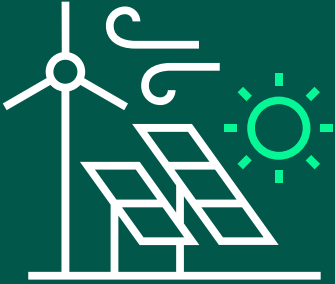


CARBON NEUTRALITY AND DESIGNING FOR LOW CARBON INFRASTRUCTURE



**YOUR PLACE
YOUR PLAN.**
Winchester District Local Plan

BACKGROUND

4.1

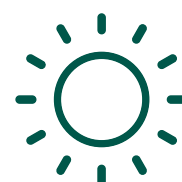
Mitigating and adapting to climate change and designing for low carbon infrastructure are vitally important and defining issues for the council's new Local Plan. This is because the Local Plan has a key role in assisting the council with meeting its net zero target by 2030.

4.2

The city council has declared a climate emergency in order to address the fact that our daily activities and lifestyles are not sustainable as the way that we are currently living is releasing greenhouse gases (predominantly carbon dioxide) into the atmosphere. This is resulting in changes to our seasons, increasing frequency of heat waves, droughts, and more extreme weather conditions all of which cause changes to our landscapes and ecosystems. The use of our finite resources combined with the widespread and potentially devastating impacts of climate change places a responsibility on all of us to reassess how we plan, design, construct and occupy our homes and the places that we work. The Local Plan also has a key role in moving residents, businesses and visitors to our district away from using fossil fuels and instead promoting more sustainable modes of transport.

4.3

Whilst this section of the Local Plan includes a number of policies to address carbon neutrality and low carbon infrastructure, climate change crosses over with a number of other policies/topics which is why it is important that the Plan is read as a whole.



CLIMATE CHANGE ACT AND THE COUNCIL'S CLIMATE EMERGENCY

4.4

The council as a Local Planning Authority has a legal duty to help meet the requirements of the Climate Change Act 2008 by ensuring the Local Plan includes policies designed to mitigate and adapt to climate change.

4.5

According to the council's Carbon Neutrality Action Plan (2020 -2030) which has been prepared in direct response to the council's declared emergency <https://www.winchester.gov.uk/climate-change-and-energy> the predicted consequence of climate change is that there will be increased extreme weather events, and in many areas this is already being seen:

- Flooding – damage to property, disruption to business, health and well-being of displaced residents;
- Heat and cold – health risk for vulnerable people, pressure on emergency and health services;
- Drought – pressure on river system health, depleted aquifer/reservoir volumes, negative impact upon agriculture, fire risk; and
- Impact on ecosystems – in terms of altering the water cycle, habitats, animal behaviour and the timing of natural processes such as flower blooms which can have any impact on terrestrial, freshwater, and marine species who rely on food supplies as part of their migration patterns.



4.1
-
4.5



THE ROLE OF THE LOCAL PLAN

4.6

It is important to note that planning does not have control over all of the actions that are needed in order to encourage us to live a more carbon neutral lifestyle. Change will be required across many areas that fall outside matters that spatial planning can influence or control.

4.7

The Local Plan does have a vital role in making a valuable contribution and creating a positive planning framework by requiring a higher quality and healthier environment for all of our residents and visitors. It can be used in a positive way to preserve and enhance the existing ecosystems and the creation of new wildlife habitats (Policy NE5 Biodiversity Net Gain).

4.8

In order to meet our next zero target by 2030, the policies included in the Local Plan have an important promotional role. They encourage renewable energy proposals to come forward for development, as well as supporting and encouraging green business opportunities in line with the council's Green Economic Development Strategy. All of this will assist the district moving towards a green economy.



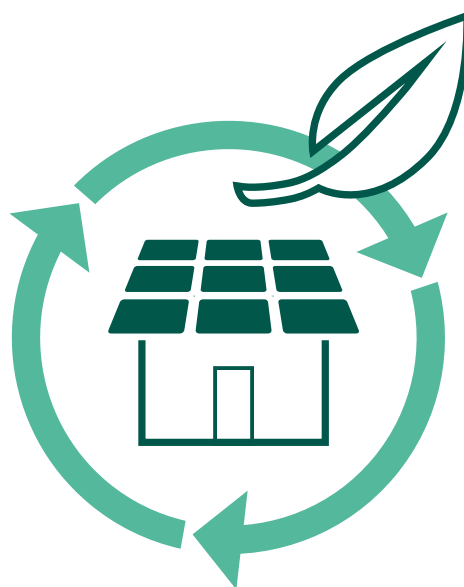
PLANNING AND DESIGNING FOR CARBON NEUTRALITY AND ADAPTING FOR CLIMATE CHANGE

4.9

It is vitally important that planning for carbon neutrality and mitigating and adapting for climate change are fully considered as part of development schemes. They should demonstrate this has been addressed right at the start and throughout the design process – see high quality well designed places and living well topic. This is to ensure that development that we are planning for now is fit for purpose in the long term.

4.10

The city council wants carbon neutrality and sustainability issues to be right at the forefront of developers/architects minds by requiring them to demonstrate at the planning application stage how carbon and climate change issues have been fully considered and corresponding measures integrated into the design process. By taking this approach it will help to reduce greenhouse gas emissions, slow down climate change but it can also stimulate investment in new green jobs and businesses where the local environmental impact is acceptable. All of the above will require the support and involvement of local communities.



4.11

It is also equally important that opportunities are explored as part of the design process to maximise the natural processes that can take carbon out of the atmosphere, known as ‘carbon sequestration’. For example, the provision of Green/Blue Infrastructure (Policy NE4) is equally as important as new development needs to be designed in a way to help to mitigate the impacts of high temperatures and overheating (Policy CN1, reduce flood risk through use of Sustainable Urban Drainage Schemes (SuDS) (Policy NE6) and increase biodiversity net gain (Policy NE5).



PLANNING AND DESIGNING FOR CARBON NEUTRALITY AND ADAPTING FOR CLIMATE CHANGE

Key issues

- i. The Climate Change Act commits the UK government to reducing greenhouse gas emissions by at least 100% of 1990 levels (net zero) by 2050.
- ii. The council agrees that carbon neutrality is a vitally important issue and is a major urgent priority as it has published its Carbon Neutrality Action Plan 2020 - 2030 which sets out how it will deliver against the ambition to be a carbon neutral district by 2030. Carbon neutrality is an increasingly important issue. It is the council's priority to tackle this and to develop the new Local Plan through the lens of the climate emergency in order to ensure that it supports and aligns with the council's Carbon Neutrality Action Plan 2020 - 2030.
- iii. All activities and services delivered have a role to play in assisting us with moving towards carbon neutrality and factors which may lead to exacerbate climate change (through more greenhouse gases) should be avoided (e.g. pollution, habitat fragmentation, loss of biodiversity) and the natural environment's resilience to change should be protected.
- iv. The Local Plan is a really important tool that can be used to change the ways that we do things and the way that the district grows and changes in the future as it looks forward to 2040.
- v. The effects of climate change and adaptation are most likely going to be felt by the most vulnerable members of our society.
- vi. The COVID-19 pandemic has highlighted the important role that planning can have in tackling climate change and it is extremely important that we take some of the key lessons learnt from the pandemic to future proof the district against the impacts of climate change.
- vii. The Local Plan has a role to play in terms of reducing the carbon footprint of the district but also ensuring that new development is directed towards areas where it is fully integrated with existing sustainable infrastructure, services and is not designed around car-dependency. It is recognised that it is a large rural district so inevitably not all development supported by our plan will be low carbon and in a sustainable location (some rural based development like agriculture and tourist accommodation for example).
- viii. The Government requires councils to work closely with a range of infrastructure and service providers as part of the development of the Local Plan and is required to prepare an Infrastructure Delivery Plan (IDP).
- ix. Under the current planning system the IDP provides a comprehensive understanding of the existing infrastructure and any new infrastructure that will be required to support the proposals that are included in the new Local Plan.

- x. The recognition that infrastructure has both a direct impact on the environment through its footprint, and indirectly through people's use of it e.g. use of roads for vehicles leading to air pollution.
- xi. When new infrastructure is required, it is important that the Local Plan supports proposals for low carbon energy infrastructure which will assist the council moving towards the target of carbon neutrality.
- xii. Ensuring that when infrastructure is needed, the timing and the delivery of infrastructure is aligned with the development allocated by the Local Plan.
- xiii. The Local Plan needs to be clear how it can achieve low carbon energy infrastructure but also how it can support the dramatic change in the way that we will all move around in the future.
- xiv. A key part of the Local Plan is that the cost of the supporting infrastructure, including any policies that would support the council's move towards carbon neutrality, are deliverable and how this can be funded needs to be tested through the Viability Assessment.



Definitions:

Climate change mitigation –

this describes the range of measures that can be taken to reduce the impact of climate change in terms of locating, designing, constructing and occupying new development.

Climate change –

this is about how we need to as part of the planning and design process take into account the effects of climate change in terms of managing the impact of extreme and changing weather conditions and using resources efficiency.

Carbon neutrality –

refers to the idea of achieving net zero greenhouse gas emissions by balancing those emissions so that they are equal (or less than) the emissions that are removed through the planet's natural absorption

Low carbon infrastructure –

these are proposals that generate fewer carbon emissions than using fossil fuels by generating power from solar, wind and other green energy proposals.



Key
Issues

STRATEGIC POLICY

Minimising carbon emissions and ensuring climate change and adaptation issues are embedded in the Local Plan

4.12

The NPPF and the associated Planning Policy Guidance (PPG) indicates that Local Plans should take into account the need for renewable and low carbon energy and heat. Local plans need to include a positive strategy for the delivery of these matters and consider the identification of suitable areas for renewable and low carbon energy sources and supporting infrastructure.

4.13

In order to ensure that the Local Plan supports the aims of the NPPF and the council's climate emergency declaration Strategic Policy CN1 sets out the council's overarching strategy for addressing climate change and adaptation.

4.14

As technology in this area is rapidly changing, if a development proposal is phased it will be important that the Energy and Carbon Statement is updated to reflect the up to date baseline circumstances and any new or emerging opportunities to address climate change issues that will take place over the local period to 2040.

4.15

With changing temperatures, it is important to consider the risk of overheating as part of the design process. This risk needs to be fully assessed and mitigated against through measures such as:

- the incorporation of passive cooling techniques;
- ensuring that there is good ventilation to floor space ratio;
- external shutters and vents, and
- green roofs and green walls covered in vegetation.

Equal consideration needs to be given to the design of the external environment that surrounds a building in terms of the types of surfacing, vegetation, tree planting and habitats that are being created as part of the development of a site.

Tree planting and canopy cover can not only be used to have a positive impact in terms of mitigating the impacts of overheating of a building but trees also have an important role in terms of absorbing carbon dioxide from the atmosphere and creating habitats for wildlife. As trees mature their root system can sometimes have an impact on the stability of buildings. It will, therefore, be essential that as part of the design process consideration is given to providing the suitable rooting environment for trees. This is for the benefit of the trees and also to ensure that any subsequent potential problems with tree roots on a public right of way are addressed as part of the design process.

4.16

It is also important as part of the design process, to consider the position and orientation of buildings on a site which can influence the amount of solar gain and natural daylighting that enters a building which are important considerations in terms of potential carbon emissions. Considering these issues early on in the design process can result in a positive benefit for the owners and occupiers of buildings in terms of lower energy and heating bills as well as having a physical role on people's mental health and physical well-being. However, it is important to remember that there is a balance between maximising solar gain in the winter, and keeping buildings cool in the summer in order to avoid the risk of overheating.

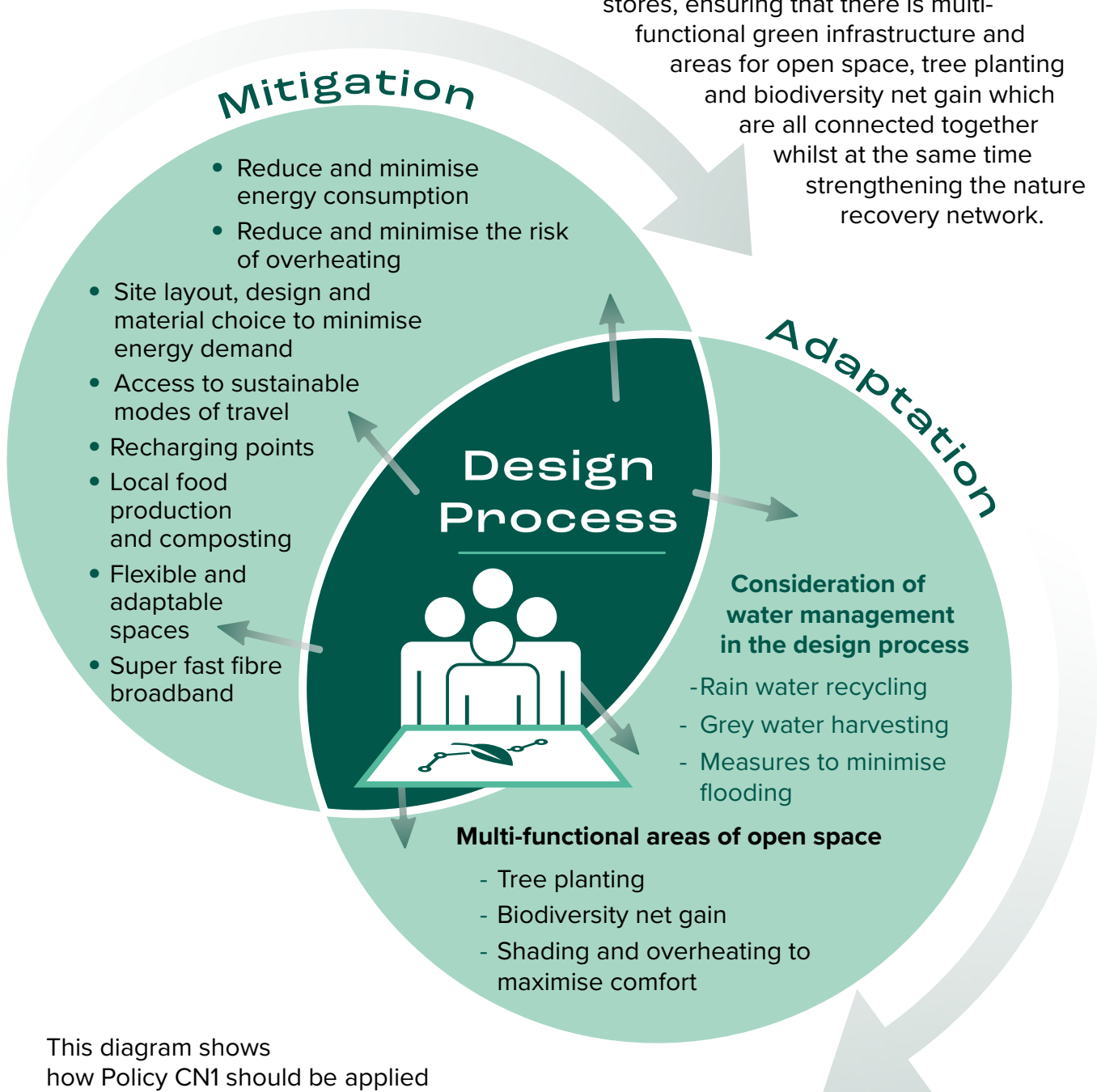
Policy CN1 requires new development proposals to demonstrate how the development reduces the potential risk of overheating for the inhabitants and the surrounding ecosystems. By taking this approach it will reduce the need for mechanical air conditioning systems in buildings which are very resource intensive and increase carbon dioxide emissions, and emit large amounts of heat into the surrounding area. This expands upon the recently enabled Part O Building Regulations on Overheating, to seek measures to be considered at the outset of the design

process. The Chartered Institution of Building Services Engineers have published a TM59 ‘Design Methodology for the Assessment of overheating risk in Homes’, which provides further information. As part of the submission of an Energy and Carbon Statement it must demonstrated how the proposed scheme’s layout and design has addressed the orientation, shading, ventilation and impact of overheating.

Along with the need to address overheating it is equally important the proposed development includes nature-based solutions, protects and increases carbon stores, ensuring that there is multi-functional green infrastructure and areas for open space, tree planting and biodiversity net gain which are all connected together whilst at the same time strengthening the nature recovery network.



4.12
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4.16



This diagram shows how Policy CN1 should be applied

STRATEGIC POLICY

Minimising carbon emissions and ensuring climate change and adaptation issues are embedded in the Local Plan

Strategic Policy CN1

Mitigating and Adapting to Climate Change

The plan will help to meet the targets in the council's Climate Emergency Declaration and reduce the district's carbon footprint by supporting the re-use and refurbishment of existing buildings where possible and ensuring that new development is designed in a way that adapts to challenges of climate change in a positive, comprehensive and integrated way:

Mitigating against climate change

In order to mitigate against climate change, development proposals (excluding household extensions and changes of use) will need to demonstrate through the design process that:

- i. Low carbon solutions have been incorporated that reduce and minimise energy consumption through the energy hierarchy classification of energy options (Policy CN2) and how carbon emissions have been considered at every stage of the design process;
- ii. Carbon emissions have been considered as part of the identification of sites for development, and it has been demonstrated that as part of the design process, how site layout and the orientation, fabric glazing ratio and the choice of construction materials for the buildings proposed have been designed to minimise energy demand;
- iii. Nature-based solutions have been incorporated into the development that deliver multifunctional benefits for health and well-being, biodiversity net gain, natural flood management, air and water quality;
- iv. Sustainable travel modes of transport have been fully incorporated into the layout in a way that encourages people to use more sustainable forms of transport such as buses, cycles or walking and reduces car dependency;
- v. Recharging points for sustainable modes of transport are incorporated early on in the design and build process (Policy T3) and they are provided in conveniently located positions within the development; in a timely way to benefit residents from the first occupation;
- vi. Opportunities have been incorporated within residential development for local food production and composting;
- vii. Flexible and adaptable space has been incorporated into the design of residential development that facilitates the ability for people to be able to work from home and to adapt to changing lifestyles; and
- viii. Development (where it involves the creation of new residential and new commercial development) is connected to super-fast fibre broadband that reduces the need for people to travel and is capable of being connected to SMART technology.

Strategic Policy CN1 - continued

Mitigating and Adapting to Climate Change

STRATEGIC POLICY

Policy
CN1**Adapting to Climate Change**

In order to adapt to climate change, development proposals (excluding household extensions) will need to demonstrate through the design process that:

- ix. Water use management and conservation (e.g. rainwater recycling and greywater harvesting) has been fully considered as part of the design process and that measures have been taken to minimise the risk and the impact of flooding and extreme weather conditions through the design of the building and reduce surface water run off through the use of SuDS and rainwater gardens (Policy NE6);
- x. The layout has incorporated and connects multi-functional nature-based solutions, areas of open space/outdoor space, tree planting and biodiversity net gain (Policy NE5).
- xi. Buildings have been designed in a way that balances temperature and ventilation throughout the year;
- xii. Buildings have been designed to reduce the amount of heat that enters a building in the warmer months through the orientation and design of the building and where appropriate, includes the planting of additional trees, to protect soils and provide shading from canopy coverage whilst capturing carbon from the atmosphere;
- xiii. The design process, ensures that the landscaping, the type of vegetation and planting around the outside of the building is appropriate for the site and it has been designed in a way that assesses and mitigates against the impacts of the climate change;
- xiv. The design process assesses and considers the use of green roofs and walls that are covered in vegetation, fenestration, insulation, external shutters, and the use of colour of external materials that can all contribute towards overheating; and
- xv. As a last resort, a mechanical air conditioning system could be installed in a building (ensuring this uses the lowest source of carbon emissions).

Developers will be required to submit an Energy and Carbon Statement, which is proportionate to the nature of application, to demonstrate how the design process has addressed the above requirements. In the case of a phased development, the Energy and Carbon Statement will need to be updated at each phase to reflect the up to date baseline circumstances and any new or emerging opportunities.

The Energy and Carbon Statement should be proportionate to the nature of application

further details and checklist will be available on the council's website.



DEVELOPMENT AND RE-USE OF BUILDINGS

4.17

LETI is a network of over 1000 built environment professionals that are working together to put the UK on the path to a zero carbon future. The voluntary group is made up of developers, engineers, housing associations, architects, planners, academics, sustainability professionals, contractors and facilities managers, with support and input provided by the GLA, Local Authorities and other organisations.



Policy CN2

Energy Hierarchy

All development shall accord with the following energy hierarchy (in order of preference):

Minimise energy demand by employing the 'fabric first approach';

- Maximise energy efficiency;
- Utilise renewable energy; and
- Utilise low carbon energy.

POLICY

IMPROVING ENERGY EFFICIENCY STANDARDS

4.20

As well as considering how new development will need to address climate change and adaptation as part of the design process (Policy CN1) it is important that the Local Plan addresses the future environmental impact of new residential

development in terms of the amount of carbon emissions that are associated with the development including specifically CO² emissions. This is important as CO² emissions are one of the main greenhouse gases that contribute to global warming.

CHANGES TO THE BUILDING REGULATIONS

4.21

Since the Code for Sustainable Homes was withdrawn by the Government, higher energy efficiency standards for residential buildings have been introduced by making changes to the Building Regulations which are intended to deliver a reduction in carbon emissions, while ensuring the delivery of high-quality homes. New homes in England currently need to be constructed to meet Part L (2021) of the Building Regulations which covers the conservation of fuel and power in the building of new homes and establishes the national standard for energy efficiency levels.

4.22

There are further proposed changes to the Building Regulations that are due to be introduced in 2025 under the Future Homes standard. It is anticipated that the Future Homes standard will deliver 75% carbon dioxide emission reductions compared to 2013 Building Regulations. Homes that are built to the 2025 Future Homes standard will not be net-zero carbon.



RAISING THE BAR ON ENERGY STANDARDS

4.23

The Planning and Energy Act 2008 gives Local Planning Authorities the power to set local energy efficiency standards in their Local Plans subject to assessing the cost of these measures through the Local Plan Viability Assessment.

4.24

The Council recognises that improving energy efficiency standards when it comes to conversions and extensions can in some situations be more problematic than a new build. However, in the case of extensions, a bigger home means more space to heat and more lighting which could increase the carbon dioxide (CO²) emissions. In order to ensure that these proposals also assist with the Council's climate emergency target, as part of the design process, applicants will be expected to demonstrate what opportunities have been explored and taken to improve the energy efficiency and performance of a building especially when this involves a conversion of non-residential premises to a residential use.

4.25

As Local Plans can set energy standards that are higher than Building Regulations, the City Council commissioned a consultant

team led by Elementa to clarify and assess the cost implications associated with meeting net-zero carbon for new residential dwellings. The 'Net Zero Carbon Targets' Report by Elementa, Etude and Currie & Brown assessed the financial costs that are associated with building a residential dwelling to Part L of the current Building Regulations, the Future Homes standard 2025 and the cost of introducing energy efficiency standards that have been established by Low Energy Transformational Initiative (LETI).

4.26

The outputs from the LETI Net Zero Carbon report from Elementa, Etude and Currie & Brown has been combined with the cost modelling and analysis that has been undertaken for the Local Plan Viability Assessment. The Local Plan Viability Assessment has taken the information from Elementa to assess the financial impact that any improvements to energy efficiency standards over and above Part L of the Building Regulations would have and analysed the financial implications for other policy requirements in the Local Plan such as the policy on affordable homes.



4.20

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4.26

LETI ENERGY STANDARDS

4.27

LETI have calculated that the average home that is built to the current Building Regulations (Part L) has an energy efficiency of 95kWh/m²/year. Key elements of the LETI next generation energy standard for residential homes is the need for low energy use in new buildings, a low carbon energy supply with no use of fossil fuels for heating, hot water and cooking and opportunities for on-site renewable electricity is maximised. The LETI energy efficiency target for residential dwellings is based on a total energy use of <35 kWh/m²/year and has the major advantage that it is a lot clearer to understand than using a comparison to the notional building in the Future Homes standard.

In order to calculate energy performance predictive modelling tools can be used which include Passivhaus Planning Package (PHPP) or CIBSE TM54, (refer to the LETI Operational Modelling Guide for further guidance on choosing the right Predictive energy modelling tool (www.leti.uk/omg)). Predictive modelling is also often in the industry called performance modelling.

Post occupancy monitoring:

Although there are no mandatory requirements for monitoring energy use, the council recommends post occupancy monitoring as this provides feedback on how the development is performing in-use. It is envisaged there will be an electronic form provided by the council, to complete by the applicant post completion. This will be prepared once the Plan is adopted. The requirement is for applicants to confirm if monitoring and reporting will be carried out, and the nature of the strategy. For example, whether there is a commitment to report monitored data to the council, or disclose the information publicly, or if no monitoring will be carried out.

4.28

Using the LETI energy efficiency standards for residential dwellings in the Local Plan is not only the most effective approach to address the climate emergency but it will also assist the district to become net-zero by 2030. It also has the added advantage of reducing the running costs of residential dwellings which is becoming an increasingly important issue for all households especially those people on lower incomes. Designing in energy efficiency measures when a residential dwelling is planned and constructed can increase the lifespan of the property. It can also be significantly cheaper than retrofitting energy efficiency improvement measures after a property has been completed.

4.29

In simple terms, to meet net operational net-zero carbon, the amount of energy required on-site should be balanced by installing on-site renewables to supply the equivalent amount of energy across the course of a year.

ENERGY EFFICIENCY – NON-RESIDENTIAL DEVELOPMENT

4.30

In the case of non-residential development proposals, these proposals will need to demonstrate through the design process that it has used the energy hierarchy (Policy CN2) and they can meet at least BREEAM¹ certified Excellent standard by an accredited assessor.

¹: BREEAM is a tool for assessing the environmental sustainability of a development. For further information on BREEAM please refer to <https://bregroup.com/products/breem/>

4.31

One of the key ways that this can be achieved is to ensure that the proposal has been designed in a way that includes the maximum amount of photovoltaic (PV) solar panels on the roof or it incorporates other suitable forms of renewable energy generating schemes that are appropriate for the location or the setting.

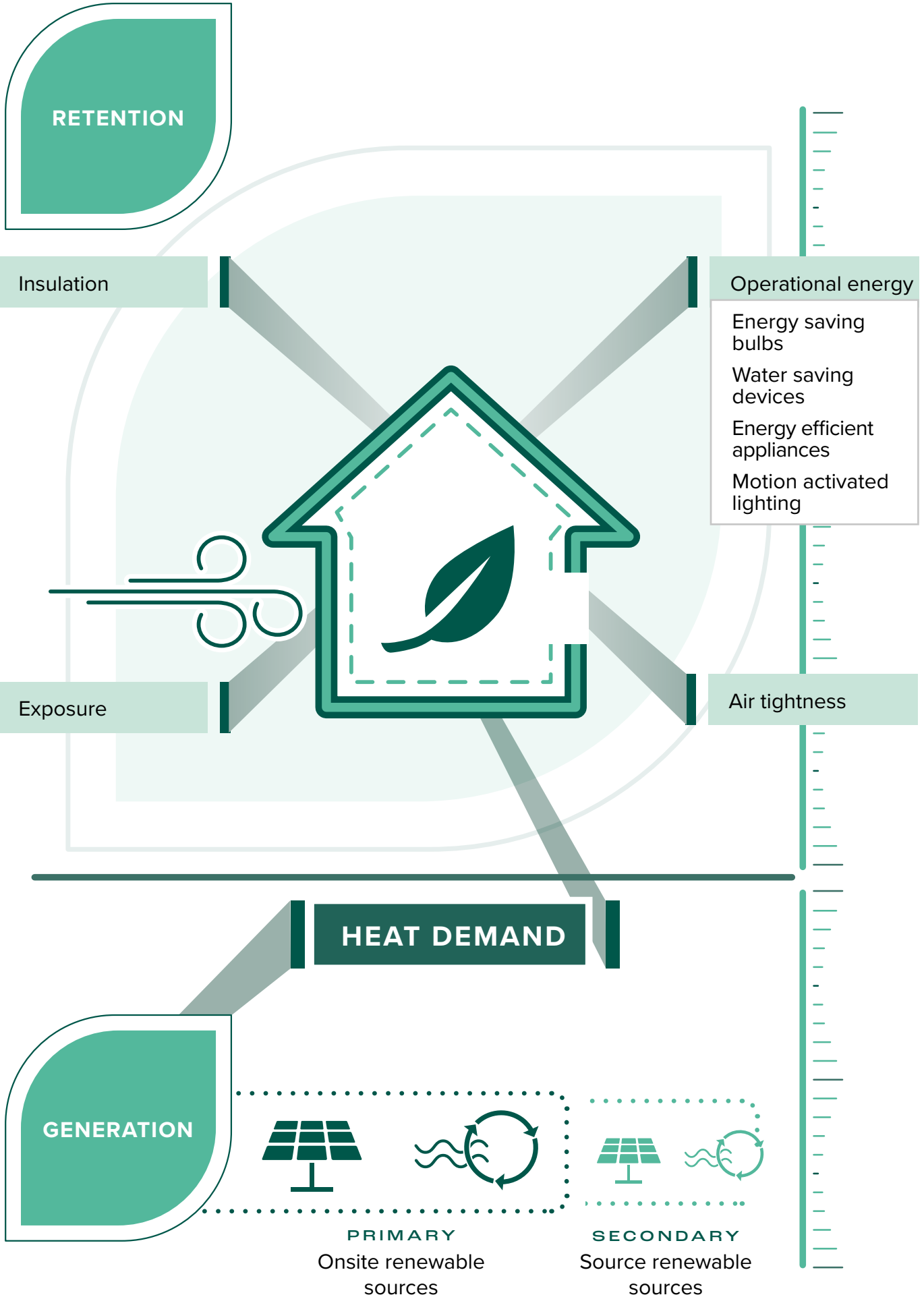


4.27

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4.31







Policy CN3

Energy Efficiency Standards to Reduce Carbon Emissions

The Council has declared a climate emergency and has committed to providing the leadership for the district to be carbon neutral by 2030. This will contribute to the UK’s legally binding target of net zero carbon by 2050.

All new developments should demonstrate the lowest possible level of carbon emissions. These should be in line with the requirements set out below unless there are exceptionally clear and compelling reasons. These reasons should be established through the design process and demonstrate that achieving these standards produces a development that would be harmful to its setting or the character of the wider area or it is demonstrated that is not practical.

All new residential development

All new residential development (excluding conversion and change of use) should not burn any fossil fuels on site for space heating, hot water or used for cooking. New residential development will need to be able to demonstrate net-zero operational carbon on site by ensuring:

- i. The predicted space heating demand of the homes based on predicted energy modelling, showing that the target of <15 kWh/M²/year is met.
- ii. The total kWh/yr of energy consumption of the building based on predicted energy modelling tools showing that the target of <35 kWh/M²/year is met.
- iii. The total kWh/yr of energy consumption of the buildings on the site and the total kWh/yr of energy generation by renewables to show that the balance is met.
- iv. Onsite renewables to provide 100% of the energy consumption that is required by residential buildings, for example through the installation of photovoltaic solar panels or other suitable forms of renewable energy generating schemes that are appropriate for the location or the setting.

Non-residential development

- v. Non-residential development should meet the ‘BREEAM Excellent’ standard or an agreed equivalent industry standard assessment process. Developers that propose a scheme to meet BREEAM standards should submit a post construction assessment and BREEAM certificate to the local planning authority to demonstrate compliance. At outline planning application stage a commitment to BREEAM Excellent should be made, and at full planning application a BREEAM pre-assessment should be provided.

All new non-residential developments should maximize on-site renewable energy generation. As a minimum, applicants will be expected to submit the following information as part of their planning application.

- i. Total installed capacity on-site in (kWp) and total generation (kWh/year)
- ii. The Photovoltaic area (M²)
- iii. A roof plan marked-up with the Photovoltaic area.

Meeting the policy:

Energy strategy should outline compliance with the policy requirements. The following table indicates the energy modelling and calculation requirements at different planning application stages.

| | |
|---|---|
| Requirements | Energy Modelling/ Energy Use Intensity (EUI) calculations |
| Pre-App | Modelling not required, but confirmation of how Policy CN3 will be met. |
| Outline | Typical dwellings/buildings |
| Full Planning & Reserved Matters | Representative sample of exact dwelling/building design |

WATER EFFICIENCY IN NEW DEVELOPMENT

4.32

Water is a finite resource and one of the key issues facing our environment is fresh water scarcity. The South East of England is classified as a seriously water stressed area by the Environment Agency as it has the lowest levels of rainfall and high population density. Southern Water are currently investigating ways to tackle leakage, targeting households to save water and investigating new areas of investment to safeguard future water supplies. Nutrient pollution (phosphorous and nitrogen) is also causing a significant issue in district and wider Solent area – see Policy NE16.

4.33

This all comes at a time when climate projections point to drier and warmer summers with more extreme weather events and more frequent/severe droughts. These events are expected to result in a higher demand for water whilst adversely impacting supply.

4.34

The more water that is abstracted from the ground to meet this growing demand the less water there is for rivers, streams and wildlife. This means that there are a number of competing demands on the use of water. This balancing act is anticipated to become even more challenging in the future, when taking into account an increased population (through additional development) and the likely effects of a changing climate on the availability of water resources. This means that the Local Plan has a key role in ensuring that new development is designed to be water efficient.

4.35

The city council currently requires developers (via policy CP11) in Part 1 of the adopted Local Plan (Core Strategy) to achieve code 4 of the Code for Sustainable Homes which means developers have to achieve less than 105 litres per person per day. Southern Water has a ‘T100 target’ which is based on a maximum water capacity use of 100 litres per person per day whilst at the same time reducing leakage by 15% by 2025 and 40% by 2040. Given that the South East of England is located in a water stressed area, Policy CN4 is aligned with the Southern Water T100 target. Water efficiency measures beyond this requirement will be encouraged. All developments must meet the requirement of Policy NE6 on Sustainable Urban Drainage Systems (SuDS).



Policy CN4**Water Efficiency Standards in New Developments**

Developments will be required to meet a high standards of water efficiency:

- i. Residential developments should be designed to achieve a maximum water capacity use of 100 litres/ person/day from mains/private water supply in order to help manage the demand for water unless it can be demonstrated that this is not feasible.
- ii. Any refurbishments and other non-domestic development would be required to meet BREEAM water efficiency credits.
- iii. Water use management and conservation (e.g. rainwater recycling and grey water harvesting) is dealt with under Policy CN1.

POLICY



4.32

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4.35

Policy
CN4

LOW CARBON INFRASTRUCTURE

4.36

The Local Plan has a key role in helping to promote the use of low carbon infrastructure which will assist with meeting the council's climate emergency.

4.37

A study on climate change¹ suggests that 12% of all direct carbon emissions (those harmful greenhouse gases) in the district are produced by domestic gas, and another 7% from using heating oil and other fossil fuels. This means that there is considerable potential to reduce emissions if owners of the older housing stock can be encouraged to install energy efficiency measures and renewable energy technologies can be installed and/or be linked to decentralised energy schemes as part of new or refurbished developments. Water efficiency measures can also be retrofitted. There are a range of benefits to retrofitting homes which include:

- Assisting with meeting the council's climate emergency;
- Improving the health and well-being of residents as a result of living in homes that are warmer and less damp in the winter;
- Keeping houses cooler in summer when there are heatwaves;
- Financial savings from more efficient energy uses for the occupiers of the buildings, which is particularly relevant for the 'fuel poverty'¹; and
- Improvements to air quality in terms of a reduction in emissions.

4.38

Fuel poverty¹ is defined as a household that has above-average energy costs, and if paying those costs would push it below the poverty line as far as its remaining income is concerned.

4.39

The council will, therefore, as part of climate emergency declaration encourage and support the sensitive retrofitting of energy efficiency measures which will be considered against national planning policy. Proposals for retrofitting Listed Buildings (which are more sensitive to retrofitting options) will be assessed against Policy HE14.



RENEWABLE AND LOW CARBON ENERGY SCHEMES

4.40

The generation of renewable and low carbon energy will help to contribute to national targets and the council's climate emergency. A Renewable Energy Study 2008 that was undertaken for the council forms part of the evidence base of the Local Plan. This calculated that there was target potential for renewables equating to 17% of current energy demand. However, a large proportion of this potential was in connection with large-scale wind turbines which due to the topography, would be located in the South Downs National Park (SDNP). This means that the greatest potential for renewable and low carbon energy schemes in the part of the district that is located outside of the SDNP, is from solar energy generation.



4.41

According to the study¹, in order to meet the council's climate emergency:

- It would require a sixfold increase of local solar farm capacity and about 2,500 acres of land to meet the council's climate emergency targets;
- Approximately 11,000 further homes and businesses will need to install rooftop panels;
- A sixfold increase in existing solar capacity is very significant, beyond the scope of suitable roof space, even if the necessary subsidies become available; and
- Utility scale ground-based solar will deliver a major share of the capacity requirement, as in the past.

4.42

The city council has a strong track record of supporting green energy schemes in the district and as such has included Policy CN5 which is a permissive policy to help support the delivery of these schemes.



4.36

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¹ Winchester Action on the Climate Crisis, Report 2021

RENEWABLE AND LOW CARBON ENERGY SCHEMES

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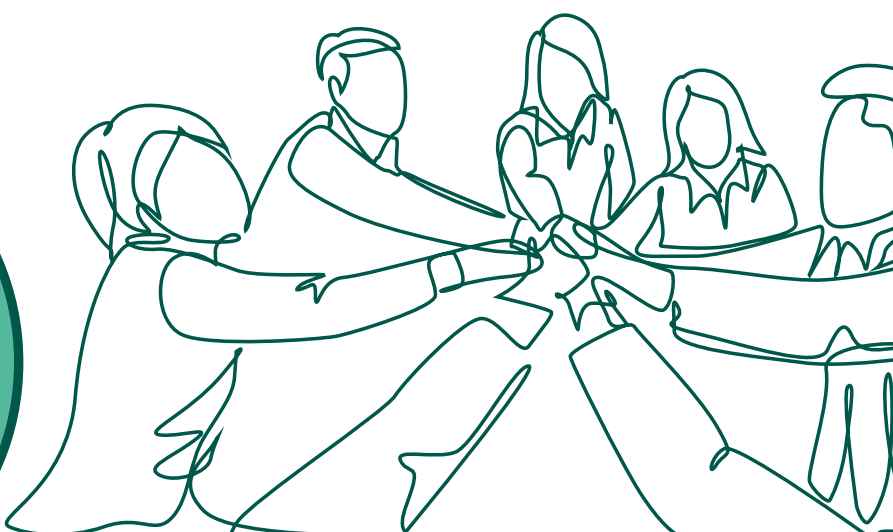
‘Community energy’ refers to the delivery of demand reduction and energy supply projects that are either wholly owned and/or controlled by communities or through a partnership with commercial or public sector partners. Community-led action, which brings people together to tackle energy issues, has the major advantage that they are well placed to understand their local areas and can bring people together with common purpose and this can have a key role in helping to address the council’s climate emergency.

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In collaboration with Community Energy South, Hampshire County Council is providing support to establish new community energy groups and projects throughout the county <https://www.communityenergysouth.org/hampshire>

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District Energy Systems have a central energy centre serving a range of buildings through a network of underground pipes and cables. These systems are widely recognised as a sustainable, cost-effective solution for the provision of heating, cooling and power for homes and businesses. The city council will be supportive of district energy schemes which tend to be an appropriate energy solutions on larger schemes in urban areas.



Policy CN5**Renewable and Low Carbon Energy Schemes**

Development proposals for the generation of renewable and low carbon energy will be supported.

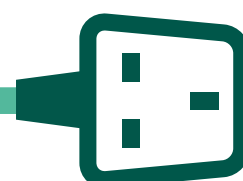
When assessing proposals for the generation of renewable and low carbon energy applicants must demonstrate:

- i. That the scheme has considered and assessed any potential loss of the best and most versatile agricultural land;
- ii. Any benefits of the proposal to host communities and how this will be secured and distributed;
- iii. How the scheme, scale and layout has been integrated with any existing or new/planned development and measures have been incorporated into the scheme to avoid or mitigate any adverse effects on the built environment, biodiversity, landscape and neighbouring uses in terms of cumulative impacts;
- iv. That there are no adverse impacts on the significance of heritage assets (including the contribution to that significance made by their setting) and where appropriate, submit a heritage statement in accordance with policy HE2, which is informed by liaison with the Council's historic environment services;
- v. That there is no significant adverse impact on the landscape character or visual amenity having regard to any mitigation, by undertaking a Landscape Visual Appraisal or a Landscape Visual Impact Assessment;
- vi. That in the management plan the measures that the scheme has incorporated for environmental/wildlife enhancement and nature-base solutions;
- vii. There is capacity to connect the proposal to the electricity network;
- viii. That lighting has been restricted to emergency use only;
- ix. That in the emergency plan the measures to ensure that any energy storage facility has addressed the risk of fire and any potential contamination run off; and
- x. That in the restoration plan, details are provided of how the materials on the site will be recycled/re-used and there is a soil remediation plan and strategy that identifies what landscape/biodiversity features should be retained and enhanced in perpetuity if the site reverts to its former use as a result of the proposal ceasing to be operational.



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Policy
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ADOPTING A POSITIVE STRATEGY FOR MICRO ENERGY GENERATION

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Small-scale energy production is called micro-generation. It refers to systems under 50kW for electricity or 45kW in the case of heat. The opportunities for micro energy as an alternative to using fossil fuel can include any of the following technologies:

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Micro-renewable energy generation offers potential to supplement and meet some of the district's energy demands. When choosing a micro-renewable system it is important to understand the energy needs as well as having a clear understanding of the biodiversity, architectural, historic, and archaeological significance of the location of the installation so that it does not have a detrimental impact on the property or the surrounding landscape or immediate neighbours.



Small-scale biomass system

This generates heat for hot water and space heating by burning organic matter. Although carbon dioxide is released in the process, this is balanced by the amount absorbed during the growth of the plant matter. This gives the system potential to be close to being carbon neutral.



Solar hot-water panels

This is the most common type of micro-generation technology currently used due to their relatively low cost and ease of installation. They can be used to produce hot water and, occasionally, for space heating.

Policy CN6

Micro Energy Generation Schemes

The council will support proposals for micro energy generation. This includes heat and power generated from solar, ground source/air source heat pumps, hydro-electric schemes, small scale biomass schemes and other low carbon heat or power sources providing that it can be demonstrated that:

- i. There is not an unacceptable impact on heritage significance or on the natural environment;
- ii. The noise impacts from the operational use of the proposal have been acceptably mitigated in accordance with Policy D7; and
- iii. Proposals have been sensitively integrated with the whole building including where applicable its roof profile in order to avoid an unacceptable impact on the appearance of the building and the surrounding landscape.



Heat pumps

Ground source heat pumps - these work on the principle of absorbing heat from one place and releasing it in another. Heat is collected from one of three sources: the air, the ground or a body of water. The heat is transported around a sealed system by a refrigerant, which is circulated by a compressor. The system operates in a continuous cycle while the pump is running. These tend to be more common with new build rather than retro-fitting as the cost of the necessary boreholes or installing ground arrays can often be reduced by incorporating them into general groundworks at an early stage of a project.

Air source heat pumps – these typically comprise an outdoor unit around the size of a fridge, which is usually ground-mounted. Whilst many recent models are very quiet, some occupants or neighbours may be aware of noise produced by older units that it is not possible to attenuate through siting or screening. These heat pumps may not be an appropriate solution for every type of building or it may not be possible to site the air source heat pump in a particular location.



Hydroelectric schemes

Have a very long history of use and many water mills are good examples of utilising the power of water to generate electricity/power.

ENERGY STORAGE

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Over the Local Plan period to 2040 there is likely to be a dramatic shift in the way that people travel in terms of e-mobility (this includes all forms of electric propulsion to power a wide range of transportation). In recognition that there will be a steady and an increasing requirement to smooth out the demand for electricity it is essential that we plan development to incorporate easily accessible power sources to charge and store e-mobility transport – see Policy T3 in the transport topic.

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An energy storage facility can be used to store any excess power that is generated from low carbon energy sources and can be used to power a range of e-mobility transport rather than transferring this generated energy back to the grid. It is essential that the design of these energy facilities does not detract from the built and natural environment, have impact in terms of noise and disturbance on neighbours and they are carefully planned and positioned on a site and they are not just an after-thought at the end of the design process.

Policy CN7

Energy Storage

Development proposals that involve energy storage will be supported subject to meeting the following criteria:

- i. The energy storage facility is, where possible, co-located with existing and proposed renewable energy development;
- ii. The location, scale, design and other measures in connection with the facility are designed in order to avoid or mitigate any adverse unacceptable impact on the built environment, biodiversity, heritage, landscape and the surrounding area in terms of cumulative and indivisibility impact;
- iii. There is an emergency plan for any energy storage facility to address the risk of fire and any potential contamination run off; and
- iv. The proposals are not of a scale that would involve the installation of cooling fans unless the noise impacts from these have been acceptably mitigated.

EMBODIED CARBON

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Recycling of valuable materials has become part of everyday lives, and this equally applies to the opportunity that may arise to re-use/ refurbish existing buildings on a site to make them more energy efficient rather than just demolishing them. Existing buildings have less embodied carbon expenditure than new buildings (carbon dioxide (CO²) or greenhouse gas emissions associated with the manufacture, construction and use of a building). If buildings are demolished and new buildings are constructed on a site this requires carbon to build them. It is, however, fully recognised that there may well be good place making reasons as to why buildings cannot be retained/refurbished on a site. This needs to be balanced against the fact that planning permission is not generally required to carry out most demolitions apart from if a building is located in a conservation area or is a listed building (Policy HE14). As new buildings become more efficient, operational emissions start to increasingly reduce, thus embodied carbon emissions make up a greater proportion of the total building whole life carbon.

Therefore, as part of the design process it is important that developers fully consider embodied carbon and the impact is reduced as far as possible through good design and planning.

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What is Whole Life Carbon?

Whole life carbon is the sum total of a buildings related carbon emissions, both operational and embodied over the life cycle of a building including its subsequent disposal and deconstruction. It can be broken down into two key elements:

- Operational Carbon - The carbon arising from all energy consumed by an asset in-use, over its life cycle; and
- Embodied Carbon - The carbon emissions associated with materials and construction processes throughout the life cycle of an asset and the eventual decommissioning.

It is important to recognise that a building emits carbon throughout its whole lifetime. It is important to recognise that as new buildings become more efficient, operational emissions start to increasingly reduce, thus embodied carbon emissions make up a greater proportion of the total building whole life carbon.

Whole life carbon is, however, not straight forward as it involves considering all life cycle stages of a project, from raw material extraction, product manufacturing, transport and installation on site through to operation, maintenance and eventual material disposal/deconstruction of a building. The further complication is that whole life carbon assessments and targets are currently not defined in the Building Regulations.



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EMBODIED CARBON

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Embodied carbon

The Council recognises that considerable amounts of greenhouse gas emissions in buildings are from embodied carbon (from the manufacturing processes and transportation of various construction materials) and as result of this the Council wants to prioritise collecting data on embodied carbon. By taking this approach it will have the following advantages:

- It would ensure that developers as part of the design process prioritise and fully consider embodied carbon;
- ensure that a significant source of emissions from the built environment are accounted for to align with Council's climate emergency;
- achieve resource efficiency and cost savings, by encouraging and prioritising the refurbishment, and the retention and reuse of existing materials and structures, instead of new construction;
- identify and use building materials that have a low embodied carbon and materials that can be reused, recycled and disposed of sustainability at end of life; and
- Ensure that as part of the design process buildings are designed in a way that are flexible and adaptable to future uses which contribute to greater longevity and reduced obsolescence of buildings and avoid carbon emissions associated with demolition and new construction.

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Policy CN8 requires major residential and non residential development proposals to undertake an embodied carbon assessment following the Royal Institution of Chartered Surveyors (RICS) Whole Life

Carbon Assessment [Whole Life Carbon Assessment for the Built Environment \(rics.org\)](https://www.rics.org) or through a nationally recognised assessment.

Policy CN8

Embodied Carbon Assessment

To contribute towards the City Council's climate emergency and national climate targets as part of the design process, major residential and non-residential developments should calculate and supply information on the outcome of an embodied carbon assessment which follows the 'RICS Whole Life Carbon Assessment for the Built Environment' methodology

or through a nationally recognised assessment. The outcome of the embodied carbon assessment should be included in the Energy and Carbon Statement that is a requirement of Policy CN1 and demonstrate what actions have been taken in the design process to ensure that as far as possible the proposal addresses embodied carbon.