is currently responsible for about 4% of greenhouse gas emissions in the UK. In recent years, the government has introduced new policies and legislation to minimise the impact that waste management has on climate change, including ambitious targets to achieve a minimum of 65 per cent recycling by 2035 and the halving of residual waste by 2042. The 2021 Environment Act is expected to lead to more accessible and simple recycling services, the introduction of deposit return schemes, and greater responsibility on manufacturers and retailers to reduce packaging and fund waste services.

The Essex household waste system is managed by the Essex Waste Partnership (EWP), which is the combined efforts of ECC and the 12 city, district and borough councils in the county. Over the past decade the EWP has put great efforts into transforming the system, to reduce the amount of waste entering landfill and encouraging residents to reuse and recycle. Despite this, Essex still relies too heavily on landfill as the main method for disposing of waste. In 2022, 350,000 tonnes of resident's waste went to landfill sites in Essex.



Recycling centre, Braintree



The Waste Strategy for Essex

The EWP has been working collaboratively to develop and deliver a new Essex Waste Strategy. This covers the period up to 2054, bringing a new focus on how the EWP will deliver an effective, efficient, and sustainable service for the future. Following the Environment Act 2021, national policy and the findings of the Essex Climate Action Commission 2020, the new strategy updates the EWP's approach to reducing the impact that waste management has on climate change.

The Key priority of the strategy is to follow the Waste Hierarchy in the decisions that we take. This ranks waste management options according to what is best for the environment. With prevention having the least impact and disposal having the most. Reducing waste through prevention and increasing reuse and recycling will bring benefits to environmental sustainability through reduction of greenhouse gas emissions, economic opportunities, and efficient, value-for-money service delivery.

The strategy looks at how our new approach can transition Essex to a circular economy, this requires us to rethink how resources are valued and managed. The model relies on designing products that are durable, easy to maintain and repair. This encourages and enables individuals to reuse the products many times. Finally, the products should be designed to enable straightforward recycling when they can no longer be reused or repaired



The new strategy updates the EWP's approach to **reducing the impact** that waste management has on climate change

Recycling centre, Braintree

Love Essex

Love Essex is the EWP's communications brand, which encourages residents to make changes to their everyday lives through various campaigns. Through Love Essex, work is already happening to encourage circular economy activities in the county.

Freegle, which is an online platform, enables people to give away, rather than throw away items, supporting reuse of a whole range of goods. Now used by nearly 90,000 Essex residents, with 14,000 items swapped in 22/23, the scheme has resulted in 400 tonnes of items being reused, saving an estimated 199 tonnes of CO₂ emissions. Residents can also now drop off their unwanted large electrical appliances to the Lighthouse Furniture Project, at five recycling centres across Essex. Nearly 500 appliances have already been collected from recycling centres, and around 92% of these have been serviced, repaired, and made available for resale at low cost in the local community.

Love Essex have also provided micro-grants of up to £500 to 38 separate projects run by organisations, individuals and schools looking to reduce household waste across the county. These projects include ReVamp Boutique (upcyclers specialising in furniture who also run reuse workshops) and Chelmsford's Growbaby Project (redistribution of pre-loved clothing to families in need).



500 appliances collected from ECC recycling centres, with over 92% serviced and repaired



Micro-grants of up to **£500** to **38 separate projects**

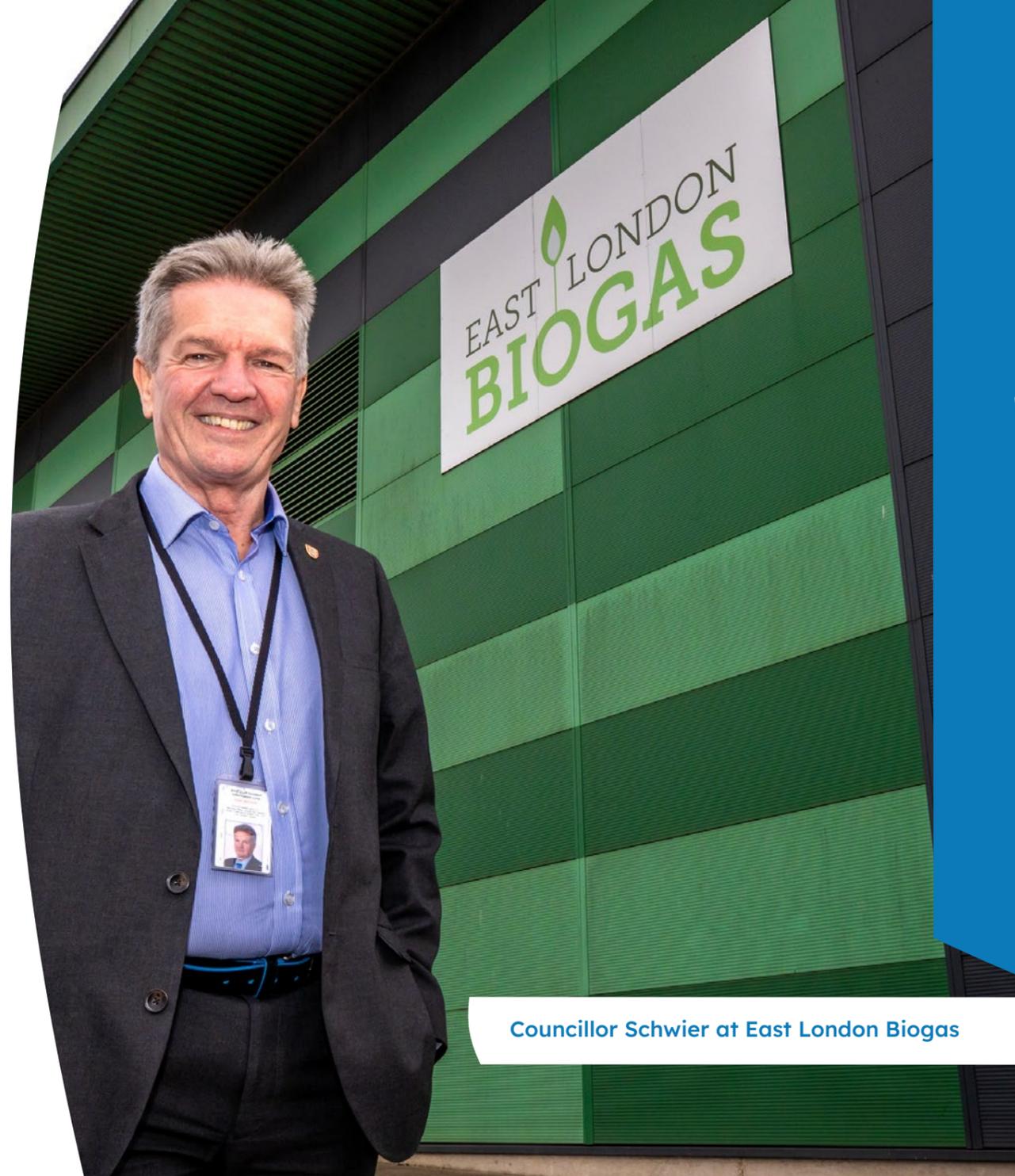


Lighthouse project area at Brentwood recycling centre

Food Waste

One of the key success stories for the EWP over the past few years has been the roll out of kerbside food collection which has contributed to the increase in recycling and composting rates from 21% in 2000/01 to over 50% in 2022/23. This year up to 50,000 tonnes of food waste will be processed at the East London Biogas (ELB) facility, with plans to increase this further to 60,000 tonnes in 2024. This will be fed into ELBL's anaerobic digestion plant producing a low carbon biogas which is used to generate renewable electricity to power local homes and businesses, whilst the biproduct from the plant creates organic fertiliser for Essex farmers. This will help the EWP to deliver against carbon reduction and recycling targets. The agreement will save 45,000 tonnes of CO₂-equivalent emissions per year through the production of renewable, low carbon energy, as well as reducing harmful methane emissions from food waste sent to landfill.

In January 2023, the 'Love Essex, Love Food' campaign launched to help Essex residents reduce the amount of food being wasted. More than 1,000 residents signed up in the first three-months of the campaign. Over the last year, Love Essex has been offering a free, online course on composting provided by the experts at Garden Organic. Nearly 400 residents benefited from the scheme. Love Essex has also continued to offer reduced-price compost bins to Essex residents, with 1,000 subsidised compost bins supplied in 2022/23, an estimated 150 tonnes of waste avoided.



Councillor Schwier at East London Biogas

The University of Essex expects their average annual recycling to reach **50%** by 2026



Recycling and upcycling old clothes that have been donated by other Chelmsford College students or staff

Uttlesford District Council have installed smart bins with a solar powered compacting feature to help fit

5x more rubbish

into them compared to the average bin



Minimising Waste

Organisations across the county are all playing their part in minimising the waste that they produce in the county.

Chelmsford College have been running a series of sustainable fashion stalls this year, recycling and upcycling old clothes that have been donated by other students or staff, with plans to move into a permanent 'pop up' shop on campus. The University of Essex released their Waste, Reduce and Recycling policy in 2022, which outlines the University's vision for waste management and focuses on circular economy principles. The policy commits to reducing total waste by 5% by 2026 (compared to 2019) and commits to a general food waste audit by 2023. By 2024, single-use plastics will not be used at events or in marketing materials, with the University expecting their average annual recycling to reach 50% by 2026.

Uttlesford District Council have installed four smart waste bins in Dedham on a trial basis to see how these bins could support the effective collection of litter. The bins have a solar powered compacting feature to help fit five times more rubbish into them compared to the average bin. The bins are also programmed to close when they are full. This will prevent overflow and will notify waste operatives when the bins are nearing full capacity, so they can be emptied.

This year Love Essex also re-launched their award-winning 'Love Your Period' campaign to help support and educate residents to make positive changes to reduce their waste, carbon footprint and save money by switching to reusable sanitary products.

8. Green Economy

The transition to a green economy is critical for the environment and for our economic future. As well as cutting emissions and enhancing health and wellbeing, a green economy will deliver opportunities for business, high quality jobs and sustainable homes for Essex residents. Public and private organisations are leading change across the Essex economy.

Supporting Businesses

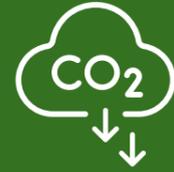
ECC pledged in its Everyone's Essex report that Essex will be a centre of innovation and support new technologies and business models which will help transition to a future green economy. ECC has developed the Net Zero Innovation Network, a group comprising 30 plus businesses, academic institutions and the public sector who work in collaboration to drive forward themes across the Essex Climate Action Commission. The group will help to secure funding opportunities which will deliver transformational green projects.

Low Carbon Across the South and East (LOCASE) supported businesses with green projects such as energy efficiency. Since the project launched in 2016, £2.6m has been awarded to 397 businesses with an estimated 2,902 tonnes CO₂ equivalent emissions reduction and £992,534 cost savings per annum within Greater Essex (including Southend and Thurrock).

Jobs for the Future

The government's [Net Zero Strategy: Build Back Greener](#) published in October 2021, set out the policies and proposals for decarbonising all sectors of the UK economy, to meet the net zero target by 2050. The strategy aims to support 440,000 jobs in the UK by 2030, as well as leveraging up to £90 billion of private investment by 2030. The Local Government Association forecast that in 2030 across England, there could be as many as 694,000 direct jobs employed in the low-carbon and renewable energy economy. This could rise to over 1.18 million jobs by 2050.

To reach climate targets in Essex, the county needs a workforce that is skilled to deliver new green technology. This covers several sectors, such as construction and retrofit, clean energy, advanced manufacturing and engineering, digi-tech, and Life sciences.



2,902 tonnes
CO₂ equivalent
emissions reduction



£992,534 cost
savings per annum
within Greater Essex



1.18 million
jobs by 2050.

Construction and Retrofit

The Retrofit Academy Community Interest Company (CIC) delivers training programmes in the county, to develop retrofit skills. Focused in the county's levelling up areas of Harlow and Tendring, the project exceeded its target of 240 individual participants. It has supported 20 small and medium-sized enterprises (SME) and 11 organisations. The scheme also received further funding for 2023 for 50 retrofit training courses. This training, which was delivered between 1 January and 31 May 2023, focused on three further levelling up priority areas in Basildon, Colchester, and Castle Point (Canvey Island). The scheme won an ADEPT award for delivering clean growth.

CB Heating, based in Clacton, has set up a Heat Pump Installer Network (HPIN) Training Academy. This dedicated training facility is one of the largest of its kind in the UK. This programme offers training to those entering the industry, through to expert level installers and service engineers. The aim of the HPIN Academy is to train up to 4,000 heat pump installers each year.

New Automotive Sector

ECC secured £100,000 from the first round of the UK Community Renewal Fund, to establish a new electric vehicle (EV) centre at Harlow College. Funding will allow the College to upskill 50 automotive technicians in the next two years, expand the curriculum to offer Institute of the Motor Industry training at level 2 and 3, update the knowledge of college tutors and engage with local employers. As a pilot, it is intended to encourage greater employer investment in green skills and provide evidence of the importance of training for business performance.



Spring Climate Summit, County Hall, Chelmsford



Wind energy workshop, Millfields Primary school, Wivenhoe

Green Skills

Green skills are the knowledge, experience, values, attitudes, and abilities that support carbon reduction and resource efficiency to increase climate resilience and enhance natural assets. Green skills do not form their own sector, they are relevant to all sectors in the economy.

The government published the [Skills White Paper](#) in 2021, which set out reforms to post-16 technical education and training to support people to develop the skills needed to get good jobs and improve national productivity. This highlighted the significant skills gaps at higher technical levels to help with the emerging green economy. The Government set up 38 local skills improvement plans (LSIPs). These employer-led, locally owned plans, highlight the skills that employers need most in the workplace, but may be struggling to find in their area. In Essex (including Southend and Thurrock), the Essex Chambers of Commerce (ECOC) were chosen by the Department for Education as lead for the Essex LSIP. In the meantime, ECC and the ECOC launched the [Essex Skills Plan](#). This was produced in the interim to articulate Essex priorities in the immediate term and will therefore feed into the LSIP.

The Essex Skills plan recommended a dedicated Essex Green Skills Opportunities Portal, with a Green Skills Prospectus and Directory, and bite-size courses for businesses, training providers and residents of the county. An Essex Green Skills Summit was delivered in June 2023. This brought partners together to discuss the Essex Green Skills Action Plan and the Essex Green Skills Pledge. At the Summit, organisations were asked to commit to up to eight actions including publishing an action plan, incentivising employees to engage in green skills and engaging in cross-sector collaboration to overcome green skills challenges.

Other actions planned include resourcing a specific teacher bursary to reduce green skills tutor shortages and promoting the Essex Levy Transfer Service. This will help develop new work-based learning pathways and increase green apprenticeships. This involves coordinating with professional bodies and training providers to champion CPD for professionals, to support the county's green skills infrastructure plans.

Essex is supporting individuals aged 18-30 with green start-ups and to hone the knowledge, skills, attributes, and values for the future workforce. The scheme will see delivery of an enterprise programme to 30 individuals with green entrepreneurial aspirations and ideas. There is an opportunity for participants to pitch for £5,000 of seed funding. ECC are working with a team at Real Ideas Community Interest Company (CIC) to create digital badges for this programme. The badges have been developed by Badge Nation and show what individuals can achieve outside of formal qualifications, to champion skills experience and learning.

Climate Training

The Essex Green skills infrastructure review found that businesses were severely lacking in carbon literacy training. It is important that employees and employers understand the contribution that their jobs and businesses make to climate change.

Carbon Literacy training was piloted in spring 2022 and has been available to all ECC employees since summer 2022. Over 300 individuals at ECC have completed the training. In February 2023, ECC was awarded bronze status as a Carbon Literate organisation. ECC is looking to expand the training to other organisations in the future with at least three district, borough and city councils showing interest in the Carbon Literacy training materials.

Funded by the Big Energy Saving Network, the Suffolk and Northeast Essex ICB and UKPN, ECC ran fuel poverty awareness training for their frontline workers. This was specifically for those staff that come into direct contact with residents, in their homes, face to face or over the phone. 462 people have attended the workshops to date. The deck has been shared with 18 organisations across Essex.



Over
300 individuals
at ECC have completed
Carbon Literacy training



Carbon literacy award ceremony, County Hall, Chelmsford

9. Community Engagement

Governments can set targets and provide funding to tackle climate change, but we as individuals are each responsible for changing how we live our lives to reduce the further impacts of climate change.

Changing the way that we live our lives is about building momentum and creating a movement that starts with small changes that then multiply into a large contribution. Organisations can help start this off and support communities, but communities must make those changes themselves and embrace new ways of doing things. A good example of this is changing the way that we dispose of waste from throwing everything into a single bin, to making it the norm to recycle. It's these kinds of changes where communities can really help.

ECC set up the Climate Action Challenge Fund. This was launched in July 2021 and closed in February 2023 when all funds were allocated. The scheme offered £500k of funding for local climate related projects across the county and funded schemes within local communities and schools. Since its launch the fund has approved 41 applications for funding. Some schemes that were awarded this year include:

- Chelmsford Cathedral, which was awarded £20,000 to help bring Gaia, the climate-inspired artwork, to Essex, encouraging people to reflect on their role in protecting and caring for Earth.
- The Great Clacton Junior School was awarded £6,774.61 to help regenerate an old, disused pond. Developing the pond area will enable children to learn about the natural environment and enhance the natural beauty of the area surrounding the school.
- Groundwork East was awarded £19,506 to develop and run after-school Climate Crew Clubs with 9 primary schools.
- The Great Bentley Primary School was awarded £19,220 to install SuDS planters around the school, to reduce surface water flooding and increase biodiversity.

The fund has also supported [volunteering groups and other local initiatives](#).



Great Bentley, SuDS planters, Colchester



Grassroots groups are a unique and powerful tool for delivering net zero ambitions.

Libraries reported a **20% increase** in visitors and **223 new library joiners**



Upskilling Grassroots organisations

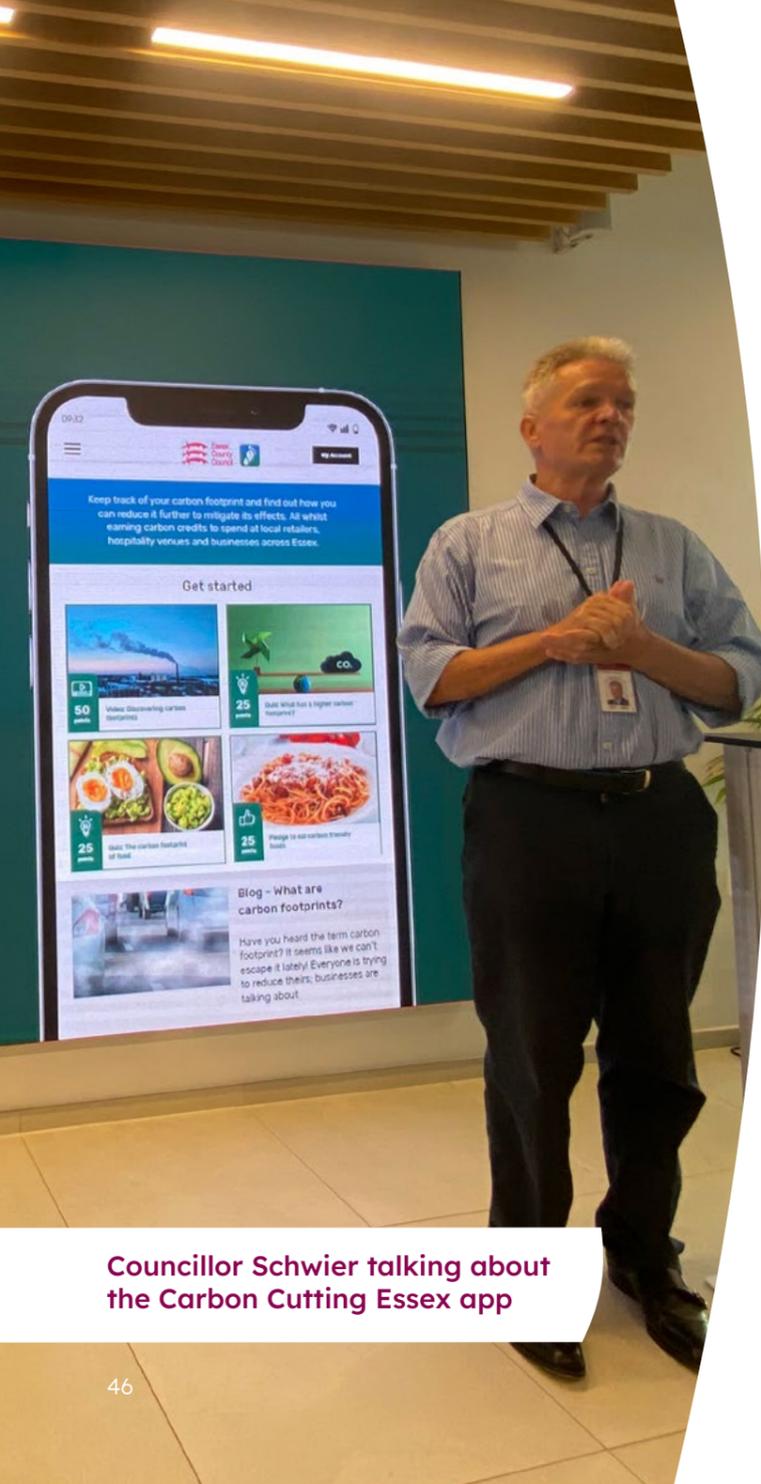
Grassroots groups are a unique and powerful tool for delivering net zero ambitions. They carry powerful local knowledge and lived experience of key social and environmental issues. They are also often well connected and trusted by under-represented communities.

In January 2023, a session was held, for members of the Rural Community Council of Essex (RCCE), on energy and climate matters. The session included information on the help available for setting up community energy projects and community land trusts. It also covered affordable zero carbon housing, plus an introduction to the Communipower kickstart programme, for off gas grid communities. The session also covered how 'Parish Online's' new carbon and energy related data layers can help parishes develop net-zero action plans.

Organisations such as the Fingringhoe Green Group, Sustainable Danbury, Community Energy Colchester, Chelmsford Green City Festival and PACE Manningtree were involved in a series of interviews which featured on the Essex is Green Facebook page and showcased local individuals'/groups' fighting climate change in Essex.

Essex Libraries hosted a Love Your Library/Climate Day on 8th October 2022, which included environment-themed activities, crafts, and games, plus speakers from partner organisations. The libraries reported that the day produced an overall 20% increase in visitors and 223 new library joiners. Some libraries reported their busiest-ever sessions.

Arkade, who produce multi-disciplinary artwork inspired by the natural world, promoted awareness of coastal erosion due to climate change. Wyrđ Flora foraging workshops taught residents about natural food sources and involved a tea-blending masterclass using naturally sourced ingredients.



Councillor Schwier talking about the Carbon Cutting Essex app

Volunteers

Volunteering brings together creative and focused minds, dedicating their own time to tackle climate change. Volunteers help local communities, government and policy makers to mobilise the various resources for initiating climate action, creating awareness, and initiating climate activism and advocacy.

Partnerships such as the Essex Waste Partnership (EWP) can help mobilise these resources through Love Essex. Love Essex Champions is a community of over 180 people. This group take part in small virtual volunteering activities every month, to learn and support others to waste less and look after the environment.

Colchester has a litter picking hub. This is a place for residents to litter pick on the go, with all litter picking equipment provided in one area. The number of these hubs is increasing across the Colchester area. Harlow Town Park volunteers, who carry out gardening and horticultural work in Harlow's Town Park, were supported by the Essex Climate Action Challenge Fund through a £5,000 investment to plant a Miyawaki Forest in Harlow.

Some volunteering networks have developed themselves such as litter picking groups in the county, including Castle Point Clean Up crew, Billericay Litter Pickers, Wickford Wombles, Friends of Concord Beach, Litter-Less Leigh, Great Berry Open Space and Laindon Litter Pickers groups. Each has an online community and helps keep the streets clear of litter. The Fingringhoe Green Group is a group of local volunteers from in and around the village. They arrange recycling days for those hard to recycle bits and pieces, organise regular litter picks and produce the village calendar, amongst other things.

Carbon Cutting Essex App

Developed by Greenredeem, ECC launched a free app called [Carbon Cutting Essex](#), which allows residents to track their carbon footprint and discover how they can reduce it. The app has monthly themes and provides hundreds of practical and cost-effective ideas on how to minimise our impact on the planet. Many of these suggestions will not only help to reduce the county's carbon footprint but can also help save residents money. The scheme will be expanded to incorporate Essex businesses too in the future.

10. The Essex Pathway to Net Zero

Understanding Our Greenhouse Gas Emissions

The Essex Climate Action Commission developed a net zero trajectory, which shows what we need to do to reduce our carbon emissions and reach net zero by 2050.

ECC has committed to track the county's emissions against this trajectory every year, to gauge performance and ensure that the ambitions stated in Everyone's Essex 2021-2024, to encourage, accelerate, and ensure a smooth transition to renewable energy and decarbonisation, are being met.

We track the county's emissions using a tool called Scatter - Setting City Area Targets and Trajectories for Emissions Reductions. This tool, funded by the Department for Energy Security and Net Zero (DESNZ) pulls from a wide variety of cited data sources and collates them all together in a single spreadsheet, is updated on a yearly basis and takes into the account the latest emissions factors and helps local authorities measure, track and analyse various scenarios to decarbonise sectors and infrastructure to reach net zero in a timely manner. This resource allows ECC to compare the overall and sector wide emissions against the Essex Climate Action Commission emissions trajectory to net zero. The latest confirmed figure was 8.42 MtCO₂e, which reported on the 2019 year. We have calculated (with a high degree of accuracy) a figure of 8.09 MtCO₂e for 2020. This reflects a significant reduction in 'transport' emissions due to the impact of COVID-19. Our projected figure for 2020 was set at 7.94 MtCO₂e, so whilst 8.09 represents a move in the right direction, it is still 0.15 MtCO₂e (1.9%) above our target.



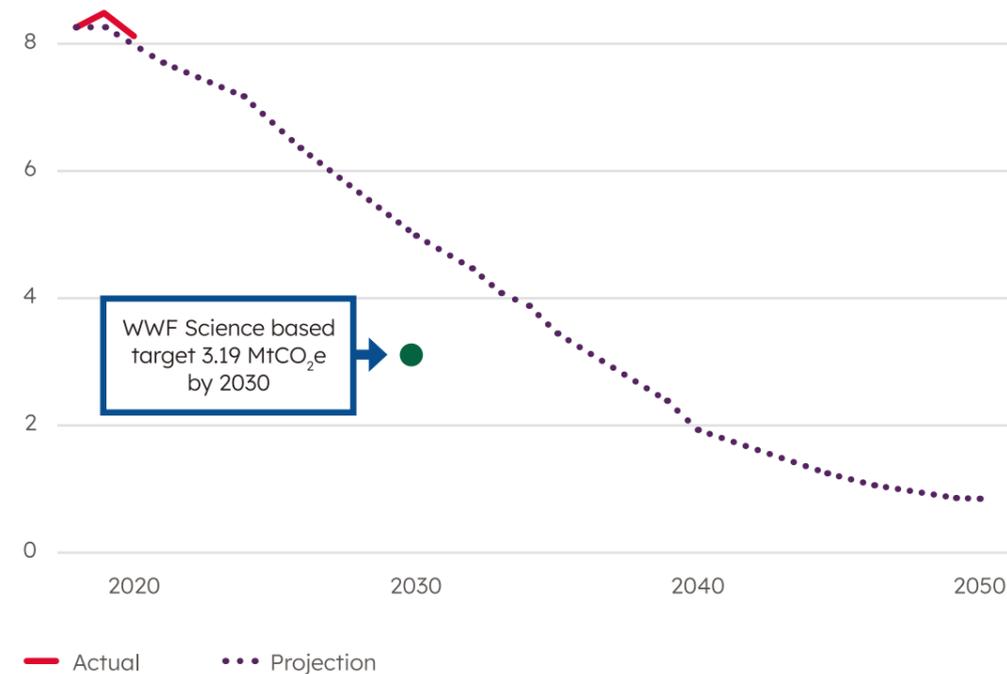
Committed to track the county's emissions against this trajectory every year.



Epping Forest

Our aspiration for 2030 is that we will reduce our emissions from 8.09 MtCO₂e in 2020 to 3.19 MtCO₂e by 2030. This target was set using up to date science-based methodologies and is aligned to the Paris Climate Agreement signed at COP 21 in 2015, when the global community pledged to keep average global temperature rise well below 2 degrees Celsius. Essex's current net zero trajectory does not yet meet this point in 2030, which highlights the need for an even greater rate of decarbonisation.

Projected and Actual Essex GHG Emissions (MtCO₂e) 2018-2050



Monitoring and evaluation of climate change in Essex

The net zero trajectory includes emissions from the agriculture and land use sectors and further adjusted to consider a new dataset for waste emissions.

The waste data is from a national dataset produced by the Department for Energy Security and Net Zero (DESNZ) for Local Authorities. Although Scatter does contain data with regards to the waste emissions in Essex, it was found to be significantly lower than expected. There has been no discernible change in throughput managed within the county waste authorities and thus this decrease was attributed to the methodology that Scatter uses. Whilst, the DESNZ dataset uses national data and estimations, it looks at waste emissions that occur in Essex rather than just the waste emissions that are treated within the county. It should be expected that, as our net zero journey advances, we will be able to access new, more location specific data sources which will provide a more accurate picture, rather than relying on national level estimates.

It is worth noting that this data does not include figures on commercial waste, as on the national level this remains a key uncertainty in the emissions inventory and was highlighted as such in the sixth carbon budget by the Committee of Climate Change (CCC, 2020 The Sixth carbon budget waste - climate change committee, page 19). This is further compounded by the fact that the DESNZ only collects and compiles the data on a biannual basis, with little known about the recycling rate or appropriate emissions factors to apply. This gap is something that needs to be addressed and ECC will look to do this in the future.

We can also think about our emissions in terms of a personal carbon footprint. DESNZ publishes emissions for the UK within and outside the country's territorial borders which suggests that the average UK resident emits 6.04 (within territory) and 11.54 (total including outside of territory) tonnes of CO₂e per person respectively. For the purpose of this report, only emissions occurring within the borders of Essex have been considered, as this is where most of the council's influence lies.

In comparison with the UK average carbon footprint (excluding emissions falling outside Essex/UK borders) the average Essex resident emits 5.40 tonnes CO₂e per person, which is short of our target for 2020 of 5.30 tonnes:

Emissions (tCO₂e) Per Essex Resident



11. Glossary

Biodiversity

The variability among living organisms from all sources, including terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems. The term also means, the variety of life at every hierarchical level and spatial scale of biological organisations: genes within populations, populations within species, species within communities, communities within landscapes, landscapes within biomes, and biomes within the biosphere.

Biodiversity Net Gain

An approach to development, and/or land management, that aims to leave the natural environment in a measurably better state than it was beforehand.

Built Environment

All forms of human-made environment from housing, industrial and commercial property, to hospitals and schools, streets, sidewalks, and even open spaces.

Carbon Footprint

The total greenhouse gases emissions generated directly and indirectly by human activities, which are expressed as carbon dioxide equivalent during the period of a year.

Carbon Neutral

A state by which the amount of greenhouse gas emissions released into the atmosphere as a result of an activity, is balanced by an equivalent amount being taken away via “offsetting” (see Carbon Offsetting), or removing from the atmosphere, an equivalent amount of carbon. Carbon neutrality is not associated with a commitment to reduce overall greenhouse gas emissions.

Carbon Offsetting

Environmental practices and activities implemented to reduce emissions of carbon dioxide in order to compensate for unavoidable emissions made elsewhere, e.g. the creation of new woodlands and the restoration of peatlands, providing habitats for wildlife, and green spaces for the public. Offsets are measured in tonnes of carbon dioxide equivalent.

Community Energy

The term refers to community-led projects that aim to reduce, purchase, manage and generate energy, whereby the local community benefits collectively from the outcomes. These projects can be wholly owned and/or controlled by communities or through partnership with commercial or public sector partners.

Energy Performance Certificate (EPC)

A rating that measures the energy performance of buildings. The Energy Performance Certificate (EPC) is graded on a scale of A (most efficient) to G (least efficient) and have two metrics: a fuel cost-based energy performance rating and a rating relating to CO₂ emissions.

Eurasian Beavers

The Eurasian beaver is a large, herbivorous, semi-aquatic rodent living in, and in the vicinity of, streams, rivers, marshes, ponds and lakes particularly where there is broadleaved woodland. They are highly adaptable and are able to modify natural, cultivated and artificial habitats to suit their needs. In particular, they may construct dams from tree stems, branches, sticks and mud on watercourses to create their preferred still or slow-moving water with stable water depths.

Fertiliser

A natural or synthetic substance which is added to the soil to promote plant growth.

Fuel Poverty

Fuel poverty in England is measured using the Low-Income Low Energy Efficiency (LILEE) indicator. Under the LILEE indicator, a household is considered to be fuel poor if they are living in a property with a fuel poverty energy efficiency rating of band D or below, and when they spend the required amount to heat their home, they are left with a residual income below the official poverty line. www.gov.uk/government/collections/fuel-poverty-statistics

Greenhouse Gases

Greenhouse gases are gases in Earth’s atmosphere that trap heat. They let sunlight pass through the atmosphere, but they prevent the heat that the sunlight brings from leaving the atmosphere.

Green Skills

Green skills are knowledge, experience, values, attitudes and abilities that support carbon reduction and resource efficiency to increase climate resilience and enhance natural assets.

Green Economy

A model of economy where the reduction of the environmental impact of business enterprises results in economic advantages for the companies themselves. Green Growth A model of economic development that promotes environmental sustainability and synergies between environment and economy.

Greenhouse Gas (GHG)

Gases that trap heat in the atmosphere and contribute to climate change. This causes the greenhouse effect. Water vapour (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and ozone (O₃) are the primary greenhouse gases in the atmosphere. Habitat The home environment for plants, animals, or other organisms; a place that meets all the environmental conditions this organism needs to survive, e.g. shelter, water, food, and space.

Habitat

The home environment for plants, animals, or other organisms; a place that meets all the environmental conditions this organism needs to survive, e.g. shelter, water, food, and space.

Landfill

A common form of waste disposal, through burying in a landfill site.

Local Nature Partnerships

A body, designated by the Secretary of State for Environment, Food and Rural Affairs, established for the purpose of protecting and improving the natural environment in an area and the benefits derived from it.

Micro-irrigation

Is an irrigation method with lower water pressure and flow than a traditional sprinkler system. Low-volume irrigation is used in agriculture for row crops, orchards, and vineyards.

Natural Green Infrastructure

A strategically planned and delivered network of green spaces in an area which conserves wildlife, natural ecosystem values and functions, sustains clean water and air, and provides a wide array of benefits to people and wildlife. This includes parks, open spaces, woodlands, rivers, and allotments.

Net Zero

The ‘net zero target’ refers to a government commitment to ensure the UK reduces its greenhouse gas emissions by 100% from 1990 levels by 2050.

Overheating (in buildings)

A state where conditions in a building cause an accumulation of heat which can make occupants feel uncomfortable or heat stressed. The definition of “overheating” varies as it depends on local and regional climatic conditions. According to the World Health Organisation, ideally the room temperature should be kept below 32°C during the day and 24°C during the night.

Passivhaus style homes

Passivhaus, refers to buildings created to rigorous energy efficient design standards so that they maintain an almost constant temperature.

Passivhaus buildings are so well constructed, insulated and ventilated that they retain heat from the sun and the activities of their occupants, requiring very little additional heating or cooling.

Renewable Energy

Energy collected from renewable sources which are infinite and constantly replenished, e.g. solar energy and wind energy.

Retrofit

The addition of new components, technology, or features to a product or a system, to reduce carbon emissions and increase its efficiency.

Rewilding

The addition of new components, technology, or features to a product or a system, to reduce carbon emissions and increase its efficiency.

Solar Farm

A large-scale installation where photovoltaic panels are used to collect solar energy, which is a form of renewable energy. Solar energy is converted into electricity which feeds into the power grid for distribution to the consumers.

Sustainable Drainage Systems (SuDS)

Systems used to manage surface water that take account of water quantity (flooding), water quality (pollution) biodiversity (wildlife and plants) and amenity.

Sustainability

A characteristic or state whereby the needs of the present and local population can be met without compromising the ability of future generations or populations in other locations to meet their needs.

Sustainable Farming Practices

See Sustainable Land Stewardship.

Sustainable Land Stewardship

A range of farm systems and strategies applied to agriculture and land use, and have a positive environmental effect lowering global carbon emissions. Sustainable agricultural systems exhibit key attributes such as: Use of efficient crop and animal varieties; Limit external inputs; Exploit natural biological processes; Minimise physical and chemical technologies that have adverse impacts on the environment and human health; Use local human resources, and Lower use of valuable resources and production of damaging resources.

Sustainable Travel

A means of travel with low overall impact on the environment, including walking, wheeling, cycling, riding, low emission vehicles, and public transport.

Water Scarcity

Water scarcity is a relative concept. The amount of water that can be physically accessed varies as supply and demand changes. Water scarcity intensifies as demand increases and/ or as water supply is affected by decreasing quantity or quality.

Wind Farm

An installation of wind turbines in the same location, used to “harvest” wind energy turning this into electricity. Wind farms can be either onshore or offshore.

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