Essex Climate Action Commission

Interim Report

Essex County Council

Contents

Essex Climate Action Commission
Powering positive change

Forewords

Foreword from Cllr. David Finch, Leader of Essex County Council

Climate change is a threat to us all. It is a systemic risk that requires action at every level: internationally, nationally and locally.

We are already seeing climate impacts in Essex from water shortages to flooding. These will continue to worsen and alongside overheating and soil degradation, will impact significantly on all Essex residents. The good news is that taking action on climate, both responding to impacts and reducing further emissions, is win-win: it can cut costs, create new jobs and industries, and improve both the urban and rural areas of Essex with cleaner air, improved biodiversity, smarter buildings and less waste.

Climate action simply cannot wait – it is the responsibility of every organisation and resident in Essex to do our part to help ensure the County has a bright and green future. Essex County Council is committed to taking action on climate change - to lead the way and inspire other authorities to follow. A few examples of this include building our first carbon net zero school in the County, conversion of all street lights to LED to reduce energy usage and our Flooding Team using innovative low carbon techniques, such as Leaky Dams and Natural Flood Management. We have also spearheaded behaviour change campaigns to encourage residents to recycle, avoid single use plastics and minimise car use, by walking and cycling more. However, we need to do much more to make a real difference.

At a meeting of Full Council in October 2019, I announced a million pound tree planting project and that we would create an Essex Climate Action Commission, which would bring together climate experts, from academics to scientists to business leaders, who would help advise the Council on the steps that must be taken to effectively mitigate the effects of Climate Change. Our administration then committed an initial £5m, specifically to start funding the recommendations made.

In 2020 the Commission was officially created, chaired by Lord Randall, a peer and former environmental adviser to Theresa May during her time as Prime Minister. As her adviser, Lord Randall was closely involved in the policy of setting a net zero target by 2050 in law. Commissioners include published academics, a United Nation Climate Change Scientist and a Wildlife Documentary Director from the BBC. This interim report is the Commission's first publication and I look forward to welcoming the insights contained within.

I am extremely grateful for all the hard work of the Essex Climate Action Commission and its commissioners in helping Essex understand how best it can tackle climate change and meet the significant challenges ahead. I have high hopes and complete faith that they will produce a series of meaningful, transformational and deliverable recommendations. Whilst this interim report is just the first step on this journey, I fully expect the Commission's work to permanently change the way we provide Essex residents with services.

"Climate action simply cannot wait – it is the responsibility of every organisation and resident in Essex to do our part to help ensure the County has a bright and green future."

Foreword from our Chair – Lord Randall of Uxbridge

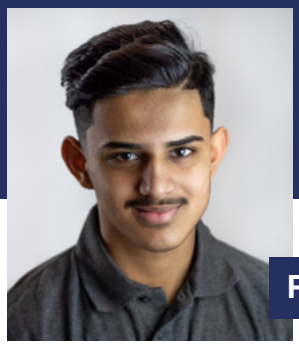
In early 2020 I was delighted to be approached to chair the Essex Climate Action Commission. At the time no one would have foreseen what 2020 had in store for us all. The world we live in is a very different place, and whilst managing the effects of the pandemic has been at the forefront of many people's minds, the very real threats of climate change and the loss of our precious biodiversity have not gone away.

However, one key learning that the events of this year have demonstrated, is that we all possess a great amount of resilience and adaptability to overcome adversity and the trials and tribulations that life sends our way. We need to show the same determination and resolve to confront the greatest challenge humankind is facing.

As we have heard in the first meetings of the Essex Climate Action Commission, and as you will read later in this report, we once again need to show that ability to adapt to changing circumstances, as the effects of climate change make themselves felt in our everyday lives. We all must take brave and decisive action if we are to retain the green open spaces and diverse wildlife we have come to appreciate and rely on so much during the Covid-19 pandemic. To that end, I have urged my fellow Commissioners and Essex County Council to develop bold and ambitious recommendations, which will allow residents and businesses in Essex to not only reduce the amount of greenhouse gases released into the atmosphere, but will also help them to better prepare for the changes we will experience in future years caused by climate change. The recent recommendations of the people's UK **Climate Assembly** show widespread public support across the UK for action like this.

I urge you all to take the positive action that you can, to improve your life and livelihood and that of future generations. It is through all of us acting now that real change will be achieved.

Foreword from our Co-Chairs



Prajwal

My name is Prajwal. Although the current circumstances regarding the coronavirus pandemic have prevented face-to-face meetings, it has been a pleasure and privilege of mine to be able to collaborate online with the all of the members of the Commission thus far.

The enthusiasm and passion with which I applied to take on this role and tackle climate related issues has resonated in every single meeting across all members. I can undoubtedly say that, with the positive attitude displayed in each of the meetings, progress in the area of climate change mitigation and prevention is inevitable.

Having already completed the first meeting on the first of the six core areas of focus in the first year, 'Adapting to an Already Changing Climate', it is already evident that the goals of the Commission are coming to fruition. In this first meeting, it was gratifying to listen to the presentation and policy recommendations made by Head of Adaptation at the Committee on Climate Change Secretariat, Kathryn Brown. The subsequent discussion in this meeting was zealous and promising of change. I look forward for this determination to be continued forward and I look forward to further change and progress to be made in saving our planet.

Daniel

I am Daniel and I represent west Essex in the Young Essex Assembly (YEA). I've been a member of many young people groups and always wanted to contribute towards a change for the better.

I've wanted to join this committee from the first moment I heard about it. I knew that joining such a great initiative was definitely going to contribute to a great cause.

"Climate change is a very important issue which is very close to my heart as it is a recurring theme in almost every conversation I have today with other young people."

We all have to live on this planet and so will generations yet to come. To help build towards sustainability is a great feeling.

1. Introduction

When Greta Thunberg addressed world leaders at the United Nations in 2019, she said “I want you to panic.” We do not want the people of Essex to be alarmed, but we do want us all to take climate change seriously.

The consequences of inadequate global and local action to address climate change are becoming clear. At the same time, actions taken now could put us all on a path to a sustainable future. The action needed is compatible with a vibrant future economy and improved quality of life.

We are already doing much that is right, but we need to do more and faster. The international community has taken action (through the 2015 Paris Agreement), the UK has shown its leadership (by becoming the first country in the world to enshrine its climate targets into law), and Essex has a great opportunity to be a leader too. Everyone has a role to play, and in this report the Commission makes many recommendations for positive action in Essex.

What is climate change?

The world’s climate has always been in flux, warming and cooling over geological eras. Since the advent of industrialisation, however, human activities have caused the world’s climate to change at unprecedented speed. The development of fossil-fuel technologies has boosted economic activity, with the consequence of producing more greenhouse gases (GHGs) each year than the land and seas can absorb. These GHGs, mainly carbon dioxide, methane, nitrous oxide and some minor gases, have increased the average world temperature by +1^{o}C since 1850. The science supporting this understanding is now incontestable. Above land, the air temperature increase has been +1.5^{o}C.

While impacts are framed as climate and weather changes, the significance for humanity will be both economic and environmental. Coastal cities suffering an increased risk of flooding due to sea level rise and increased storminess will find building insurance hard to obtain, and capital will be stranded in these assets. Agricultural and food systems will struggle to cope with drought and rainfall changes. Low-lying coastal locations, such as in Essex, will have to spend more on sea defenses and manage realignment of the coast where appropriate.

The term “climate change” is widely accepted as the description for changes observed and predicted. Many people now prefer the term “crisis” as this gives weight to both the urgency required and the convergence of understanding that, unchecked, alterations in climate will have substantial and adverse economic consequences.

The world’s economies currently emit some 53 Gt (Gigatonnes or billion tonnes) of carbon dioxide equivalent (a measure of the effect of all GHGs). There is scientific agreement that a reduction to 10 Gt of emissions would return the climate to a safe place for humanity. Three successive

halvings of emissions, each taking ten years, would reduce emissions first to 27 Gt (by 2030), then to 13 Gt, and then approximately to 7 Gt by 2050, a contraction and convergence to roughly one tonne of carbon emitted per person per year worldwide.

The year 1990 was the year in which atmospheric concentrations of carbon dioxide passed 350 parts per million (ppm). Pre-industrial levels (in 1850) were 280 ppm; today in 2020 the levels are at 412-415ppm. Over these past thirty years, global concentrations have been increasing at about +2ppm per year. By 2050, at this rate and without substantial changes to economic activities, the global concentration will have increased to 465-475ppm. It is widely acknowledged that this is not a safe place for humanity and will cause substantial economic disruption.

The climate has already changed – temperature, sea levels are rising[1]

Variable	What has happened so far?
Global average surface temperature	Over 1°C above pre-industrial levels.
UK annual average temperature	About +1.2°C above pre-industrial levels. We have experienced a +0.8°C increase since 1961-1990.
Global mean sea level rise	~21 cm increase from 1900.
UK mean sea level rise	~16cm since 1900.
UK heavy rainfall	Some indications of increasing heavy rain but difficult to quantify.
UK heatwaves – 'like 2018 summer'	Now a 10 – 25% chance each year, compared to <10% chance each year a few decades ago.

1 https://www.theccc.org.uk/2020/04/21/how-much-more-climate-change-is-inevitable-for-the-uk

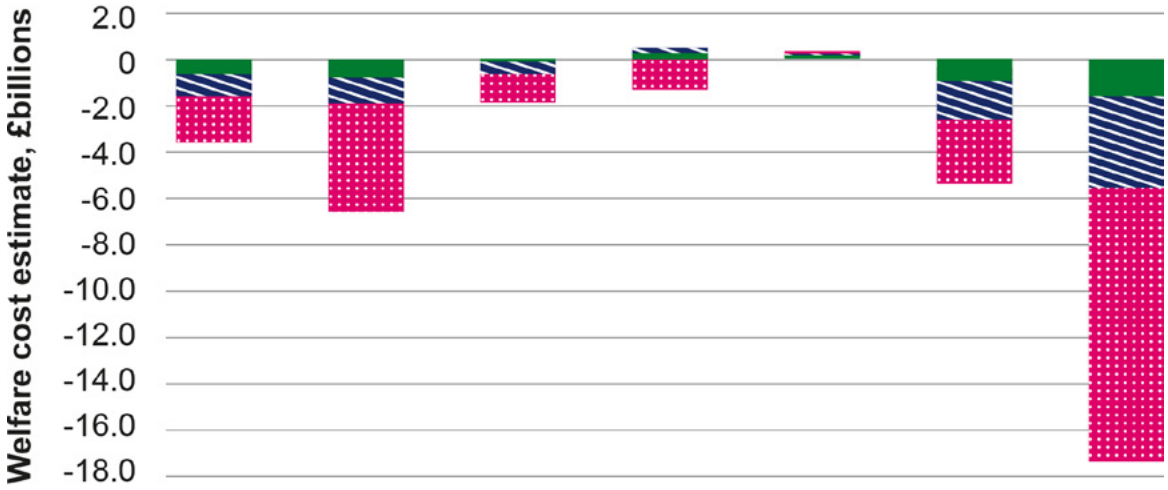
What is being done already?

Climate change was first recognised as an economic and environmental challenge in the 1980s. The United Nations formed the International Panel on Climate Change (IPCC) in 1988, resulting in the collaboration of several thousand scientists of all disciplines to assess the extent of change and advise national governments of more than two hundred countries. In 2008, Britain was the first country to sign a nationally-binding Climate Change Act. The physical changes since 1990 have accelerated rapidly to the 2020s, and the IPCC and national and regional governments worldwide are now focusing on the decarbonisation of economies in

Costs of inaction are high (but hard to estimate in full)

Welfare losses per year from climate impacts in £billions, UK and Ireland[1]

- These estimates only include a selection of impacts (e.g. does not include surface water flooding, windstorms, impacts on the natural environment), so are not a national total loss estimate of climate change
- Analysis assumes that the economy is the same size and shape as today



	River flooding	Coastal flooding	Drought	Crop productivity	Electricity production cost	Heat and cold mortality	Total
3°C	-2.1	-4.7	-1.4	-1.2	0.1	-2.6	-11.9
2°C	-0.9	-1.3	-0.4	0.4	0.2	-1.6	-3.6
1.5°C	-0.5	-0.6	-0.1	0.4	0.2	-1.0	-1.7

1 Szewczyk, W., Feyen. L., Ciscar, J.C., Matei, A., Mulholland, E., Soria, A. (2020) Economic analysis of selected climate impacts. JRC PESETA IV project – Task 14

order to achieve zero-carbon positions by 2050 at the latest. Over 70 countries have committed to this including the UK, France, New Zealand, China and South Korea.

The 2015 Paris Agreement of the UN proposed targets and policies to limit global temperature increases to a total of +1.5 °C to +2.0 °C by 2050 (an increase of just +0.5 to +1.0 °C on current temperatures). This will be hugely challenging and will require global cooperation and leadership. The UK government hosts the next international meeting of the UN, the COP26 (Conference of the Parties), in Glasgow in November 2021.

These physical changes will affect all economies and societies. There will be a need to **adapt** to these changes, to **mitigate** their effects, and to **implement** policies and actions to prevent a worsening of the effects on people and the planet.

The Essex Climate Action Commission acknowledges the scale of the action required within Greater Essex and is determined to support and enable rapid change towards low to zero carbon economies.

Climate change will require modifications in actions and behaviours i) by local and national governments and public agencies, ii) by businesses, iii) by individual people and households.

“Essex is getting ready to be part of the solution. Read on to find out more.”

2. Remit of the Essex Climate Action Commission

We are pleased to be invited to work on this agenda in Essex, following Essex County Council's recognition that to tackle the climate crisis and become a net zero emissions county, a step change and new approach is needed.

In his Executive Statement at Full Council on 8 October 2019, the Leader of Essex County Council announced the formation of a formal independent cross-party commission, entitled the Essex Climate Action Commission.

As a Commission, our purpose is to provide expert advice and up-to-date recommendations for action on climate change mitigation and adaptation, tailored for the county of Essex and its people.

The formal remit of our Commission is to:

- **Year one:** Identify ways in which ECC can mitigate the effects of climate change, improve air quality, reduce waste across Essex and increase the amount of green infrastructure and biodiversity in the county by drawing on in-house expertise, commissioning research and forming new external partnerships.
- **Year two:** Explore how we attract investment in natural capital and low carbon growth. The Commission will be provided with regular updates on the status of the year one recommendations so that it can monitor progress.

When we were established as a group, we agreed that recommendations should include actions for mitigating climate change, such as reducing our net emissions and increasing our natural capital, and adapting to an already changing climate, to ensure Essex is resilient to climate change impacts such as extreme weather and flooding. Our recommendations also consider the roles of multiple partners across Essex, all of whom will have responsibilities and contributions to make in moving Essex to a net zero county.

Our final recommendations, to be published in spring 2021, will be transformative but practical, with the impacts across the themes considered together to deliver a cross-cutting set of recommendations for Essex. They will then be considered by the Essex County Council Cabinet for implementation and the result will be a programme of targeted climate action, which the Leader of ECC has committed will be supported by a budget of at least £5 million.

3. About Our Commissioners

Our 36 Commissioners are drawn from a wide cross-section of society: academia, the public-sector, the private-sector and the third sector.

Our two co-chairs come from the Young Essex Assembly and represent the views of the young people of Essex. We have elected officials, drawn from all political parties, representing the residents of Essex.

Our Commissioners are:

- Lord Randall of Uxbridge (Chair)
- Prajwal (co-chair)*
- Daniel (co-chair)*
- Prof. Jules Pretty – University of Essex
- Prof. Graham Underwood – University of Essex
- Prof. Aled Jones – Anglia Ruskin University
- Prof. Peter Hobson – Writtle University College
- Dr Simon Lyster – Northumbrian/Essex & Suffolk Water
- Prof. Jacqueline McGlade – Institute for Global Prosperity, University College London
- Dr Adam Read – Chartered Institution of Wastes Management and SUEZ Recycling & Recovery UK Ltd
- Toddington Harper – Gridserve
- Ian Davidson – Chief Executive, Tendring District Council
- Jonathan Stephenson – Chief Executive, Brentwood Borough Council
- John Lippe – Ford Motor Company
- Right Rev. Roger Morris – Church of England
- Rob Pilley – BBC
- Natalie Chapman – Freight Transport Association
- John Henry – Mid and South Essex NHS Foundation Trust
- Rob Wise – National Farmers Union
- Catherine Cameron – Agulhas Applied Knowledge
- Dr Laura Mansell-Thomas – Ingleton Wood
- Jo Roberts – Wilderness Foundation
- Heather Hilburn – Thames Estuary Partnership
- Dr Poone Yazdanpanah – Writtle University College
- Jenni Wiggle – Living Streets
- Peta Denham – Environment Agency
- Chloe Rose – RSPB
- Victoria Hills – The Royal Town Planning Institute
- Cllr. Peter Davey – Essex Association of Local Councils
- Cllr. Simon Walsh – ECC (Conservative)
- Cllr. Robert Mitchell – ECC (Conservative)
- Cllr. Sue Lissimore – ECC (Conservative)
- Cllr. Anne Turrell – ECC (Liberal Democrat)
- Cllr. James Abbott – ECC (Green Party and representing the non-aligned group)
- Cllr. Ivan Henderson – ECC (Labour)
- Mark Carroll – ECC Executive Director

*Our co-chairs cannot be identified in full for safeguarding reasons

4. How we will report on the core themes

Core themes

We are meeting as the Essex Climate Action Commission regularly throughout 2020/21 to present, debate, and agree the recommendations that we want to present to Essex County Council in our Final Report in spring 2021.

The meetings are organised around the six core themes:

1. Adapting to an already changing climate
2. Transport
3. The built environment
4. Energy and waste
5. Land use and green infrastructure
6. Community engagement

Commissioners have formed working groups on the themes 2 to 5, each joining a group (or groups) that fits our interests and areas of expertise. With support from ECC and other local authority officers, each working group is developing evidence-based recommendations to present to the full Commission for approval. The meeting on 'Adapting to an already changing climate' involved a presentation from the Committee on Climate Change, focusing on potential impacts of climate change in Essex and proposing recommendations for adaptation and resilience measures to be considered across the working groups. Community engagement is a theme that cuts across the other five working groups and will be the subject of the penultimate meeting in February 2021.

Once all the working groups have delivered their recommendations, all the recommendations and their impacts will be considered by the Commission. A final set of cross-cutting recommendations will be agreed, bringing together the individual themes into one coherent picture for Essex.

Reporting

This Interim Report brings together our recommendations from the meetings held to date: Adapting to an already changing climate; Transport; and the Built Environment.

For those themes that have not yet reported to the full Commission, we provide in this Interim report an update on progress. The full set of recommendations will be published in our Final Report.

The final report will also include a *'Vision for a Net Zero Essex'* that we will develop to help the many partners involved in climate action in Essex unite in a common purpose.

Bringing together the cross-cutting recommendations

Working together as a Commission, we recognise that many of our recommendations cut across the themes, meaning action on one theme can benefit another and have a cumulative positive impact. So that the various parties involved in climate action – ECC, districts and boroughs, developers, industry, businesses, communities, citizens - can effectively direct their action across the themes and maximise the impact, in this report we have grouped and presented the recommendations according to the sectors they concern:

- New homes and communities
- Existing buildings and urban regeneration
- Resilience to coastal and surface flooding and extreme weather
- Transport and highways authorities
- Energy and waste
- Rural communities and land

The recommendations presented and agreed at each of the Commission meetings to date are attached at Appendix 1.

Essex County Council and the public sector – districts, boroughs, parishes, and anchor institutions such as the NHS - cannot solve the climate crisis alone. The public sector must show leadership and galvanise wider action through working with its partners, communities and citizens. We also recognise that many areas need national action, so we have created a list of asks from government that we would like to see support for across the sectors, from ECC's partners and the citizens of Essex.

5. Cross-cutting recommendations for key sectors in Essex

The Essex Climate Action Commission recognises that no one organisation can deliver all our recommendations alone.

For each of the key sectors, we have pulled together the key recommendations from working groups and identified where there are economic opportunities for Essex. We also note that in none of these sectors are we starting from scratch, so we have highlighted existing work that can be accelerated or rolled out further.

New homes and communities

By 2036, Essex has a target to build 180,000 new homes along with supporting infrastructure, including 40-50 new schools.

Many of these homes will be in large-scale Garden Communities, offering an excellent opportunity to establish sustainable communities where residents can work locally, enjoy green spaces and live healthy, active lifestyles.

To achieve our ambitions for Essex, there are vital roles to be played by different actors, in particular local planning authorities and housing developers, as well as universities and private sector partners to drive innovation. We also need new and existing residents to get behind these ambitions to make it clear that there is market for better quality, sustainable communities.

For Garden Communities and any other new build homes and developments, the Commission recommends the following:

Longer term goals:

- From 2025, all new homes **granted planning permission** to be net zero
- All new schools commissioned to be **net zero** from 2022 and carbon positive **from** 2030
- From 2025, all new commercial buildings **granted planning permission** to be net zero
- From 2030, all new homes and non-domestic buildings **granted planning permission** to be carbon positive

Quick wins/short term actions:

- Active travel prioritised: designing walkable and low traffic neighbourhoods, exploring built-in last mile delivery solutions (among other options), and delivering Walkable Neighbourhoods; workshops to commence from October 2020
- Publish a Climate Change Compendium through the Essex Design Guide in 2021
- The creation and maintenance of 'Healthy Places' in terms of design, placemaking and place management to ensure these locations both positively contribute to physical and mental health and mitigate climate change
- Review highways and transportation policies where they impact on place shaping, the provision of sustainable transport and sustainable construction practices
- Sustainable Drainage Systems (SuDS) as the default in all new developments, as set out in the National Planning Policy Framework (NPPF)
- A nature-based approach to design and green infrastructure requirements included in local planning guidance
- Developers to implement green procurement standards for construction
- Engagement and partnership with developers, including the establishment of an Essex Developers' Group to collaborate and set up demonstrators of green construction
- Explore the establishment of an 'Energy Sector Alliance and Innovation Hub' to build and develop climate action and resilience-related construction skills
- A net zero major demonstrator project by Essex Housing to commence building by 2023
- Delivering a Flood Resilience Levy by 2022

Good practice happening now:

Essex has a strong start here with the nationally renowned Essex Design Guide which was commissioned collaboratively by the Essex Planning Officers Association (EPOA). Essex County

Council has also built its first school with an Energy Performance Certificate A+ rating last year, with more projects in the pipeline to build on the lessons learnt with a view to building net zero schools in the near future.

Through the EPOA and the Essex Planning Portfolio Holders group, there is an existing network of planning officers and Councillors who can work together to ensure the highest environmental standards across the whole of Essex.

Economic benefits:

There is a huge potential to upskill Essex's construction workers to specialise in building these new energy efficient and resilient homes, implementing future-proof solutions such as community energy systems and Sustainable Drainage Systems (SuDS). The sustainable construction sector is estimated to be worth £400bn rising to £1Tn. Investment in green construction is expected to create 1.8m new jobs, 0.5m of which will be in the south-east[1].

The world of work has changed significantly through the Covid-19 pandemic. Essex has an opportunity to attract a new market of workers who no longer want or need to commute to London and other city centres each day, but instead will value the green space, healthy lifestyles and local/remote working opportunities a well-designed new development can bring.

1 Source – The Greater South East Energy Hub (2020)

Existing Buildings and urban regeneration

There is a key role for homeowners and businesses to drive change across Essex, supported by all public sector organisations throughout the county.

ECC has commissioned the consultancy Element Energy to develop an emissions baseline model for Essex on behalf of the Commission, which will be reported on at the Energy and Waste meeting later this year. The emerging findings show that in 2020-21, the built environment sector in Essex will emit just under 3MtCO_2. The majority (1.8MtCO_2) will come from domestic buildings, with 0.6MtCO_2 from industrial processes and 0.5MtCO_2 from non-domestic buildings.

Essex has 800,000 existing homes, 85% of which were built before the introduction of standards for insulation and energy performance. 67% of homes in Essex have an Energy Performance Certificate (EPC) rating of D or below (see Appendix 2 for more information on Energy Performance Certificates). This means most residents in Essex are paying more for their energy than is necessary and emitting more greenhouse gas emissions into the atmosphere. Essex will need to prioritise retrofitting these homes and regenerating town centres if net zero is to be achieved.

Over 50% of non-domestic buildings in Essex have an EPC rating of D or below. Offices top this list with 73% rated EPC D or below. There is an opportunity for business to cut costs and reduce carbon emissions by investing in energy efficiency. This can be implemented alongside installation of renewable energy solutions, for example there are significant opportunities for installing Solar PV on commercial and public sector roofs, particularly across Essex's industrial estates.

The Commission recommends the following:

Longer term goals:

- Incorporate national green infrastructure requirements from the government's 25 Year Environment Plan into local planning
- Two-thirds of homes should be retrofitted to net zero standards by 2030
- From existing residential buildings, a 50% carbon reduction by 2030 and zero carbon by 2040.
- One-third of commercial buildings should be retrofitted as far as is possible with renewable energy systems by 2030

Quick wins/short term actions:

- Set goals for reversing the national decline in urban greenspace and include greenspace 'retrofit' programmes in Local Plans
- Introduce low traffic neighbourhoods (10 by the end of 2021) and school streets (around 25 schools by 2022)
- Including water efficiency in energy efficiency retrofit plans
- Prioritise walking and cycling while disincentivising car use in town centres e.g. workplace parking levies
- Partnerships with businesses and green construction training for a zero-carbon future

The retrofitted homes
cut carbon emissions by
⬇90%
and delivered savings of approximately
3.2 tonnes of carbon emissions
per home per year.

Good practice happening now:

An innovative Dutch energy efficiency initiative in Maldon, led by Moat Homes, saw tenants' properties retrofitted resulting in homes emitting 90% less carbon and reducing tenants' energy bills.

Moat Homes retrofitted the properties using the 'Energiesprong', (Dutch for 'energy leap') gold standard of energy efficiency, the first pilot of its kind in the South East.

Moat's retrofit included the installation of new insulated walls and roof panels fixed to the existing house. Solar panels have been fitted and a battery sited in the back garden to store energy. Gas boilers were replaced with modern air source heat pumps and houses were made airtight by sealing windows and doors.

The houses are now as close as possible to being net zero users of energy, cutting carbon emissions by 90% and delivering savings of approximately 3.2 tonnes of carbon emissions per home per year. If this were rolled out to a similar standard of homes in a city the size of Chelmsford, the carbon emissions saving would amount to 220,000 tonnes[1].

1 https://www.energymanagermagazine.co.uk/ground-breaking-dutch-eco-scheme-slashes-energy-bills-by-more-than-half-in-maldon-essex/

Economic benefits:

The NHS has estimated that sub-standard housing in England costs the NHS in the region of £1.4bn per year due to the effect on residents' health, hence improving existing stock would deliver substantial savings to health and social care budgets[2].

As with new build, this area offers huge potential for green jobs and a sustainable economy through upskilling Essex-based construction workers and training more people in the growing sectors of energy efficiency and renewable energy solutions. Through the government's planned investment in a green economic recovery from Covid-19, including £3bn to upgrade buildings and reach net zero, new work will be created for accredited tradespeople in green construction, supporting 100,000 jobs across the UK.

For residents and businesses, investing in energy efficiency will save money now and in the future. New technology such as solar panels and heat pumps offer different solutions to powering and heating our homes and businesses, but too many of our homes and offices still lack proper insulation. Ambitious uptake of energy efficiency measures such as insulation is needed in the 2020s to first reduce demand for heating, to enable the mass transition to electrification of heating (e.g. heat pumps) and decarbonised gas in the 2030s and beyond.

Extrapolating Ministry of Housing, Communities and Local Government (MHCLG) data for properties with an EPC rating[3], it is estimated Essex has c.540,400 dwellings with an EPC report of C or lower. Improving these households' energy efficiency through typical measures such as cavity wall insulation, suspended floor insulation, loft insulation and low energy lighting, is estimated to cost £3,615 per household. To complete this retrofit for households in Essex would cost an estimated £1.95bn. With unprecedented levels of Government funding available there has never been a better time to make these improvements. Residents can apply for £5,000 through the Green Homes Grant, which increases to £10,000 for households on low incomes or receiving qualifying benefits. More information can be found on the scheme website:
www.gov.uk/apply-green-homes-grant

All local authorities have a key role to publicise and promote these schemes; supporting businesses and residents to improve their properties, driving economic growth and reducing the impact on the environment.

Good practice happening now:

The Low Carbon Across the South East (LoCASE) programme provides free business support to businesses in the South East. Its aim is to help businesses become more competitive, profitable and resilient while protecting the environment and encouraging low carbon solutions. To do this, LoCASE provides grants for businesses of up to £20,000 for energy efficiency measures to reduce their carbon emissions as well as funding to SMEs in the low carbon sector to grow their business training workshops and fully funded events. Since the programme started in 2016, £2.6m has been awarded to 397 businesses with an estimated 2,902 tonnes CO_2 equivalent emissions reduction and £992,534 cost savings per annum within Greater Essex (including Southend and Thurrock).

2 https://www.bre.co.uk/filelibrary/pdf/87741-Cost-of-Poor-Housing-Briefing-Paper-v3.pdf
3 Source: MHCLG (2020) Energy Performance Building Certificates (EPC) in England and Wales 2008 to March 2020

Resilience to coastal and surface flooding and extreme weather

The UK's climate is already changing, and further change is inevitable given the level of greenhouse gases already in the atmosphere.

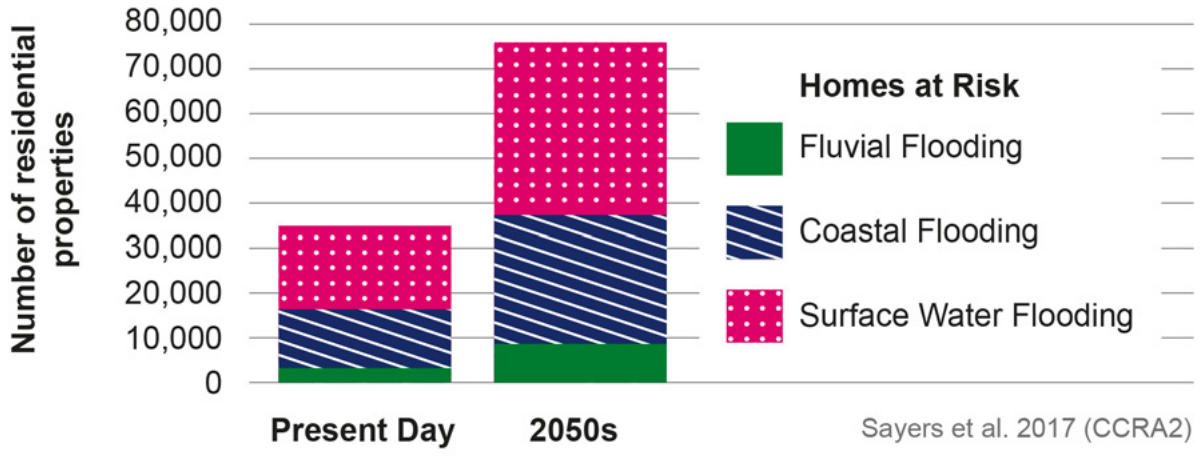
The extent and speed of further changes depends on actions to cut future greenhouse gas emissions. Therefore, in addition to reducing greenhouse gas emissions, action is needed to adapt to our changing climate. In the East of England alone, over 75,000 homes – more than double the current number – could be put at risk of flooding over the next thirty years. We need to build our resilience to chronic issues such as flooding, water shortages and higher summer temperatures which together could drive severe soil degradation. We also need to be able to manage climate shock events such as extreme storms. This is not to say that adapting means accepting climate change; we all need to accelerate our action on reducing our contribution to global greenhouse gas emissions as this will be crucial in limiting future impacts.

Essex is already suffering from these impacts and the Commission notes that nationally, local authorities have not grasped the need for action on adaptation as fully as mitigation. There is scope and urgency for Essex County Council to lead the way and help coordinate cross-agency action in this space.

Essex has substantial issues with coastal and surface water flooding. Over the next 30 years, the risk is projected to double without additional adaptation action. As the Lead Local Flood Authority, ECC has a key role in investing in flood mitigation to protect property and livelihoods, working with partners such as the Environment Agency, water companies and private landowners.

As the Highways Authority ECC also has a responsibility to ensure adequate drainage on the highway and to maintain those drainage systems to a good standard. This includes requiring developers to install Sustainable Drainage Systems (SuDS) which will hold and also cleanse water runoff from polluted highway surfaces.

Residential properties at significant flood risk in Essex, Norfolk and Suffolk



Sustainable drainage system at Basildon Hospital

Good practice already happening:

SPONGE 2020

Essex County Council worked with Basildon and Thurrock University Hospitals to retrofit the Essex Cardiothoracic Centre courtyard with a Sustainable Urban Drainage System (SuDS).

Through Interreg 2 Seas[1], an EU-funded programme, the project increased resilience against surface water flooding in the area. At the same time, it improved the communal space in Basildon Hospital for patients and staff alike.

Abbots Hall Farm

Essex Wildlife Trust purchased **Abbotts Hall Farm** in 1999 and was keen to work with the Environment Agency to try and re-grow new coastal marshes on the Essex Coast. The sea wall at Abbotts Hall was in need of repair and Essex Wildlife Trust and the Environment Agency wanted to consider different ways of coastal defence which took into account the problems of the sea level rising. The project has also shown how important these new marshes are as fish nurseries – Abbotts Hall now has large numbers of young bass, herring and 14 other types of fish feeding in the creeks within the marshes.

The Commission noted the following Committee on Climate Change recommendations, which will be considered by the relevant working groups:

- Coastal flood resilience schemes in critical areas to be implemented by 2023
- The scale and impact of climate change is acknowledged by those

1 https://www.interreg2seas.eu/en

with responsibility for the coast and communicated to the people who live there

- A new policy for coastal flood risk and erosion management is drawn up with clear, evidence-based outcomes
- SuDS is implemented in all new developments and enforced, with clarity over who adopts and maintains it
- A support service on adaptation for businesses is re-established – this could be at local or national government level

Economic benefits:

The UK experiences an average of £1,400 million in damages from flooding per year, even with the present flood and coastal defences on which it currently spends around £800 million per year.

The Environment Agency estimates that every £1 spent improving protection from flooding and coastal erosion saves around £5 of property damages. As well as damages to property, there can also be significant disruptions through damage of vital amenities such as hospitals, schools, emergency services and transport infrastructure, as well as longer term impacts on Essex's coastline as a tourist destination.

In 2012, the UK Committee on Climate Change estimated that the annual expected costs of flooding could increase from £1 billion now to between £1.8 billion and £5.6 billion (present day prices) by the 2080s[1]. Essex faces significant risk through climate change and sea level rise; the areas at greatest threat from flooding and erosion in future will be along major estuaries and the east coast[2].

1 https://www.theccc.org.uk/wp-content/uploads/2012/07/CCC_ASC_2012_bookmarked_2.pdf
2 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/300332/04-947-flooding-summary.pdf

Transport and highways

Surface transport in the UK emits more greenhouse gases than any other industry or sector.

In Essex, transport is responsible for almost a third of greenhouse gas emissions, the majority of which are from cars. A lack of active and sustainable travel options also has a profoundly negative impact on public health - 75% of children are inactive and 32% of parents indicate that the school run is almost as stressful as their jobs.

The UK ranked in the **top ten most congested countries** in the world, the third most congested in Europe behind Russia and Turkey[1]

The average amount of **CO2 emitted by new cars in the UK has risen** for the third year in a row – by 2.7% to 127.9g/km[2]

Direct and indirect **costs of congestion is £37.7 billion**, an average of £1,168 per driver[3]

People in the UK are **64 times as likely to die** of air pollution as those in Sweden and twice as likely as those in the US[4]

Poor air quality causes **40,000 to 50,000 early deaths** in the UK and the cost of these health impacts is estimated at **£20 billion** every year[5]

1 Inrix
2 SMMT
3 Inrix
4 World Health Organisation
5 Royal College of Physicians

Transport is an integral part of the built environment and wider society functions, so many of the recommendations are captured in the other areas. However, there are many recommendations that we urge the transport and highways authorities and operators to adopt to encourage and incentivise active and low carbon travel and discourage unnecessary car use.

The Commission recommends the following:

Longer term goals

- Introduce three new subsidy-free Park and Choose sites by 2030
- Introduce 20 Low Traffic Neighbourhoods per annum from 2022 to 2030
- Introduce an additional 20 school streets per year to 2050

Quick wins/short term actions

- Introduce dedicated, well-planned cycling and walking routes across all urban and rural locations, and to all rail stations
- Upgrade and expand the National Cycle Network and integrate with existing local routes
- Work with business to improve on-site facilities and develop routes
- ECC to publicly state its commitment and funding to rebuild passenger transport services hit by market failure since the pandemic
- To invest in innovative passenger transport solutions such as demand responsive transport using electric vehicles, aiming for commercial viability
- Promote safe and accessible public rights of way

- Expand the three existing Park and Ride and school zones projects
- Improve cycling infrastructure to/from schools
- Introduce school streets for 25 schools by 2022
- Introduce six e-scooter pilot schemes across the county by the end of 2020
- Introduce emissions charging and/or parking charges in town centres and ringfence income to invest in public transport and active travel schemes
- Introduce five workplace levy schemes
- Explore car sharing options
- Launch county-wide National Car-Free Day
- Support innovative solutions for last mile deliveries, introduce 10 local delivery hubs by 2022 and explore options such as retiming deliveries to reduce peak time congestion
- Grow the electric vehicle charging network and capitalise on the facilities provided by the new Gridserve electric forecourt to charge and promote electric vehicles to encourage uptake
- Electrify the authority's fleet
- Park and Ride: Embed micro-mobility solutions and EV charging points at all sites; use Park and Ride as a stepping stone to public transport and ringfence income for sustainable transport investment.

Good practice already happening:

The Commission is pleased to see many net zero initiatives already underway in areas such as active travel, public transport, decarbonisation (e.g. LED streets lighting), warm tarmac and place-based solutions (such as creating new hubs to promote local active travel).

ECC and a significant majority of district, borough and city councils are already implementing measures to enable walking and cycling and opening up high streets safely responding to Covid-19 and are waiting to hear from government about further funding to scale this up in five locations.

In 2020, the Council launched its *Stop, Swap, Go!* Campaign to encourage residents to walk, cycle and use the bus. Through the campaign the Authority aims to help reduce carbon emissions, protect the environment and help residents make the most of the county's open spaces and parks.

Gridserve Electric Vehicle Charging Forecourt

From this autumn, Gridserve will operate the UK's first electric vehicle charging forecourt in Braintree offering convenient, solar-powered electric vehicle charging and a platform to promote electric vehicles to consumers. The forecourt is due to be launched by the end of the year.

Energy and Waste

Energy and waste issues have been raised in all Commission meetings to date, but examples of existing good practice, the available economic benefits and our formal recommendations will be discussed in detail and decided at the upcoming meeting on Energy and Waste in December 2020. Information on emerging proposals are provided in the next section.

Most of the Energy and Waste recommendations agreed by the Commission have been covered in the sectors above, but the key recommendations for this sector are:

- Partnership with businesses to support them to move to carbon zero and use green procurement practices, for example promoting the financial benefits of installing renewables and smart meters
- A feasibility study into Energy Sector Alliance and Innovation Hub by 2021

Light pollution is another aspect of energy wastage to be addressed; needlessly lighting the night sky adds to greenhouse gas emissions, as well as having a negative effect on human health and wildlife.

Good practice already happening:

Energy from Solar Photovoltaic (PV)

ECC has already installed solar PV systems on four of its core estate buildings at County Hall, Ely House, Canvey Island and Freebournes Road in Witham. However, this is just a start and only meets just over 1% of its corporate need for energy, so plans are being developed to set out a pathway to net zero for the ECC core estate. This will include measures such as more solar PV rooftop systems but also energy efficiency measures and low carbon heat

technologies. By the end of the financial year, ECC will have installed solar PV on the Essex Records Office. In addition, they will have implemented a programme to install smart meters at every maintained school in the county and started a roll out of solar PV systems on school rooftops, building on the first installation this October school half term.

Energy from landfill gas

Of the 12 closed landfill sites the Council looks after, six are open to the public as open spaces or mini 'Country Parks' which are mainly used for recreational activity and homes for wildlife. Two of the six open to the public were entered into the government's Countryside Stewardship programme which supports landowners wanting to increase biodiversity on their land. Four of these six are also used to produce energy from landfill gas. The main constituent of landfill gas is methane which is about 28 times more powerful than carbon dioxide as a greenhouse gas. These sites are carefully managed to ensure these gases are, where possible, used for electricity generation.

A concession contract for energy generation is being worked up for the Bellhouse site near Colchester. This is the largest and most recently closed site and has the potential to generate up to approximately 1MWh of electricity.

LED streetlights

ECC will continue the multi-million pound LED streetlight conversion programme as it installs new LED lanterns across the county. Over the next few years, the rest of ECC's older style streetlights, of which there are over 80,000, mainly in local streets, will be replaced by LED. The older style lights cause light pollution through light scatter. LED light can be better directed, so as well as being more energy efficient they contribute less light pollution.

Energy from landfill gas

Rural communities and land

The Essex Rural Partnership Strategy 2016-2020 states that Essex is a predominantly rural county with 72% of Essex's population living in rural areas.

Many of the emerging innovative solutions for decarbonisation focus on urban and densely populated areas, but for Essex it is important that as a Commission we think beyond the urban context. Our land and countryside are huge assets, but assets that are under threat from the impacts of the climate crisis, most significantly soil degradation as a result of water scarcity, soil erosion and pressure for new built development growth.

Recommendations for this sector are being developed by the Land Use and Green Infrastructure working group who will present to the Commission in January 2021. From the Commission meetings held so far, including the presentation given by Kathryn Brown, Head of Adaptation at The Committee on Climate Change, emerging recommendations for consideration under this theme include:

- Diversify land use to build in resilience
- Provide resources to help land managers understand climate impacts, risks and solutions
- Financial support for landowner investing in transitioning land use (with long payback periods)
- Support sustainable transport modes for rural communities, including safer walking and cycling routes and EV charging

Land use, green infrastructure and community issues have been raised in all Commission meetings to date, but examples of existing good practice, the available economic benefits and our formal recommendations will be discussed in detail and decided at the upcoming meetings on Land Use and Green Infrastructure and Community Engagement early in 2021.

Good practice already happening:

Essex Forest Initiative

In October 2019, the Council made a commitment to plant £1 million worth of trees over the following five years. This will involve the planting of 375,000 trees, over 150 hectares, an area which is the equivalent of 210 football pitches. This is in addition to over 500,000 trees pledged by Essex's districts and boroughs.

The main driver behind the initiative is to lock up carbon and offset the carbon produced which is contributing to ongoing climate change. There are many other benefits of planting forests and trees, including improving air quality, encouraging biodiversity, and reducing flooding.

The Council is working with a range of partners who are making land available for tree planting to deliver the initiative. This includes working with charities, farmers, private households and the parish, town, city, district and borough councils within the county.

6. Engaging our Communities

Working with stakeholders, businesses, community groups and citizens

There is no doubt that the net-zero ambition for Essex cannot be achieved without action from businesses, residents and communities across the county.

The Commission commends the three-pronged strategy proposed by ECC, as described below:

- **Communications** – To inform, educate, promote and engage Essex businesses, residents and communities, by making 'doing the right thing' more visible and showcasing those who have already taken action.
- **Stakeholder Engagement** – To deliver targeted engagement with residents, politicians, businesses and organisations who have shown a particular interest or expertise in climate action in Essex.
- **Community Engagement** – To facilitate climate action at the community scale. Fostering a sense of belonging and providing clear information, advice and guidance at the right level for that community. In particular, converting insight and engagement through the *Essex is Green* digital platform into social action, encouraging community connections and achieving sustained behavioural change. More detail on this approach is found in Appendix 3.

The Commission's meeting on Community Engagement will be held in February 2021. It will consider how to encourage different audiences - individual households, businesses, community groups, charities and public sector parters - to take action across all the themes that have been considered by the working groups.

Essex Businesses

ECC and partners can support and encourage businesses to commit to achieving net zero emissions. Targeted recommendations for engaging with businesses will be developed by the Community Engagement working group in February 2021, but some emerging recommendations from the meetings so far include:

- Encourage large businesses to disclose physical risks of climate change, using frameworks such as the Taskforce on Climate-related Financial Disclosure, or the Adaptation Reporting Power
- Actively promote energy efficiency advice and guidance to communities and businesses, particularly SMEs
- For local authorities and businesses to work together to improve on-site facilities for cyclists
- For the Essex Developers Group to set up a working group to develop a Climate Change Charter and run demonstrator projects.

Essex communities and residents

The climate crisis isn't just a problem to be tackled by local, national or international governments - action is needed by every individual. The Community Engagement working group will develop messaging to help citizens and local communities to take effective action. The Final Report will bring together clear advice for individual and community action across all the themes covered by the Commission.

The Commission meetings held to date have proposed the following high level recommendations aimed at communities and residents, which will be added to and further developed in subsequent meetings:

- Communications with residents about actions they can take on their own homes.
- Encouraging community action

Good practice already happening:

Essex is Green

The *Essex is Green* team has already developed a networking and discussion group on Facebook of all the already existing social media organisations and activists in operation across Essex. This brings together a range of 'eco' groups which have been set up at a local level focusing on their immediate environment - villages, towns and districts around the county. Over 300 individuals, groups and organisations use the group to discuss 'green' issues and share hints, tips and new ideas to encourage Essex residents to live a more environmentally-friendly and carbon-conscious lifestyle.

Circular Economy

ECC and partners have recently been awarded EU funding for the 'BLUEPRINT to a circular economy' project. It will use best practice on how we at ECC can embed the circular economy in everything the Council does and well as engaging with residents of Essex to reduce, reuse and recycle more.

Community Energy

Community Energy South have been working with ECC to take the first steps in helping to support the development of the Community Energy Sector in Essex. During Spring 2020 community groups were engaged through a countywide survey to find out about groups and individual interested and/or involved in community led renewable energy and the best way to support them going forward. To start this support, a bespoke community energy signposting guide and a funding guide for Essex has been produced. A seed-corn fund has been established to support groups identified in this work with an offer of training, business development and funding support.

This project is funded by LECSEA. The LECSEA (**L**ocal **E**nergy **C**ommunities for the 2 **Sea**s region) programme is a cross border project funded through the Interreg 2 Seas programme.

Love Essex

The *'Love Essex'* brand was developed to work in partnership to deliver better results for residents through cost effective campaigns and services. An umbrella brand provides consistent messages to encourage public involvement and inspire behaviour change to reduce waste, reduce environmental impact and increase recycling.

Public Sector Leadership

While it cannot tackle this challenge alone, the public sector plays a vital role in leading the agenda of supporting and addressing environmental sustainability and growing the green economy.

Collectively, the large public sector organisations across Essex, often referred to as anchor institutions, have a strategic interest and influence on the places they are located. Anchor institutions include the county council, district, borough and city councils, police and fire services, NHS organisations, university partners, further education providers and housing associations. It is also recognised that many private sector organisations are anchors.

Anchor institutions can have a huge impact on emissions and adaptation in a variety of ways: through the management of their buildings and land, through their procurement spend and the commissioning services (such as home to school transport and the procurement of building and maintenance services) and investment choices. Essex anchor institutions employ huge numbers of people, have influenceable procurement spend of billions through direct and indirect supply chains and have environmental ambitions and priorities. ECC has a £1bn supply chain alone.

For example, Manchester City Council, working with CLES looking at their practices, went from the proportion of their top 300 suppliers having an environmental management plan in place from 7.5% from 2017/18 to 77.5% in 2018/2019[1].

The Commission urges the anchor institutions to lead in this area and support other organisations and businesses to make similar choices to maximise the benefits.

We recommend:

Longer term goals

- All ECC and anchor institutions to be retrofitted to net zero carbon by 2030
- 50 per cent of schools retrofitted to net zero by 2025
- 100 per cent of schools to be retrofitted to net zero by 2030

Quick wins/short term actions:

- All anchor institutions buildings to be retrofitted to net zero carbon by 2030
- 50 per cent of schools retrofitted to net zero by 2025 and 100 per cent by 2030
- Installing renewables on public sector buildings
- Development of action plans to reduce overheating risk in all schools, care homes, hospitals etc.
- Advanced smart meters into all ECC schools by 2021
- Optimise energy use in the public estate (25 per cent saving by 2025, 50 per cent by 2030).
- Leveraging government funding for decarbonisation, including the £1 billion Public Sector Decarbonisation Scheme

1 https://cles.org.uk/wp-content/uploads/2020/02/FINAL-WEB-Infographic-and-findings-2020.pdf

Solar panels at the Council's Freebournes Road building

Good practice already happening:

Energy efficient school buildings

Having identified a need for additional primary school places in Basildon, the Essex School Organisation Service worked with Berlesduna Academy Trust to build a new block of six classrooms at Merrylands Primary School in Laindon which are Energy Performance Certificate (EPC) A+ rated. Berlesduna appointed technical consultants Real8 (formed by former Council employees) and ran a procurement process. The developer 'Net Zero Buildings' was awarded the contract to design and deliver the school's expansion.

Including design and planning, the project took a year to complete. With the addition of the new classrooms, the school's capacity increased from 420 to 630 places. The school is expected to grow by 30 pupils per year for seven years from September 2020.

The same developer, Net Zero Buildings, was used by ECC at two other small schemes in Essex in 2020, both of which have now reached completion.

The School Organisation Service is now commissioning more pilot schemes for net zero carbon construction.

Solar power and community energy

Danbury Outdoor Centre and Danbury Park Community School in Chelmsford have gone solar with 70kW of solar energy generation capacity having been installed in autumn 2020. The solar panels were delivered by Essex County Council's Environment and Climate Action team as part of an EU-funded initiative called "**Empower**" (**E**nabling **M**ore **P**eople's **OW**nership in **E**nergy t**R**ansition). The installation will deliver 15 tonnes of carbon reductions in year one and over 375 tonnes of carbon reduction over the lifetime of the systems installed.

The solar installations are only the first step. Engagement with key members of the local community has started and community-based activities will make local residents aware of the benefits of renewable energy whilst allowing the community to take power and ownership in the shift to a decentralised and low carbon energy market.

Lobbying government

The climate crisis poses a systemic risk and requires a systemic response: internationally, nationally and locally. Essex County Council can play its part, recognising that it cannot tackle this challenge alone. The public sector can play a vital role, as an implementer, an enabler and an exemplar.

In addition to the recommendations we have provided above, we urge all Essex anchor institutions, business leaders, communities and residents to come together and lobby government and government agencies for action, funding and/or policy change on the following issues:

General

- All departments across Government to hold climate challenge as central to core ambitions and funding
- Government to champion and fund nature-based approaches

Homes and buildings

- Planning policy and building regulations: make net zero and climate resilient standards mandatory for all new homes and buildings
- MHCLG to amend building regulations to support net zero, climate resilient buildings
- Funding for retrofit to improve homes and resilience infrastructure, including offsetting for historic properties
- Re-establish a support service on adaptation for business. A national adaptation support service would be ideal; however this can also be established locally.

Transport

- Invest in active travel including long-term funding for upgrading and expanding cycle networks
- Stop fuel duty freeze and introduce 'polluter pays'

Energy and waste

- Funding for local authorities to deliver increased energy efficiency of the public estate and schools

Resilience to flooding and extreme weather

- Enable local government and the Environment Agency to deliver long term and resourced approach to engaging affected communities and stakeholders
- Apply more weighting to non-residential properties in the Flood Defence Grant partnership funding process for flood resilience to make it fairer

7. Summary of Commission meetings to date

The recommendations from the Commission meetings to date have been brought together in the sectors above and are included in full in Appendix 1.

This section details which Commissioners contributed to each meeting and how the meetings were structured. Audio recordings of all the Commission meetings to date are available on the **Commission website**.

Adapting to an Already Changing Climate

In the Commission meeting on 8 July 2020, Kathryn Brown, the Head of Adaptation at the Committee on Climate Change (CCC) Secretariat, delivered recommendations to the Essex Climate Action Commission, focusing on four areas:

- Coastal change
- Housing and urban areas
- Land use
- Business and finance

The full list of recommendations, as agreed by the Commission, is provided in the appendix to this report. In addition to being recommendations in their own right, the CCC recommendations are key inputs for areas to be considered by all Essex Climate Action Commission working groups during their work.

Transport

Our meeting on Transport took place on 8 September 2020.

The recommendations were developed by the Commissioners shown below, with the presentation to the Commission coordinated by Tracey Vickers, Essex County Council Head of Sustainable Transport:

- Catherine Cameron (Agulhas Applied Knowledge)
- Natalie Chapman (Freight Transport Association)
- Toddington Harper (Gridserve)
- Cllr Ivan Henderson (Essex County Council)
- John Lippe (Ford Motor Company)
- Cllr Robert Mitchell (Essex County Council)
- Jenny Wiggle (Living Streets)

The full list of recommendations for this working group is provided in Appendix 1.

Built Environment

Following an introduction from Graham Thomas, Head of Planning at ECC, the context and recommendations were discussed under three pillars, each led by a specialist Commissioner:

- New build and planning – Victoria Hills (The Royal Town Planning Institute)
- Retrofitting – Dr Laura Mansel-Thomas (Ingleton Wood)
- Influencing - Catherine Cameron (Agulhas Applied Knowledge)

Other Commissioners involved in preparing the proposals were:

- John Henry (Mid and South Essex NHS Foundation Trust)
- Jonathan Stephenson (Brentwood Borough Council)
- Dr Poone Yazdanpanah (Writtle University College)

The full list of recommendations for this working group is provided in Appendix 1.

8. Work to date and emerging priorities from other themes

Three working groups have been meeting to develop their proposals which will be presented to the full Commission over the next six months. Here is a summary of emerging themes.

Energy and Waste

The working group is looking at three key energy themes:

- Accelerating renewables
- Community energy
- Future energy scenarios, looking at future demand for and supply of energy and decarbonising the grid

Council officers, under the guidance of Commissioners, are working with Element Energy to develop a carbon baseline and a pathway to net zero for Essex[1], to be reported to the Climate Action Commission meeting on 1st December.

At our first meeting we looked at accelerating renewables. The discussion focused on solar energy which UK Power Networks identify as the renewable energy power source that will be most prevalent in Essex in 2050. Commissioners strongly support development of a “Local Area Energy Plan”, which sets out a pathway to accelerating renewables in Essex and decarbonising the power grid in the county.

Commissioners also support:

- The promoting of domestic solar schemes, encouraging the uptake of solar panels on rooves, and exploring the opportunities for domestic battery storage
- Renewables on public buildings and addressing energy efficiency in heritage buildings
- Undertaking innovation projects that attract new technologies such as solar roof tiles
- Utility scale solar, but with reservations about loss of arable farming land
- Community engagement. A creation of a “Citizen’s Assembly” has been discussed to engage residents in methods to promote and accelerate renewables

1 Element Energy, Built Environment Emissions Baseline and Pathways Review, Draft final report for ECC (unpublished)

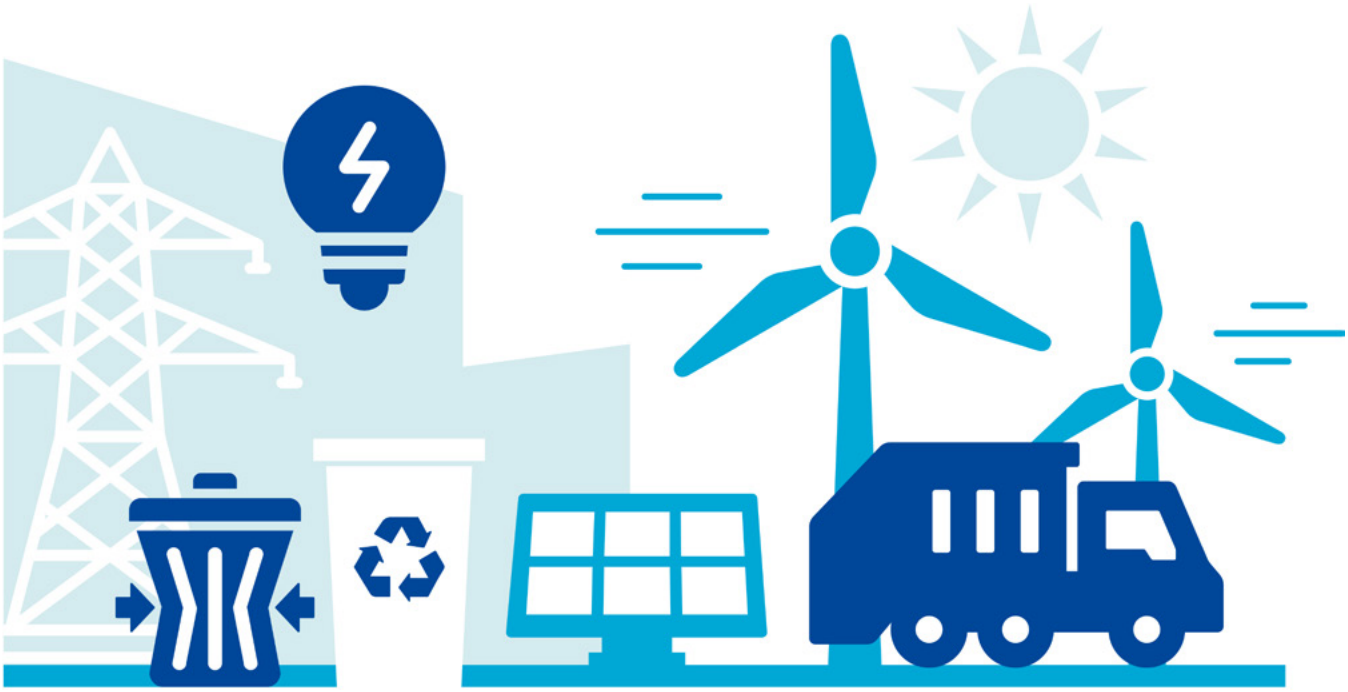
Turning to waste, the working group is exploring options across four main themes:

- Waste Prevention and Reuse
- Recycling
- Bio-waste
- Residual Waste Recovery and Disposal

Our first meeting on prevention and reuse took place on 6th October, investigating options to shift towards a more circular economy approach by tackling waste production within the local authority, commercial and industrial spheres.

The Energy and Waste working group comprises of the following Commissioners, supported by officers from Essex County Council, led by Tom Day, Head of Commercial Development.

- John Henry (Mid and South Essex NHS Foundation Trust)
- Prof. Jacqueline McGlade (UCL)
- Cllr. Robert Mitchell (Essex County Council)
- The Right Reverend Roger Morris (Church of England)
- Dr. Adam Read (Chartered Institution of Wastes Management and SUEZ Recycling & Recovery UK Ltd)
- Rob Wise (National Farmers Union)



Land Use and Green Infrastructure

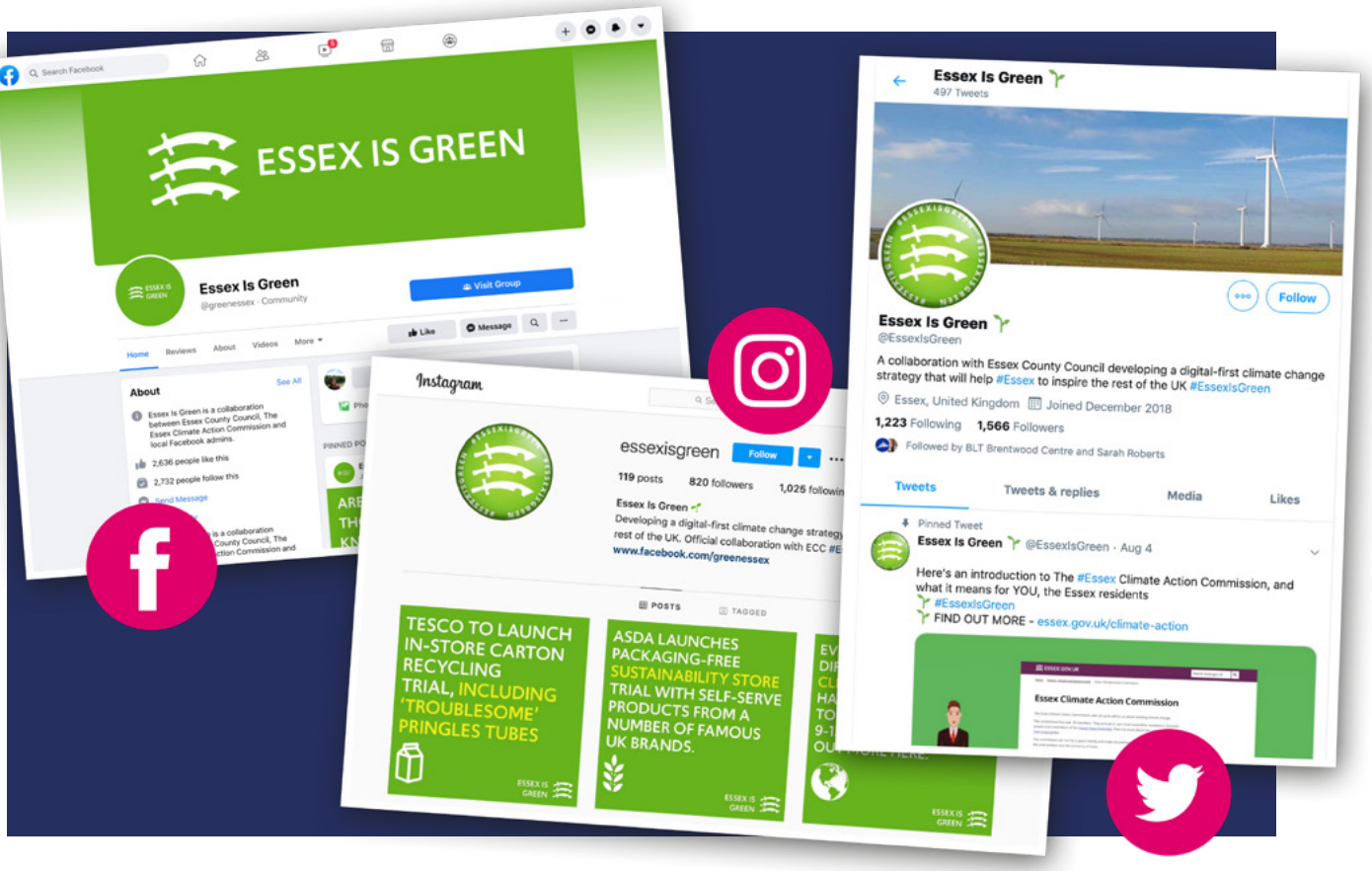
Following three successful meetings, the working group is developing proposals for the establishment of a Climate Action Focus Area (CAFA). The CAFA will incorporate urban, rural and coastal areas and cover up to 30 per cent of Essex's land area and is proposed to achieve net zero by 2030.

The CAFA may consider the following critical themes:

- Sustainable agricultural land stewardship practices including: regenerative agriculture, agro-forestry, organic farming, and climate friendly farming
- Circular bioeconomy
- Climate-friendly diets
- Forestry and trees
- Re-wilding
- Greenspace and habitat creation
- Bigger, better and more connected habitats
- Natural flood management
- Sustainable drainage systems
- Resilience to sea level rise
- Coastal access via the coast path
- Socio-economic benefits
- Benefits of the other working groups such as transport, built environment, energy, waste and community benefits.

The Land Use and Green Infrastructure working group comprises of the following Commissioners, supported by officers from Essex County Council, led by John Meehan, Head of Sustainability and Resilience.

- Heather Hilburn (Thames Estuary Partnership)
- Prof. Peter Hobson (Writtle University College)
- Dr Simon Lyster (Northumbrian Water Group)
- Prof. Jacqueline McGlade (UCL)
- Professor Jules Pretty (University of Essex)
- Jo Roberts (Wilderness Foundation)
- Prof. Graham Underwood (University of Essex)
- Rob Wise (National Farmers Union)



Community Engagement

Our penultimate meeting of the Commission's first year will review the progress that has been made through our communications and community engagement work via the 'Essex is Green' social media channels. Commissioners will recommend what more can and should be done to engage everybody in Essex to understand what they can do to mitigate greenhouse gas emissions, and adapt to climate change, taking action across all the core themes.

The Commission is encouraged and delighted to hear that in such a short period of time, from launch in July 2020 up to 5th October, the '*Essex is Green*' Facebook page has reached 2,352 followers. In the week ending 5th October the page achieved 8,600 post engagements, up 196% on the previous week.

The Community Engagement working group has the support of the following Commissioners:

- Catherine Cameron (Agulhas Applied Knowledge)
- Cllr Peter Davey
- Right Reverend Roger Morris (Church of England)
- Rob Pilley (BBC)
- Prajwal* (Young Essex Assembly)

*Full names not disclosed for safeguarding reasons

9. Evaluating the impact of our recommendations

Establishing a baseline

ECC has commissioned Element Energy to develop a greenhouse gas (GHG) emissions baseline for Essex to provide a starting point from where Essex can monitor its progress to net zero.

The model includes current and future energy demand and generation for the county to 2050 and reflects the socio-economic characteristics of Essex, planned new developments and the existing uptake of low carbon technologies in Essex. It includes forecasts for the following variables:


Domestic Housing Stock


Distributed Generation


Decarbonised Heating


Industrial and Commercial Floorspace


Electric Vehicles


Battery Storage


Energy Efficiency Measures


Air Conditioning


Flexibility

This data has then been used to calculate a GHG baseline and emission reduction pathway for the three key sectors examined in the Commission meetings so far:

- Domestic housing stock (both electricity and heating)
- Industrial and commercial floor space (both electricity and heating)
- Road Transport

The modelled energy consumption results have been converted to carbon emissions, and the results validated against sub-national fuel consumption and emissions datasets[1].

Energy consumption from domestic, commercial and industrial buildings, and road transport in Essex is estimated at **26,500 GWh (2019)**. This comes mostly from the consumption of petrol and diesel

1 BEIS, Sub-national total final energy consumption data (2020)

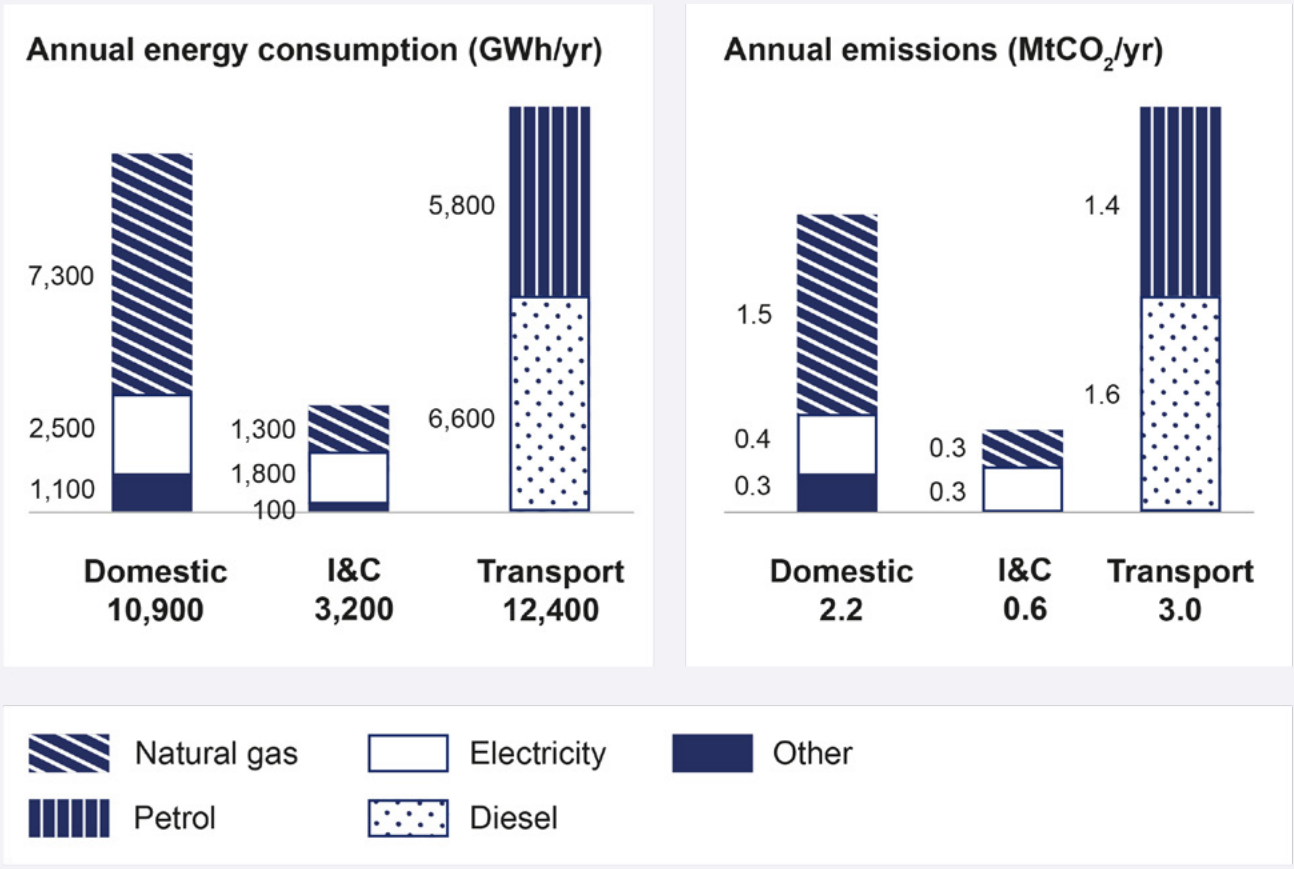
in the transport sector and natural gas in the heating sector, with the remainder from the use of electricity and heating oil in buildings.

This energy consumption converts to estimated GHG emissions of **5.8 $MtCO_2$/yr**. To put this into perspective, 5.8 $MtCO_2$ would be roughly equivalent to a long-haul passenger plane flying 796,000 times around the world.

The modelled energy consumption and carbon emissions are shown by sector in Figure 1:

Figure 1:

Energy consumption (left) and emissions (right) in Essex in 2019, broken down by sector: Domestic, Industrial & Commercial (I&C) and Road Transport.

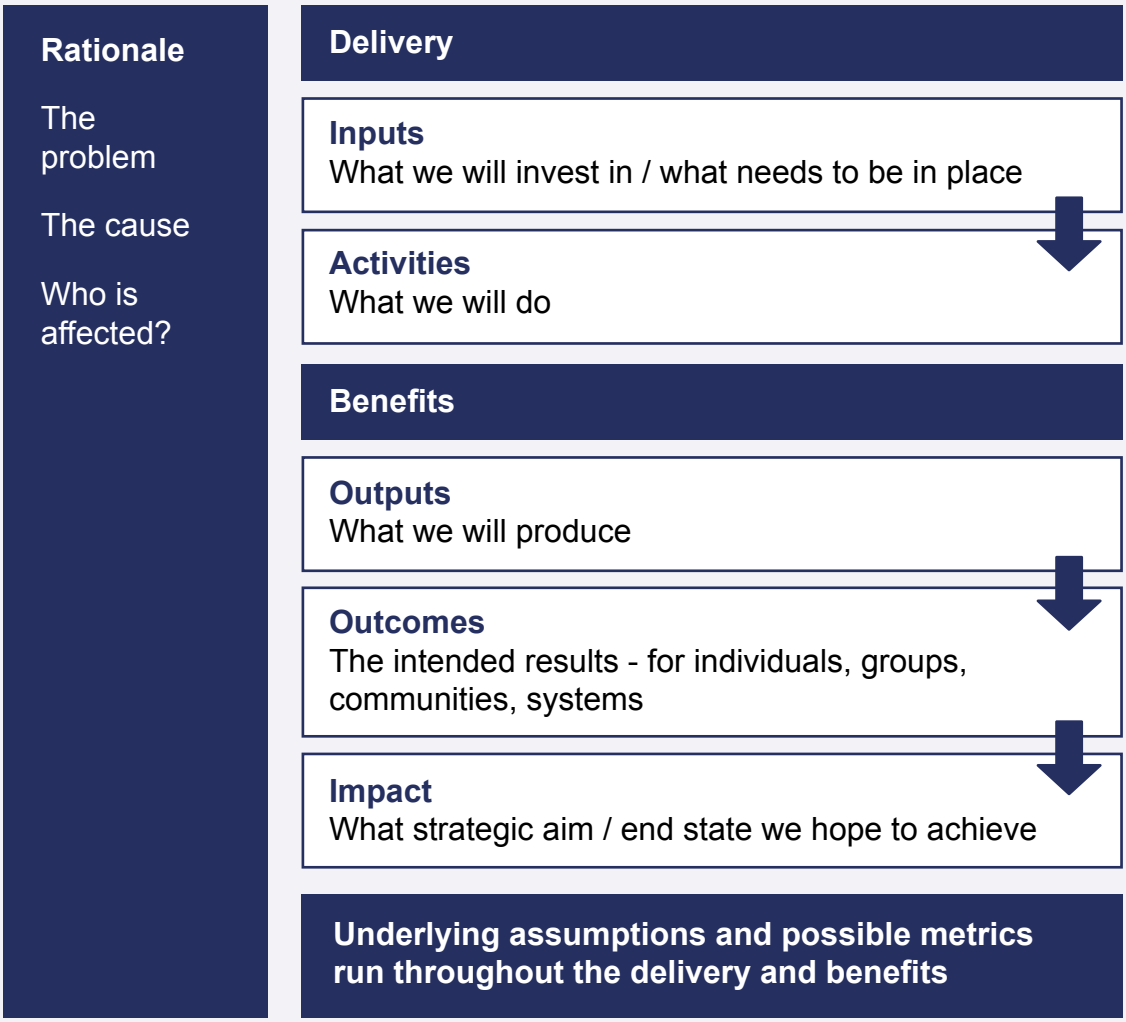


Evaluating the impact of the Commission's recommendations

Using this baseline, ECC is developing an evaluation framework to monitor and track the impact of the interventions coming from the Commission recommendations. Further work will be needed to assess the impact of the Commission's proposed recommendations on the baseline, assess which of those recommendations will have the most impact and understand the cumulative impact of the full set of final recommendations.

To understand the relationship between the recommendations of the Commission, the interventions designed to deliver those recommendations and the impact on GHG emissions, ECC will use a logic model. We support this approach, which will help set measurable targets, prioritise interventions and provide accountability for delivery of emissions reductions.

ECC's proposed logic model:



Using the data and evidence gathered by the Commission working groups to underpin each of their recommendations, the evaluation framework will define key performance indicators to measure the impacts of ECC's actions on GHG emissions. Progress for each recommendation will then be monitored using the emissions baseline.

Appendix 1: Recommendations Summary

Commission Meeting 2: Core discussion on adapting to an already changing climate - recommendations

- Stronger policy on sustainable urban drainage to ensure it is included as the default for new developments
  - Make green SuDS the default in all new developments (buildings and infrastructure) – this is set out in the NPPF but needs implementation
  - Automatic right to connect new developments to the sewer system should be made conditional on national SuDS standard being met
  - Clarify arrangements for who is adopting and maintaining SuDS
- Set goals for reversing the national decline in urban greenspace
  - Greenspace 'retrofit' programmes should be included in local plans.
  - Incorporate national green infrastructure from the 25 Year Environment Plan into local planning
- Include water efficiency measures in energy efficiency retrofit programmes
- Overheating risk needs integrating into local plans. Plans are also needed for care homes, hospitals, schools, prisons
- Ensure that adaptation (and mitigation) are integrated into the Environmental Land Management system
- Diversifying land use is likely to build in resilience. Diversifying agricultural land, afforestation, peatland restoration and catchment management have positive impacts on the condition of natural habitats and habitat creation.
- Resources are needed that explain local climate impacts and risks to land managers – e.g. regional risk assessments
- Support should be provided to help land managers transition to alternative land uses. This includes help with skills, training and information to implement new uses of land, and support with high up-front costs and long-term pay-backs of investing in alternative uses
- Encourage large businesses to disclose physical risks, using frameworks such as the Taskforce on Climate-related Financial Disclosure, or the Adaptation Reporting Power
- Local government and the Environment Agency need to be enabled by national

government to deliver a long-term and appropriately resourced approach to engaging affected communities and stakeholders

- Scale and implications of future coastal change should be acknowledged by those with responsibility for the coast and communicated to people who live on the coast
- Policy on the management of coastal flooding and erosion risk should specify long-term, evidence-based, quantified outcomes that have the buy-in of the affected communities and stakeholders
- Plans to manage and adapt specific shorelines over the coming century should be realistic and sustainable in economic, social and environmental terms
- ECC should re-establish a support service on adaptation for businesses

Commission Meeting 3: Core discussion on transport - recommendations

Increase active travel

- Introduce dedicated, well-planned cycling and walking routes across all urban and rural locations and to all railway stations.
- Upgrade and expand the National Cycle Network and integrate with existing local routes.
- Work with businesses to improve on-site facilities and develop routes.

Low Traffic Neighbourhoods (LTN)

- Introduce 10 LTNs across Essex by the end of 2021.
- Introduce 20 LTNs per annum from 2022 to 2030.

Walkable schools/school streets

- Introduce school streets for 25 schools by 2022, and an additional 20 per year to 2050.
- Promote safe and accessible public rights of way.
- Expand three Park and Ride and school zones projects.
- Improve cycling infrastructure.

Park and Ride/Stride/Pedal/Scoot

- Introduce three new subsidy-free Park and Choose sites by 2030.
- Embed micro-mobility solutions and EV charging points at all sites.
- Use Park and Ride as a stepping stone to public transport.
- Ringfence income for sustainable transport investment.

Rebuild passenger transport

- Publicly state commitment to, and funding for, bus recovery.

- Ringfence funding from car disincentives to invest in a good quality bus offer.
- Kickstart innovative solutions such as electric demand responsive transport with a clear pathway to commerciality.

Pilot e-scooters

- Introduce six e-scooter pilot schemes across the county by the end of 2020.
- Expand e-scooter and e-bikes schemes to new developments / Park and Ride.
- Explore rural options.

Discourage unnecessary car use

- Introduce emissions charging / parking charges in town centres.
- Introduce five workplace levy schemes.
- Reduce town centre / city centre parking.
- Explore car sharing options.
- Launch county-wide Car-Free Day.
- Explore car-free town centres.
- Ringfence income for sustainable transport.

Expanding charging network

- Develop detailed EV strategy.
- Expand charging network beyond UK national average, focusing particularly on rural locations.
- Explore options for electric vans.
- Electrify ECC fleet.

First / last mile delivery vehicles

- Introduce e-cargo bike pilots in five locations by 2022, leading to wider introduction through 2030.
- Explore other vehicle types e.g. robot, golf cart.
- Explore complementary solutions e.g. retiming delivery.

Introduce local delivery hubs

- Introduce 10 local delivery hubs by 2022.
- Wide adoption of local delivery hubs.

Behaviour change/education

- Underpins all other recommendations.
- Build behaviour change strategy and education campaign focusing on active travel, public transport and discouraging unnecessary car use.
- Recruit behaviour change expert.

Commission Meeting 4: Core discussion on built environment - recommendations

New build headline recommendations:

- All new schools commissioned to be carbon zero by 2022.
- All new homes consented to be carbon zero by 2025.
- All new commercial buildings to be carbon zero by 2025.
- All new schools commissioned to be carbon positive by 2030.
- All new homes and non-domestic buildings consented to be carbon positive by 2030.

New build key quick wins:

- Delivering 'walkable neighbourhoods' supplement to the Essex Design Guide (workshops to commence in 2020).
- The 'Climate Change Compendium', part of the Essex Design Guide (to be published in 2021).
- Creating 'Healthy Places' (target date 2021).
- Highways and Transportation Policy refresh (to be updated in 2021).
- Demonstrator project – "Energy Sector Alliance and Innovation Hub" (feasibility study to commence by 2021).
- Implement a 'Flood Resilience Levy' (commencing in 2022).
- Prioritising green procurement practices in the construction sector – (commencing in 2022).
- Essex Housing demonstrator project – delivering a net zero housing development (commence building by 2023).

Retrofit headline recommendations:

- Coastal flood resilience schemes in critical areas (to be implemented by 2023).
- 50 per cent of Essex schools to be retrofitted to net zero standards by 2025. 100 per cent by 2030.
- All Anchor Institutions and ECC estate assets to be retrofitted to net zero carbon standards by 2030.
- One third of commercial buildings to be retrofitted as far as possible with renewable energy systems by 2030.
- Two thirds all dwellings to be retrofitted as far as possible to net zero carbon standards by 2030.
- Existing residential building s- carbon emissions reduction of 50 per cent by 2030. Carbon Zero by 2040.

Retrofit key quick wins:

- Greening construction training for a zero-carbon future (commencing in 2021).
- Advanced smart meters installations in existing ECC schools (commencing in 2021).
- Optimise Energy Use in the Public Estate (25% saving by 2025, 50% by 2030).
- Maximise Government Funding.
- Actively promote energy efficiency advice for SMEs.
- Partnerships with businesses to improve green construction skills, building assessment/inspection, energy conservation/generation etc.

Influencing – key messages for government:

- All departments across government to hold climate challenge as central to core ambitions and funding.
- Net zero and climate resilient standards to be mandatory for all new developments in planning policy and building regulations.
- Funding for retrofit to improve homes and resilience infrastructure including carbon offsetting for historic properties.
- Nature based approaches to be championed and funded.
- Energy efficiency of the public estate and schools should be eligible for comprehensive retrofit funding.
- Weighting should be applied to non-residential buildings for flood resilience funding.

Influencing – key messages for businesses in Essex:

- Partnership with University and Built Environment specialists should be established.
- Development of “Climate Action Enterprise Zone” and green business opportunities to foster growth in energy sector manufacturing as a regional specialism.
- Establish the “Essex Construction Innovation Hub” and develop a centre of excellence.
- Support for Essex SMEs to invest in energy efficiency and renewables.
- Essex Developers Group- working group developing a Climate Change Charter and, Demonstrator projects.

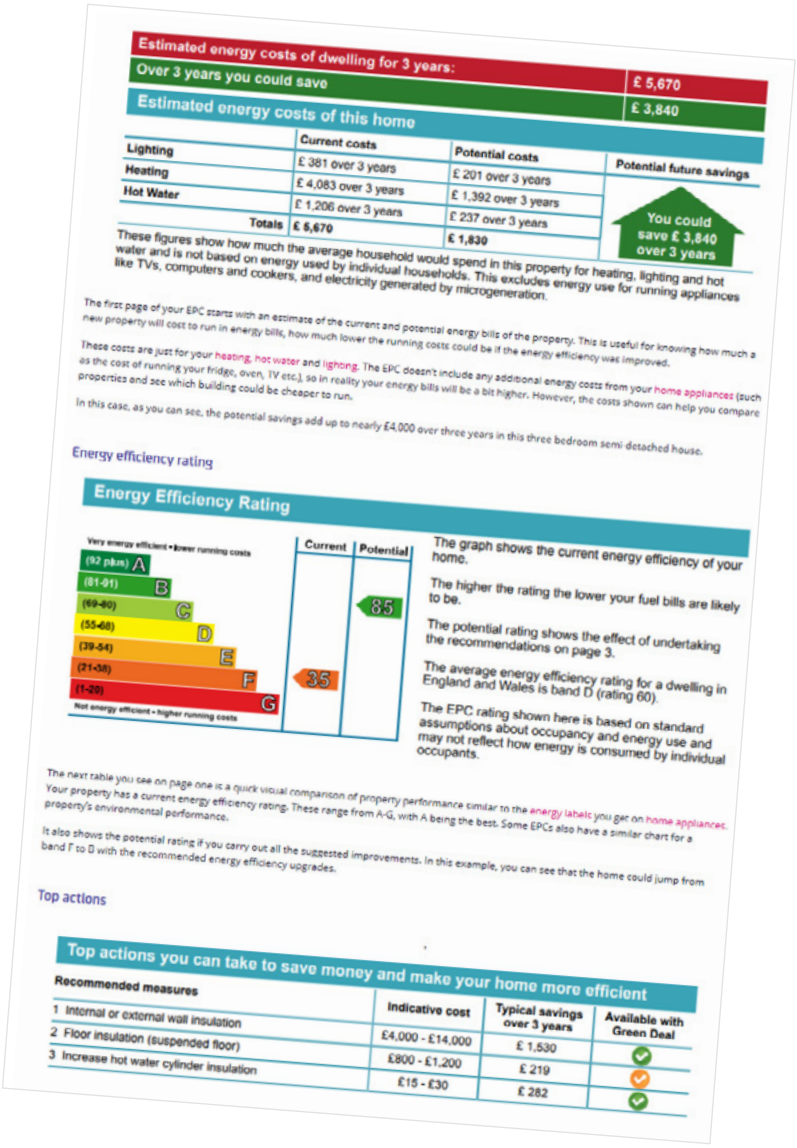
Influencing – key messages for Essex residents:

- Communications for residents detailing actions they can take on their own homes should be developed.
- Community action should be encouraged.

Appendix 2: Energy Performance Certificates

An Energy Performance Certificate (EPC) indicates the energy efficiency of a building.

The assessments are banded from A to G, where A (or A+ for non-domestic properties) is the most efficient in terms of likely fuel costs and carbon dioxide emissions (an example is shown on this page[1].) An EPC is required when a building is newly constructed, sold or let. The purpose of an EPC is to show prospective tenants or buyers the energy efficiency of the property. The requirement for EPCs was introduced in phases and fully implemented for domestic properties by autumn 2008. EPCs are valid for 10 years[2].



Estimated energy costs of dwelling for 3 years:	£ 5,670
Over 3 years you could save	£ 3,840

Estimated energy costs of this home

	Current costs	Potential costs	Potential future savings
Lighting	£ 381 over 3 years	£ 201 over 3 years	You could save £ 3,840 over 3 years
Heating	£ 4,083 over 3 years	£ 1,392 over 3 years	
Hot Water	£ 1,206 over 3 years	£ 237 over 3 years	
Totals	£ 5,670	£ 1,830	

These figures show how much the average household would spend in this property for heating, lighting and hot water and is not based on energy used by individual households. This excludes energy use for running appliances like TVs, computers and cookers, and electricity generated by microgeneration.

The first page of your EPC starts with an estimate of the current and potential energy bills of the property. This is useful for knowing how much a new property will cost to run in energy bills, how much lower the running costs could be if the energy efficiency was improved.

These costs are just for your heating, hot water and lighting. The EPC doesn't include any additional energy costs from your home appliances (such as the cost of running your fridge, oven, TV etc.), so in reality your energy bills will be a bit higher. However, the costs shown can help you compare properties and see which building could be cheaper to run.

In this case, as you can see, the potential savings add up to nearly £4,000 over three years in this three bedroom semi-detached house.

Energy efficiency rating

Energy Efficiency Rating

The graph shows the current energy efficiency of your home.

The higher the rating the lower your fuel bills are likely to be.

The potential rating shows the effect of undertaking the recommendations on page 3.

The average energy efficiency rating for a dwelling in England and Wales is band D (rating 60).

The EPC rating shown here is based on standard assumptions about occupancy and energy use and may not reflect how energy is consumed by individual occupants.

The next table you see on page one is a quick visual comparison of property performance similar to the energy labels you get on home appliances. Your property has a current energy efficiency rating. These range from A-G, with A being the best. Some EPCs also have a similar chart for a property's environmental performance.

It also shows the potential rating if you carry out all the suggested improvements. In this example, you can see that the home could jump from band F to D with the recommended energy efficiency upgrades.

Top actions

Top actions you can take to save money and make your home more efficient

Recommended measures	Indicative cost	Typical savings over 3 years	Available with Green Deal
1 Internal or external wall insulation	£4,000 - £14,000	£ 1,530	
2 Floor insulation (suspended floor)	£800 - £1,200	£ 219	
3 Increase hot water cylinder insulation	£15 - £30	£ 282	

1 Source – The Energy Saving Trust

2 Source - Ministry of Housing, Communities and Local Government: Energy Performance of Buildings Certificates Statistical Release: Q2 2020

Appendix 3: The eight key steps of the Community Engagement Model

1. **Needs identification** – identifying the societal needs and challenges faced by communities and then assessing whether those communities feel they have those same needs and challenges.

2. **Sentiment analysis** – Finding out what issue, idea or change is most important to the community. This can be around communities of interest or communities of place or communities of identity. Tracking trends around conversations and questions raised by the community and talking to people about what is most important to them.

3. **Community mapping** - Initiation of widespread mapping of existing community initiatives. Documenting initiatives which align with the needs and establishment of a centralised, shareable resource.

4. **Change maker alliance** – Identification of local "Change Makers" and their projects. Assign a contact key contact point to all interested individuals and establishing a community to curate and galvanise further networks of volunteers and future Change Makers.

5. **Blending and growth** - Review current initiatives for purpose and fit and align relevant projects with current Commission/Council climate action initiatives.

6. **Community lab** - Invite interested community Change Makers to be part of solutions focused, facilitated community lab discussions. Identify most viable projects, how they will be supported and funded, where required.

7. **Digital first** - Every project will be reviewed against a digital first framework. Support and training will be provided to raise awareness online about offline projects.

8. **Shared social mission** - A review protocol for funded projects, with data gathering to ensure the impact of the project is being achieved.

Report published: November 2020

Contact details:

Email: **Climate.Commission@essex.gov.uk**

Twitter: **@EssexisGreen**

Facebook: **www.facebook.com/greenessex**

Instagram: **www.instagram.com/essexisgreen**

This document has been prepared by officers of Essex County Council to provide technical assistance to the Essex Climate Action Commission. Accordingly, this document constitutes factual analysis of the issues under review by the Essex Climate Action Commission and should not be taken as constituting recommendations or opinions of the authors.