Thanet District Council

Climate Change Topic Paper

May 2013

Contents

Climate Change Topic Paper

Purpose of Paper and objectives

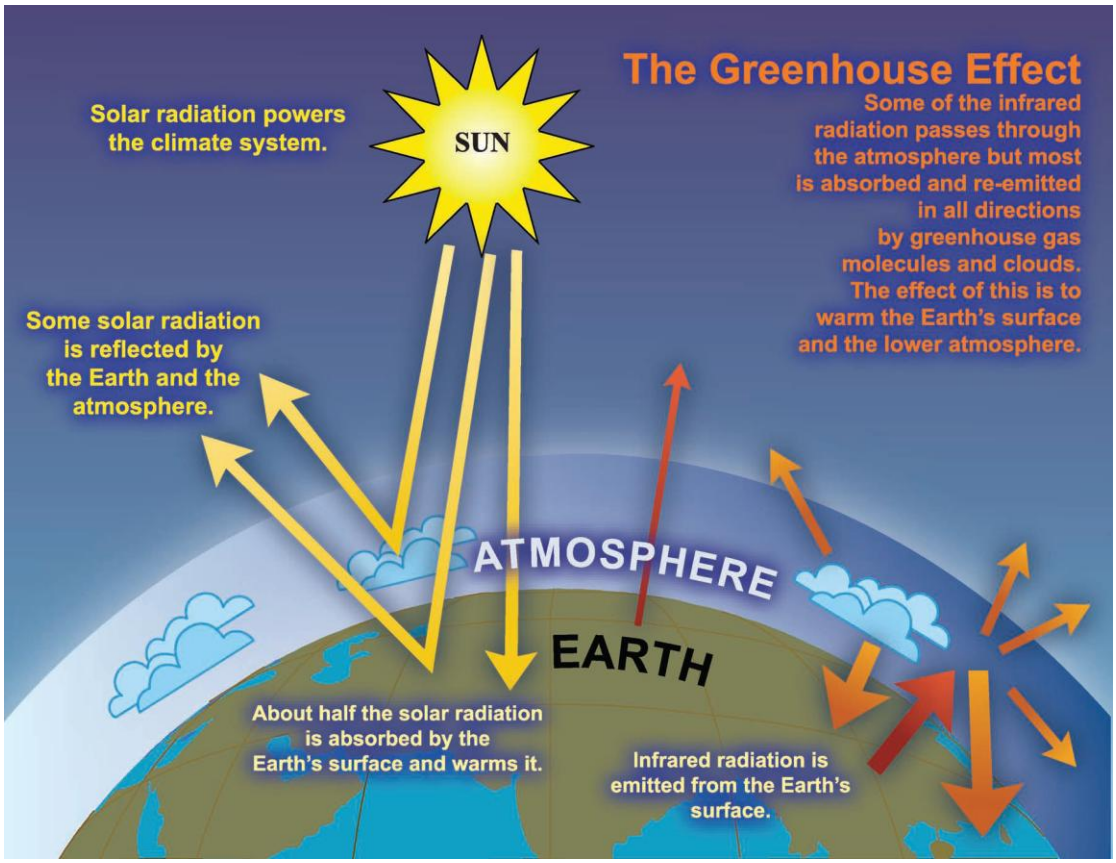
The purpose of this paper is to develop an appropriate strategy and policies within the Local Plan to ensure that new development can contribute to:

- working towards reducing Kent's ecological footprint below 2001 levels by 2026, and reducing greenhouse gas emissions to 60% below 1990 levels by 2030, to comply with the target set by KCC. This complies with the national targets of reducing emissions by 34% by 2020, 50% by 2023, 60% by 2030 and 80% by 2050; and

- minimising vulnerability and providing resilience to the impacts of climate change.

What is Climate Change?

The earth retains its temperature by a layer of "greenhouse" gases in the atmosphere, which trap energy from the sun. Without this greenhouse effect, the average global temperature would be more than 30°C colder than it is now. So a level of greenhouse gases is essential. However, as human activities involving the burning of fossil fuels increase, the concentrations of the greenhouse gases, particularly Carbon Dioxide (CO_2), build up in the atmosphere. This causes the planet to heat up unnaturally, the weather to become more unpredictable and increases the likelihood of more frequent extreme weather events. This heating process is often referred to as 'global warming' and the overall effect of this is known as climate change.



Source: http://www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-faqs.pdf

Some examples of changes already happening in Kent are;

Temperature: The five hottest years on record for the UK as a whole have all been since 2000. The UK's highest recorded temperature of 38.5°C was recorded in Kent in the 2003 heat wave. If our emissions remain high, by the 2080s the average temperature in the south may increase by an average of 5°C (Cliftonville – Design for Future Climate II). Significant costs have been attributed to dealing with hot weather damage to roads and pathways, water levels fell significantly, with levels at Bewl Water dropping to 37% in 2006 (Kent Local Climate Impacts Profile).

Sea Levels: Since approximately 1915 the average sea level has risen by approximately 20cm in Sheerness in Kent.

Wave Height: The average wave height from trough to crest has increased by approximately 50cm since the 1960's. This will accelerate coastal erosion.

Coastal Water Temperature: This has increased by 0.5°C in the last century and is increasing at a faster rate than land temperature.

Growing Season: This has lengthened by approximately 1 month since 1900. Spring flowers bloom earlier and grass grows for a greater proportion of the year.

Flooding: The Kent Local Climate Impacts Profile recorded 22 heavy rain and flooding events over the period 1996-2010. The county incurred direct costs of over £30 million and additional investments of over £227 million, including repairs to flooded roads, damage to schools, libraries and education centres.

Freezing Temperatures and Snow: The Kent Local Climate Impacts Profile stated that the county incurred over £4.2 million direct costs from 12 freezing temperature and snow events, plus a further £1.5 million indirect costs.

Storms: The Kent Local Climate Impacts Profile identified ten severe storm events from 1996-2010 which caused problems such as power cuts, fallen trees, the closure of Dover Port, the closure of the Dartford Bridge and suspended rail services.

Cloud Cover: Reductions in cloud cover in South East England are predicted to be between 10-20% by the 2080s (Cliftonville Final Report)

Policy Background

A significant amount of new legislation and policy has been put in place that affects the role of the planning system at a local level. This includes the following:

- The Climate Change Act 2008 introduces a statutory target of reducing carbon emissions by 80% below 1990 levels by 2050 and an interim target of 34% by 2020.
- The EU directive on renewable energy, under which the UK is committed to sourcing 15% of its energy from renewable sources by 2020.
- The Energy Act 2008 introduces feed-in tariff powers.

Adapting to, and mitigating against the effects of climate change is a government priority and an issue that can be addressed, to some degree, through planning policy and the development management system.

National Planning Policy Framework (NPPF)

The NPPF states that climate change is a core planning principle and that planning should '*support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encouraging the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy'*. The local plan needs to reflect this principle with planning policies that address mitigation and adaptation.

This can be achieved by planning for new development in locations and ways which reduce greenhouse gas emissions, actively support energy efficiency improvements to existing buildings and set any building sustainability standards in line with the Governments zero carbon buildings policy.

The NPPF lists expectations to improve energy efficiency in new development in terms of decentralised energy and sustainable design, and ways of increasing the use and supply of renewable and low carbon energy. It stresses the importance of addressing longer term factors such as flood risk, coastal change, water supply and changes to biodiversity and landscape

South East Plan

The South East Plan was revoked in March 2013 under the Localism Bill, however it included a policy **NRM11: Development Design for Energy Efficiency and Renewable Energy** which required greater use of decentralised and renewable or low carbon energy in new development, and that new developments of more than 10 dwellings or 1000m^2 of non residential floorspace should secure at least 10% of their energy from decentralised and renewable or low carbon sources. It also encouraged the incorporation of renewable energy sources. An assessment of planning applications has been carried out to find out how this has been implemented in Thanet.

Local Plan Policy

The Thanet Local Plan 2006 included several policies that contributed towards sustainable development and climate change issues. In June 2009 this Local Plan expired, but a number of policies were 'saved' by the Secretary of State and will continue to be applied until they are replaced by new policies. The policies listed in Table 1 are the most relevant the issue of climate change.

Table 1 – Local Plan Policies Relevant to Climate Change

Policy	Title	Brief description	Saved or not saved	Comment
TR1	Location of Development	Not permitting development which would generate travel demand	Not saved - repeats national policy in PPG13	Issue covered under the 'Planned Location of Growth' section of the new Local Plan
TR11	Pedestrian Movement	Requiring new development to provide for safe, convenient access and movement for pedestrians	Not saved - repeats national policy in PPG13	Core Planning Principle in NPPF
TR14	Provision of Facilities for Sustainable Transport	Assessment of development proposals for type and level of travel demand likely to be generated	Not saved - repeats national policy in PPG13	Core Planning Principle in NPPF
TR12	Cycling	Provision of cycle routes to promote cycling	Policy saved to safeguard proposed network of cycling routes in the Thanet Cycling Plan	Core Planning Principle in NPPF
TR15	Green Travel Plans	Requires green travel plan for development proposals likely to generate significant travel demand	Policy saved as deemed necessary to secure travel plans to reduce the impact of travel	
EP5	Local Air Quality Monitoring	Requires air quality assessment for applications likely to result in national air quality objective being exceeded	Policy saved as necessary to address areas where national air quality objectives will be exceeded	New policy to be included in draft Local Plan to reflect new Air Quality Management Plan
EP10	Wantsum Channel Flood Risk Area	Control of development within the flood risk area	Policy not saved as considered to duplicate national policy	Covered in NPPF (Para 100-104)
EP11	Margate Flood Risk Area	Control of development within the flood risk area	Policy not saved as considered to duplicate national policy	Covered in NPPF (Para 100-104)
EP12	Surface Water Run Off	does not permit development that would contribute to surface water run off	Policy not saved as considered to duplicate national policy	New policy needed in line with NPPF requirement – also to reflect new evidence in Surface Water

Policy	Title	Brief description	Saved or not saved	Comment
				Management Plan
EP13	Groundwater Protection Zones	Does not permit development that would contaminate groundwater sources	Policy saved as necessary to ensure adequate mitigation is incorporated in any development that would affect the Groundwater Protection Zones	New policy needed in line with NPPF requirement – covered in Quality Environment section of draft Local Plan
EP14	Renewable Energy	Policy supports proposals for renewable energy sources	Policy not saved as it duplicates national policy	Policies to be included in draft Local Plan

Core Strategy Preferred Options document

A number of policies in the Core Strategy Preferred Options consultation included clauses relating to climate change, including monitoring air quality, promoting alternative transport to the car and addressing flood risk. The only specific policy was Policy DCS23 which is set out in Appendix 1.

The policy was well supported in the consultation. Some comments were made including the following:

- Requirements should relate to reductions in emissions rather than securing energy from renewable/low carbon resources.
- On-farm anaerobic digestion plants offer a sustainable waste disposal facility and help reduce emissions, however may present a planning conflict regarding agricultural/industrial operations.
- Policy must be applied rationally as may not always be appropriate.
- Much of the policy is covered by the Code for Sustainable Homes and changes to the Building Regulations so is unnecessary.

Review of existing evidence

Kent County Council commissioned a study by AECOM which considers the interpretation of national renewable energy and low carbon targets at a local level, considering the physically available renewable resources, local constraints including landscape and local character and the appetite for delivery amongst key local delivery partners. The report 'Renewable Energy for Kent – April 2012' is referred to in this topic paper, and can be found online at https://shareweb.kent.gov.uk/Documents/environment-and-planning/environment-and-climate-change/Climate%20Change%20web%20pages/Kent%20Renewable%20Energy%20Part%202%20April%202012%20Updated%20Version%20Final.pdf

The Kent Local Climate Impacts Profile identifies 52 weather events which impacted the county over a 14 year period including heavy rain and resultant flooding, heatwaves, droughts, freezing temperatures and snow and multiple storm events. The report considers the impacts of these weather events on health, crime and the environment, school closures and disruption to transport services. The report is available online at https://shareweb.kent.gov.uk/Documents/environment-and-planning/environment-and-climate-change/SWIMS/LCLIP%20Summary%20Report.pdf.

Thanet District Council commissioned a report to assess the best approach to dealing with a changing climate, involving extensive research and design development. The assessment is based on potential measures for climate change adaptation, retro fitting renewable energy schemes based on scenarios for a hotel and a house in Dalby Square, Cliftonville. The study examined a number of climate based risks based on an assessment of the predicted weather scenario in 2080 for the Cliftonville area. The report states that the study site in Cliftonville is typical of many Victorian seaside resorts around the country, which makes this report valuable evidence for Thanet as whole as the conditions and issues surrounding the assessment site would apply elsewhere in the district. The report is called 'Cliftonville – Design for Future Climate II' and is referred to as the 'Cliftonville Report' throughout this document.

These documents have been written to address national issues regarding climate change, but include evidence and information specific to Thanet, so are referred to throughout this topic paper.

There is a significant amount of other local evidence regarding Climate change mitigation – these largely relate to the water environment, and the supply and demand for water, and are detailed in the Water Cycle Topic Paper.

Existing climate change initiatives within the district

Planning applications have been received for small scale proposals, such as the installation of solar panels. A number of small scale major developments have included renewable energy proposals, either as part of the application, or requested in a condition to comply with now revoked South East Plan Policy NRM11 – these are detailed in Appendix 3. This section details some of the larger scale projects and proposals in the district.

Solar Parks
There have been a number of applications for renewable energy applications in the district to help reduce emissions.

A number of Solar Parks have been granted permission – these are mainly located in fields, or parts of fields, are temporary (most have a 25 year lifespan), and the land can revert to its original use when the panels are removed. The siting for a solar farm will usually be near to a connection to the national grid due to cost implications for connection, and will require the erection of a fence surrounding the site which is required by law as a solar farm is an electrical power plant and unauthorised personnel cannot be allowed on the land. A list of the planning applications granted for solar parks can be found in Appendix 2.

Solar Panels
The Council has utilised the benefits of solar energy and installed 111 photovoltaic solar panels to the roof of its main offices, producing a total of 20.2KW of electricity, and also installed 22 panels to the roof of Thanet Crematorium producing a total of 4KW of electricity.

Richborough
There is a concentration of renewable energy opportunities coming forward in the Richborough area. The former Richborough Power Station site is allocated in the Kent Waste Local Plan and in the Preferred Options Draft Waste Sites Plan for energy from waste uses.

In March 2012 the cooling towers at the Richborough Power Station site were demolished to enable the site is being promoted as an energy park. Planning applications have been received for a peaking plant and an interconnector linking energy supplies with Belgium. The site also contains the substation for the Thanet Offshore Windfarm.

The windfarm was completed in 2010 and has a capacity of 300MW which supplies around 240,000 homes with clean electricity.

An anaerobic digester has also been constructed on a site adjacent to Richborough Power Station, next to solar park. The anaerobic digester will produce 3MW of renewable electricity, enough for 1500 homes. The process uses green waste and food waste to generate energy. This sort of waste would normally go to landfill, and release waste gases into the atmosphere as it rots.

There are also proposals for renewable energy developments adjacent to the former Power Station, within the District of Dover.

Adaptation to Climate Change

Adaptation is an essential part of addressing the impacts and opportunities created by our changing climate. The Intergovernmental Panel on Climate Change (IPCC) defines adaptation as:

"adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploit beneficial opportunities".

(http://www.ukcip.org.uk/essentials/adaptation/)

There are a number of measures that can help adapt to climate change, including:

- Retrofitting to existing developments
- Improving water efficiency and reducing consumption
- Managing flood risk

Retrofitting to existing development

The Cliftonville Report considers measures which can be applied to existing buildings to counteract the effects of climate change, such as draughtproofing, insulation, efficient lighting, solar glass, re-use of chimneys, shade trees, covered verandahs, green walls, vertical trellisage, light coloured solar reflective surfaces and increased water efficiency.

The report assessment found that the installation of adaptation measures should not be justified purely on a climate change adaptation basis due to the levels of funding required in this area where property values are lower than the regional average. It suggests that adaptation measures should be introduced as a multifunctional scheme on the following basis:

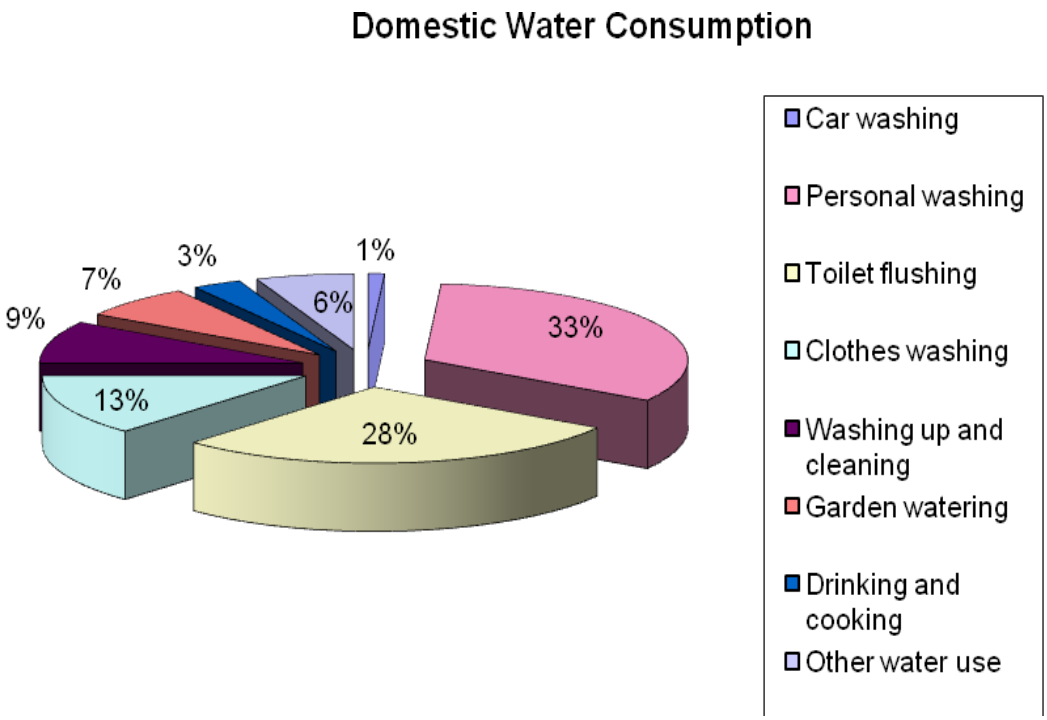
- The reduction in energy running costs of the building
- The improvement in the physical structure of the building and the reduction in maintenance costs
- The improvement to the building aesthetic
- The improvement to quality of life for residents where the risk of damp and excess moisture is reduced
- The ability of the building to adapt to climate change

Water Efficiency

The water environment, and the supply and demand for water, is discussed in more detail in the Water Cycle Topic Paper. This section relates specifically to adapting to climate change by increasing water efficiency and reducing consumption.

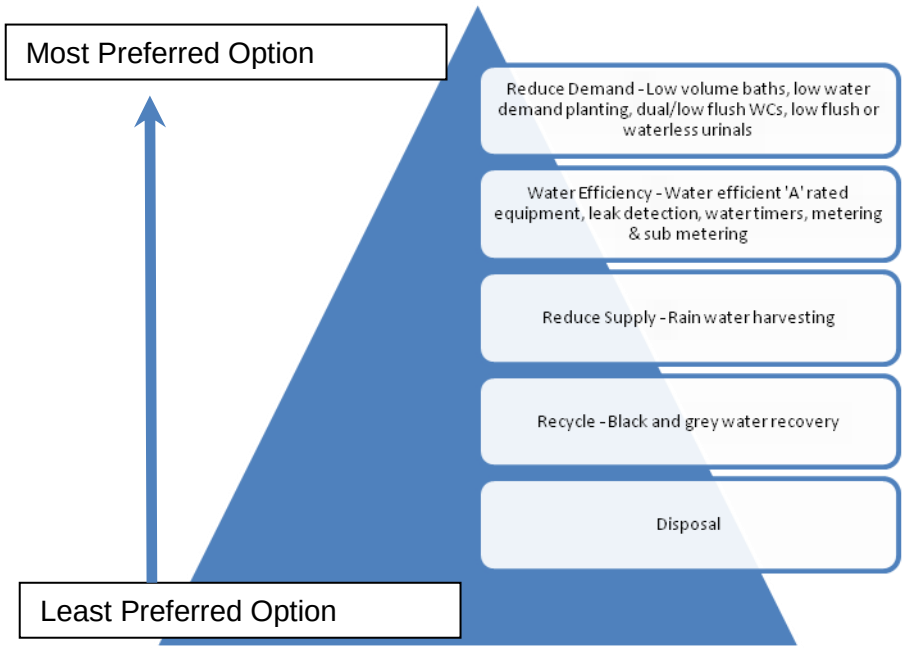
Water efficiency becomes increasingly important in a changing climate with precipitation that will become more variable and erratic in any given year. The south east is already an area of 'serious water stress', so the prudent use of water resources is of particular importance both now and in the future.

In the south east, around 150 litres of water per person is consumed every day. The chart below shows how water is used:



(Data source – Cliftonville Report)

The Cliftonville Report suggests that in order reduce water consumption, the management of water in proposed development should follow the principles of the hierarchy of water consumption:



The report suggests reducing water use to a baseline of 105 litres per person per day

This can be achieved both in retro fitting existing buildings, and in new developments by measures such as:

- tap flow regulators
- low volume capacity baths
- reduced flow, aerated showers
- low volume, dual flush wcs
- water efficient appliances
- rainwater harvesting tanks

Flooding

Flooding has become a significant issue in recent years, and the NPPF states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but without increasing the risk of flooding elsewhere. This is known as the 'Sequential Test' and is accompanied by an 'Exception Test' to be applied where necessary. Thanets strategic flooding issues are covered in more detail in the Water Cycle Topic Paper. It is considered unlikely that specific policies regarding flood risk areas will be needed as they are covered in the NPPF and accompanying Technical Paper.

However, localised surface water flooding is an issue which is not covered by any of the other strategic level documents. The Water Cycle Topic Paper refers to the Surface Water Management Plan which identifies the use of Sustainable Drainage Systems (SUDS) as a way of reducing the risk of surface water flooding.

SUDs are designed to efficiently and sustainably drain surface water, while minimising pollution. Surface water runoff in built up areas tends to flow rapidly into the sewer system, which places a burden on the sewerage network and increases flood risk downstream as piped systems have limited capacity. SUDS can slow the rate at which water disperses, thus reducing the risk of flooding.

SUDs are more sustainable than traditional drainage methods because they:

- Manage runoff volumes and flow rated from hard surfaces, reducing the impact of urbanisation on flooding
- Protect or enhance water quality by reducing pollution from runoff
- Are sympathetic to the environment and the needs of the local community
- Provide wildlife habitats

Methods of achieving this are described in Table 2:

Table 2: Sustainable Drainage Options

Method	Description	Advantages	Disadvantages
Green roofs	Multi-layered systems comprising of vegetation cover or landscaping above a drainage layer	Effectively remove pollutants Suitable for high density developments Ecological, aesthetic and amenity benefits No land take necessary Air quality improvement	More expensive than traditional run off Not suitable for steep roofs Needs maintenance Waterproofing vital
Rainwater Harvesting	Re-use water and reduce the rates of surface run-off	Control the flow of surface run-off Reduces demand for mains water Methods such as water butts cheap and easy to install	Pollution risk Underground storage tanks can be complex and costly Unsightly if storage is above ground
Rain Gardens	Captures and soaks up water that runs off roofs ,driveways and other hard surfaced areas. Acts as a filter so clean water then	Inexpensive, easy to build, attracts wildlife and create habitats	If built incorrectly, could accumulate standing water or increase erosion

Method	Description	Advantages	Disadvantages
	slowly soaks into the ground. Planted with trees and shrubs suitable for moist conditions		
Permeable Paving	Allows surface water to infiltrate through the paving into the soil beneath. Water can be temporarily stored in the paving before it is infiltrated or released into a drainage system	Removes pollutants Reduce the rates of run-off Low maintenance	Cannot be used in areas at risk of being swamped by large sediment loads Ice prevention Prevention of surface ponds
Infiltration/filtration trenches	A shallow, excavated channel to create an underground reservoir – filtration trenches include a perforated pipe so water filtrates into the surrounding soil and is then transferred to a disposal unit	Infiltration reduced run-off Water pollution is reduced by filtration through to the soil Trenches can be built into the landscape Particularly useful for highway/residential road run off due to their linear nature	Blockages are common and difficult to find Build-up of pollutants difficult to see Limited to small catchments High replacement cost Thanet is particularly vulnerable to this method due to its thin soils and already poor quality of groundwater

Infiltration methods are unlikely to be appropriate in some parts of Thanet due to the quality of the groundwater. Groundwater from the chalk rock beneath the Isle of Thanet is used to supply water for drinking water, agriculture, horticulture and industry. It also feeds the springs that emerge along the coast and near the marshes. The Isle of Thanet groundwater is extremely vulnerable to contamination as substances (natural substances and man-made chemicals) are able to pass rapidly through the thin soils and the natural fissures (cracks) in the Chalk rock to the groundwater below the ground surface.

Under the Water Framework Directive (WFD), the Kent Isle of Thanet Groundwater Body has been classified as poor status for the groundwater quality and quantity. The groundwater is impacted by nitrates, pesticides, solvents and hydrocarbons at levels that are of concern. The acceptability and construction details of infiltration devices is not only based on whether the site is in a Source Protection Zone, it also depends on whether the ground conditions are suitable (i.e. free from contamination) and if there are adequate unsaturated area to help reduce any discharge.

Other issues

Sustainable Design and Construction and Coastal Change are other issues relating to adapting to Climate Change. Discussions around these issues and policy options can be found in the Quality Development Topic Paper and Natural Environment Topic Paper respectively.

Mitigation

Mitigation refers to actions that reduce our contribution to the causes of climate change. This means reducing our emissions of greenhouse gases, such as carbon dioxide (CO_2), through energy efficiency and using alternative forms of transport and energy

(http://www.ukcip.org.uk/essentials/mitigation/)

There are various mitigation measures against climate change that can be implemented. These include:

- Reducing emissions by design
- District Heating
- Wind Energy
- Reducing emissions from traffic

Renewable Energy Opportunities in Thanet

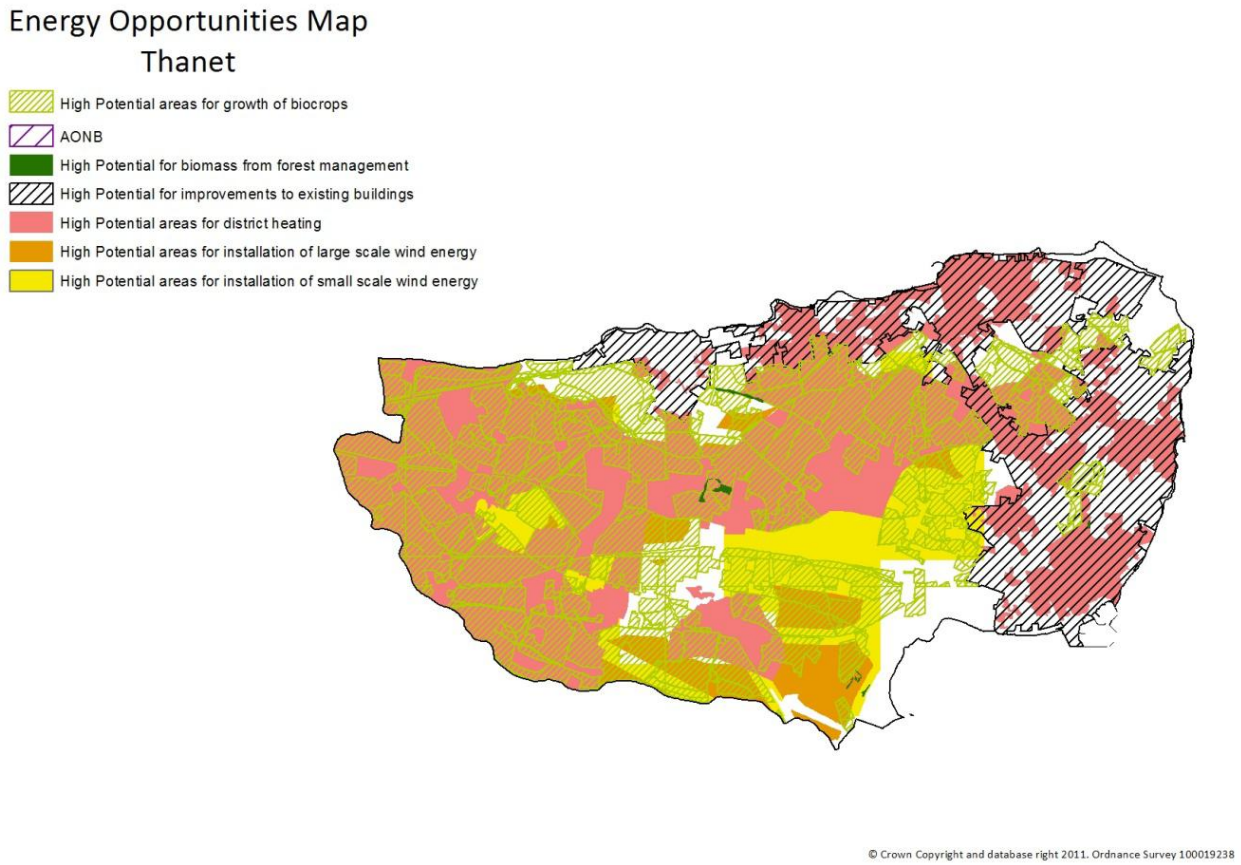
Kent County Councils Renewable Energy report identifies a need for clear and supportive policies for renewable energy projects to help increase developer confidence.

It identifies five partners who may deliver renewable energy:

Energy Developers	Delivery of large scale energy opportunities. Need clear planning policy and support from local authorities and communities
Housing Developers	Developers will deliver renewable energy installation in new development, meeting carbon reduction requirements under the Building Regulations and zero carbon housing proposals
Public Sector	Actively delivering small installations across Kent, predominantly on their own properties
Private Sector	Individual businesses and industry delivering a range of technologies – driven by a clear business case for energy savings and business credibility.
Communities	Capable of delivering small scale micro-generation. Impetus is reliant on personal commitment

Map 1 shows areas considered appropriate for various renewable energy opportunities in Thanet:

Map 1 – Renewable Energy Opportunities



Source: Renewable Energy for Kent. Aecom 2012.

As discussed earlier in this document, solar parks have become a significant renewable energy opportunity in the district. Map 2 shows sites where permission has been granted for solar parks – it may be possible that other sites could be considered for further development of solar parks. However there are potential negative impacts to the countryside and landscapes and views as a result of such development.

Map 2 – Location of Solar Parks

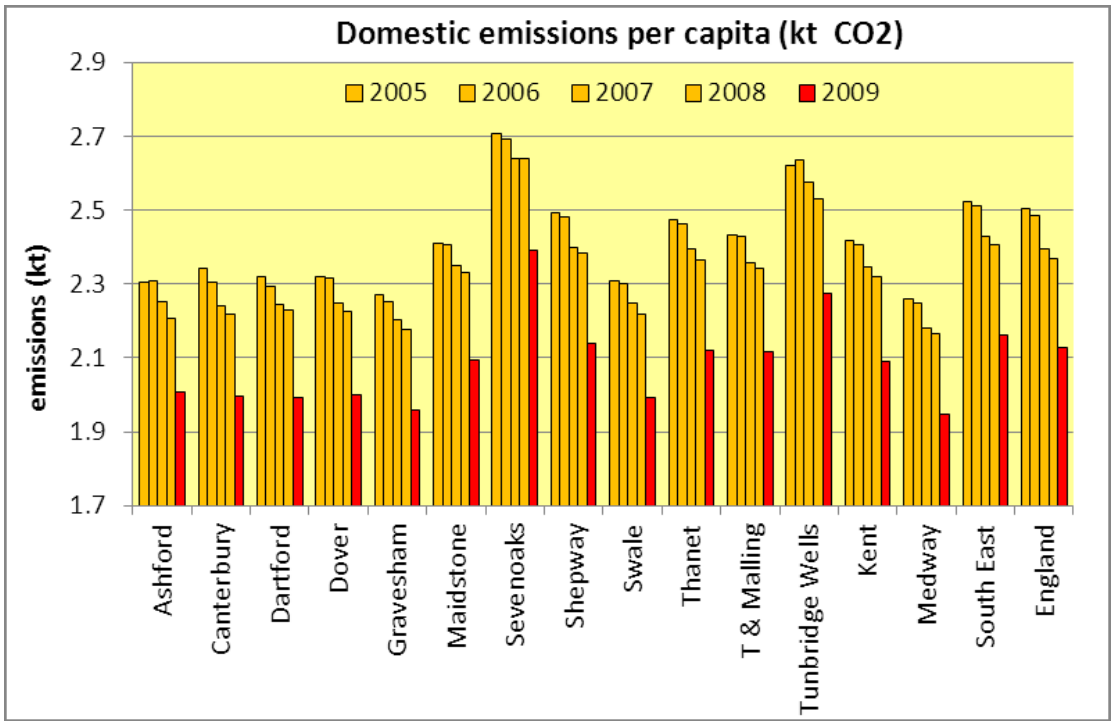
Map to follow

Reducing emissions by design in new development

The design of a building or development can help adapt to climate change by increasing solar gain and reducing winter heat loss.

Chart 1 shows Thanets domestic emissions per capita in comparison to other Kent districts:

Chart 1 – Thanets Domestic Emissions



The government has consulted on new building regulations as part of their Zero Carbon Homes Policy which will increase the energy efficiency of buildings and is expected to come into force this year. The new regulations aim to introduce zero carbon standards from 2016 for homes, and by 2019 for non domestic buildings by

- Developing and driving a prioritised programme for the energy efficiency aspects of low carbon homes leading to the delivery of mainstream zero carbon homes from 2016
- Developing and driving a prioritised programme that deals with the energy supply aspects of delivering low and zero carbon homes

These could have viability implications in Thanet. The Council commissioned an Economic Viability Assessment of development to inform its review of the SHLAA. Part of this assessment included an assessment of the impact upon viability of providing homes to sustainable and lifetime standards and to support mixed communities.

Table 3 summarises the findings, based on a recommended provision of affordable housing at 30%:

Table 3 – Viability of Code for Sustainable Homes Levels in Thanet

Code Level	Viable
3	Yes
3 + water requirement at level 5	Yes
4	Yes
4 + water requirement at level 5	Affordable housing provisions would need to be reduced from 30% to 20% for development to be viable
5	Affordable housing provisions would need to be reduced from 30% to 10% for development to be viable

There are measures that can be taken in the design of new development that will help reduce energy consumption and provide resilience to increased temperatures, such as:

- the use of landform
- layout
- provision of adequate space for recycling and composting
- building orientation
- tree planting
- landscaping

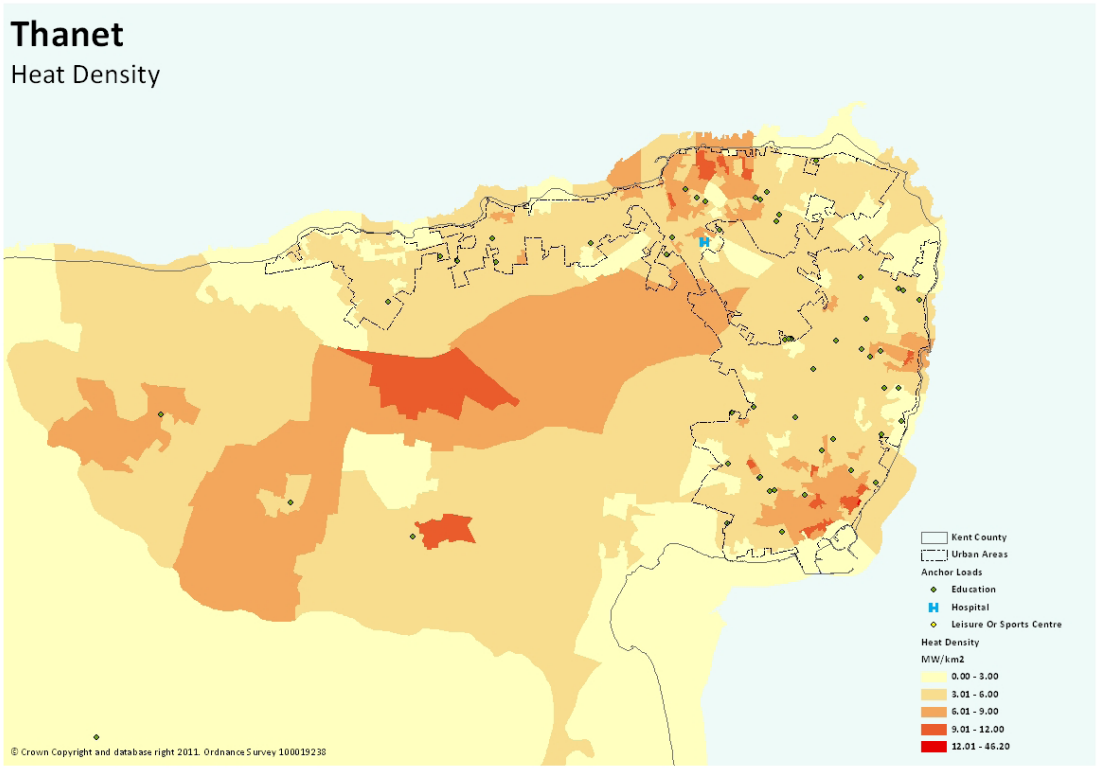
Landscaping can be particularly beneficial as it can provide stepping stones, wildlife corridors or new habitats, and contribute to Thanets Green Infrastructure network. In terms of adapting to climate change, building integrated vegetation (ie planting on building walls and roofs) can help to reduce solar gain as vegetation has a much higher reflective capacity than masonry, as well as providing a cooling effect through evapo-transpiration. Planting can also help mitigate against poor air quality by presenting a large surface area for filtering air. A large tree can deliver the same cooling capacity as five large air conditioning units running for 20 hours a day during hot weather (Cliftonville Report). New planting can help provide more comfortable, cooler spaces via summer shading.

District Heating

District heating schemes supply heat from a central source directly to homes and businesses through a network of pipes carrying hot water. This means that individual homes and business do not need to generate their own heat on site.

Large energy users, or 'anchor loads' are an essential part of a district heating network to provide a base heat demand that will allow a system to run efficiently. Anchor loads could be large energy users such as industry, schools, hospitals or leisure centres with heated swimming pools. Map 2 shows a heat map for Thanet showing potential areas suitable for District Heating:

Map 2 – Heat Map for Thanet



Source: Renewable Energy for Kent. Aecom 2012.

District heating is most suitable where there is a high density of built development, and especially where there is a mix of building types. (The high heat density shown outside the urban boundary is the airport.)This diversity of energy demand helps to keep combined heat and power (CHP) or boiler plant running in a more steady state for longer – which is more efficient.

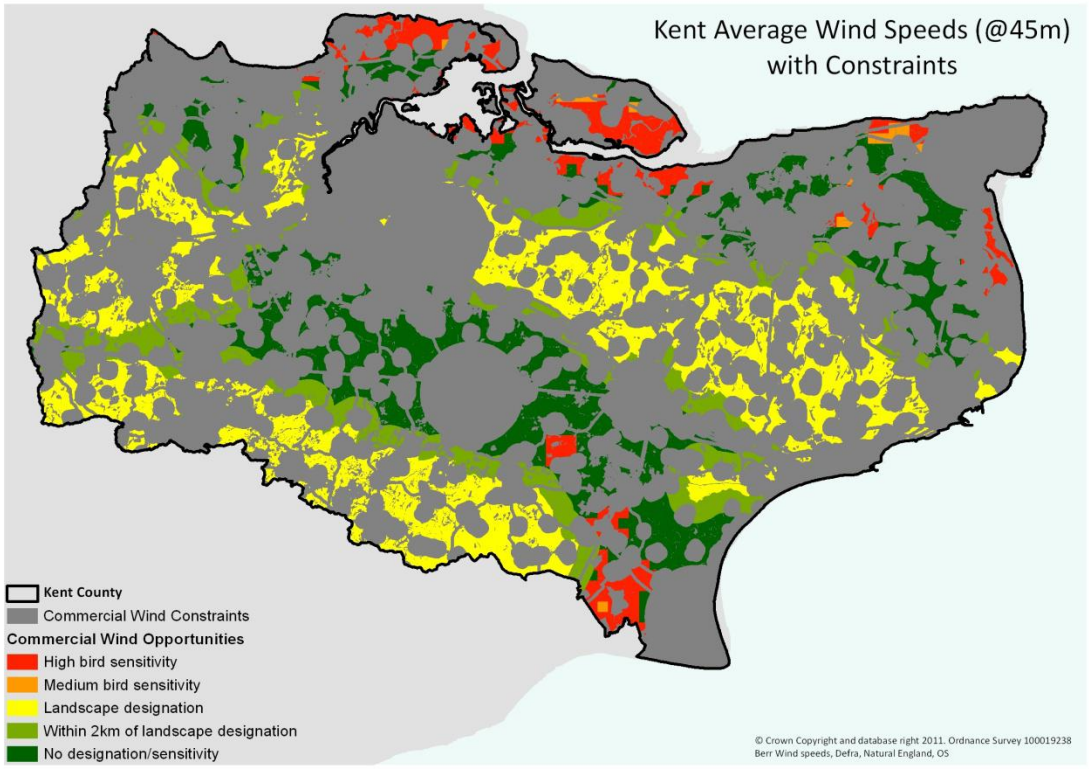
The Renewable Energy for Kent report identifies the following scale and types of district heating networks which may come forward:

Small local networks: Typically between 10 and 50 homes in a street or a block. Gas fired boilers or biomass boilers supplying heat only
Medium size networks: Typically over 200 homes and normally with an 'anchor building' (i.e. a school, hospital or leisure centre)
Large networks – A number of small and medium sized networks linked up and perhaps taking heat from a large biomass or energy from waste power station.

Wind Energy

The Kent Renewable Energy Report has mapped opportunities and constraints for potential large scale wind developments as shown in Map 3. The constrained areas have been greyed out.

Map 3 – Average Wind Speeds for Kent



Source: Renewable Energy for Kent. Aecom 2012.

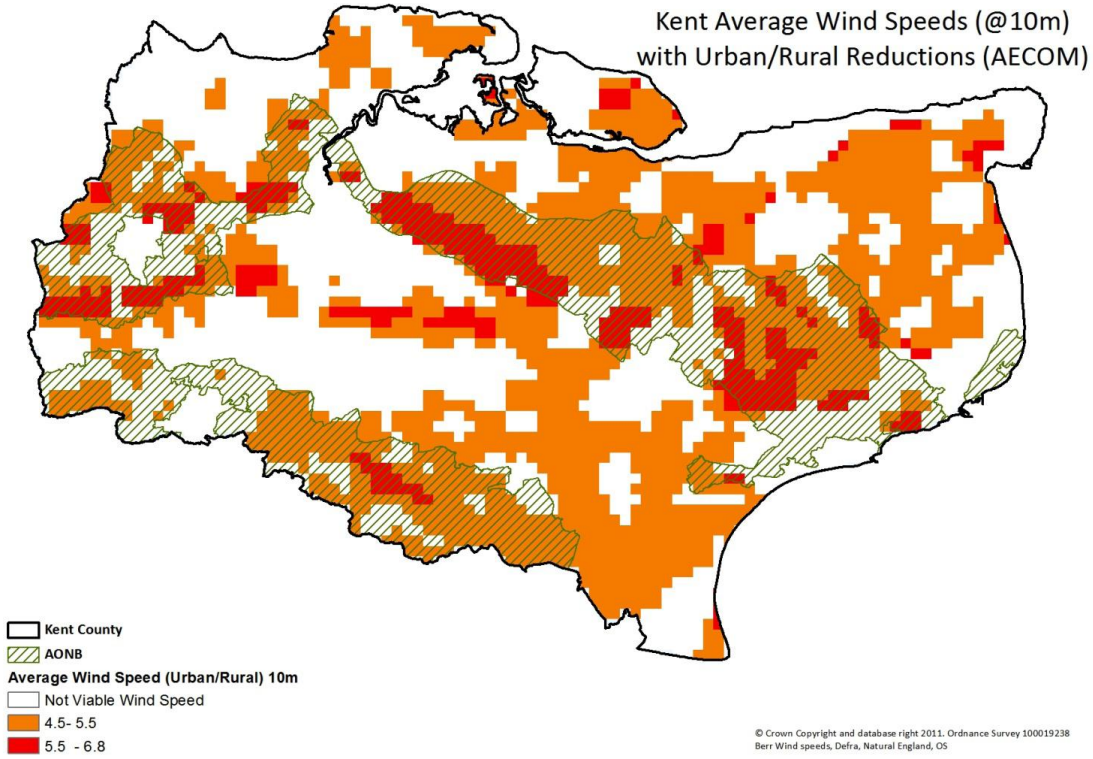
The map shows Thanet as being greyed out, therefore constrained and not suitable for large scale wind development. Examples of the constraints considered are:

Fixed Constraints	Possible additional constraints	Deployment Constraints

• Roads • Railways • Inland Waterways • Built up areas • Airports • Ancient Woodland • Site of Historic Woodland • International and national nature designations (buffers around above where applicable)	• National Parks and Local Nature Designations, Kent Downs AONB (with buffers) • Proximity to National Grid • Radar • Bridleways and footpaths buffer	• Planning barriers • Funding • Economic viability (commercially attractive wind speeds) (Not all of the above could be mapped)

The report also considers the potential for medium and small scale wind as shown on Map 4.

Map 4 – Kent Average Wind Speeds (at 10 m)



Source: Renewable Energy for Kent. Aecom 2012.

The map shows that much of the district does not achieve sufficient wind speed for medium and small scale wind. However there are some areas where sufficient wind speeds may be achievable.

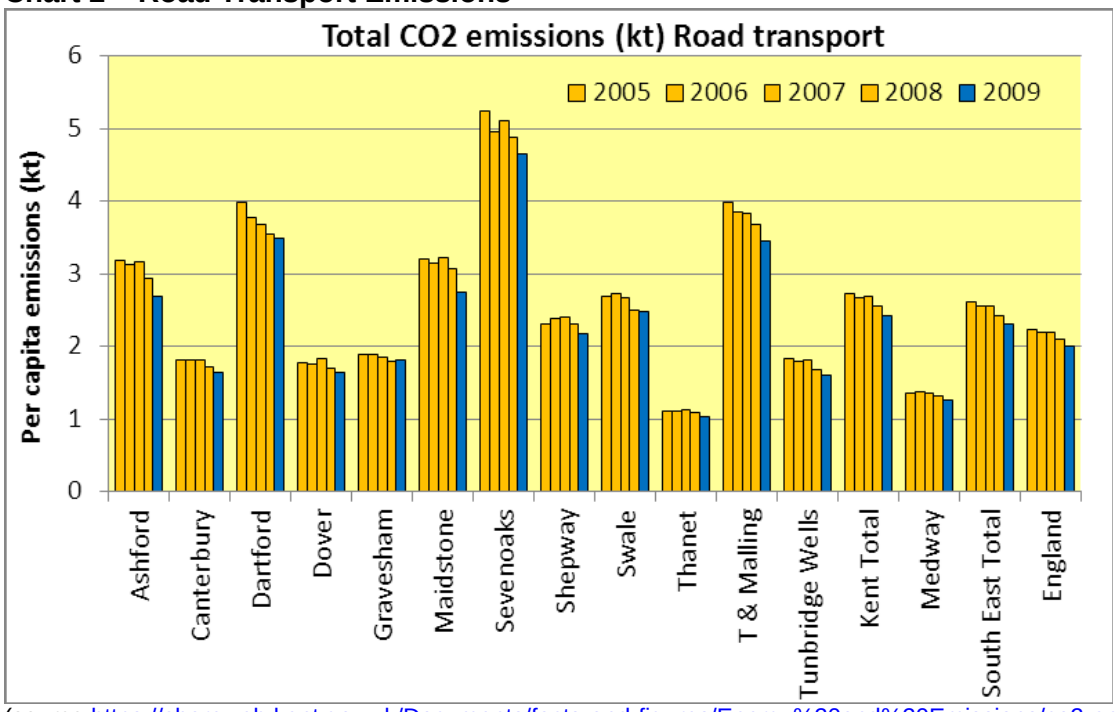
Medium scale wind turbines may be delivered in rural areas by farmers, land owners and communities. Small scale turbines are likely to come forward for school and community buildings and for business centre developments. Medium and small scale turbines are less efficient and proportionally to energy output are more expensive, however they have fewer barriers for deployment and can help raise awareness of the importance of low carbon energy. Local assessment will need to examine the realistic potential for small scale wind in more detail, as it is suggested that small turbines should only really be promoted where wind speeds are good and the site is not obstructed by trees and other buildings. Consideration may also need to be given to the proximity of any proposed turbines to the airport as they can affect the airports surveillance radar and instrument landing systems.

Reducing emissions from traffic

Within the context of an established development pattern, the most significant change likely to generate demand for travel will result from new housing development. The proportion of households with access to a car in Thanet remains lower than in any other district in the county. Hence KCCs Carbon Footprint Report (2009) identifies Thanet as having the lowest per capita road transport carbon emissions at 1.03kt per person – this is almost half the national figure. This could also be due to Thanets peripheral location – 40% of carbon emissions comes from freight vehicles. Due to the location of the District, it would not have traffic 'passing through'.

Chart 2 shows Thanets road transport emissions from 2007-2009 in comparison to the rest of the county)

Chart 2 – Road Transport Emissions



(source https://shareweb.kent.gov.uk/Documents/facts-and-figures/Energy%20and%20Emissions/co2-emissions-2009.pdf

The chart shows that Thanets emissions are comparatively low compared to other Kent districts, however Thanets reduction in emissions over the 5 year period is not as good as some other authorities.

Despite Thanets comparatively low emissions from transport, there are still areas which have been designated Air Quality Management Areas as the volume of traffic passing through those areas has polluted the air quality to a level which fails to meet the governments air quality standards, and could have a detrimental impact on our quality of life. This issue is dealt with in more detail in the Quality Environment Topic Paper.

It is necessary, therefore, to consider the location of development in areas accessible to a range of services on foot and by public transport, preventing urban sprawl and improving local high streets and town centres. These issues are discussed further in the Housing Topic Paper Part C, and the Transport Strategy.

Other measures to consider include providing safe and attractive cycling and walking opportunities, including showers and changing facilities in employment related development, and locating cycle parks close to town centres/entrances.

Kent County Council secured Local Sustainable Transport funding to fund the following projects that will help cut transport carbon:

- £60K to East Kent Hospitals University Foundation Trust for improved cycle storage
- £300K towards interchange and onward journey enhancements at Margate station
- £250K towards interchange and onward journey enhancements at Ramsgate station
- Station Travel Plan initiatives
- Ongoing development of Smartcard ticketing technology

Schools engagement

- Support for a range of walk to school initiatives including Walking Buses, Walk on Wednesday (WoW) and Active Bug.
- Roll out of Kent Rider + National Standard Cycle training with grant funding from Department for Transport.
- Support for school travel plans.
- Targeted road safety and sustainability awareness packages e.g. Small Steps and Zig Zag parking.

Workplace engagement

Development of 'New Ways 2 Work' - a collaborative partnership with Kent Business to support work place travel plans and sustainable travel choices.

Conclusion

The evidence set out it in this paper has indicated that the following policy options may be appropriate for Thanet in terms of adapting to, and mitigating against Climate Change:

Adaptation

- Requirement for new development to include water efficiency measures
- Requirement for conversions of buildings to include retrofitting measures
- Restrict development along the coast where it may be affected by coastal erosion
- Apply a local policy in relation to flood risk to expand on the requirements of the NPPF
- Encourage the use of Sustainable Drainage Systems in new development to manage surface water run off

Mitigation

- Require new development to meet a specific Code for Sustainable Homes level
- Require new development to obtain an element of its energy from renewable or low carbon sources
- Encourage District Heating systems in suitable and viable locations
- Require new developments to incorporate measures to reduce the use of the private car
- Encourage development of solar farms in appropriate locations (with criteria to assess applications)
- Encourage other forms of renewable energy developments in appropriate locations
- Allocate sites/identify areas which would be suitable for large scale renewable energy development

Appendix 1 – Policy DCS23 from draft Core Strategy

DCS23
Proposals to improve energy efficiency including decentralised and renewable or low carbon energy development will be supported unless they result in unacceptable environmental impact.

Where feasible and viable, development of 10 or more dwellings or 1000m^2 of non-residential floor space should secure at least 10% of their energy from decentralised and renewable or low carbon sources

Appendix 2 – Applications for Solar Parks

Application	Address	Proposal	Electricity generated per annum	Local Plan Policies used in decision
F/TH/12/0233	Land East of Woodchurch Road, Birchington	approx 1000 panels , 250KWp	approx 245,000 KW hours	CC1 CC2 TR16 D1 D2 HE11 and 12
F/TH/12/0705	Land South of Telegraph Hill Industrial Estate, Laundry Road, Minster	approx 51 panels, 250KWp	Approx 250KW	CC1 CC2 TR16 D1 D2 HE11 and 12
F/TH/12/0722	Land South of Great West Autos, Manston Court Road, Ramsgate	34,560 panels, 12.65mwp	12,000 MWh which could supply over 3,500 households, saving 538,044kg carbon dioxide	CC1 CC2 TR16 D1 D2 HE11 and 12 EP13
F/TH/11/0111	St Nicholas Court Farm, Court Road, St Nicholas at Wade	2,400 panels, 0.5MWp	500 megawatt hours	CC1 CC2 TR16 D1 D2 HE11 and 12
F/TH/11/0029	Ebbsfleet Farm, Ebbsfleet Lane, Ramsgate	20,000 panels, 4-5 MWp	4,000-5,000 megawatt hours	CC1 CC2 D1 D2
F/TH/12/0059	Land on west side of Ebbsfleet Lane, Ramsgate	1062 panels, 250KWp	Approx 245,000 kilowatt hours	CC1 CC2 TR16 D1 D2 HE11 and 12
F/TH/12/0239	Land adjacent Woodchurch Farmyard, Park Road, Birchington	1000 panels, 250KWp	Approx 245,000 kilowatt	CC1 CC2 TR16 D1 D2 HE11 and 12
F/TH/11/0751	Monkton Court Farm, Monkton Street, Monkton	204 panels, 50 KWp	45,000 kilowatt hours	CC1 CC2 TR16 D1 D2 HE11 and 12
F/TH/12/0244	Monkton Court Farm, Monkton Street, Monkton (application	1000 panels, 250KWp	245,000 kilowatt hours	CC1 CC2 TR16

Application	Address	Proposal	Electricity generated per annum	Local Plan Policies used in decision
	for additional, larger panels)			D1 D2 HE11 and 12
F/TH/11/0844	The Elms Farmhouse, Canterbury Road, Sarre	204 panels, 50KWp	45,000 kilowatt hours	CC1 CC2 CC10 D1 D2 HE11 and 12
F/TH/11/0854	Walters Hall Farm House, 47 Monkton Street, Monkton	204 panels, 50KWp	45,000 kilowatt hours	CC1 CC2 TR16 D1 D2 HE11 and 12
F/TH/11/1079	Raymond Wireworks, Hoo Farm Unit 7, 147 Monkton Road, Minster	1000 panels, 250KWp	245,000 kilowatt hours	CC1 CC2 TR16 D1 D2 HE11 and 12

Full Policy Titles
CC1 – Development in the Countryside (Urban and Rural Confines)
CC2 – Landscape Character Areas
CC10 – Farm Diversification
TR16 – Car Parking Provision
D1 – Design Principles
D2 - Landscaping
HE11 – Archaeological Assessment
HE12 – Archaeological Sites and Preservation
EP13 – Groundwater Protection Zones

Appendix 3 – Assessment of renewable energy requirements in small scale major developments

Application number	Address	Proposal	Renewable Energy measures under NRM11 requirements	Other measures
09/0285	Land at junction Wilderness Hill and Dane Road, Margate	Erection of 16 dwellings	Condition stating that 10% of dwellings should meet CSH Level3 and should make use of decentralised or renewable energy sources	
09/0428	Ellington High School, Ellington Place, Ramsgate	12 terraced houses, 16 flats	Condition stating that 10% of dwellings should meet CSH Level3 and should make use of decentralised or renewable energy sources – applicant proposes Water heating via solar thermal means	Water butts in all gardens All dwellings meet Lifetime Homes standards Dual flush toilets and flow restrictors
09/0808	Capital House, Northdown Road, Margate	7 no. 4 bed houses, 5 no.3 bed houses, 2 no. 4 storey buildings containing 23 no. 2 and 3 bed flats	Proposals will include solar water heating	Dwellings meet Lifetime Homes standards Dwelllings built to CSH Level 4 Proposals will include SUDS, low volume baths, dual flush toilets, low flow fixings
09/1041	Land adjacent the Promenade, All Saints Avenue, Margate	Erection of 7no. houses and 4 storey building to contain 14.no flats		2 units built to Lifetime Homes standards, All units CSH Level 3
10/0121	6 North Foreland Road, Broadstairs	Erection of 14 no. 2 and 3 storey dwellings	Condition stating that 10% of dwellings should meet CSH Level3 and should make use of decentralised or renewable energy sources	
10/0304	The Centre, Newington, Ramsgate	54 no. 2 and 3 storey houses, 240 sqm retail with 6 flats above		CSH level 3 and Lifetime Homes Standards
10/0345	St Benedicts Catholic Church, Whitehall Road & 43 Newington Road,	12 no. terraced houses, 16 no. flats	Hot water solar panelling to southern roof slopes	Water butts for rainwater harvesting SUDS strategy Units to be built to CSH Level 4 and

Application number	Address	Proposal	Renewable Energy measures under NRM11 requirements	Other measures
	Ramsgate			Lifetome Homes standards
10/0435	2 & Caffyns garage, Grange Road, Ramsgate	2 storey, 3storey and 4 storey building to contain 39 no.flats and 3 houses		CSH level 3 and lifetime homes Large windows for passive solar energy Summer shade from balconies and reveals Open space for natural drainage Permeable paving
10/0525	45-49 and 51 Sea Road, Westgate	9 no. 2 bed flats, 7 no. 2 bed flats, two no. 3 and 4 storey buildings containing 14 no 2 bed flats, 1 no. 1 bed flat, 7 3 storey houses	Mixture of measures to achieve 10% energy from renewable sources including feed-in tarrif system for decentralised energy and air source heat pumps	15% of units to Lifetime Homes Standards
10/0581	21-23 Arthur Road and adj land in Dalby Square, Margate	12 no. 3 bed townhouses, 8no. 2 bed flats	Solar thermal panels for hot water heating	CSH Level 3 Lifetime Homes standards Dual flush toilets Flow restricters Water butts
10/0753	Car Park, Vere Road, Broadstairs	14 no. dwellings	Condition stating that 10% of energy should be derived from decentralised or renewable energy sources Potential for solar panels on south facing roofs and grey water recycling	CSH Level 3
11/0094	Land north of Haine Road, Broadstairs, and west of Nash Road, Margate			Orientation of buildings within 30 degrees of due south to maximise passive solar gain SUDs Low flush toilets, spray taps, water efficient shower heads 10% to meet Lifetime Homes standards
11/0177	Dane Valley Arms, Dane Valley Road, Margate	9 no. houses, 4 storey building containing 1 no. 3 bed flat and		All homes to meet CSH Level 4 Units 1-3 to meet Lifetime Homes

Application number	Address	Proposal	Renewable Energy measures under NRM11 requirements	Other measures
		3no. 2 bed flats, public house at ground floor		Standards
12/0579	94 High Street, Broadstairs	3 and 4 storey buildings to accommodate 14no. 2 bed flats		Homes to meet CSH Level 3
12/0707	169-171 Pegwell Road and land r/o 1-6 and 16 Downs Road, Ramsgate	11 Dwellings	Condition stating that 10% of dwellings should meet CSH Level3 and should make use of decentralised or renewable energy sources	

If you would like a copy of this document in a different format such as Braille, audio or large print, or in another language please call

01843 577165

Printed by Thanet District Council