CARBON NEUTRALITY

Summary of Issues:

- Eastbourne Borough Council has committed to being Carbon Neutral by 2030 and the Local Plan has a key role to play in this
- Although there has been a decline over recent years, the most significant contribution to carbon emissions in Eastbourne is domestic and commercial energy use
- 20% of carbon emissions in Eastbourne come from road transport, and these emissions gave remained at the same level over recent years, despite improving technology
- Planning policy is unable to mandate zero-carbon domestic buildings, although there are no limits for non-residential development
- Requiring energy efficiency and renewable energy generation on a new development will impact development viability and/or the amount of other social benefits that can be provided by development
- On-site carbon off-setting is unlikely to be able to compensate for all carbon emissions from new development, and therefore some off-site carbon abatement is likely to be required to some extent

On 10th July 2019, Eastbourne Borough Council declared a climate change emergency and committed to continue working in close partnership with local groups and stakeholders to deliver a carbon neutral town by 2030.

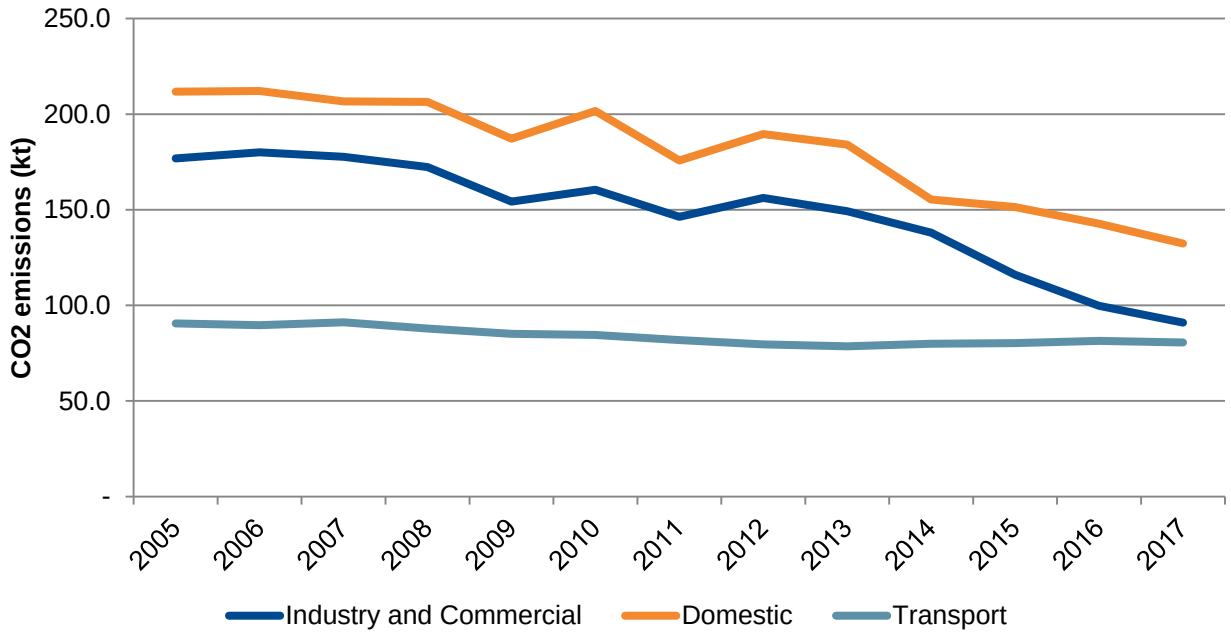
In 2017, 299.6 kilotonnes (kt) of carbon dioxide (CO_2) was emitted in Eastbourne[7]. Domestic energy consumption was the largest emitter of CO_2 (44%). 30% of emissions emanated from industrial and commercial energy consumption and installations, whilst 26% came from transportation.

Whilst carbon emissions from industrial and commercial and domestic sources have fallen significantly (by nearly half) since 2005, carbon emissions from transport has been relatively steady, despite better fuel efficiency and eco technology. This is likely due to increases in the number of cars on the roads – the number of cars registered in Eastbourne has increased by over 4,600 between 2010 and 2017[8].

[7] Department for Business, Energy & Industrial Strategy, UK local authority and regional carbon dioxide emission national statistics

[8] Department for Transport (DfT), Vehicle Licensing Statistics series: veh105

Figure 5: Carbon Emissions in Eastbourne



Source: Department for Business, Energy & Industrial Strategy

The Local Plan can help to continue and accelerate the decline in carbon emissions by requiring energy efficiency measures and renewable energy generation as part of new development. However, it is estimated that 80% of the housing that will be around in 2050 has already been built, so measures affecting the existing stock will also need to be considered.

The biggest issue for Eastbourne's Local Plan in terms of carbon emissions is the use of the private car. People in Eastbourne generally travel relatively short distances to their place of work, yet a significant proportion of them still drive. Eastbourne also has significant numbers of people who travel into and out of the Borough for work, and the majority of these people also commute by car.

Being a leisure and tourist destination means that people visit the town, particularly the town centre and seafront. Over 5 million people visit the town on day-trips or overnight stays per year, and many more will go into the town centre for shopping trips or other leisure purposes.

If Eastbourne is to be carbon neutral, the Local Plan will need to play a fundamental role in reducing carbon emissions and tackling climate change through shaping the nature, pattern and quality of development. It can do this by reducing the need to travel and facilitating changes in societal behaviour that promote a modal shift away from the private car to more sustainable modes of transport, by encouraging more energy efficient buildings and by identifying opportunities for renewable energy generation.

Modal Shift

Modal shift means replacing one mode of transport (e.g. private car) with another more sustainable mode of transport. Modal shift will only occur when one mode has comparative advantages over another, so a switch from cars to sustainable travel will require disincentives to using the car, coupled with improvements to the capacity, cost, flexibility, safety and reliability of more sustainable modes.

Eastbourne has a number of advantages that make it a prime location for increased sustainable transport use. The density of the town means that the majority of people are located in close proximity to the services and facilities that they require, and the town centre has a public transport hub that is well served from other parts of the town. Eastbourne is also generally flat, meaning cycling and walking is easier, and new technology such as electric bikes can help overcome topographical issues found in the western part of town.

The Local Plan cannot deliver a modal shift on its own – it will involve a joined up approach with East Sussex County Council and the town's public transport providers. However, the Local Plan can influence modal shift by ensuring that new development is located in accessible locations; makes high quality provision of walking and cycling infrastructure; discourages the use of the private car; and concentrates services and facilities to enable easier sustainable transport connections.

The Local Plan should also seek to address and influence some of the reasons for people choosing not to walk, cycle or use public transport, including safety, convenience and reliability.

A reduction in carbon emissions is not the only reason for encouraging a modal shift. The use of sustainable modes of transport will create less pollution, improve air quality, and result in less congestion on the road, which in turn will make sustainable travel quicker and safer, as well as providing health benefits for those that walk or cycle.

The most regular journey for the majority of people, and therefore the journey with the largest scope for modal shift, is the commute to their place of work[9].

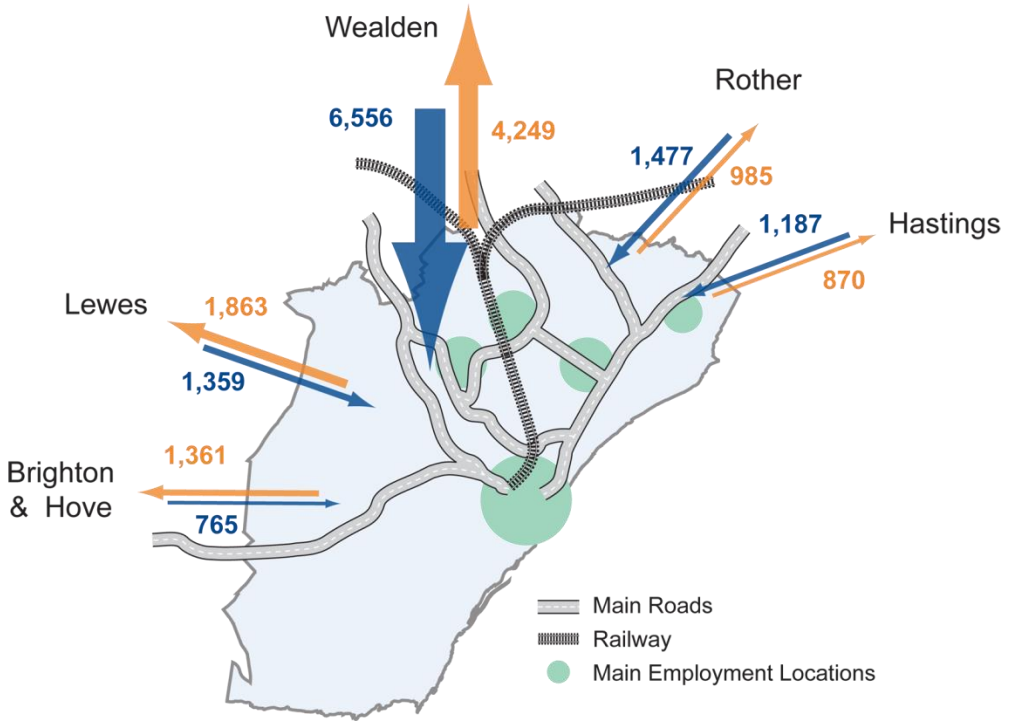
There are over 40,000 people who travel to a place of work in Eastbourne, including 28,000 who are residents of the Borough. 68% of people who travel to a place of work in Eastbourne travel by car, whilst 11% use public transport and 19% walk or cycle.

There are also a significant proportion of people who travel to common locations for work. 13,000 people (33%) of people travelling to work in Eastbourne end up in the Town Centre. Despite the good public transport links, 54% of these people travel by car.

Other popular workplace locations include the Industrial Estates and retail areas adjacent to Lottbridge Drove (3,000 people) and in Hampden Park (3,000 people), and the Eastbourne District General Hospital and the adjacent East Sussex College campus on Kings Drive (4,000 people).

[9] All journey to work data comes from the 2011 census, with is the most up to date comprehensive data that is currently available

Figure 6: Local Commuting Patterns



Source: 2011 Census via East Sussex in Figures

The majority of Eastbourne residents travel relatively short distances to their place of work. 63% of Eastbourne residents in employment travel less than 5km to work, which is equivalent to approximately ten minute drive at peak time. Therefore over half of the people who commute less than 5km do so by car.

Discouraging private car use within development, for example by restricting car parking provision, can have positive impacts in reducing car use.

Increasing the provision of car parking in Eastbourne could encourage increased car use. There is evidence from other urban locations that suggests that the availability of parking has a strong effect on levels of car ownership, and that higher levels of car ownership are associated with higher levels of car use[10].

Current parking standards, set by East Sussex County Council as the highways authority, are based on evidence of trends in car ownership across different parts of the Borough and on the types of developments being planned.

In order to discourage car ownership to help achieve a modal shift, the Local Plan could seek to set lower car parking standards in new development than the current East Sussex County Council standards through a new policy. The creation of higher car parking standards is not considered appropriate due to the need to discourage car travel and change societal behaviours in order to achieve the aim of Eastbourne being carbon neutral by 2030.

[10] Mayor of London/Transport for London – Residential Car Parking Evidence base

Options A: Car Parking Provision

Should the Local Plan:

a) Continue to rely on East Sussex County Council's car parking standards; or

b) Set local car parking standards for Eastbourne with the aim of reducing the amount of car parking provided in new development

It is accepted that a certain amount of car use is going to be necessary, especially where people have mobility problems, which is likely to be an issue with the ageing population. However, in order to reduce carbon emissions, as much car use as possible should be through ultra-low emission cars.

The number of ultra-low emission cars has grown over the last three years, but in 2018 this still made up less than half a percent of all cars registered in Eastbourne.

The take-up of ultra-low emission cars, particularly electric cars, will depend on the availability of infrastructure to service them. Therefore the provision of electric vehicle charging points in new development should help to increase the number of electric vehicles being used in Eastbourne.

The Local Plan will also require car sharing schemes ('car clubs') as part of new major residential development, so that residents can have access to a car when necessary without the need to own one.

Direction of Travel

CN1: Modal Shift

To encourage modal shift, the Local Plan will:

- Require Electric Vehicle Charging Points to be provided in all new developments
- Require car sharing schemes to be implemented to serve all new major residential developments
- Require personal and workplace travel plans to be put in place for all new major development

Encouraging more walking and cycling, especially on regular journeys such as to a place of work or education, will play a key role in modal shift in Eastbourne.

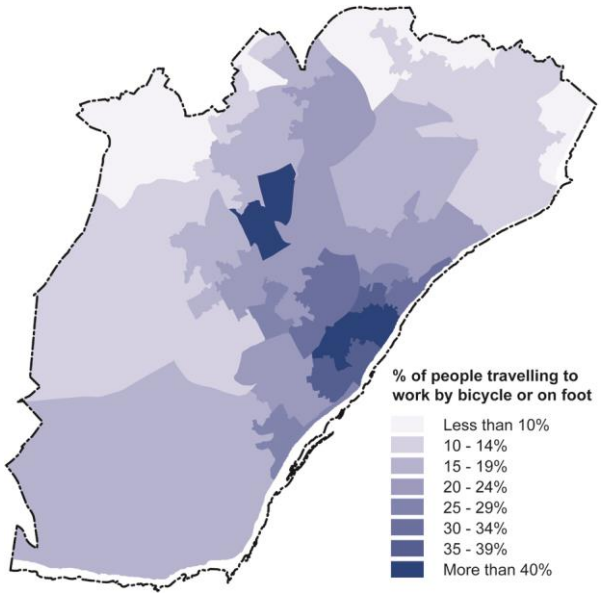
Walking to work is relatively common in Eastbourne, especially over shorter distances. Although 11% of all journeys to a workplace in Eastbourne are made on foot, this increases to over 40% when the distance is less than 2km (25 minute walk). Nearly half of journeys to work by foot are to the town centre.

Cycling is an important sustainable travel option for residents, commuters and visitors in Eastbourne, especially considering that a large proportion of residents travel relatively short distances to work and the relatively flat topography in the majority of the town.

Eastbourne has a number of established cycle routes, including the National Cycle Route 21 (NCR21) from the southern end of the Cuckoo Trail at Polegate to the seafront at the Sovereign Centre, with links off the route to other parts in the east of the town. The Horsey Way cycle route, developed in 2018, connects the eastern part of the town and the NCR21 to the town centre, whilst the King Edwards Parade cycle route connects the foot of the Downs in Meads to the Wish Tower and the Devonshire Quarter.

Despite this, less than 2% of all journeys to a workplace in Eastbourne are made by bicycle and the average amount of regular cycling activity in Eastbourne is some of the lowest in the county, with just 4.3% of adults cycling three or more times per week[11].

Figure 7: Walking and Cycling to work



Source: 2011 Census via East Sussex in Figures

A journey of 5km is equivalent to an 18-minute cycle, however less than 5% of journeys to a workplace of less than 5km are made by bicycle.

There are limited north-south cycle links in Eastbourne. The western side of the urban area of Eastbourne has very limited cycling infrastructure, despite this area of town accommodating a number of schools, colleges and university campuses.

There may also be an issue with the 'on-road' nature of some of the existing cycle links. Cyclists were involved in 17% of all recorded road causalities in Eastbourne in 2018[12] and safety issues and perceptions may discourage some people from cycling to work.

[11] East Sussex in Figures

[12] Sussex Safer Roads Partnership, Recorded road casualties by severity, age and road user type, 2004-2018, via East Sussex in Figures

A number of priority routes for cycling have been identified by East Sussex County Council, including the implementation of a continuous safe cycling route along the entire seafront corridor as being one of the most important improvements for cycling in Eastbourne. Eastbourne Borough Council has already confirmed its support for cycling on the seafront.

East Sussex County Council anticipates publishing a county wide Local Cycling and Walking Infrastructure Plan for public consultation by the end of 2019. This will seek to integrate and update existing polices and strategies, including the Eastbourne Cycling Strategy.

Question 3: Walking and Cycling

- What can the Local Plan do to encourage more trips by walking and cycling?

Direction of Travel

CN2: Walking and Cycling

To increase walking and cycling, the Local Plan will:

- Support cycling on the seafront
- Work with East Sussex County Council to increase number of designated cycle routes across the town
- Require cycle parking to be provided in all new development
- Require new development and public realm schemes to incorporate safety measures for pedestrians and cyclists
- Encourage implementation of 'Home Zones' and 20mph zones within strategic development sites

The provision of regular and reliable public transport will play a major role in creating a modal shift. In order to achieve this, it will be necessary for the Council to work with public transport providers to encourage more people to use public transport for regular journeys.

The density of Eastbourne means that the majority of people are within a 10 minute walk (400 metres) of a bus stop. Also, services and facilities in Eastbourne are very accessible by public transport, according to Journey Time Statistics

produced by the Department of Transport[13]. 90% of households are within 15 minute travel time by public transport from a Primary School, whilst 83% of households are within 15 minute public transport travel time from a GP's surgery.

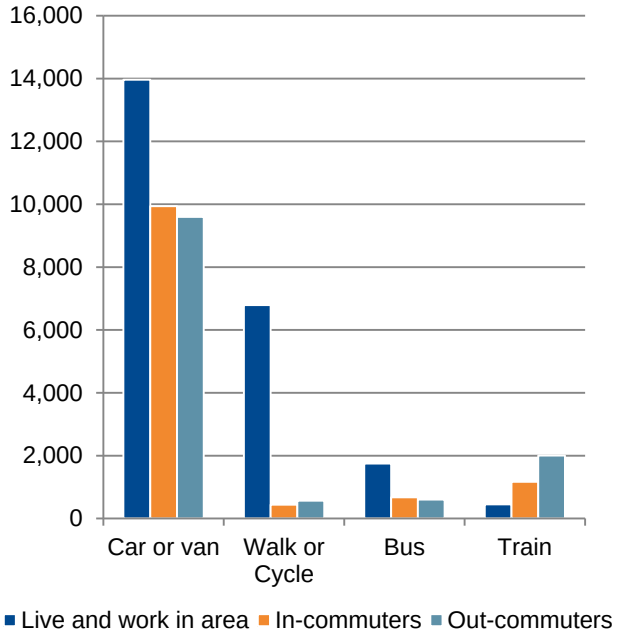
However, less than 10% of workplace journeys within Eastbourne are by public transport, with the bus accounting for 80% of these trips. Increasing public transport infrastructure and services to the limited number of main employment locations in Eastbourne (town centre, industrial estates and the hospital) should help to encourage more journeys by public transport.

Whilst increasing public transport use for journeys within Eastbourne will be important, there are other options to substitute car journeys such as walking and cycling. However, commuters in and out of the town are less likely to find walking and cycling as suitable alternatives to the car, which means that effective public transport provision becomes even more important.

Over the last 30 years, Eastbourne has gone from having a net inflow of workers to having a net outflow of workers. In 2011, there were over 500 more people travelling out of the Borough than into the Borough for work.

The car is the most common modal choice for both in-commuters and out-commuters. 69% of the 12,969 Eastbourne residents who travel outside of the Borough to their place of work use a car. 75% of the 12,380 people who travel in to Eastbourne to their place of work use a car.

Figure 8: Method of travel to work



Source: 2011 Census via East Sussex in Figures

Over half of the total in-commuters to Eastbourne come from Wealden, whilst a third of out-commuters travel to Wealden. 80% of these commutes are by car.

Public transport usage is more common for out-commuters than for in-commuters. 20% of out-commuters use public transport to travel to locations such as Brighton & Hove, Lewes and London. Less than 15% of in-commuters use public transport, with the majority of those coming in from Wealden.

It will be necessary for the Council to work with neighbours and public transport providers to deliver infrastructure that encourages in-commuters to leave their cars outside of the town, and travel into Eastbourne via public transport.

[13] Department for Transport, Journey time statistics: Access to services 2016, via East Sussex in Figures

A scheme to improve sustainable movement between Eastbourne, Polegate and Hailsham (known as the Hailsham, Polegate and Eastbourne Movement & Access Corridor) is being developed to provide a significant change in access to sustainable travel choices to support growth in the Eastbourne and South Wealden area. The scheme, which will involve improved bus stop infrastructure, bus lanes, junction improvements, and walking and cycling infrastructure improvements, is due to be implemented in 2020/21.

Direction of Travel

CN3: Public Transport

To encourage more travel by public transport, the Local Plan will:

- Work with East Sussex County Council and public transport providers to encourage improved public transport provision and infrastructure within Eastbourne
- Work with neighbouring authorities and public transport providers to reduce the number of in-commuters travelling by car
- Identify and designate transport hubs as key locations where people travel to, with new development requiring links to these nodes
- Work with public transport providers and ESCC to make public transport a more attractive travel choice

Question 4: Modal Shift

- What else can be done to encourage a modal shift to more sustainable forms of transport?

Further work:

- Model the impacts of transport growth resulting from new development and sustainable transport improvements

Energy Efficiency

Energy efficiency is the use of less energy to provide the same service, and using energy more efficiently is an essential part of the strategy to lower carbon emissions. Not only will energy efficiency reduce carbon emissions, it will also help to tackle fuel poverty and cut energy bills.

The national standards for energy efficiency in new residential development are set out in Part L of the Building Regulations. National planning guidance is clear that the Local Plan can set higher standards for energy efficiency in residential development than those contained within the Building Regulations; however these standards can only be set to 19% above the Building Regulations standard (equivalent to the former Code for Sustainable Homes Level 4 standard). Higher standards are likely to have a cost impact that could mean that development is unable to meet other requirements or make financial contributions for off-site infrastructure.

Options B: Energy efficiency standards in residential development

Should the Local Plan:

a) Require no increase in energy efficiency standards in new homes through Local Plan (continue to use Building Regulations standards); or

b) Require that energy efficiency standards in new homes be increase to the maximum allowed (19% increase on Building Regulations)

The Local Plan is unable to mandate energy efficiency standards in new development that exceed a 19% increase on Building Regulation standards. However, it could provide encouragement to developers to build to zero-carbon standards.

It is approximated that net zero-carbon energy efficiency standards would require a 35% increase above the current Building Regulation standards and because of national planning guidance this cannot be required by the Local Plan.

Question 5: Zero-carbon residential development

- How can the Local Plan incentivise zero-carbon design in new development?

The limits on the energy efficiency standards do not apply to non-residential development, so there are no restrictions on energy efficiency standards that could be required by the Local Plan for these types of developments. However, requiring higher standards will have a cost impact on development and could threaten its deliverability.

Question 6: Energy efficiency standards in non-residential development

- How high should energy efficiency standards be set for non-residential development?

There are elements of the design of new development that can impact on energy efficiency without a significant cost implication. Passive solar design principles can be applied equally effectively in housing and commercial developments, and can address issues of overheating in the summer, as well as reducing need for heating in the winter. A range of design solutions can be use to help avoid overheating and the need for air conditioning, such as maximising natural ventilation and providing shade through planting and roof overhangs. Allowing sufficient space between buildings and using street layouts that encourage airflow can also reduce the effects of heat.

The Local Plan will contain policies requiring the incorporation of design elements such as building orientation to achieve solar gain, incorporation of external louvers, shutters, overshading from balconies and climate change adaptation measures such as green roofs and walls.

In addition, the Environment Agency has identified the whole of the South East, including Eastbourne, as an area of "serious water stress" and it is therefore imperative that water resources are managed efficiently. It is intended that the Local Plan will contain a policy requiring all new homes to minimise water consumption.

Direction of Travel

CN4: Energy Efficiency

In order to maximise energy efficiency, the Local Plan will:

- Contain policy and guidance on sustainable design (e.g. passive design, low and zero carbon technologies).
- Require climate adaptation measures such as green space and green architecture (e.g. roofs, walls, etc.).
- Require new residential buildings to achieve water use of less than 105 litres/head/day

Renewable Energy

The generation of energy from renewable sources can replace energy usage from sources that have a higher carbon footprint, which will therefore have an impact on reducing carbon emissions. Therefore it is important that new development makes the most of opportunities for producing renewable energy whilst at the same time fitting in with the surrounding environment with minimal impact.

Renewable energy can be provided at different scales, from larger scale operations such as wind turbines and Combined Heat and Power (CHP) that can generate energy for a district/wide area, to micro-generation schemes incorporated into buildings that can provide energy for an individual property.

Microgeneration

The term “microgeneration” is used to describe the array of small scale technologies (typically less than 50 kW of electricity generation and 100 kW of heat generation) that can be integrated as part of the development of individual sites. These include:

- Solar PV – solar panels that are usually placed on the rooftops and convert sunlight to electricity
- Solar Water Heating – solar panels that collect heat from the sun and use it to warm up domestic water, reducing the need to use conventional boilers or immersion heaters
- Air source heat pump – a pump placed on the outside of a building that absorbs heat from the outside air that can be used to heat radiators, heating systems or water in the home
- Ground source heat pump – the use of underground pipes to extract heat from the ground that can be used to heat radiators, heating systems or water in the home
- Biomass heaters – the burning of wood pellets, chips or logs to power domestic central heating and hot water boilers
- Building mounted wind turbines – small-scale turbines that are usually installed on the roof where there is a suitable wind resource to generate electricity from wind power

Retro-fitting microgeneration on an existing building often falls under permitted development and may not require an application for planning permission. However, Local Plan policy could require that small-scale energy generation is incorporated into new development from the start, although this may have implications on the design and deliverability of a development.

Options C: Small-scale renewable energy generation in new development:

Should the Local Plan:

a) Require all new development to incorporate small-scale renewable energy generation; or

b) Require a set % of the energy requirements of new development to be sourced from on-site renewable energy generation; or

c) Set no requirement for on-site renewable energy generation

Community-scale renewable energy generation

The constrained nature of Eastbourne means that there are limited opportunities for community-scale energy generation, however it is considered that there could be potential for:

- Large-scale wind turbines – a single turbine or group of turbines, probably between 50 and 90 metres tall, that generate electricity from wind power
- Ground mounted solar PV ('Solar Farms') – a large number of solar panels installed on the ground that convert sunlight to electricity
- Grown Biomass – the growing of energy crops that can be used to power biomass heaters
- District Heating networks – a system for distributing heat across a community through a system of highly insulated pipes that has been generated in a central location

Eastbourne Park may offer potential for large scale renewable energy generation. There are locations in Eastbourne Park that have sufficient wind speed and are far enough away from the urban area to offer potential for large-scale wind turbines, although this could create a potential impact on the landscape. Eastbourne Park could also offer the opportunity for a solar farm to generate energy from Eastbourne's record hours of sunshine.

Question 7: Large-scale renewable energy:

- Should the Local Plan allocate areas of Eastbourne Park for large-scale renewable energy generation?

Much of Eastbourne's development is expected to be small-scale infill development on previously developed land, which makes it difficult to put in place the infrastructure required for community-scale renewable energy generation. The installation of such infrastructure may be easier on larger greenfield sites, and therefore requirements for renewable energy generation could be different on greenfield land compared to previously developed (brownfield) land.

Question 8: Renewable energy requirements:

- Should renewable energy requirements be different for Greenfield and Brownfield developments?

It is likely that there are some larger sites and development areas that could provide enough new development to justify the incorporation of community energy generation, for example through a district heating network. The Local Plan could require the development of strategic sites to provide community energy infrastructure. However, the cost of implementing this alongside development could impact financial viability and mean that the development is unable to provide other infrastructure requirements.

Question 9: Community-scale energy infrastructure:

- Should strategic sites allocated for housing be expected to provide community energy infrastructure e.g. district heating network?

The National Planning Policy Framework (NPPF) states that new onshore wind cannot be approved outside an area "identified as suitable for wind energy" unless it is a community-led scheme. Therefore it is important that the Local Plan identifies areas that would be suitable for renewable energy generation.

It is also important that new development is 'future-proofed' to allow it to connect to community-scale renewable energy (such as district heating networks) in the future, even if that infrastructure is not available at the time of development.

Further and more detailed work will be undertaken to identify opportunities for renewable energy generation. In addition, a 'call for sites' is being undertaken alongside this consultation to request that sites with potential for renewable energy generation be identified to the Council.

Direction of Travel

CN5: Renewable Energy

In order to encourage renewable energy generation, the Local Plan will:

- Identify areas suitable for renewable energy in the local plan, including CHP
- Require new development within areas identified as being suitable for renewable energy generation to install secondary elements for district heating network to allow them potential to connect at a later date

Further work:

- Identify and map opportunities and areas suitable for renewable energy generation
- Undertake a 'Call for Sites' for renewable energy use

Carbon Off-set

Although measures should be put in place to reduce carbon emission as much as possible, new housing development is likely to emit a certain amount of carbon, which will need to be off-set if the development is to be carbon neutral.

Priority should be placed on off-setting carbon through methods incorporated into the development. On-site carbon off-setting can take place through the provision of planting, particularly trees, but also the incorporation of green walls and roofs.

Direction of Travel

CN6: Carbon Off-set

The Local Plan will encourage on-site carbon off-setting by:

- Requiring tree planting as part of developments and public realm improvements
- Encouraging the inclusion of green roofs and walls into new development

Question 10: Off-setting carbon emissions:

- What else can be required as part of development to off-set carbon emissions through on-site measures?

However, evidence suggests that on-site carbon off-setting methods are unlikely to compensate for all carbon emissions from new development[14]. Carbon off-setting through off-site methods could be used to compensate for any remaining carbon emitted from new development, but this should only be considered once on-site carbon reduction and off-setting has been maximised.

Large-scale tree planting within Eastbourne could provide some carbon off-setting for development, although there are limited locations where large scale tree planting could take place.

One opportunity could be in Eastbourne Park, however further investigation needs to be undertaken to consider the potential effects on the nature of Eastbourne Park of tree planting within a wetland area.

A number of local authorities around the country have set up a Carbon Off-set Scheme that developers pay into in order to compensate for the carbon emissions that they have been unable to off-set through the development.

Carbon off-set payments could be pooled within a single ring-fenced pot and directed to projects that will reduce carbon emissions in the rest of Eastbourne that will compensate for any remaining carbon emissions in new development.

Question 11: Local carbon off-setting scheme

- What would the advantages and disadvantages be of the implementing a local carbon off-setting scheme to make development carbon neutral where it can be proved that no further carbon reduction can be made on-site?

Further work:

- Investigate impact of tree-planting in Eastbourne Park
- Investigate potential for carbon off-setting schemes, including carbon costs

[14] Currie & Brown (2018) "Cost of Carbon Reduction in New Building"

Although low-carbon homes may be more easily achieved in new-builds, it is estimated that 80% of the housing stock that will exist in 2050 has already been built[15].

Therefore retrofitting existing homes with better insulation, higher efficiency appliances and energy generation equipment represents a larger opportunity for delivering carbon neutrality.

Question 12: De-carbonisation of existing housing stock

- How can the Local Plan encourage the de-carbonisation of the existing building stock through retro-fitting energy efficiency?

[15] BBC News (2017), UK 'must insulate 25 million homes'