Essex County Council

Essex Climate Action Commission

14:00	Tuesday, 29 September 2020	Online Meeting

For information about the meeting please ask for:
David Claydon, Delivery Manager for the Essex Climate Action Commission
Telephone: 033301 36027
Email: climate.commission@essex.gov.uk

Membership (Quorum: 7, including the Chair):

Lord John Randall (Chairman)
Prajwal (Co-Chair)
Daniel (Co-Chair)
Cllr. James Abbott
Catherine Cameron
Mark Carroll
Natalie Chapman
Cllr. Peter Davey
Ian Davidson
Peta Denham
Toddington Harper
Cllr Ivan Henderson
John Henry
Heather Hilburn
Prof. P Hobson
Prof. Aled Jones
John Lippe
Cllr. Sue Lissimore
Dr Simon Lyster
Dr Laura Mansell-Thomas
Prof. Jacqueline McGlade
Cllr. Robert Mitchell
Right Revd. Roger Morris
Rob Pilley
Prof. Jules Pretty
Dr Adam Read
Jake Richards
Jo Roberts
Chloe Rose
Jonathan Stephenson
Cllr Anne Turrell
Prof. Graham Underwood
Cllr. Simon Walsh
Jenni Wiggle
Rob Wise
Dr Poone Yazdanpanah

Essex Climate Change Action Commission meeting information

Meetings will be audio recorded for public dissemination. Commission members should note that all discussions in the main Commission meetings will, unless by exception, to be agreed in advance by the Chair, be released into the public domain.

The Commission Meetings will be held virtually using Zoom. Please do not attend County Hall as no one connected with this meeting will be present.

If you have specific access requirements or a need for documents in large print, Braille, Easy Read or alternative languages, please contact the Secretariat of the Commission before the meeting takes place.

The agenda is also available on the Essex County Council website, www.essex.gov.uk From the Home Page, click on 'Running the council', then on 'How decisions are made', then 'council meetings calendar'. Finally, select the relevant committee from the calendar of meetings.

Secretariat to support the work of the Commission:
David Claydon, Delivery Manager for the Essex Climate Action Commission
Philip Oldershaw, Cabinet Adviser to Cllr Walsh, ECC Cabinet Member for Environment & Climate Change Action
Gemma Bint, Democratic Services Officer
Jo Boyd-Wallis, Senior Strategy Adviser

		Pages
1	**Welcome (14:00 - 14:05) - Lord Randall, Chairman**	
2	**Built Environment presentation from the Commissioners aligned to the Built Environment Special Interest Group (14:05 - 15:00)**	**4 - 27**
3	**Q&A and Discussion Session (15:00 - 15:30) - All** Commissioners will discuss the information provided in the previous session, seeking clarification via a question and answers session. During this session Commissioners will be invited to register their support for each recommendation using Slido. Full information will be provided in advance of the meeting. The Slido system will remain open until the recommendations are summarised at 15:40.	
4	**Communications Update (15:30 - 15:40) - Rob Pilley**	
5	**Recommendation Summary & Next Steps (15:40 - 15:50) - Lord Randall** This session will summarise the real-time feedback from Commissioners, using Slido, to provide Commissioners with a view of the prioritised list of Built Environment recommendations to be submitted for consideration by Essex County Council.	

6 **Meeting Close (15:50 - 16:00) - Lord Randall**

Provisional dates for subsequent Commission meetings are:

27/10/20	Interim Report meeting
01/12/20	Energy
20/01/21	Land Use & Green Infrastructure
09/02/21	Community Engagement
16/03/21	Year 1 Report

BUILT ENVIRONMENT SPECIAL INTEREST GROUP

BACKGROUND PAPER, 29th September 2020

Commissioners' presentation contents

- ❑ Introduction- climate change emergency (*Graham Thomas)*
- ❑ Essex – (*Graham Thomas)*
- ❑ *Victoria Hills* on New Build
- ❑ *Laura Mansel-Thomas* on Retrofitting
- ❑ *Catherine Cameron* on Influencing
- ❑ Draft Programme for Action, Questions and Next Steps (Matthew Thomas**)**

The Built Environment Special Interest Group is looking specifically at areas of change and influence on climate change affected by the Planning process and framework, and the actions of the County, public and private development sectors on carbon emissions, flooding, environmental quality as major impacts on the climate change emergency. This Note sets out the background to our approach where, as illustrated in the diagram below, our overriding focus is the improvement and creation of sustainable and healthy living environments rich in biodiversity, economically strong and 'beautiful' communities and energy efficient buildings. Dramatically improving climate outcomes are foremost in the role of community engagement and care for the environment.

The Built Environment SIG's work necessarily overlaps with the other Special Interest Groups on several recommendations with which there will be is a reinforcing collaboration, and emphasis both on short term publicly visible impacts and longer-term sustainable change towards achieving net zero carbon by 2050. Whatever our decisions over prioritising actions we know that the accumulated impacts of environmental damage cannot be easily reversed. Without significant commitment to a new way of living, brought home to us unexpectedly by the insidiousness of Covid-19, and a critical focus on interventions and approaches to reducing emissions, we will not maintain and improve our collective wellbeing - we must pedal without deviation on the Fast Track to Net Zero.

❑ INTRODUCTION

Climate change is now the greatest challenge facing our society. The scientific evidence of climate change is overwhelming, and the global impacts of climate change will be severe. It is often seen as a long-term challenge, but, as the latest IPCC (Intergovernmental Panel on Climate Change) report makes clear, the impacts are being experienced now, through unprecedented global trends and through more localised severe weather events. While climate change will have a lasting impact on people and wildlife, it will also define future economic progress. Only those places that can demonstrate climate resilience will be able to secure insurance and investment.

There is no fully agreed definition of net carbon and it is bound up in historic carbon inputs to buildings and places, carbon use in supply chains, operational impacts, construction, behaviours. However, we all understand the underlying intention and there is a range of metrics to measure carbon cost, mitigation measures and how to be more resilient to climate change.

What is 'net zero carbon'?

Climate Change Act 2008 (2050 Target Amendment) Order 2019, commits the UK to reaching net zero greenhouse gas emissions by 2050, the first major economy to do this. Net zero- achieving a balance between carbon emissions and carbon removal in part by carbon capture.

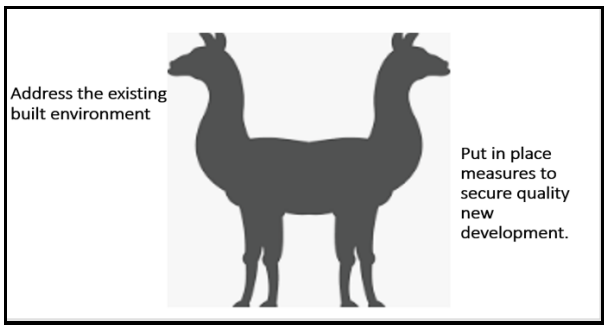
World Green Building Council:.

- A 'net zero carbon building' is highly energy efficient, fully powered from on-site and/or off-site renewable energy sources and offsets.

The UK Green Building Council define 'net zero carbon'
"When the carbon emissions associated with a building's embodied and operational impacts over the life of the building, including its disposal, are zero or negative."

(Note: Definition adopted by the DfE)

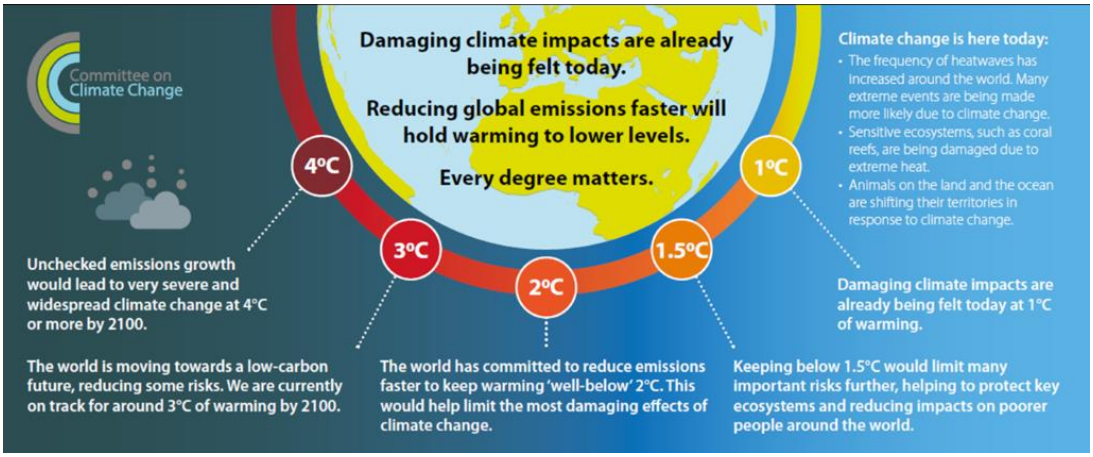
Despite Covid-19, climate change remains the greatest challenge facing society. The scientific evidence of climate change is overwhelming, and the global impacts of climate change are, and will be, severe without significant intervention. The challenge is long-term challenge, but the impacts are experienced now, and at the local level too we need to put in place measures to mitigate past effects and to address the future challenge.



While climate change will have a lasting impact on people, wildlife and the environment, it will also define future economic progress. Those places that can demonstrate climate resilience will be able to secure insurance and investment. Essex, with its predicted housing and economic growth poses challenge to the climate change emergency but, within the challenge, are clear opportunities for innovation, working with our three university institutions, in practical measures to address sustainable energy requirements. Our recommendations reflect this alongside (green) business support as a key plank in County priorities. Sustainable construction skills are an area that it is essential to promote, broaden and encourage greater uptake with underpinning and support through Government since without this the green energy and construction sectors cannot build, manufacture, market, operate, maintain and grow.

For example, this demonstration project at the Active Building centre in Swansea aims to develop functional coated steel and glass products that will transform the roofs and walls of buildings into surfaces that will generate, store and release energy – with huge applications for new commercial build.

In order to avoid the worst impacts of climate change, it is vital to secure climate stabilisation at less than a 2 C global temperature increase above pre-industrial levels (see diagram below from the Committee on Climate Change from the UN Paris Agreement on climate change. However, even if temperatures stabilise at or below the 1.5 target, there will still be significant impacts through severe weather incidents and sea level rise.



Essex Climate Emergency Declaration

Across Essex, more than half of districts and boroughs have declared a Climate Emergency, where urgent action needs to be taken on the causes, impacts and mitigation of climate change. The legally binding target of net-zero carbon by 2050, as amended, and the Heathrow 3rd runway decision, which considered that the proposal was illegal because climate change was not adequately considered, has further heightened a need to consider climate change strategically. Indeed, the letter from the Planning Inspector for the NEA part 1 plan (garden communities) requested a statement in relation to the submitted plan regarding the Heathrow decision. This emphasises the need to bring climate change to the forefront of local government strategy.

The UK is bound by several national and international policies relating to climate change including *The Climate Change Act 2008* which requires the UK to reduce its greenhouse gas emissions by at least 80%' compared with 1990 levels by 2050. However, in recognition of recommendations by the Committee on Climate Change, Parliament declared a 'Climate Emergency' in May 2019 and called on the Government to set a more demanding target. In June 2019, the Act was amended and committed the UK to achieving net zero carbon emissions by 2050.

Given this national and legal context, the Essex Climate Action Commission was set up in 2019 to identify ways of mitigating climate change, improve air quality, reduce waste and increase the amount of green infrastructure and biodiversity across the County. The Commission also aims to identify how Essex can attract investment in natural capital and low carbon growth. It had its first meeting on 12th May 2020, and brings together academics, politicians and business leaders.

As part of the Commission, five Special Interest Groups (Transport, The Built Environment, Energy & Waste, Land Use & Green Infrastructure, Community Engagement) have been tasked with exploring ways of how climate change can be mitigated and meet legally binding targets of net zero emissions within each of these specialist areas.

Nationally, the Committee on Climate Change in their latest report has stated that the Built Environment created 18% of emissions in the UK in 2019 and therefore that it currently contributes significantly to climate change. Thus, it is ever more apparent that it is vital that the Built Environment must embrace more innovative green, net-zero technologies to help mitigate and adapt to climate change.

In England, there are just under 24.5 million dwellings with over 642,000 of these in Essex as of 2019 (MHCLG 2020. With the current National Government's target of building 300,000 homes per year, the number of dwellings will ever increase nationally and in Essex. Furthermore, there are currently just under 2m non-domestic properties in the UK with just under 50,000 of these non-domestic properties found in Essex (MCHLG 2020). To help

mitigate climate change, each one of these properties and associated public realm will need to emit net-zero emissions as set by the legally binding targets by at least 2050. The scale of the changes required in the Built Environment, therefore, is evident.

The Built Environment Special Interest Group (SIG) focuses on the two broad areas of

- Retrofitting and ECC Public Estate
- New Build

To understand how in Essex the Built Environment could meet the legally binding target of net zero emissions and provide multiple coupled benefits such as better air quality, more attractive public realm with its associated health benefits, and increased biodiversity, this report, slide deck and the recommendations are focused

In the final report, the Retrofitting and ECC Public Estate section will make detailed recommendations as to how best existing built development and ECC owned public assets such as schools and council offices can meet net zero target emissions. The New Build section addresses how any future new development can incorporate measures to meet net zero target emissions recognising that any new built development that does NOT meet net-zero standards adds to the scale of the challenge of ensuring that all of the built environment in Essex is net zero by at the latest 2050. Overlaying these concerns is the role of INFLUENCE, influence particularly of central government in terms of funding and mandatory standards, but also other local district authorities and public sector partnerships.

<u>The Built Environment Special Interest Groups</u>

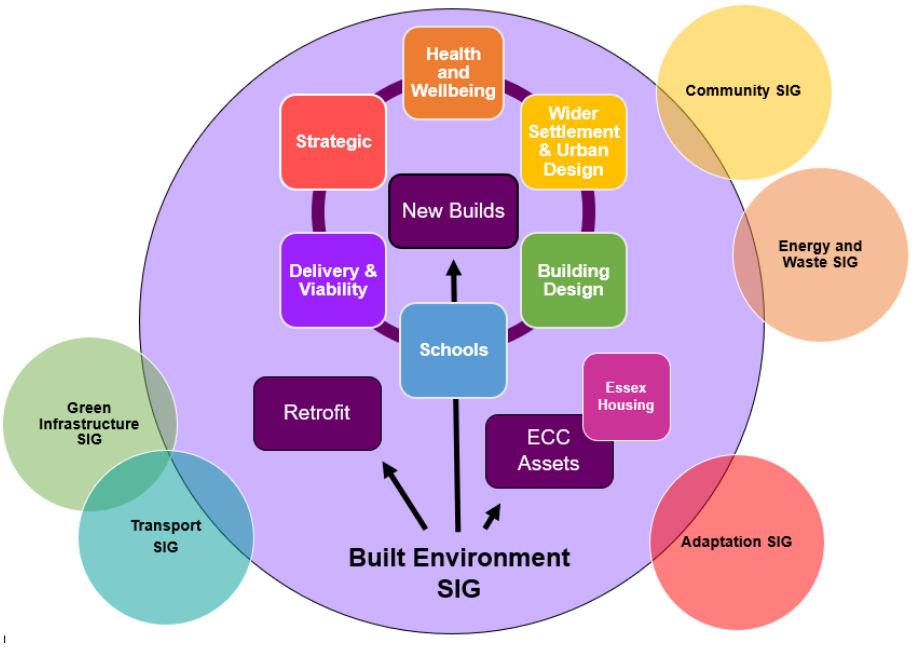
The Built Environment (BE) Special Interest Group (SIG), a working sub-group of the two-year Essex Climate Change Commission, aiming to produce an Essex Climate Strategy for March 2021, will make an interim presentation to all Commissioners on 29th September 2020. It is important that the views of partners are sought and considered in this huge task. The County is keen to explore how best we can work together and to devise an action plan, and specifically how we can use the planning system to help bring about real change.

The strategic key areas of change are summarised in the diagram below where the purple boxes highlight areas of interest pursued by the BE SIG:

i. Retrofit to achieve new (domestic and commercial) -*Building standards / low carbon /zero carbon;*
ii. *ECC and public sector estate including schools – new build and retrofit (Essex Housing approach);*

iii. *Planning new development of residential, industrial, commercial, planning, garden communities, urban landscape, and new technologies having regard to the objective of net zero carbon building standards and the growth of the green economy and jobs*

Built Environment SIG and Sub-groups



The SIG presentation dates are:

- Green Infrastructure - 12th January 2021
- Energy and waste - 27th October 2020
- Adaptation to climate change – 7th July 2020
- Transport and Infrastructure - 8th September (TBC)
- Built Environment 29th September 2020
- Community Engagement. (TBC)

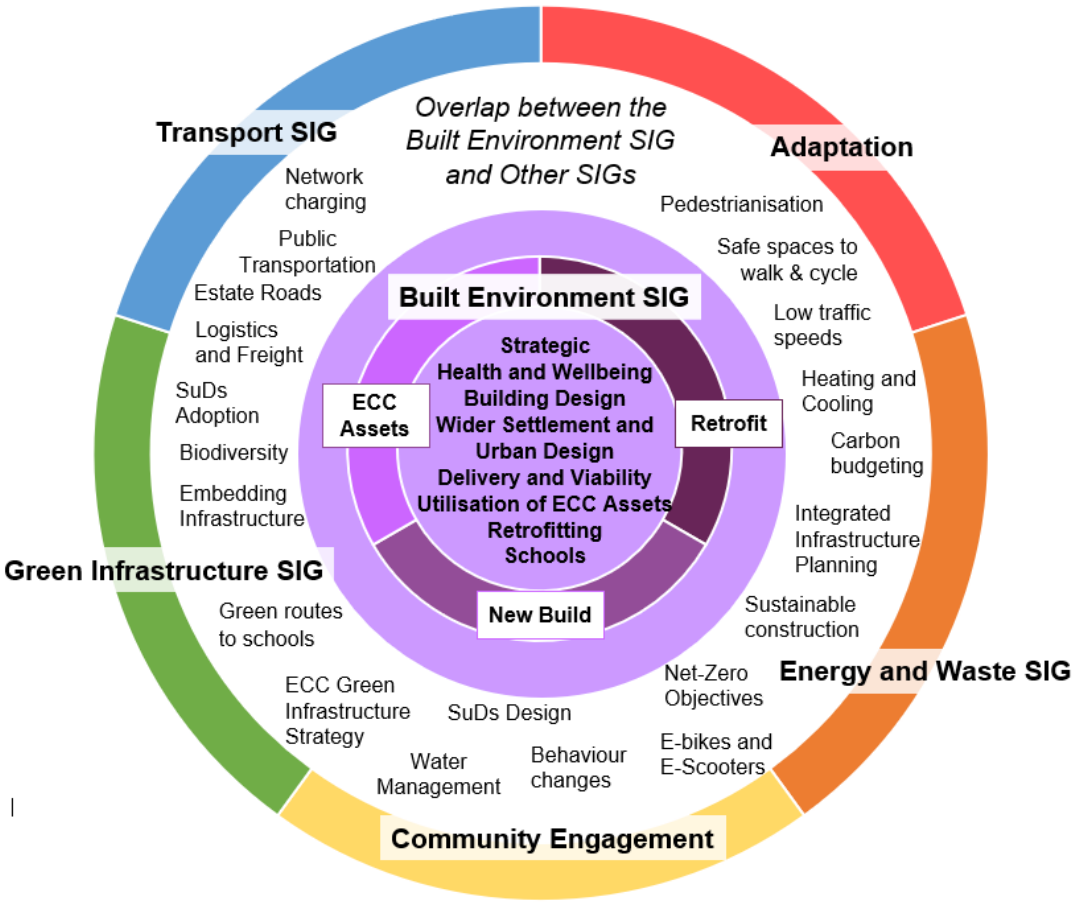
The AIM of the Built Environment SIG presentation to the Climate Change Commissioners is to explore:

- key issues and topics, existing evidence, so that a well-informed discussion provides a baseline
- a range of mitigations and proactive initiatives in the form of around 40 principal recommendations in key areas such as the economy, schools, health, retrofitting, flood resilience and new buildings
- how we influence, collaborate and engage with Government, District councils, the public sector organisations and communities to achieve our aim of net-zero by 2050

The Built Environment SIG aims are:

1. To act as the liaison, point with Climate Change Commission and administration on all matters related to the Built Environment
2. To steer, co-ordinate and review the work of the subgroups: – agreed focus on the new build component of built environment but will help coordinate ECC estate work and retrofit and the overall retrofit approach within the overall BE report.
3. To explore best practice for the integration of carbon reduction approaches in new settlements. Initial research into local plans across the country such as London and relevant reports and evidence – a library and research log are set up as a summary of good practice.
4. To establish partnerships with key stakeholders including the NHS, Government bodies, district and borough councils and utility companies as appropriate to provide a platform for knowledge transfer and dissemination on climate and sustainability matters, and the County's role in this such as the Building Research Establishment (BRE). This will be taken forward under the umbrella of the ECC Climate Commission. It is retained in recommendations for September report. Contact has been made with districts and boroughs which have expressed an interest and senior planning officers from 3-4 districts attend meetings.
5. To liaise with EPOA and Planning Portfolio Holders Group on all these matters and to identify further key and relevant officers and interested parties in the districts and/or elsewhere to facilitate working groups in this respect.
6. To provide summary briefing reports, risk register and updates to the Climate Change Commission as required.
7. The present recommendations to the Climate Change Commission on the Built Environment and sub-groups.
8. To utilise the planning system to maximum effect by embedding climate change in local plan-making, planning policy and the negotiations and decisions of planning officers, both policy makers and development managers, as well as portfolio holders or other key Members are the key to effecting real change in the environment. Planners are perfectly placed to undertake the task and the early stage at which several of the local plans across Essex have reached reflects a useful coincidence of timing.

It is recognised that with the breadth of scope there will be overlap with other SIGs:



- ❑ **Scope of ISSUES** we are addressing and refining in the recommendations as we move to the final report next spring**.**

- Defining carbon net zero for new build
- Scale of retrofit challenge
- Perceived cost v benefit of low carbon technology
- Availability of low carbon technologies produced locally- business support, innovation, skills
- Specifying and enforcing sustainability standards above building regulations
- Embedding higher standards in planning policy including ongoing monitoring of implementation, operation and performance
- Developers' perceptions of market acceptability of low carbon domestic utilities and perception of higher initial costs
- Inadequate knowledge and skills within planning and as standard increase within building control departments
- Public attitudes to running costs, convenience, trust in newer forms of energy
- *Planning for the Future* White paper and NPPF requirements

- Incorporating as mandatory in new build development proposals the principles in the Healthy Homes Bill and TCPA garden community principles and lobbying Government for legislating for the Bill
- Integrating principles with sustainable Transport Walkable neighbourhoods and revising the County highways parking, capacity and access standards to permit this
- Developers' assessment of viability – build costs, time, profit margin, enforceability
- Member support and understanding of net zero
- Central Government commitment to green recovery, flexibilities and ongoing provision and eligibility of grants/loans/fiscal support
- Government funding for widespread retrofit programme for all buildings but particularly for residential and commercial buildings

❑ THE ESSEX CONTEXT

The Map below illustrates where the anticipated growth will be located. From 800,000 existing homes and 550 schools, around 180,000 homes and 15-20 schools will be required by 2036.

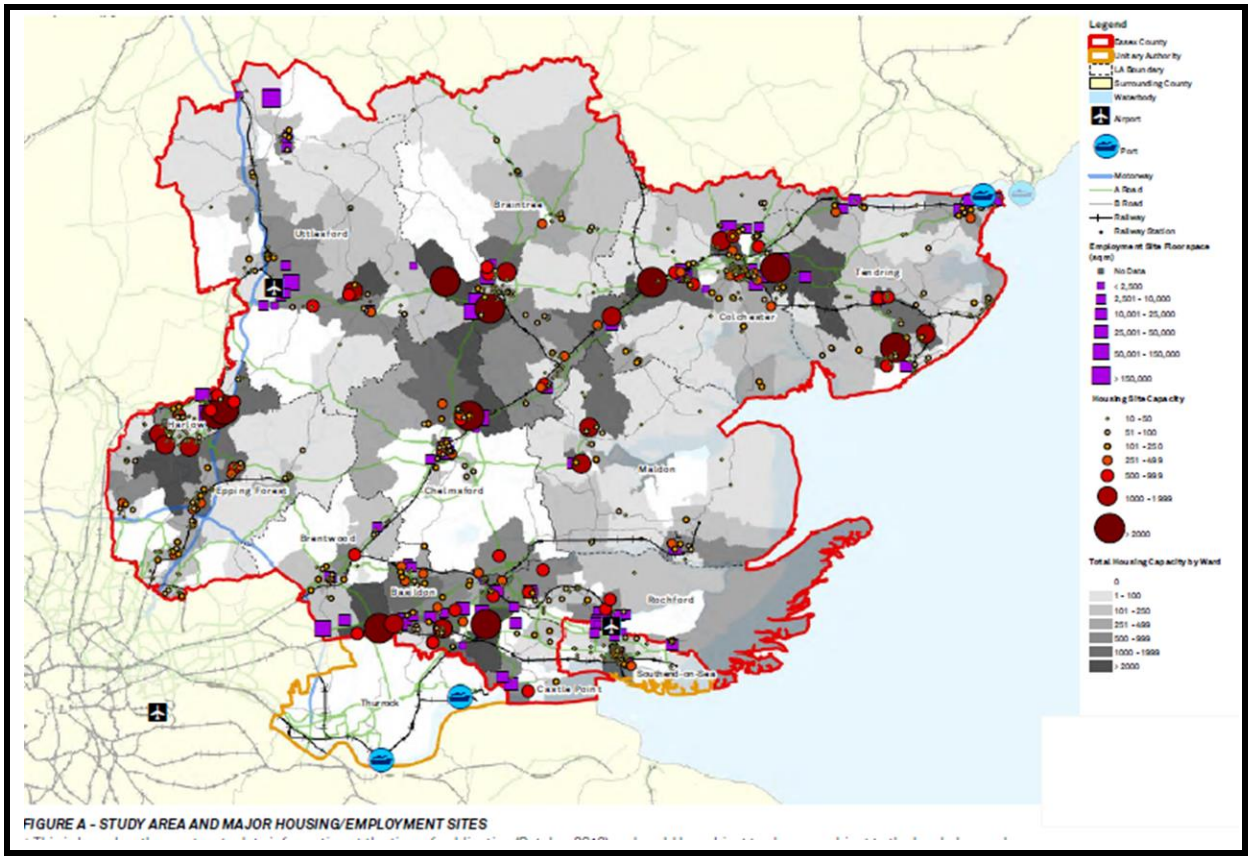
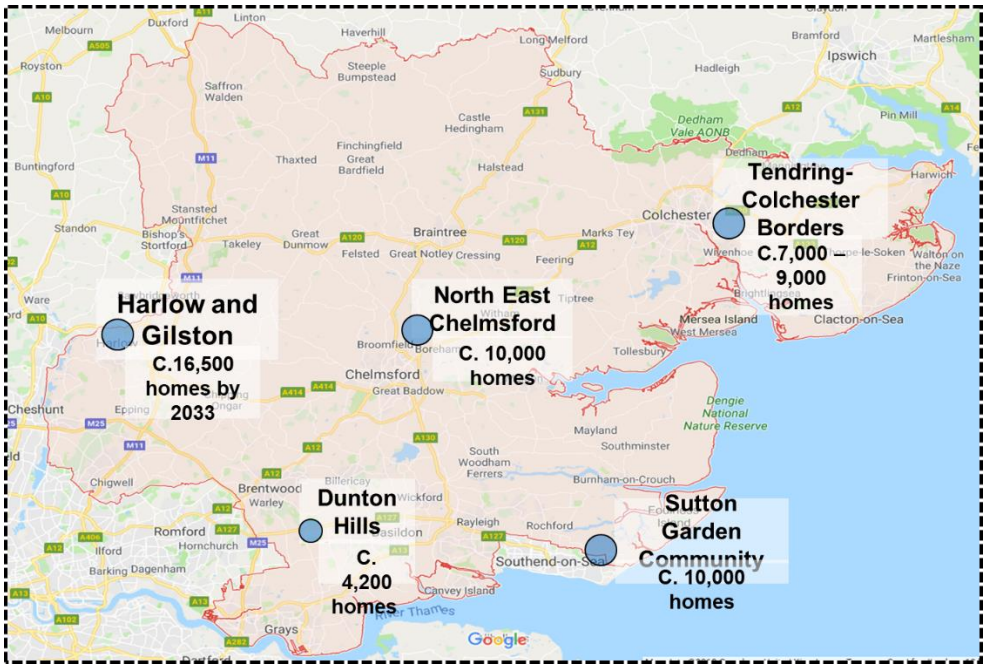


FIGURE A - STUDY AREA AND MAJOR HOUSING/EMPLOYMENT SITES

Some of this growth will be absorbed into the proposed garden communities shown below:



Location of proposed garden communities

❑ NEW BUILD AND THE INFLUENCE OF PLANNING

Although Climate Change is undoubtedly one of our greatest challenges, we have a range of legislative, practical and influential tools to respond effectively. The Planning system is one of the most effective and indeed the guiding instrument in the creation of new communities, green spaces and buildings. Furthermore, at local Government level it is one of the few statutory processes along with the ability to raise revenue over which a council has direct control. Without planning consent or its equivalent that is granted in accordance with adopted policies, there is no building and the overall control of the content, form and aesthetics of new build lies with planning policies. Hence the importance in these recommendations of support for the planning process and, where possible, its mandatory requirements to achieve climate change goals that are the framework which guides developers and development proposals. Along with planning as one of the most powerful tools and the critical path in the development process, there are other factors which are collaborating in our combat of climate change:

1. The ambition to collaborate and respond to climate change is active, debated and at the forefront across the built environment sector with many local authorities declaring a climate change emergency and stakeholders acknowledging if not actively embracing its issues.
2. Emerging technologies are enhancing our potential to respond and as mentioned above, generating economic growth and jobs in the process.

3. Longevity and strength of planning legislation and policy at our disposal. Planning can shape new and existing developments in ways that reduce carbon dioxide emissions and positively build community resilience to problems such as extreme heat or flood risk. Combined with building regulations and proposed amendments as within the *Future Homes* standards, action on climate change can be both mandatory and a driver for economic renewal and for new models of community energy ownership.

The revised National Planning Policy Framework (NPPF), *Planning for Climate Change*, has four characteristics:

- NPPF retains the key link between planning policy and the provisions of the Climate Change Act 2008. As such all local plans must set a carbon dioxide emissions reduction target and lay out clear ways of measuring progress on carbon dioxide emissions reduction.
- Guidance for viability testing has been re-balanced, creating more opportunity for policy that might address climate change.
- There is still some confusion about the scope of planning authorities to set ambitious targets beyond the Building Regulations on energy efficiency.
- Local plans can adopt requirements for on-site renewable energy generation.

The revised NPPF retains the key link between planning policy and the provisions of the Climate Change Act 2008. This means all local plans must set a carbon dioxide emissions reduction target and set out clear ways of measuring progress on carbon dioxide emissions reduction.

Can a local planning authority set higher energy performance standards than the building regulations in their local plan?

In early 2015 the Housing Standards Review reported, and Government announced, the withdrawal of the Code for Sustainable Homes, except for legacy projects. As a result, several changes to existing Building Regulations were introduced, along with new technical optional standards on Access, Water and Space. At the time, the policy for all new homes to be 'zero carbon' from 2016 was still in place (despite unresolved issues as to exactly what that entailed).

Going beyond Building Regulations

In a Written Ministerial Statement (WMS) in March 2015, Government stated that 'local planning authorities...should not set...any additional local technical standards or requirements relating to the construction, internal layout or performance of new dwellings.'

The exception was energy performance, where the WMS said that LAs would continue to be able to require energy performance standards higher than Building Regulations up to the equivalent of Code for Sustainable Homes Level 4 'until commencement of amendments to the Planning and Energy Act 2008'. The amendments in question would have removed the ability of LAs to require energy performance standards for new homes that are higher than Building Regulations. *However, significantly it was never enacted, and LPAs can set standards above the building regulatory minimum*.

As such it is possible for LPAs to deliver through planning policy a 19% reduction in carbon dioxide emissions above the regulatory minimum, provided there is an evidence base to support viability, etc. There are no limits on standards across the non-domestic sector (schools, healthcare, retail, industrial offices, etc.). This 19% energy improvement standard (equivalent to Code for Sustainable Homes level 4) has been adopted by several authorities including Ipswich, Havant and Cambridge City. Milton Keynes Council is aiming for a 19 % improvement on the target emissions rate (regulatory minimum), plus a 20% Merton-type rule on top for renewables.

LPAs can therefore set standards above the building regulatory minimum. A 19% reduction in carbon dioxide emissions on the regulatory minimum is considered a sound 'standard' for LPAs to aim for (provided there is an evidence base to support viability, etc.). All these policies apply to new dwellings only. There are no limits on standards across the non-domestic sector (schools, healthcare, retail, industrial offices, etc.)

"*Economically viable*": A 19% improvement beyond Part L 2013 can be achieved entirely through energy efficiency measures (enhanced insulation, glazing, airtightness and high efficiency heating and hot water heat recovery). This might cost between £2-3,000 for a mid or end terraced home, up to £5-6,000 for a detached house. For those building to the Part L 2013 notional specification it is possible to achieve a 19% improvement using photovoltaics (PV) or other renewables. A terraced house would need around 0.8 kWp of PV with a detached house needing perhaps 1.2 kWp (depending on floor area). The capital costs of adopting a renewables-based strategy are likely to be c.£1,500-£2,000 per home."

Climate Change Act 2008 and Planning and Compulsory Purchase Act 2004 (amended 2008)

The Council has a duty under Section 19(1)(a) of the 2004 Planning and Compulsory Purchase Act (as amended by the 2008 Planning Act) to ensure that, taken as a whole, local plan policy is designed to secure that the development and use of land in its administrative area contributes to the mitigation of, and adaptation to, climate change. More widely, a net zero emissions target for 2050 is now UK law under the Climate Change Act 2008 (2050 Target Amendment) Order 2019. The reference point for this target is at least 100% below 1990 emission levels.

The Climate Change Act 2008 introduced a statutory target of reducing carbon dioxide emissions to at least 80% below 1990 levels by 2050, with interim targets, set through five-yearly carbon budgets, of 37% by 2020, 51% by 2025 and 57% by 2030. The Act also created a framework for climate change adaptation.

This powerful outcome-focused duty on local planning clearly signals the priority to be given to climate change in plan-making. In discharging this duty, local authorities should ensure that policies and decisions are in line with the objectives and provisions of the Climate Change Act 2008 Section 1 and support the National Adaptation Programme. For the sake of clarity, this means that local plans should be able to demonstrate how policy contributes to the Climate Change Act target regime, and this, in turn, means understanding both the baseline carbon dioxide emissions and then the actions needed to reduce emissions over time – which, in turn, means that annual monitoring reports should contain ongoing assessments of carbon performance against the Climate Change Act target.

The Section 19 duty is more powerful in decision-making than the status of the NPPF, which is guidance, not statute. Where local plan policy which complies with the duty is challenged by objectors or a planning inspector on the grounds, for example, of viability, they must make clear how the plan would comply with the duty if the policy were to be removed. Whatever new policy may emerge, compliance with the legal duty on mitigation must logically mean compliance with the provisions of the regime of the Climate Change Act.

The Government White Paper, *Planning for the Future* (PftF) August 2020 heralds radical reform to the planning system and particularly to the way we prepare local plans. One of the many suggestions to help streamline the process and decision-making is for applicants to agree to a design principles to achieve 'Beauty'. Where proposals comply with pre-established good design principles, they would be expedited through the planning process in an effort to incentivise attractive development. However, for the Commission it is opportune to recommend back to Government, as part of the consultation process, that a similar approach be adopted for Net Zero Carbon. This would help to ensure proposals were on the path to net zero from the beginning and at the same time ease the assessment workload for planning authorities.

❑ RETROFIT ISSUES - HOUSING

Existing housing stock as a contributor to climate change

The UK Committee on Climate Change has stated that the Government's legally binding climate change targets will not be met without the near-complete elimination of greenhouse gas emissions from the country's buildings. Elsewhere, Government-commissioned evidence suggests that the UK's housing stock account for 14% of its total emissions. Both these facts

make it clear that the ongoing impact of Essex's housing stock on climate change needs to be addressed through the Essex Climate Change Commission.

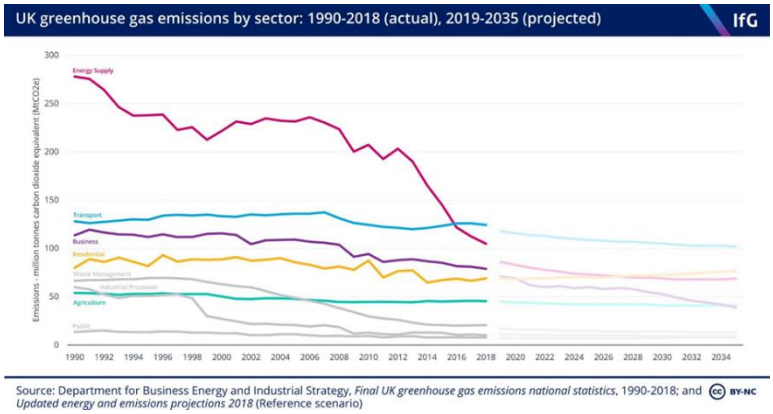
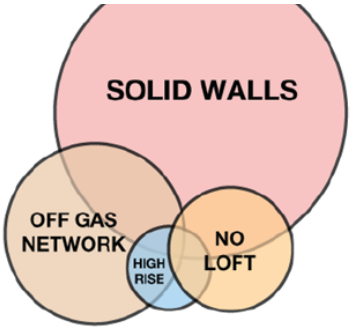


Figure 1: The UK residential sector (yellow line) is forecast to be a continuing contributor to greenhouse gas emissions (source: IfG and BEIS, 2019).

The main practical issues are thermal performance of the existing UK housing stock, the main fabric efficiency incentive schemes and the barriers to obtaining significant energy and CO_2 savings throughout the stock. The UK faces a major challenge to improve the thermal performance of its existing housing stock. Millions of dwellings possess 'hard-to-treat' solid walls and have glazing which is not cost effective to improve. A range of fabric efficiency incentive schemes exist, but many do not target the full range of private and social housing. We are setting an ambitious target nonetheless because of the huge impact on carbon storage and high level of thermal inefficiency the sector represents; widespread, funded, community engagement and collaboration with land and property owners is essential; and moreover this will help to address the climate change inequalities where the poorest and most deprived neighborhoods have the poorer quality building and more expensive heating bills. The following diagrams illustrate some of the issues associated with retrofit.

Thermal Efficiency of Existing Building Stock

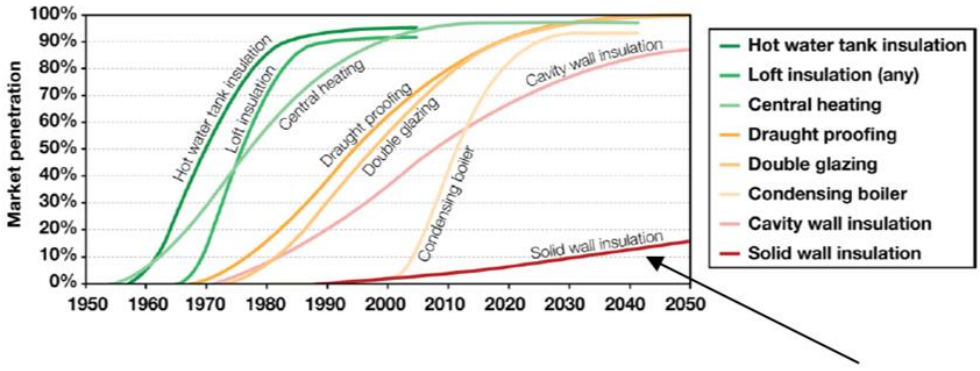
Issues around hard-to-treat stock and barriers to retrofitting are reflected below in practical problems but also arising from perceived cost savings over a long time period. Critically there is insufficient capacity in the building sector to cope with demand, a factor we have also identified in our own work and have made recommendations around skills training accordingly.



	England	Scotland	Wales	N. Ireland	All UK
Total dwellings	21m	2.3m	1.3m	0.7m	25.3m
Solid wall homes	6.5m	0.7m	0.2m	0.1m	7.5m
Homes with no loft	1.5m	unknown	unknown	unknown	~2m
High rise dwellings	0.4m	0.5m	unknown	unknown	~1.5m
Homes of the gas grid	2.7m	0.3m	0.2m	0.5m	3.7m
Total hard-to-treat	9m	0.7m	0.3m	0.5m	10.3m

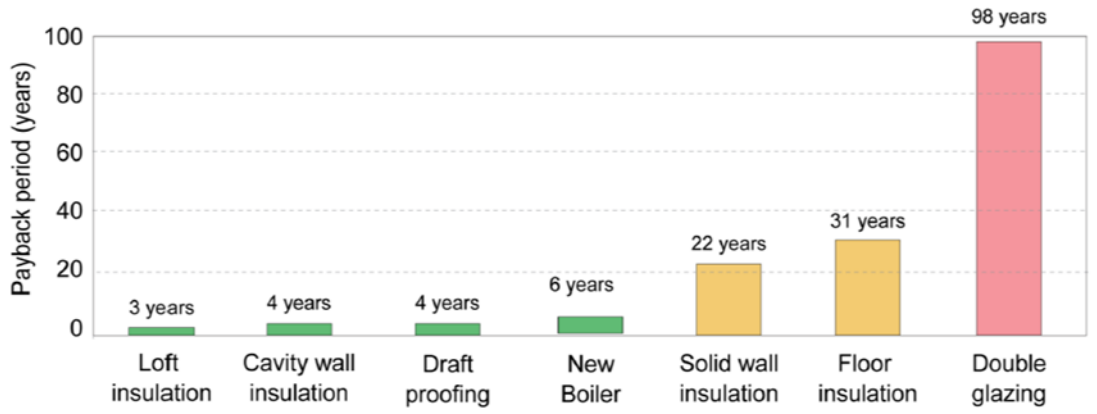
BRE. 2008. *A study of hard-to-treat homes using the English house condition survey*, Part 1 – dwelling and household characteristics of hard-to-treat homes

- Industry does not have the capacity to retrofit all solid walled homes by 2050
  - ~180,000 installations/year required to retrofit all 6.6 million by 2050
  - EEPH estimate the industries maximum capacity is 15,000-20,000 installations/year
  - Capacity (and expertise) must increase 10 fold.



Energy efficient partnership for housing 2008. *The insulation industry, working in partnership with government to insulate the existing housing stock by 2050*

- Investors will want to target low hanging fruit
- Lack of incentives for measures with long paybacks



Shorrock L, Henderson J and Utley J. 2005. *Reducing carbon emissions from the UK housing stock*, raw statistics available online

The UK Committee on Climate Change claims that recent efforts to adapt the UK's existing housing stock to the impacts of the changing climate are lagging far behind what is needed. Nationally, around 4.5m homes overheat, even in cool summers; 1.8 million people live in areas at significant risk of flooding; and average UK water consumption is higher than in many other European countries. The Committee has stated that cost-effective measures to adapt the UK housing stock are not being rolled-out at anywhere near the required level to have a meaningful impact on climate change mitigation.

The committee cites an issue with the current system of planning and building regulations 'failing' to drive the scale and pace of change. Their recent report, *UK Housing: Fit for the future?* , states that home insulation installations have stalled; key policies, like the 'zero carbon homes' scheme have been abandoned and policies to encourage property-level flood protection, water efficiency devices and window shading are weak or non-existent; UK building standards are inadequate, overly complex and not enforced; and local authorities, faced with insufficient resources, are largely failing to address the need for low-emission, climate change resilient homes.

This is harsh criticism of the delivery of the planning process in failing to meet some of its basic and fundamental aims around improving the safety, comfort, health and quality of life of individuals and creating sustainable communities. However, as set out earlier in the Paper the planning system relies on local plans being up to date with effective enforceable

policies, and policies that have been through the examination process and found to be reasonable by the Inspector. Clearly the local authority must submit effective and net zero policies for examination in the first place, but these must be within what is permissible. There is some optimism however as most of the authorities have committed to addressing climate change in their municipal functions and through prospective updating local plans and policy applications as far as they are able – lobbying Government for additional stretch in climate change targets is another key recommendation.

Retrofit in the County

Despite Essex's relative prosperity it is also has some of the most deprived areas in the south east of the country, and often these are in the areas most vulnerable to flooding as the maps below illustrate. Housing here tends to be of lower quality with poor energy efficiency performance and consequent higher heating and lighting costs perpetuating wealth inequality. Existing evidence suggests areas of high relative deprivation correlate with low EPC (Energy Performance Certificate) levels in the south and east of Essex, clear areas of focus for future initiatives. Targeting poorer households with less means to make home improvements will be an essential element in the domestic retrofit programme.

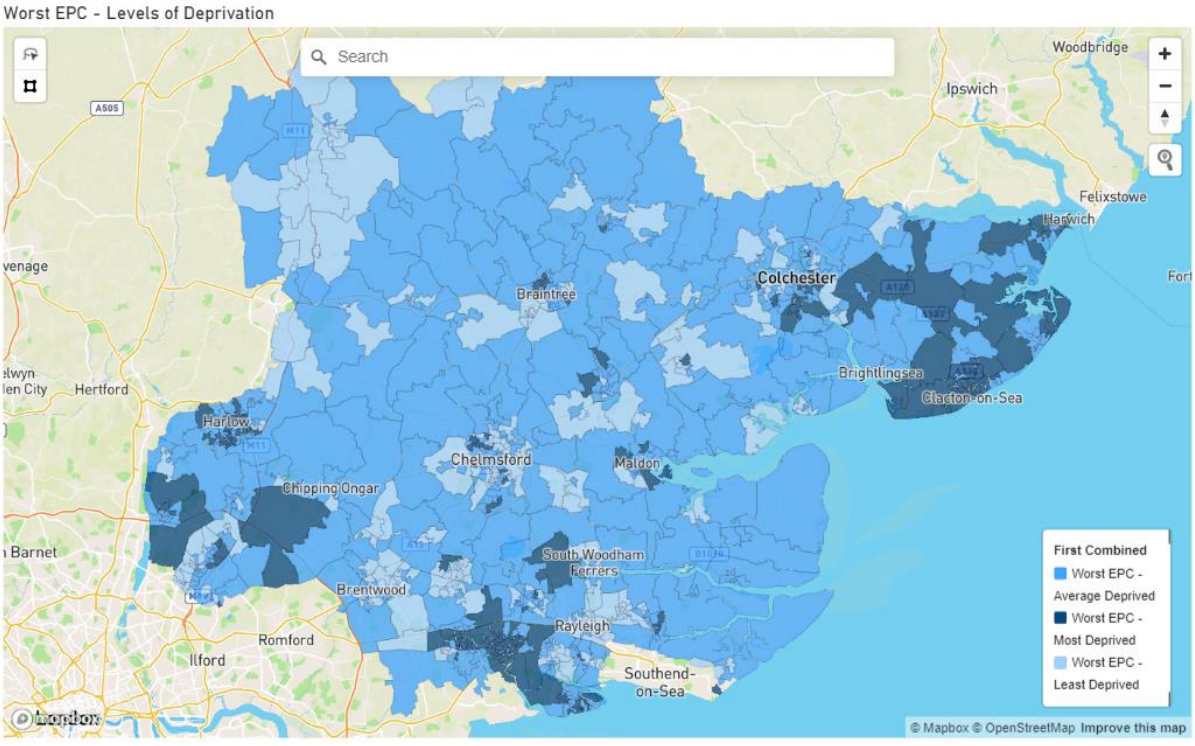
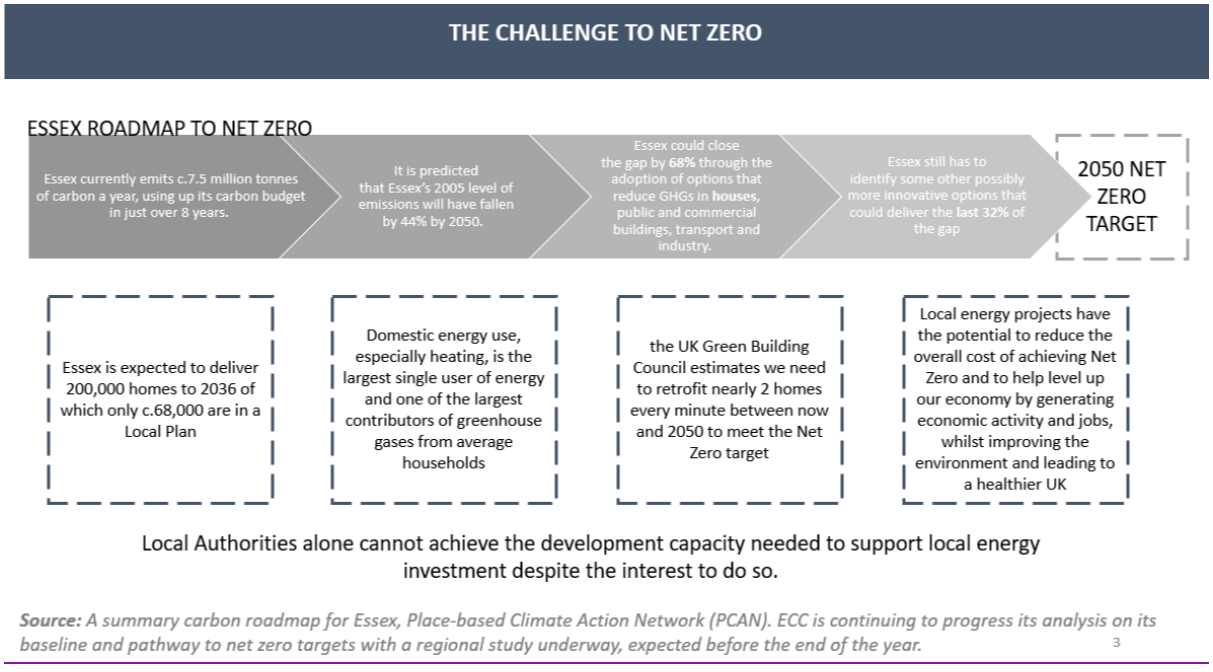


Figure 2: Worst Energy Performance Certificate ratings correlated with level of deprivation (source: ECC and Census, 2020). And below, areas susceptible to coastal flooding

The challenge for Essex is illustrated below:

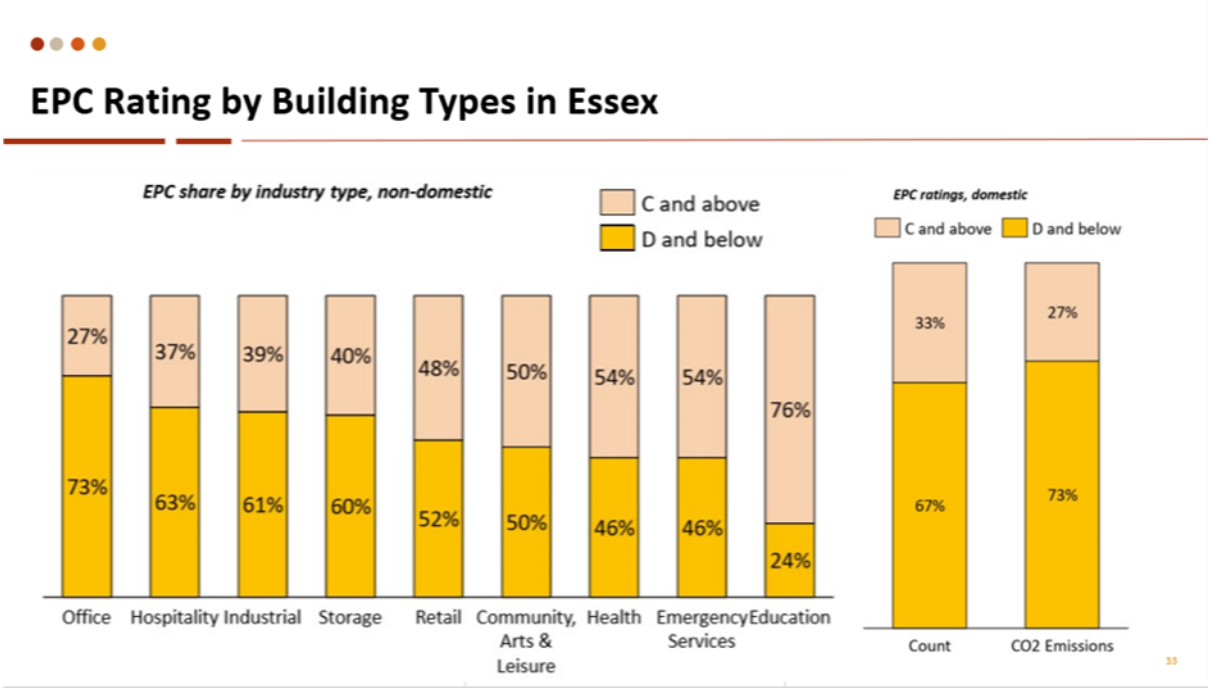


***Source:** A summary carbon roadmap for Essex, Place-based Climate Action Network (PCAN). ECC is continuing to progress its analysis on its baseline and pathway to net zero targets with a regional study underway, expected before the end of the year.* 3

Retrofit Commercial and Public Buildings

Commercial properties will be key to the success of the retrofit challenge. Non-domestic buildings account for 18% of the UK's carbon emissions. Fast forward to 2050 and six out of

10 non-domestic buildings will be forty years old or more, according to calculations by the Building Research Establishment. So, while eco-efficient new builds are welcome, something must be done about older office stock too.



To date, those encouraging businesses to refurbish along greener lines have tended to emphasise the cost-cutting opportunities. In its *Building the Future Today* report, for example, the Carbon Trust estimates that cutting 2005's CO2 emissions from non-domestic buildings by 35% could save the UK as much as £4.5bn a year by 2020.

Indeed, it makes good sense for businesses to refurbish commercial buildings as it cuts energy costs, which are likely to increase dramatically in the coming years. Older buildings may only have meters that measure overall consumption, newer facilities tend to use sub-meters to monitor energy consumption of individual floors, departments or even large pieces of equipment. There are opportunities to combine sub-metering with the use of occupancy sensors to work out how many people are in a building or in a specific area of a building.

The obvious places to target energy efficiency are heating, lighting and ventilation, these are responsible for 46%, 23% and 11% respectively of carbon emissions. Replacing old boilers with more efficient modern ones, for example, is an easy first step, but is not the whole solution to heating-based energy waste. An often-overlooked problem is the issue of heating and cooling systems fighting each other within the same building. This often occurs when air conditioning is added later-on in a building. Although changes to building management systems or extra time-based controls can help reduce such conflicts, technology that integrates heating and cooling is a more effective solution.

Another energy-saving innovation is the use of variable speed drives on ventilation system fan motors that can change speed according to CO2 levels or occupancy. Heat-recovery systems mark a further option. Innovations in lighting are achieving major energy saving gains

too. Some modern LED lighting systems are now equipped to fade automatically, for instance, as well as offering different-coloured lighting for different settings. Other energy-efficient lighting examples include "task lighting" (which replaces area lighting provided by desk lamps and such), motion sensors and longer-lasting bulbs.

Any energy-efficient system only works to its full potential when used correctly. For that reason, occupants of newly retrofitted commercial buildings (like homes) will need support well after a move-in date otherwise it risks a gap between the theoretical performance of the building based on its design, and the actual performance once people are using it.

❑ SCHOOLS AND CORE ESTATE RETROFIT PROGRAMME

ECC has a large and diverse estate portfolio totalling some £1.7bn in value which is utilised to support the delivery of services throughout Essex. The broad range of building types, ages and services that utilise them, make it difficult to apply a carbon zero strategy in a wholesale way. Instead, the opportunities must be identified through careful assessment and built into a programme with the goal being significant reductions to carbon emissions. The critical piece of work is ensuring that the estate is fully understood and immediately following this, ensuring that buildings are operating as efficiently as possible AHEAD of any energy efficiency projects being delivered. Only at this stage can the true value of any further enhancements be understood and evaluated. Funding is a critical factor and as such, on an estate wide basis, the Authority must achieve the best results per pound spent. The opportunities must therefore be assessed and ranked with the greatest potential outcomes taking top priority and being delivered first. Identifying works across the portfolio and delivering them in a programme fashion will also ensure best value is achieved. Nevertheless, the County is setting the challenge of all newbuild schools to be net zero carbon by 2022 and to have retrofitted the majority of its schools, numbering around 550, by 2025

The Essex Housing Company has been set up with specific financial and delivery targets. Within its Terms of Reference, it will take on the challenge to design and build a net zero housing scheme. This will act as exemplar for other public sector buildings including the Anchor institutions.

SKILLS– Green Jobs in Essex

As we transition to a net zero economy, we know that the demand for green jobs in Essex will increase. These jobs will require a diverse range of skills and expertise in order to support the production and deployment of clean technologies. Though we anticipate that the majority of jobs in new built, retrofit and ECC assets will be in construction, maintenance, design and planning, and engineering, there will also be jobs in financial, IT

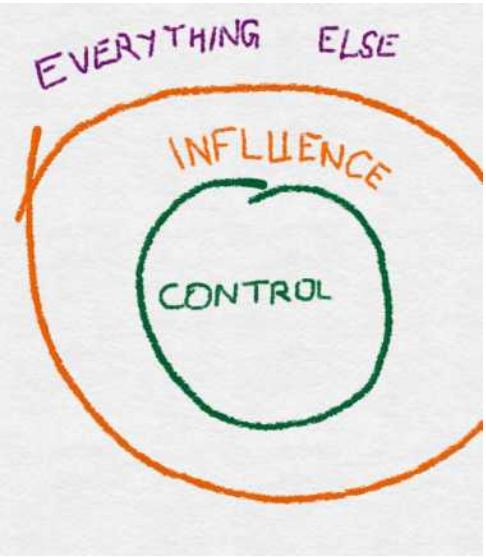
and legal sectors supporting this low-carbon activity. The Commission should have a clear understanding of the existing skills and training landscape, as well as a strategic role in influencing how Essex partners deploy their resources to support the local green economy. This includes existing European funding, its successor UK Shared Prosperity Fund, and other national initiatives and programmes, as well as private investment and S106 funding.

It is also crucial that the Commission works with ECC, and partners, to identify how to maximise the creation of new jobs, retrain the existing workforce and develop a pipeline of local skills pertaining to the green economy. Working through ECC and partners, the Commission can be a key place shaper, and may choose to bring together a wide range of economic development stakeholders, including district councils, industry, SEB, SELEP and education institutions. This will ensure that Essex takes an integrated and forward-looking approach to skills and training within the low-carbon sector.

A growing and changing green economy will require new entrants being trained to industry standards, as well as existing workforce continuously upskilling to maintain relevant and quality. A skilled workforce is more efficient, more productive and quicker to adapt.

❑ THE POWER OF INFLUENCE

Clearly the climate change agenda operates at a range political and societal levels and decision makers, lobbyists, campaigners, businesses, developers, statutory functions and so on must be 'on the same page'. The three spheres operate differently as shown in the two diagrams

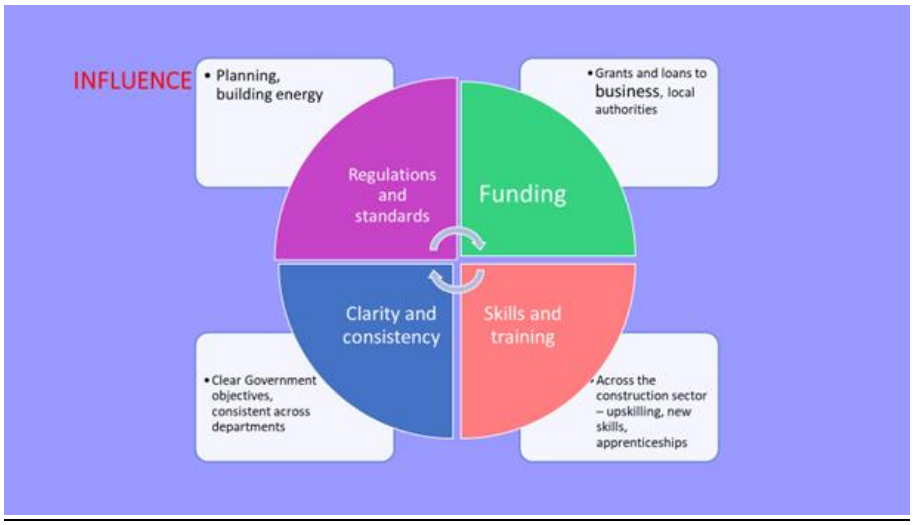


*CONTROL what is 'solely' within ECC decision making process and ability to deliver
*INFLUENCE over partners, Districts, developers where the County needs co-operation or agreement with partners. What can County do to INFLUENCE within central government, alone or with partners, around standards, regulations, funding, freedoms
*Areas of INTEREST e.g. university research, actions of the water authorities, business associations etc

- *Influencing - Government and Partners*
  - Central Government – key departments BEIS, DEFRA, MHCLG, Treasury

- Private sector- developers and housing providers, manufacturing, businesses, (market confidence)
- Civil society – residents, landlords, voluntary sector
- Essex sphere of influence -through partners with business, District Councils, strategic organisations e.g. Success Essex, Developers' Forum, LEP, water authorities, Anchor Institutions

The areas of influence in Government we may need to exercise are illustrated in this diagram:



➢ *The Influence of Planning as a statutory Process*

It is important to note the importance of process in the operation of the planning system. Indeed, it brings together objective standards, subjective appreciation of high-quality design and beautiful places, in order to create healthy and sustainable communities; these ambitions are delivered as part of an engaging, consultative and series of decision-making processes.

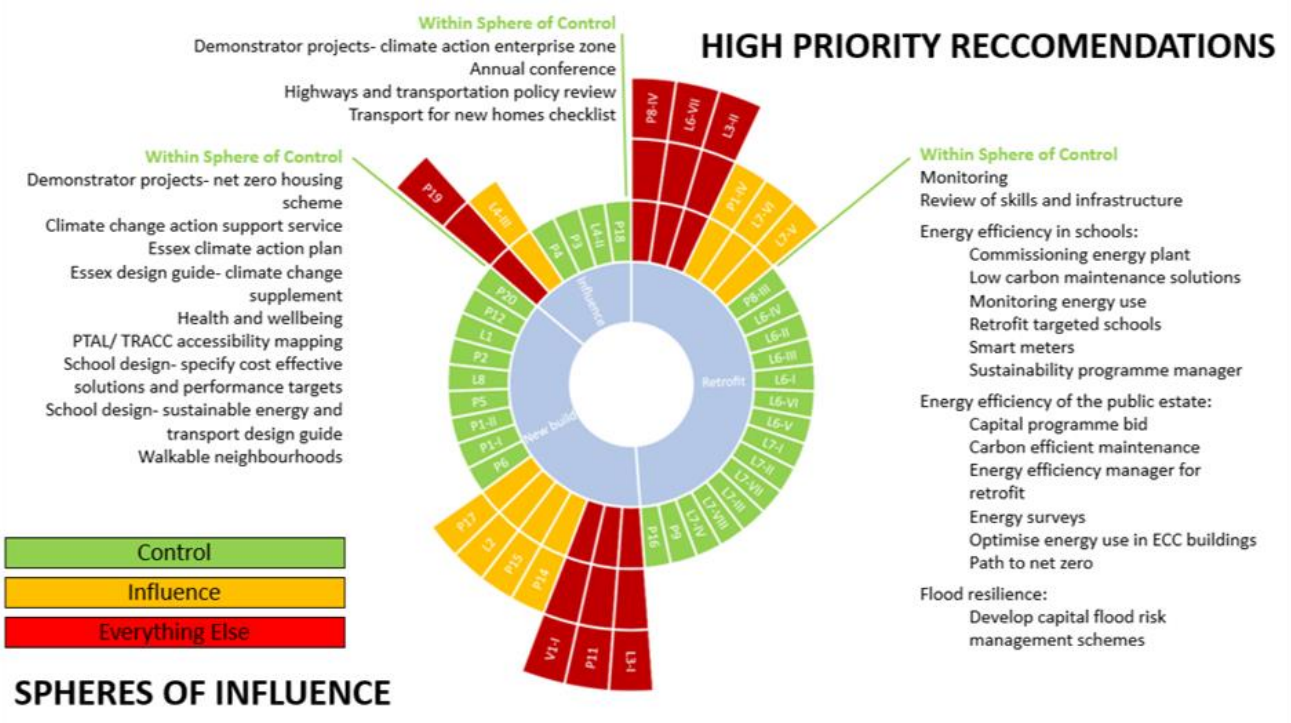
➢ *The importance of political and community leadership*

Effective action on climate change requires strong political leadership. It is also vital that communities are at the heart of local policy debate so that local knowledge can shape decision-making. In communicating the challenge posed by climate change, there is a risk that we may underestimate the multiple benefits that effective action can bring to communities. For example, reducing carbon dioxide emissions can result in the community ownership of energy supply, with direct benefits to consumers and the local economy. Many of the initiatives that can be taken to address climate change are simply 'win-win' actions for communities, and help to shape low-carbon resilient places with high-quality design and access to the natural environment.

- *Working across borders through Partnership*

It is quite clear, however, that if collectively we are to meet climate change objectives, from a planning perspective as well as more strategically, partnership working between the districts and County is essential. There are many cross-cutting issues. For example, if policies are introduced to reshape the highway network to promote sustainable travel, this could have implications for district waste collection services or for the design of roadside SUDs. It is therefore vital that ECC and districts work together to understand what is possible and viable in terms of climate change measures and how they can be effectively implemented through the planning system.

Our recommendations fall within one of the spheres as illustrated below –



One of the principal areas of influence needed to address the climate change issues is of course proper resourcing of which the Government variously operates several programmes.:

Examples of government funding initiatives for green economic growth-

FUNDING OPTIONS

Many of the funding available would require a business or university leading the project.

OTHER SOURCES

OFGEM Programmes		
Salix	Low cost loans	Available now
ENGIE: UK Clean Growth Innovation Fund	Up to £4m available	Closes May 2022
JRCT: Sustainable Futures Programme	Grants available	Closes August 2021

INNOVATE UK FUNDING

Industrial Energy Transformation Fund (IETF)	£30 million, split across 2 strands, to fund feasibility, engineering studies and deployment.	Closes 28 October 2020
Innovate UK Smart Grants	investing up to £25 million in the best game-changing and commercially viable innovative ideas.	Closes 25 November 2020
Innovation Continuity Loans	Loans of £250,000 and £1.6m offered.	Closes when funds committed or 31 December 2020

GOVERNMENT FUNDING

Contracts for Difference (CfD) Scheme	Subsidy	Next round starts 2021
Clean Growth Fund	£40m Investment Fund	Launched May 2020
Renewable Heat Initiative (RHI) Scheme (to be replaced by schemes incl. A Clean Heat Grant	a quarterly tariff payment for every kilowatt hour (kWh) of renewable heat produced.	The non-domestic RHI will close to new applications on 31 March 2021. Domestic RHI has been extended to March 2022
Affordable Homes Programme	£11.5 bn investment	Opens for applications start of 2021
Green Heat Network Fund	£270m fund	Grants open from 2022

EUROPEAN FUNDING

European Green Deal		Closes January 2021
City Facility Fund	Grants of €60,000	Closes 2 October 2020
Fast Track to Innovation (FTI)	maximum EU contribution per action is €3m	Closes 27 October 2020
Innovation Fund Large Scale Projects	€1bn for the grants and €8m for the project development assistance (PDA)	Two-stage deadline: 1st - 29 October 2020