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Eastbourne Building Energy Performance Study

Local Plan Evidence Base

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Quality information

Prepared by	Checked by	Verified by	Approved by
Isabelle Francis Matthew Turner	Alex Duckworth	Matthew Turner	Una McGaughrin

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Prepared for:

Eastbourne Borough Council

Prepared by:

AECOM Limited
Aldgate Tower
2 Leman Street
London E1 8FA
United Kingdom
aecom.com

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1. Introduction

1.1 Purpose of this report

Eastbourne Borough Council (EBC) declared a climate emergency in July 2019 and committed to reduce carbon emissions to net zero over a ten-year period[1]. To support this commitment EBC has commissioned AECOM to provide technical support and justification for developing clear, deliverable and ambitious policies for the building energy performance of new developments within the forthcoming new Eastbourne Local Plan.

This report builds on Eastbourne Carbon Neutral 2030, the Council's Climate Emergency Strategy, published in November 2021, and describes the existing and emerging energy policy and regulations that will influence new builds in Eastbourne. It discusses some of the anticipated changes that may arise in the coming years because of the development proposed in the emerging new Local Plan, the national policy and wider changes, and presents a variety of options for responding to and delivering these through local planning policy.

The aim of this report is to support Eastbourne Borough Council in ensuring that the new Eastbourne Local Plan will include policies related to new building energy performance that align with the Council's strategy to mitigate and adapt to climate change, meet the requirements of legislation and the national planning policy framework, and contribute to the Borough's broader response to both the national and local 'climate emergencies'..

The study provides an evidence base, and from this, a series of policy recommendations for Eastbourne Borough Council to take forward into the new Local Plan and its subsequent delivery. This study also provides evidence for informing supporting technical notes and supplementary planning documents, as well as contributing to the quantitative understanding of future emissions and energy use.

[1] https://www.lewes-eastbourne.gov.uk/eastbourne-borough-council-news/council-approves-plan-for-a-carbon-neutral-eastbourne/

2. Policy review

The following pages provide a summary of the international, national and local policy that will inform the approach to setting policy on the performance of new buildings within the Local Plan.

2.1 International policy

Climate change is one of the key challenges faced today, with its impact observed at global and local levels. The rise in average global temperatures is already recorded at 1.1°C above pre-industrial levels. The international consensus from climate experts and scientific organisations is that this rise must be limited to a maximum of 1.5°C to avoid causing irreparable impact upon the planet. To this effect, in 2016 the UK signed the Paris Agreement on climate change, making a commitment to take steps to limit global temperature rise to well below 2°C and pursue efforts to keep it to 1.5°C.

The Tyndall Centre has produced reports to support Local Authorities to understand the implications of the UN Paris Agreement for local emission reductions, this includes a study for Eastbourne[2] which states that:

"The results in this report show that for Eastbourne to make its fair contribution to delivering the Paris Agreement's commitment to staying "well below 2°C and pursuing 1.5°C" global temperature rise, then an immediate and rapid programme of decarbonisation is needed. At 2017 CO_2 emission levels, Eastbourne will exceed the recommended budget available within 7 years from 2020. To stay within the recommended carbon budget Eastbourne will, from 2020 onwards, need to achieve average mitigation rates of CO_2 from energy of around -12.3% per year. This will require that Eastbourne rapidly transitions away from unabated fossil fuel use."

2.2 National policy

National Policy
Through the Climate Change Act (2008), amended in 2019, the UK Government is legally committed to a 100% reduction in greenhouse gas (GHG) emissions by the year 2050, compared with a 1990 baseline. As part of this Act, the UK Government is also required to meet interim legally binding targets, known as carbon budgets, which act as steppingstones to 2050. In December 2020, the Government announced that they would increase their 2030 GHG emissions reduction target, from achieving a 57% reduction relative to the 1990 baseline, to a 68% reduction[3]. Subsequently, the Committee on Climate Change has also recommended an additional reduction target of 78% by 2035, which will in effect, bring forward the UK's previous 80% target by nearly 15 years.

Net Zero Strategy
The UK Government published its Net Zero Strategy in October 2021[4], this sets out the plan to achieving the net zero target. In regard new buildings the strategy states that:

"[the Government] will introduce regulations from 2025 through the Future Homes Standard to ensure all new homes in England are ready for net zero by having a high standard of energy efficiency and low carbon heating installed as standard. This should mean that all new homes will be fitted with a low carbon heat source such as a heat pump or connected to a low carbon heat network. To reinforce this, we will consult on whether it is appropriate to end new gas grid connections, or whether to remove the duty to connect from the Gas Distribution Networks"

Heat and Buildings Strategy
The Government also published its Heat and Buildings Strategy in October 2021[5]. One of the key elements of this strategy is the ambition to phase out the installation of natural gas boilers beyond 2035. This means that any gas boilers installed in new buildings now would need to be replaced by low carbon heating systems at the end of their life. Alongside this the Government has a commitment to rapidly increase the installation of heat pumps with a minimum market capacity of 600,000 heat pumps per year by 2028, up from 35,000 per year in 2020.

On new buildings the strategy has the following key commitment: "Ensuring all new buildings in England are ready for Net Zero from 2025: We are bringing in the Future Homes Standard and have consulted on the Future Buildings Standard for new-builds in England. The Government's ambition is to build 300,000 new homes a year by the mid-

[2] https://carbonbudget.manchester.ac.uk/reports/E07000061/
[3] https://www.gov.uk/government/news/uk-sets-ambitious-new-climate-target-ahead-of-un-summit
[4] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1033990/net-zero-strategy-beis.pdf
[5] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1044598/6.7408_BEIS_Clean_Heat_Heat___Buildings_Strategy_Stage_2_v5_WEB.pdf

2020s. We anticipate at least a third of our 2028 heat pump target to be installed in new-build domestic properties annually. To enable this, we will introduce new standards through legislation (such as Building Regulations) to ensure new homes and buildings will be fitted with low-carbon heating and high levels of energy efficiency, so that new buildings do not have to be retrofitted in the future. We will also consult on ending new connections to the gas grid"

NPPF

The National Planning Policy Framework (NPPF), sets out Government planning policy for England and provides guidance for local planning authorities drawing up local plans and is a material consideration for those determining applications. The NPPF was most recently updated in December 2023[6]. The NPPF (2023) states that, *'The purpose of the planning system is to contribute to the achievement of sustainable development, including the provision of homes, commercial development, and supporting infrastructure in a sustainable manner. At a very high level, the objective of sustainable development can be summarised as meeting the needs of the present without compromising the ability of future generations to meet their own needs.'* The most relevant points for plan-making around building energy demands are sections 158-162 below:

158. Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure.

159. New development should be planned for in ways that:

a) avoid increased vulnerability to the range of impacts arising from climate change. When new development is brought forward in areas which are vulnerable, care should be taken to ensure that risks can be managed through suitable adaptation measures, including through the planning of green infrastructure; and

b) can help to reduce greenhouse gas emissions, such as through its location, orientation and design. Any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

160. To help increase the use and supply of renewable and low carbon energy and heat, plans should:

a) provide a positive strategy for energy from these sources, that maximises the potential for suitable development, and their future re-powering and life extension, while ensuring that adverse impacts are addressed appropriately (including cumulative landscape and visual impacts);

b) consider identifying suitable areas for renewable and low carbon energy sources, and supporting infrastructure, where this would help secure their development; and

c) identify opportunities for development to draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

161. Local planning authorities should support community-led initiatives for renewable and low carbon energy, including developments outside areas identified in local plans or other strategic policies that are being taken forward through neighbourhood planning.

162. In determining planning applications, local planning authorities should expect new development to:

a) comply with any development plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and

b) take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption.

163. When determining planning applications for renewable and low carbon development, local planning authorities should:

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to significant cutting greenhouse gas emissions;

[6] Ministry of Housing, Communities and Local Government, National Planning Policy Framework (2023), Available at: https://www.gov.uk/government/publications/national-planning-policy-framework--2

b) approve the application if its impacts are (or can be made) acceptable58. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas; and
c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site, and approve the proposal if its impacts are or can be made acceptable.

164. In determining planning applications, local planning authorities should give significant weight to the need to support energy efficiency and low carbon heating improvements to existing buildings, both domestic and non-domestic (including through installation of heat pumps and solar panels where these do not already benefit from permitted development rights). Where the proposals would affect conservation areas, listed buildings or other relevant designated heritage assets, local planning authorities should also apply the policies set out in chapter 16 of this Framework.

UK Proposed Planning Reforms

The UK Government has made many different proposals for national planning reforms since the 2019 general election, reflecting the fact that there have been six Ministers for Housing since the start of the Parliament and five of those since the start of 2022. Although the approach to reform has undergone frequent changes the Government has indicated that the national housing target to build 300,000 net new homes each year by the mid-2020s in England remains unchanged.

The Planning for the Future consultation White Paper was published by the Ministry of Housing, Communities and Local Government on 6th August 2020. This consultation set out a package of proposed measures that, if implemented, would comprehensively transform the current planning system in England. The stated aim is to streamline and modernise the planning process to build homes quicker, including to improve design and sustainability outcomes. It included the introduction of a quasi-zoning system, whereby the Local Plan would designate land as growth, renewal or protected area.

A revised approach was adopted in the Levelling-up and Regeneration Bill in May 2022, including plans for 'a genuinely plan-led system' and a focus on speeding up the plan-making process for local authorities, with tools such as National Development Management Policies (NDMPs) and voluntary spatial development strategies.

On 6 December 2022, the Government made a written ministerial statement, announcing its intention, subject to consultation, to make local housing targets "an advisory starting point, a guide that is not mandatory", and to "end the obligation on local authorities to maintain a rolling five-year supply of land for housing where their plans are up-to-date".

Building Regulations
Part L of the Building Regulations is the key mechanism for implementing the Building Act (1984) with regard to the conservation of fuel and power in buildings in the UK. In June 2022 an updated Part L 2021 came into force replacing the previous Part L 2013 version. This is intended as an interim step before the adoption of the Future Homes Standard (FHS) and Future Buildings Standards (FBS) in 2025.

The recently updated Part L 2021 is intended to deliver an average 31% and 27% reduction in regulated CO_2 emissions, compared to the previous Part L 2013 regulations, for domestic and non-domestic buildings respectively. The updated Building Regulations set a Target CO_2 Emission Rate (TER) and Target Primary Energy Rate (TPER) based on a notional building with an improved fabric specification, waste-water heat recovery and a gas boiler. They also set a minimum Target Fabric Energy Efficiency (TFEE) standard.

A key change to the Part L 2021 Approved Document was to amend the transitional arrangements for when new Building Regulations are implemented to close an existing loop-hole where multi-phase developments could be developed out under historic Building Regulations. Transitional arrangements are now applicable at a building, rather than site level, meaning that buildings within phased developments may be required to meet different editions of the Building Regulations. The Standard Assessment Procedure (SAP) calculation process that underpins Part L has also been substantially updated.

The Standard Assessment Procedure (SAP) is the methodology used by Government to assess and compare the energy and environmental performance of dwellings. The SAP methodology is used for Part L of the Building Regulations, which is in turn used to demonstrate CO_2 emission performance of new development proposals against local authority planning policy targets. A key change in the latest version, SAP 10.2, is that the grid electricity

CO_2 emission factor has been reduced to 0.136 $kgCO_2$ per kWh; this is a quarter of the 0.519 $kgCO_2$ per kWh figure that was used in SAP 2012 (for Part L 2013 assessments). This reflects a rapid reduction in the annual average carbon intensity of grid electricity in the period since the last adopted SAP update. These lower emission factors for grid electricity have reduced the CO_2 savings from electricity generation technologies such as solar photovoltaics (PV) and Combined Heat and Power (CHP) but have substantially increased the carbon savings for technologies such as electric heat pumps. Progressive reduction in grid electricity CO_2 emission factors combined with electrification of heating and transport, is one of the primary routes for the UK to meet its net zero targets and as noted above the Government has committed to decarbonise the electricity grid by 2035.

Provisions in the Planning and Energy Act (2008) allow local planning authorities to set energy efficiency standards in their development plan policies that exceed the energy efficiency requirements of the Building Regulations. It also allows Local Authorities to impose reasonable requirements for a proportion of energy used in development in their area to be energy from renewable and/or low carbon energy sources in the locality of the development (sometimes referred to as the 'Merton Rule').[7]

Since 2015 the UK Government has indicated that some of these powers might be removed in future, making it uncertain whether local planning authorities can continue to apply their existing or new planning policies. The Housing Standards Review undertaken in 2014/15 proposed to standardise performance requirements nationally, and this was codified by the Deregulation Act (2015), but the relevant provision was never enacted. In March 2019, new Planning Policy Guidance was issued, which confirmed that, for domestic buildings, Local Authorities can require new buildings to achieve up to a 19% improvement in CO_2 emissions compared with Part L 2013; and for non-domestic buildings, Local Authorities are 'not restricted or limited' in the standards they can set.[8]

In January 2021 the Government reiterated that, 'local planning authorities will retain powers to set local energy efficiency standards for new homes' for the time being, but reiterated that this could change in future.[9] According to the Government's Future Homes Standard (FHS) Consultation document:[10]

> *'As we move to the higher energy standards required by Part L 2020 and the Future Homes Standard, there may be no need for local authorities to seek higher standards and the power in the Planning and Energy Act 2008 may become redundant.'*

To summarise, although Local Authorities are currently able to set higher standards of building energy performance than those outlined in the Building Regulations, it is unclear whether this will remain the case.

Future Homes Standard and Future Buildings Standard

Under the Future Homes Standard (FHS), new buildings would be required to meet significantly higher targets for energy efficiency and carbon savings. In the consultation paper the Government states that "As part of the journey to 2050 we have committed to introducing the FHS in 2025. This consultation sets out what we think a home built to the FHS will be like. We expect that an average home built to it will have 75-80% less carbon emissions than one built to current energy efficiency requirements (Part L 2013). We expect this will be achieved predominantly through very high fabric standards and a low carbon heating system. This means a new home built to the FHS might have an electric heat pump, triple glazing and standards for walls, floors and roofs that significantly limit heat loss.'

The Future Buildings Standard is a similar plan for decarbonising new non-domestic buildings, the consultation paper published in January 2021[11] states that: "Our vision for the Future Buildings Standard is designed to transition non-domestic buildings to use low-carbon heat sources for heating and hot water. This in turn means that new buildings constructed to the standard will be fit for the future with the ability to become carbon neutral over time as the electricity grid and heat networks decarbonise". The paper describes how this will be achieved through

[7] *Planning and Energy Act* (2008). Available at: https://www.legislation.gov.uk/ukpga/2008/21/pdfs/ukpga_20080021_en.pdf
[8] Ministry of Housing, Communities & Local Government and The Rt Hon Lord Pickles, *'Planning update'* (March 2015). Available at: https://www.gov.uk/government/speeches/planning-update-march-2015
[9] Ministry of Housing, Communities & Local Government, *'The Future Homes Standard: Consultation on changes to Part L and Part F of the Building Regulations for new dwellings: Government response'* (2021). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/956094/Government_response_to_Future_Homes_Standard_consultation.pdf
[10] Ministry of Housing, Communities & Local Government, *'The Future Homes Standard: Consultation on changes to Part L and Part F of the Building Regulations for new dwellings'* (2019). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/852605/Future_Homes_Standard_2019_Consultation.pdf
[11] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/956037/Future_Buildings_Standard_consultation_document.pdf

performance-based standards around higher levels of fabric and energy efficiency standards and the use of low carbon heating technologies, particularly electric heat pumps and heat networks.

Written Ministerial Statement HCWS123: Planning - Local Energy Efficiency Standards Update (13 December 2023)

On 13 December 2023, at the same time as the FHS consultation was launched, a Written Ministerial Statement was published[12] relating to the use of standards that local authorities could require that go beyond Building Regulations requirements in relation to energy efficiency standards. The key content of this is shown below:

The improvement in standards already in force, alongside the ones which are due in 2025, demonstrates the Government's commitment to ensuring new properties have a much lower impact on the environment in the future. In this context, the Government does not expect plan-makers to set local energy efficiency standards for buildings that go beyond current or planned buildings regulations. The proliferation of multiple, local standards by local authority area can add further costs to building new homes by adding complexity and undermining economies of scale. Any planning policies that propose local energy efficiency standards for buildings that go beyond current or planned buildings regulation should be rejected at examination if they do not have a well-reasoned and robustly costed rationale that ensures:

- *That development remains viable, and the impact on housing supply and affordability is considered in accordance with the National Planning Policy Framework.*
- *The additional requirement is expressed as a percentage uplift of a dwelling's Target Emissions Rate (TER) calculated using a specified version of the Standard Assessment Procedure (SAP).*

Where plan policies go beyond current or planned building regulations, those polices should be applied flexibly to decisions on planning applications and appeals where the applicant can demonstrate that meeting the higher standards is not technically feasible, in relation to the availability of appropriate local energy infrastructure (for example adequate existing and planned grid connections) and access to adequate supply chains. To be sound, local plans must be consistent with national policy – enabling the delivery of sustainable development in accordance with the policies in the National Planning Policy Framework and other statements of national planning policy, including this one. The Secretary of State will closely monitor the implementation of the policy set out in this WMS and has intervention powers provided by Parliament that may be used in respect to policies in plans or development management decisions, in line with the relevant criteria for such intervention powers.

There have been a number of responses to this statement, notably a letter issued by LETI (Low Energy Transformation Initiative) which raises some concerns and the potential for challenge. We understand there is further work underway by LETI as well as the TCPA (Town and Country Planning Authority), GHA (Good Homes Alliance) and some affected local authorities into this so we would advise monitoring developments in this area.

2.3 Local policy

Eastbourne Borough Council (EBC) declared a climate emergency in July 2019 and stated that they wish to be carbon neutral by 2030. To support this ambition the Council produced a climate emergency strategy: 'Eastbourne Carbon Neutral 2030'[13], to set out an initial action plan. The strategy presents a baseline of the carbon emissions associated with the Borough as well as those for the Council's own emissions. The report uses the SCATTER tool to assess decarbonisation pathways and inform priorities for emissions reductions.

The strategy highlights the influence that the Council has in regard to the performance of new development through planning guidance and policy and through development and building control. In regard to the role of the Local Plan in addressing emissions associated with new development the action plan includes a specific action 7.1 "Complete the new Local Plan and ensure that planning policies and guidance reflect our carbon neutral ambition" with the outcome that "New development is low carbon, energy efficient and is resilient to future climate change" to be delivered in the medium term (2023-2026).

[12] https://questions-statements.parliament.uk/written-statements/detail/2023-12-13/hcws123
[13] https://democracy.lewes-eastbourne.gov.uk/documents/s18246/Eastbourne%20Carbon%20Neutral%202030%20A%20plan%20for%20action%20-%20Appendix%201.pdf

3. Assessment of the impacts of planned new development

3.1 Baseline emissions

To provide the context for the emissions associated with the proposed new development within the Local Plan, the total carbon emissions in 2021 based on Government statistics was 286.3 $ktCO_2$ per year, the distribution by sector and fuel types is shown in Figure 1. This shows that the domestic sector is responsible for the most emissions and that gas is the most significant fuel type. This only includes emissions associated with fuel use and not from other sources such as agricultural processes.

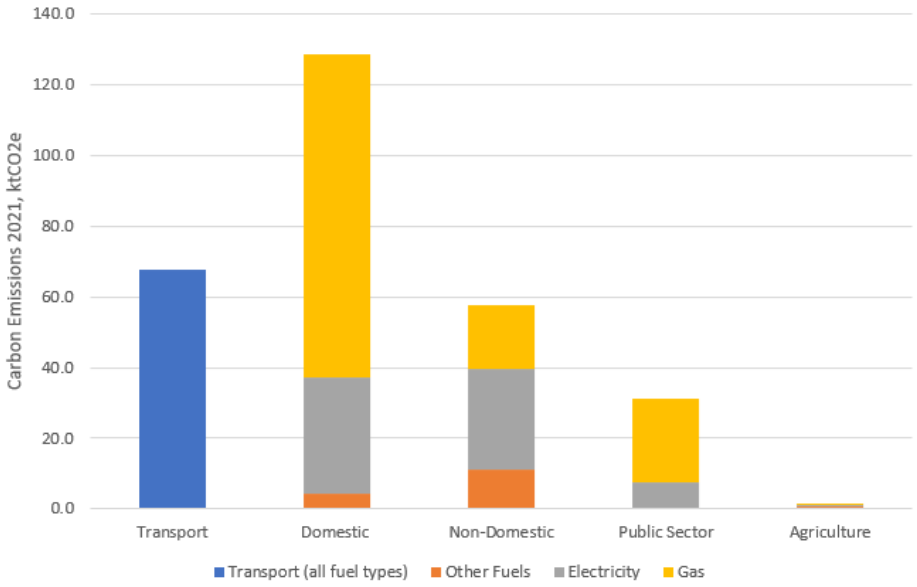


Figure 1: Annual carbon emissions for Eastbourne associated with different sectors and fuel types (BEIS subnational energy data 2021)

In terms of energy consumption in 2021, the distribution by sector and fuel type is shown in Figure 2, again this shows that the gas consumption in the domestic sector is the most significant component.

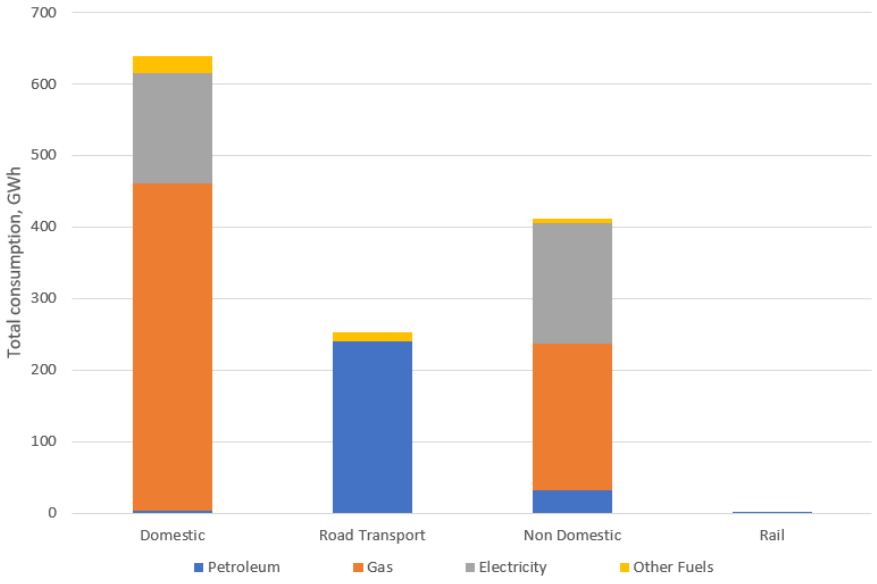


Figure 2: Annual energy consumption for Eastbourne associated with different sectors and fuel types (BEIS subnational energy data 2021)

3.2 Additional emissions associated with the proposed new development

The Eastbourne Local Plan Growth Strategy consultation (2022) identified the potential provision of 6,401 new homes (equivalent to an average of 320 new homes per year) and 53,000 sqm of employment floorspace (consisting of 13,000sqm of office use, and 40,000sqm of industrial and warehouse uses) over the plan period between 2019 and 2039.

The following map, from the Growth Strategy, shows the potential key development sites as well as the location of sites with completed residential development since 2019, extant permissions for residential development as well as small and medium sites identified in the Land Availability Assessment

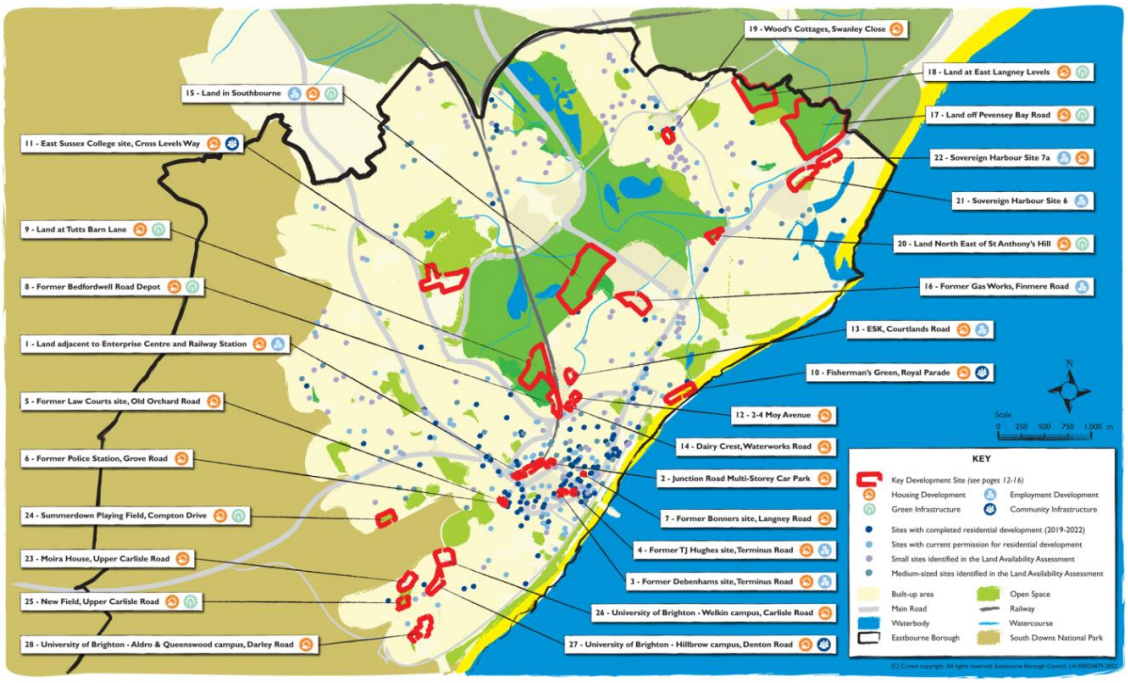


Figure 3: Location of proposed development in the Growth Strategy

Using the quantum of development in the Growth Strategy we have made assumptions on the split of residential development between houses and flats based on previous developments and used the assumptions in the document on the split of typologies for the new non-domestic development. In regard to phasing we have assumed an equal amount of development each year over the plan period 2019 and 2039.

In order to estimate the energy demands and CO_2 emissions associated with this new development we have applied assumptions based on the predicted energy demands and CO_2 emissions associated with compliance with Building Regulations. This takes account of the planned changes to Building Regulations so assumes buildings comply with Part L 2021 from now until 2025 and then from the anticipated Future Homes Standard or Future Buildings Standard from 2025. It has been assumed that the new Local Plan would be in place from 2024 so this has been taken as the start year for the modelling.

The graph on the following page shows the results of this modelling and the anticipated impact of the emissions associated with the planned development both with and without grid decarbonisation for a 'Business as Usual' scenario based on just complying with Building Regulations. This shows that the emissions associated with planned new development could be around 2 $ktCO_2e$ per year by the end of the plan period (A1 BAU). Compared to the existing emissions (at 2019) of around 287 $ktCO_2e$ this represents less than 1%. The reason this is so low is that most of this development is anticipated to happen after 2025 when the new Future Home and Building Standards will be in force requiring low carbon heating systems which in most cases will be electric heat pumps. This coupled with the Government's plan to decarbonise power by 2035 means that these new developments should have very low operational carbon emissions, and these should eventually get to zero.

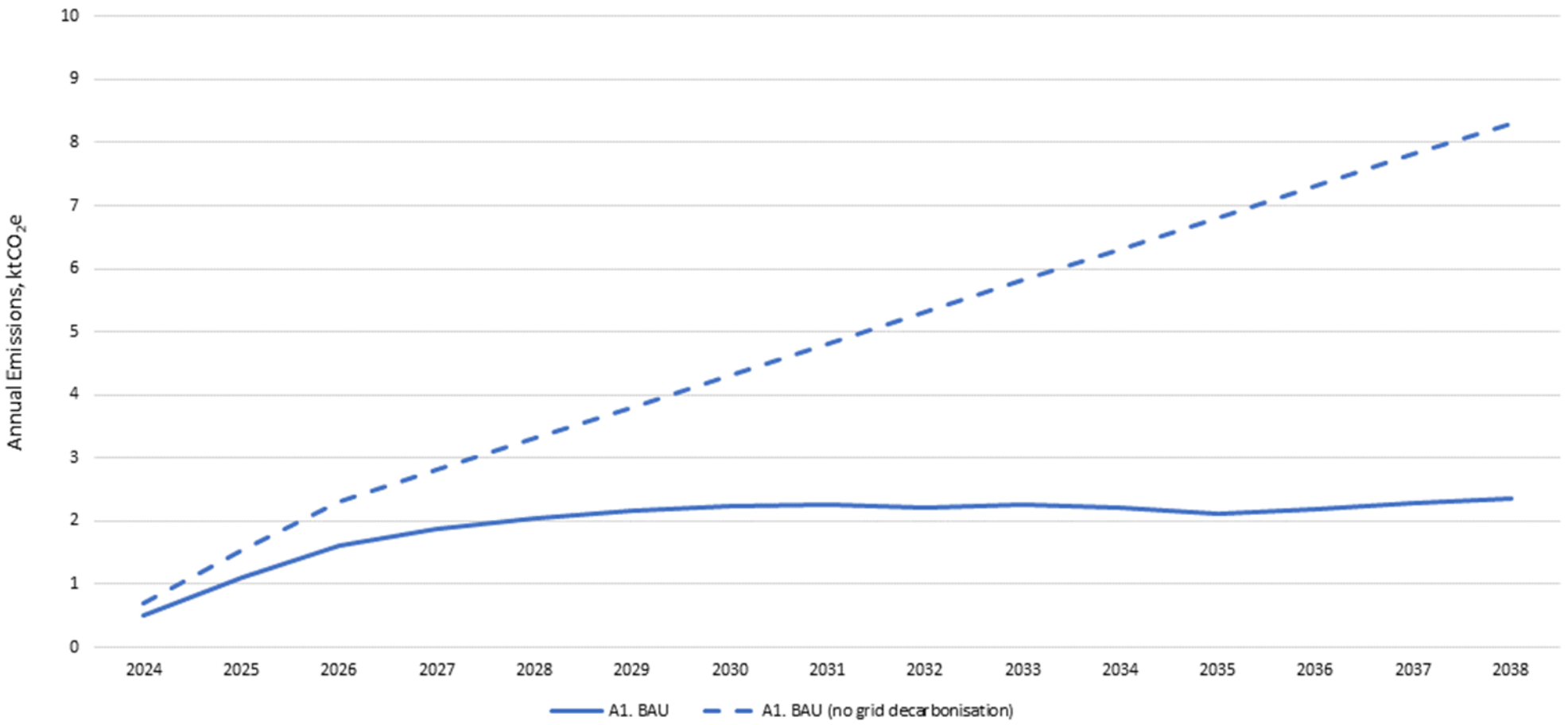


Figure 4: Annual carbon emissions demand projections associated with new buildings between 2024 and 2038

One reading of this graph is that it might be possible to rely on Building Regulations to decarbonise future development and not set any additional standards beyond this. We have therefore included this as the 'Business as Usual' (BaU) option however it should be noted that there are two principal risks associated with this position:

1. Future Building Regulations does not come forward as anticipated – If the Future Homes Standard and Future Buildings Standard do not go as far as anticipated or take effect later than 2025 then emissions from new development would be higher.

2. Grid decarbonisation does not happen as anticipated – If electricity from the grid is not decarbonised by 2035 or this process happens at a slower rate than anticipated then the emissions from new development would be higher.

If both of these scenarios happened together then the effects would be even greater.

Because of the effects of grid electricity decarbonisation, carbon emissions are likely to become a less useful metric for determining the relative performance of new buildings in the near future. The focus is already turning to overall energy consumption as a better metric for this in order to account for the impacts on the following:

1. Operational costs – Buildings with lower energy demands and systems to generate, store and manage energy will cost users significantly less to run
2. Future retrofit costs – It will be significantly more challenging and expensive for homeowners to install fabric, energy efficiency and equipment than for it to be installed upon construction
3. Local grid resilience – Reduced energy demands from new development will have lower impact on the capacity of the local power network thereby allowing capacity for wider decarbonisation (for existing buildings and vehicles) and reducing the extent and cost of upgrade work.
4. Building resilience – Homes designed with low demands, generation, storage and demand management systems will be much more resilient to supply issues as well as energy price fluctuations.

For these reasons the policy options considered over the following pages should be considered not just through a lens of carbon emissions reductions but also in regard to the benefits that would be delivered through the impact on overall energy consumption, costs and resilience.

4. Options for setting additional building energy performance standards

4.1 Scope

The scope of this study is limited to new building energy performance so excludes energy consumption and carbon emissions associated with existing building stock.

In regard to both embodied emissions associated with new buildings and unregulated emissions, those that are not covered by Building Regulations, these can be more challenging for planning policy to address for a number of reasons. These are, however, considered in this study.

The main focus of this study, as illustrated in the following diagram, has been on new building regulated emissions for which there is a stronger evidence base, precedents and standardised calculation methodologies to enable robust policies to be set.

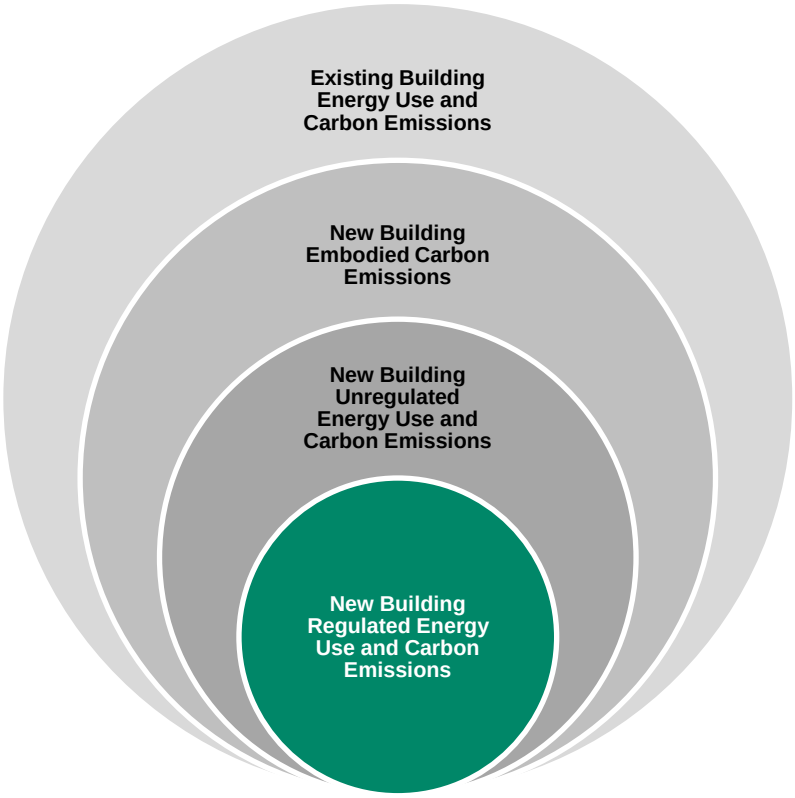


Figure 5: Diagram showing the scope and focus of this study

4.2 Approach to setting higher standards

The following diagram provides a summary of the different ways of potentially setting higher standards through the Local Plan. These are organised under the following four headings:

- Focus – What the requirement is focussed on
- Type – The type of requirement that is used
- Scope – What the requirement applies to
- Implementation – What processes and support are needed to accompany the requirements

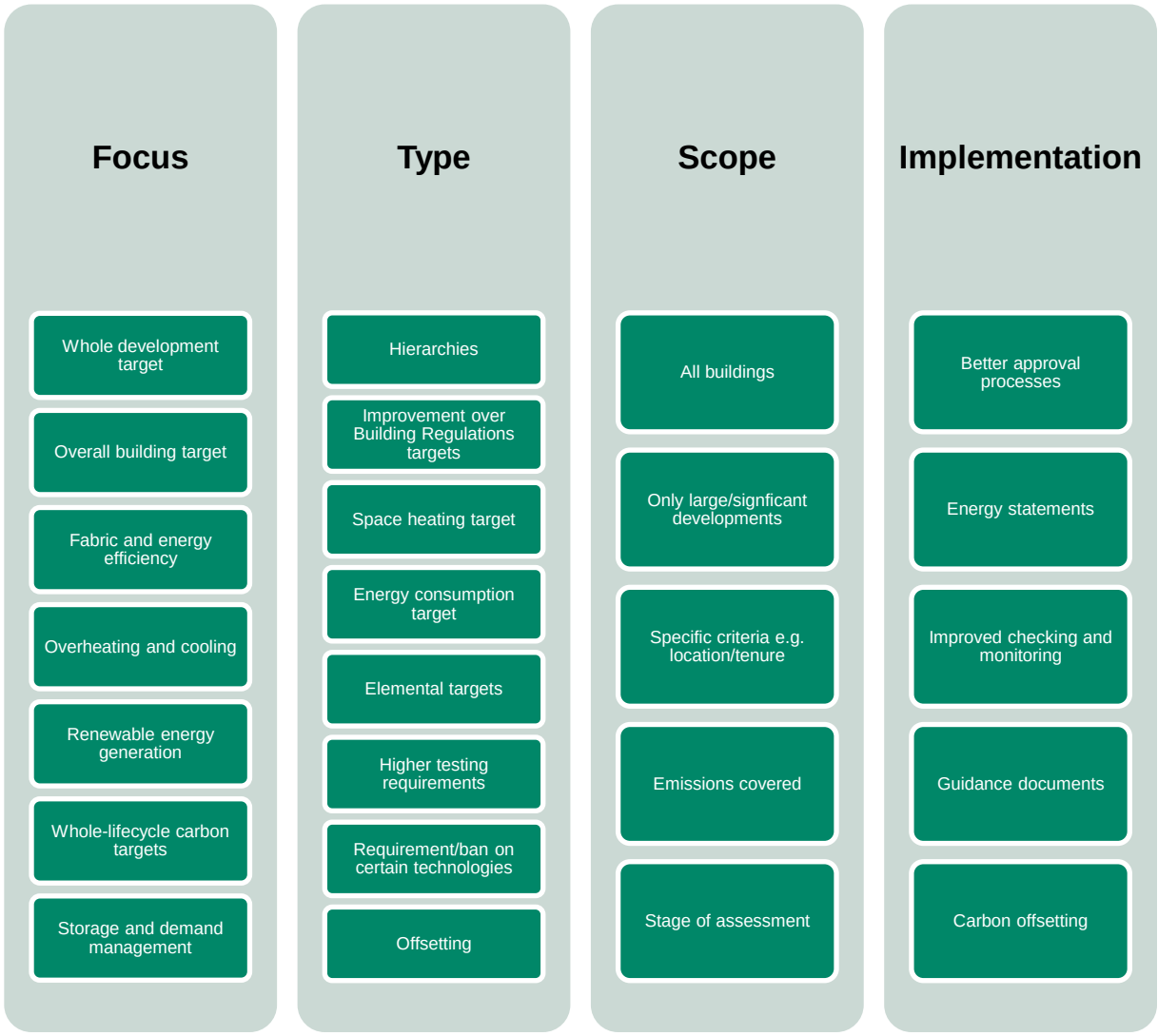


Figure 6: Range of different ways of setting requirements for improved standards around building energy performance

Following discussions and workshops with EBC around these potential different approaches to setting requirements we have focussed this study on investigating the following options:

- Overall building targets;
- Fabric and demand reduction requirements;
- Overheating and cooling requirements;
- Heating systems requirements;

- Renewable energy requirements;
- Energy storage and management;
- Whole lifecycle carbon requirements;
- Carbon offsetting; and
- Improved processes.

4.3 Overall building targets

A common approach to setting higher performance standards is to focus on the overall performance of the whole building. This is the approach that is taken by the Target Emission Rate (TER) requirement within Part L of the Building Regulations, which assesses each individual building or dwelling and generates targets based on a carbon emission rate using a set of standard values. This approach provides a level of flexibility in how the target is achieved because it enables improvements to be made in different aspects of the specification and as preferred by the builder.

One option would be to require developments to go beyond the Part L TER by setting a percentage improvement target on that value. The advantage to this is that developers can use the standard calculation software to do this, which is checked by a 3rd party. The Greater London Authority (GLA) adopt this approach in the London Plan. A downside to this approach is that it would be difficult to prove the viability, especially at the current time when Part L has changed and with further changes planned but not yet confirmed.

Targets linked to Part L are also rather abstract in that they relate to comparisons with a notional building rather than absolute carbon emissions. An alternative could be to set a target for overall carbon emissions, in some cases this has been set at zero for the regulated emissions, however challenges associated with this have tended to mean that an offset scheme is required to enable the target to be achieved in most cases.

An alternative option is to look at the overall energy consumption and set targets for the Energy Use Intensity (EUI) of each dwelling or building, which would assess the overall energy use of the building in kWh per square meter. This makes increasing sense as buildings become fully electrified and there are no complications of multiple fuel types and the grid is decarbonised making carbon a less useful way of determining building performance when the differences would become very small or, in the case of zero carbon grid electricity, non-existent. The Passivhaus scheme has targets related to overall energy consumption and targets have also been proposed by groups like Low Energy Transformation Initiative (LETI) however this is likely to require alternative calculations and additional resources both for developers to run the calculations plus Planning and Building Control departments to check the work.

There are also wider sustainability assessments which assess energy alongside a range of other sustainable development indicators to determine the relative performance of whole buildings, such as BREEAM and the Home Quality Mark (HQM). Both of these include energy, looking at the overall performance of the building as well as specific measures, with targets linked to improvements beyond Part L. However the nature of these assessments is that there is flexibility in the overall score, with minimum performance standards in some areas, so a target for a specific overall rating wouldn't guarantee the performance in the energy section of the assessment. The following table provides a comparison of some of these options.

	BREEAM 'Outstanding'	Home Quality Mark (HQM)	Energiesprong	Passivhaus	Passivhaus Plus
Description	BREEAM 'Outstanding' requires a reduction in regulated CO_2 emissions, compared with Part L 2013 standards. Additional credits can be achieved for a 100% reduction (i.e. Net Zero) regulated emissions.	HQM was developed by the BRE as a rating system that can signal to householders how well the building performs based on various sustainability indicators, including energy use and CO_2 emissions.	Originally developed by the Dutch government to promote energy efficient retrofitting, this is a performance standard for new build and refurbishment.	Originally developed in Germany, this is a performance standard that aims to meet annual heating requirements with very low energy input.	Similar to the Passivhaus Standard, this scheme also requires renewable energy generation on-site or nearby, resulting in Net Zero emissions.
Relevant building types	Non-domestic only [separate standards for domestic refurbishment]	Domestic only	Domestic only	Domestic and non-domestic	Domestic and non-domestic
Scope	Core requirements relate to regulated energy use, but additional credits can be achieved for reducing unregulated energy use. There is consideration of lifecycle CO_2 emissions from certain materials, but no set target.	Regulated and unregulated energy use .	Regulated and unregulated energy use	Regulated and unregulated energy use	Regulated and unregulated energy use
Target values	A bespoke metric is used which accounts for its regulated operational heating and cooling energy demand, primary energy consumption and CO_2-eq emissions	A bespoke metric is used which accounts for fabric performance, system efficiency and Total resulting CO_2 emissions.	Space heating demand <30 kWh/m^2/yr Net Zero delivered energy over the course of the year	Space heating demand <15 kWh/m^2/yr Primary energy demand <60 kWh/m^2/yr	Space heating demand <15 kWh/m^2/yr Primary [renewable] energy demand <45 kWh/m^2/yr
Fabric energy efficiency standard	None	None	Minimum performance standards for building elements and fixed services	Space heating demand <15 kWh/m^2/yr	Space heating demand <15 kWh/m^2/yr
Renewable energy requirement?	No	No	No	No, but this would typically be required to meet the targets	Yes, renewable energy generation >60 kWh/m2/yr of building footprint

Table 1: Comparison of some whole building energy assessment schemes and standards

As noted in the Policy Review, the recent Written Ministerial Statement (HCWS123) suggests that the Government does not expect Council's to adopt additional energy efficiency standards for buildings that go beyond the forthcoming Future Homes Standard and Future Buildings Standard. It goes on to say that if Council's adopt policies that propose this they should be rejected at examination if they do not have evidence to support viability and use a metric expressed as a percentage uplift on the TER (Target Emission Rate) calculated using the Standard Assessment Procedure (SAP). There are some potential challenges to the WMS but if this is applied then space heating targets, primary energy demand or energy use intensity targets based on kWh/sqm/year, as described in the table above, may not be permitted.

4.4 Fabric performance and demand reduction

An alternative or additional policy option would be to set a requirement to address purely the fabric performance of buildings. Again, this is something that is covered in Part L as part of the Fabric Energy Efficiency (FEE) target but there is the potential to develop a stronger target in this area.

The case for doing so is that this would address the costs associated with space heating and the component of the energy demand that is arguably where the developer has greatest influence as it is determined by the specification and quality of construction and would be extremely difficult and expensive for the home-owner to address in the future. Reducing energy demand will have a direct benefit for the eventual homeowner in regard to their energy costs and also deliver greater energy security and insulation from the impacts of future price rises.

Another important case for targeting space heating is that in the future, as more heating is electrified, it is likely to represent one of the most significant contributions to the overall peak power demands across the electricity network, particularly in towns and cities due to the scale of demand and the coincidence of use. Increasing demands and higher peaks will require much greater grid reinforcement which will have both direct cost implications and implications for capacity, which may restrict or delay the roll out of heat pumps and Electric Vehicles (EVs).

	Part L 2021 Notional	Indicative 2025 (consultation)[14]
Floor U-value (W/m^2.K)	0.13	0.11
External wall U-value (W/m^2.K)	0.18	0.15
Roof U-value (W/m^2.K)	0.11	0.11
Window U-value (W/m^2.K)	1.2	0.8
Door U-value (W/m^2.K)	1.0	1.0
Air permeability (m^3/h.m^2 @50Pa)	5.0	5.0
Heating appliance	Gas boiler	Low carbon (electric heat pump)
Heating system	Low temperature	Low temperature
Ventilation System type	Natural	Natural
Photovoltaics	Yes	No
Waste-water heat recovery	Yes	No
Thermal bridging (y-value)	SAP Table R	0.05-0.09

Table 2: Performance metrics of the notional dwelling for Part L 2021 and the proposed values for the Future Homes Standard anticipated in the 2025 revision

The space heating demands associated with construction to the Part L 2021 standard are likely to be approximately 40-50 kWh/sqm/yr and this could drop to 30-40 kWh/sqm/yr with the proposed 2025 revision based on the indicative specifications that have been published. The Committee on Climate Change, in their report "UK housing: Fit for the future"[15] recommended achieving space heating demands of 15-20 kWh/sqm/yr in new dwellings while the Passivhaus standard requires less than 15 kWh/sqm/yr.

There are costs associated with these improvements and diminishing returns mean that the costs can rise significantly as you try to deliver higher savings, for example the impact on wall build-ups and overall thicknesses to achieve the very low wall u-values. The upfront costs would be outweighed by the cost savings over the lifetime of a building which is why Passivhaus is popular with self-builders who stand to get the benefit of this investment although where these benefits are split in the usual case of commercial developers the incentives don't align so regulation or other means for sharing the operational cost benefit is needed. If setting a requirement for space

[14] At time of writing this is under review and the specification may change
[15] https://www.theccc.org.uk/publication/uk-housing-fit-for-the-future/

heating then a maximum value between 15kWh-30 kWh/sqm/yr, subject to viability, is likely to represent a future proofed approach.

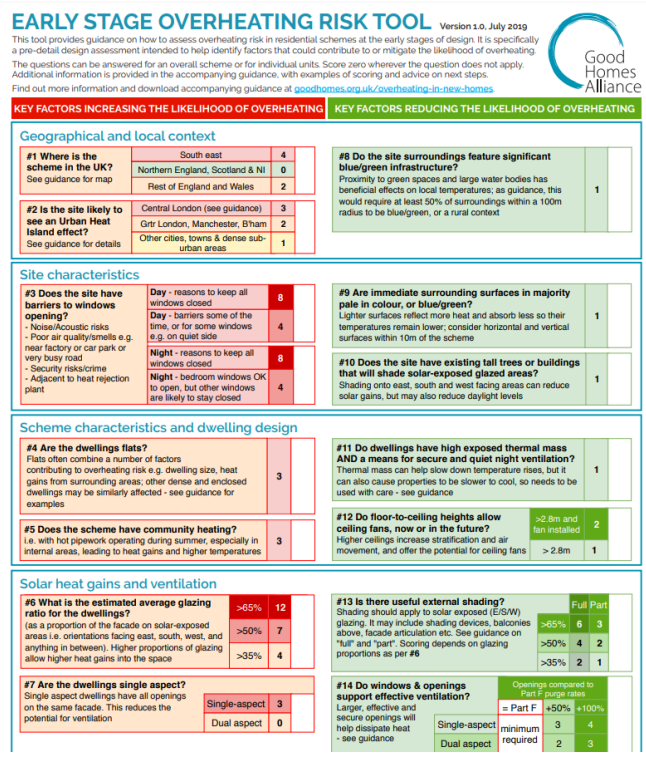
Again, as noted in the Policy Review, the recent Written Ministerial Statement (HCWS123) suggests that space heating targets based on kWh/sqm/year as discussed above may not be permitted however it might be permissible to express these in percentage improvements on the Target Emissions Rate calculated using the Standard Assessment Process (SAP). There is precedent for this as the GLA has a target expressed this way, requiring new developments to deliver improvements of 10/15% above the TER through fabric measures alone for domestic/non-domestic buildings respectively.

4.5 Overheating and cooling

Overheating is recognised as a key risk in the built environment in the future as a result of climate change and the impact of increasing temperatures and frequency of heat waves. Relative to other parts of the UK this is an issue that is likely to be more important in a place like Eastbourne given both its location and demographic. High temperatures have been linked to mortality and wellbeing impacts. The UK Climate Change Risk Assessment 2017 projects that UK heat-related deaths could more than double by the 2050s from the 2,000-death per year baseline if there is no adaptation[16] This would be a substantial human cost, and DEFRA predictions from 2012 estimate that the economic cost associated with heat-related deaths would rise by £15-100 million per year.

There is a link between the energy performance of a building and the overheating risks. Increasing the fabric performance can lead to increasing overheating risks however this can be mitigated through design. Some of the mitigation measures like orientation can be simple if they are addressed from the outset of a project through the masterplan and building layouts, others can be achieved through the specification of glazing and ventilation strategies but again need to be considered in the early stages of design to be effective. The latest revision of Building Regulations includes more stringent requirements in the new Approved Document Part O to assess overheating in new residential buildings.

A potential policy option would be to include a requirement to complete an early risk assessment and submit this with the planning application showing that the overheating risks have been identified and how these have been addressed in the plans. The Good Homes Alliance have published a risk tool to assist new homes developers in understanding the level of overheating risk and promoting the consideration of mitigation measures. Requiring developers to complete this at the pre-planning stage will give developers and design teams the information to inform those early decisions.



[16] Climate Change Committee, 'UK Climate Change Risk Assessment' (2017). Available at: https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf

Figure 7: Good Homes Alliance Overheating Risk Tool

Another option would be to require developers to undertake additional modelling beyond what is required for Part O. This could be a requirement to undertake dynamic simulation modelling in line with the guidance and data sets in CIBSE TM59[17] as well as additional weather data sets to reflect extreme overheating events. Such modelling would have additional costs associated both with running these models and any mitigation requirements that follow. This may be difficult to apply to all development sites but could be an extra requirement to significant developments or those where higher risks have been identified through the GHA risk tool. .

4.6 Heating systems

The choice of heating and hot water system will have the most significant impact on the operational carbon emissions of the building. The decarbonisation of electricity with plans for supply from the national grid to be net zero by 2035 means that heating from systems that use electricity, which will principally be heat pumps, will not only be lower carbon now but will continue to reduce over the lifespan of the building and become net zero once the grid is fully decarbonised. In contrast the carbon emissions associated with the combustion of gas will remain unchanged and any buildings that are designed with gas boilers now are likely to retain those for at least the expected lifespan of that product which in most cases will be about 15 years.

The following graph, from a study undertaken by Currie & Brown and AECOM for the Committee on Climate change (CCC)[18], shows the cumulative carbon emissions of a house with a gas boiler compared to one with an electric Air Source Heat Pump (ASHP) and also the scenario in which a gas boiler is installed first and replaced with an ASHP after 10 years. This shows a huge difference in the cumulative emissions between the gas boiler and the ASHP. This is because the ASHP uses electricity from the grid which is expected to be negligible/zero carbon within the next 10-15 years. It also shows that in the replacement case the lifetime emissions for the building are potentially three times higher due to the initial use of a gas boiler.

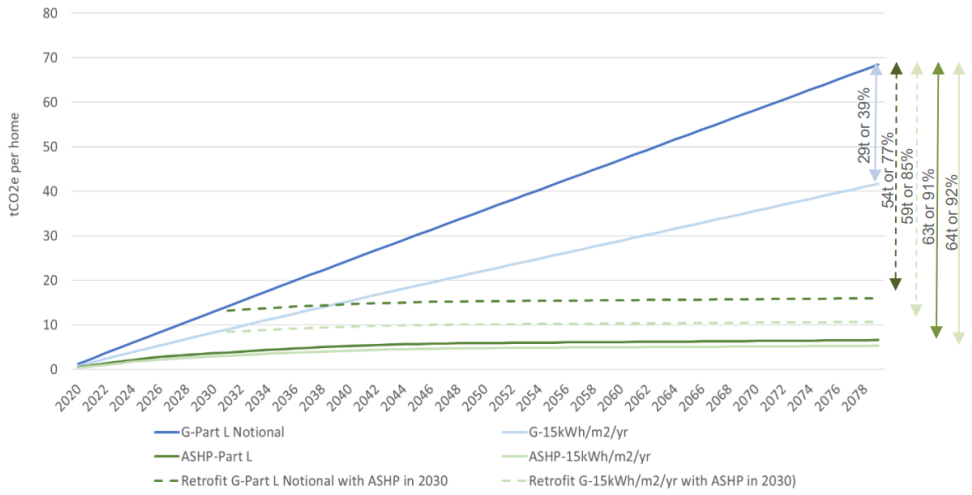


Figure 8: Graph showing the cumulative carbon emissions from a semi-detached house built to different space heating standards (Part L 2021 notional or Passivhaus) with either a gas boiler (G), an ASHP or a gas boiler retrofitted to an ASHP after 10 years.

The Future Homes Standard scheduled for 2025 proposed a ban on new gas boilers and includes an electric Air Source Heat Pump (ASHP) as the reference heating system. The Future Building Standard proposes similar changes to the reference heating system however it has an assumption on the use of direct electric systems for some building types where point-source heating is more appropriate. The new Regulations will therefore enforce the switch from gas boilers to electric heat pumps and deliver this change. Though the reference system is ASHP, the developer has the option to use other electric heat pump or low carbon technologies such as connection to low carbon heat networks.

[17] https://www.cibse.org/knowledge-research/knowledge-portal/technical-memorandum-59-design-methodology-for-the-assessment-of-overheating-risk-in-homes
[18] https://www.theccc.org.uk/wp-content/uploads/2019/07/The-costs-and-benefits-of-tighter-standards-for-new-buildings-Currie-Brown-and-AECOM.pdf

However, this policy is still under development and could be changed or delayed. Also, even if it is delivered as planned and on schedule there may be transitional arrangements that mean that the policy doesn't take effect until 2026 or later. As such, there may be a gap between the publication of the Local Plan and the enforcement of the Future Homes and Future Buildings Standards which means that gas boilers are still being installed in new developments in Eastbourne, leading to significantly higher carbon emissions as described above. Another issue is that the costs for replacing the gas boiler in the future will be passed onto the homeowner. The Government has signalled that it will also seek to replace existing gas boilers, with an aim of phasing out the installation of new gas boilers after 2035. Homes that are delivered with gas boilers today will therefore need to replace these with electric heat pumps in the near future, the cost of which will be borne by the homeowner. These costs, and additional costs of retrofitting fabric improvements, can be significant as shown in the following graph.

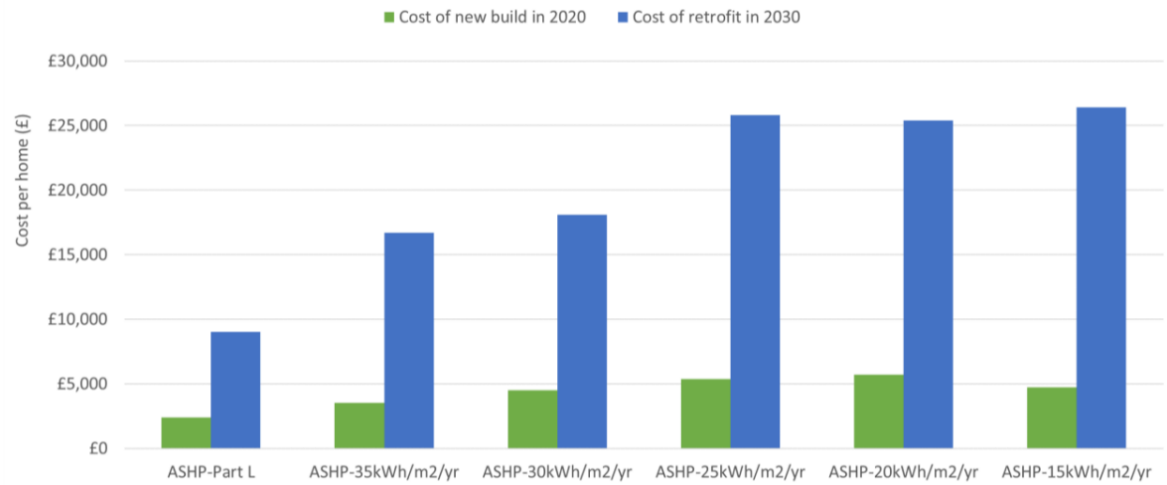


Figure 9: Graph showing the additional costs of installing ASHP and meeting space heating standards in a new semi-detached house compared to retrofitting these after construction.

In regard to direct electric heating the indication is that the Future Homes Standard will seek to make this challenging to comply unless heating demands are extremely low. This is because while this would be relatively low cost to install, it would have much higher running costs given the efficiency of a heat pump would be 2.5 to 3 times better, leading to much lower energy consumption and therefore lower costs for the residents and have a lower impact on network capacity. As previously noted, some non-domestic buildings with localised and very small heat demands might be more appropriately served by point-source systems rather than centralised heating and therefore direct electric systems would be appropriate.

The other key option for decarbonising heat is through the use of heat networks. We are not aware of any existing or planned work on strategic heat networks in Eastbourne so there is less of an evidence base to support a policy requiring connection to heat networks when the infrastructure is not there to connect to. However, the Government is current developing a Heat Network Zoning Policy[19] which would provide local authorities with the power to designate areas as heat network zones if it can be demonstrated that a heat network would offer the best route to decarbonisation, that being the lowest cost and lowest carbon option. Given that this policy might be enacted in late 2024 it would be good to reference heat networks within the Local Plan so that there is a link for future work that might be undertaken to define and designate a zone.

Policy options to address heating systems would include the use of a heat hierarchy to prioritise the most appropriate solution and place the burden of responsibility on the developer to prove that this is not technically feasible or financially viable. A blunter approach would be to effectively ban the use of new gas boilers and direct electric systems for residential developments. In regard to heat networks more specific policy requirements are likely to require some further evidence from detailed studies with defined project opportunities or the modelling to identify and support the designation of a heat network zone.

4.7 Renewable energy generation

Aside from heat pumps, which can be considered as a renewable energy technology, there is also a strong case to promote other renewable energy generation. The most relevant technologies for application at the building - scale would be solar photovoltaics (PV), which generate power, and solar thermal systems (also known as solar

[19] https://www.gov.uk/government/consultations/proposals-for-heat-network-zoning

hot water systems), which generate hot water. PV should be applicable for almost all buildings whereas solar thermal would be applicable for residential buildings and non-residential buildings with significant hot water demand. Eastbourne has some of the highest irradiance across the whole of the UK, so properties here stand to gain the most from the use of solar technologies.

With both the decarbonisation of electricity and the electrification of heat these technologies will have less of an impact on carbon emissions over time. Previously the main case for PV has been the high carbon savings but as this declines the main driver will be on reducing the energy costs and providing energy security both for the building and wider local power networks.

While the notional building used in Part L 2021 includes PV in the reference specification, the indicative specification for the planned Future Homes Standard notional building doesn't. The interpretation is that it would be possible to comply through a combination of good fabric and energy efficiency specification and the use of an electric heat pump. As such, given that the developer must factor in the up-front costs of the PV and doesn't realise the longer-term benefits, they might decide not to include PV (or solar thermal) if there is no need to do so to comply with Building Regulations. As previously described for the fabric performance and heat pumps, the costs of installing PV or Solar Thermal systems during construction are significantly lower than retrofitting these so there is a case for the Local Plan to put in requirements for these technologies.

One option for a policy on renewable energy generation would be to focus on PV and have a requirement or presumption for all developments to incorporate PV or go slightly further and have a presumption to maximise the amount of PV installed. This would put the onus on the developer to either comply with this or do the work to justify why they haven't, on either technical or financial grounds, both of which are likely to be challenging given the ease and low costs of installing at least some PV. An alternative option would be to set minimum targets, which could either be measures by % improvements on Part L targets (as per the old Merton Rule) or minimum sqm/capacity (kWp) or yield (kWh) from PV relative to building footprint (as per Passivhaus plus). The benefit of setting a planning target based on the building footprint is that it will likely encourage building design to optimise solar PV generation before the design is fixed through planning approval.

Although solar thermal could offer advantages for some building types, the decision to incorporate it will be more nuanced and therefore it would be harder to set a requirement other than to assess the opportunity for solar thermal in the energy strategy where the building in question has a high hot water demand.

4.8 Energy storage and demand management

Although they would not contribute directly to carbon reduction or reducing overall energy demands, the use of energy storage systems, both batteries and thermal storage, and demand management systems like smart meters and controllers can have a significant impact on building running costs and the impact on wider energy systems.

Both thermal stores and batteries can help to maximise the benefits of solar generation from solar thermal and PV systems respectively as well as enabling load shifting which will be increasingly important with the use of electric heat pumps. Coupled with dynamic pricing of power, which is now moving into the residential market, they have the potential to make significant impacts on occupants overall running costs.

One of the key benefits of smart meters is improving transparency and user access to their own energy data, making it easier to identify areas of waste. Although it is not clear to what extent this affects user behaviour in the long term, the improved data collection could also facilitate the introduction of demand side response, and on a broader scale, help to balance energy demand and supply, which is particularly important at peak times. In principle, therefore, these have the potential to reduce energy consumption. Initial studies on the success of smart meters in domestic properties indicate average savings of around 4% for customers fitted with smart meters compared to those without. It was seen in some cases that these savings could increase to 11% for homes installed with real-time display smart meters. The impact may be small, but smart metering can still offer wider benefits both to energy consumers and power companies, by providing a more detailed understanding of the quantity and timing of energy demands.

It would be difficult to mandate the use of specific systems but a viable policy option here would be to require developers to show that they have assessed the options for storage and demand management and the justification for the approach taken.

4.9 Embodied carbon and lifecycle carbon

The manufacture and construction of buildings results in a significant amount of energy use and CO_2 emissions. Further CO_2 emissions will be produced from these buildings due to the materials and equipment required for

maintenance, renovations and demolition. This assessment has not considered the Whole Life-Cycle (WLC) carbon emissions of the building stock in Eastbourne, which is outside the scope of this report. We can however demonstrate the significance of embodied carbon through housing averages. Embodied carbon can represent 30-70% of the total CO_2 emissions, as illustrated in Figure 10, which is adapted from the UK Green Building Council report.[20] To reach Net Zero across the whole of the UK, it will be necessary to implement policies that address a broader range of emissions that occur over the building's lifecycle, at all stages of the supply chain.

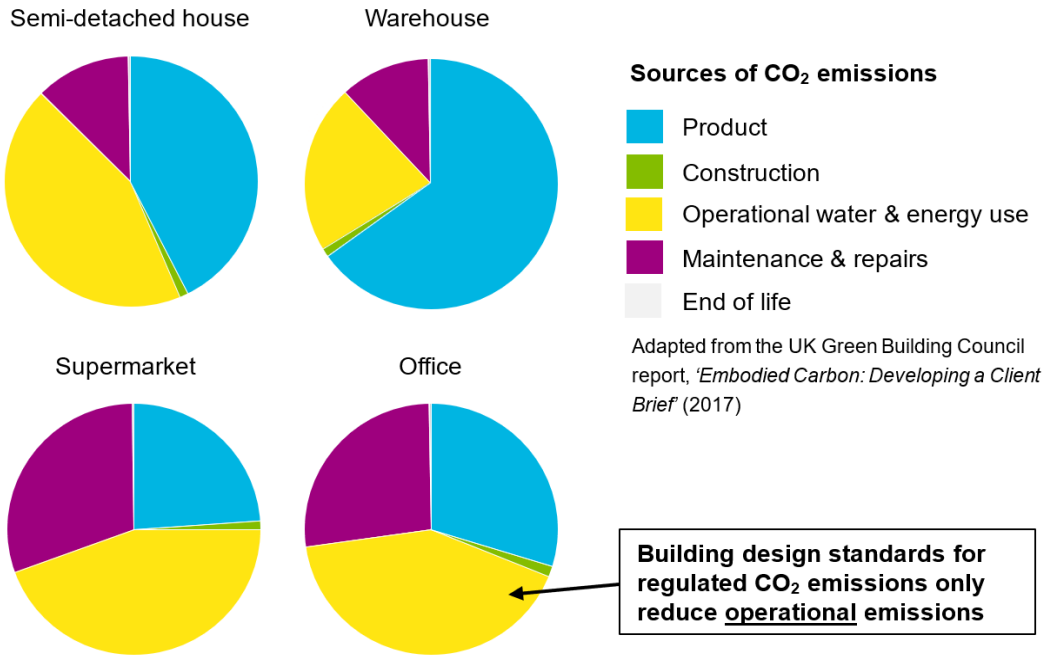


Figure 10: Illustration showing the relative proportion of CO_2 emissions from operational carbon (in yellow) compared with embodied carbon (other colours) over a 30-year period. Source: UK-GBC (2017)

Although not the focus of this study and currently not covered by Building Regulations it is clear that embodied carbon already represents a significant component of the whole-life cycle carbon emissions of a building. This will only increase over time as the grid decarbonises and heating is electrified meaning that operational emissions will reduce further. Though the embodied carbon supply chain is also expected to decarbonise it is less clear when and how quickly this can be achieved in practice.

The subject of embodied carbon is complicated and there is a much smaller existing evidence base and precedents for setting standards in this area. The GLA has recently introduced some requirements on whole-lifecycle carbon for major developments, but these are limited to assessing and reporting whole-lifecycle emissions, presumably with the intention of gathering data that could inform a stronger policy and targets in the future. Without a lot of further work, opportunities to address embodied carbon within the Local Plan are probably limited to encouraging developers, potentially focussing on the most significant developments or those in which the council has some involvement, to carry out an assessment of whole life-cycle carbon emissions as part of the energy strategy and show how they have considered and taken measures to minimise these. That could include choosing to refurbish buildings rather than demolition and rebuild, reducing material use through the design, selection of construction types and the choice of materials and products based on embodied carbon.

4.10 Offsetting

In the context of building performance standards for new developments, carbon offsetting schemes have been developed by local authorities to provide an alternative route for developers to meet higher carbon reduction targets. In some cases this is used as a mechanism to deliver 'net-zero' development that would be very challenging to do through on-site measures. Some offsetting schemes, like the one in Milton Keynes have been around for some time so there is a strong precedent. In addition to enabling a route to higher targets the schemes are used to generate funds that can be spent on other carbon reduction projects, particularly those that are hard to fund like retrofitting existing buildings.

[20] UK Green Building Council, 'Embodied Carbon: Developing a Client Brief' (2017).

The principal critique of offsetting schemes is that they are effectively an accounting trick and might allow developers to avoid doing more on their developments if it is simpler and cheaper to pay into the offset. A fix for this is then to require other policies to set minimum on-site targets. A further challenge is that the funds generated may be used for projects that should happen anyway as part of wider decarbonisation schemes, we then require tests for additionality to address this and to avoid double counting.

There are also a number of challenges around the creation and operation of these schemes. Firstly they require a strong evidence base to support the price of carbon and justify this against the impact on the viability of the project. Another issue is the resource implications associated with running the offset fund, both in terms of assessing and collecting the payments from developers and spending the money to deliver the emissions that are being offset. It can be very challenging to deliver a 1:1 ratio of carbon savings due to the high admin and delivery costs associated with the types of projects that such a scheme would need to fund given that these would need to ensure additionality i.e. not be projects that would happen anyway.

A further factor is that as operational carbon emissions drop with the use of electric heat pumps and decarbonisation of electricity then the residual carbon emissions will be very small and could be zero after 2035 if the grid is fully decarbonised. As such the case for a scheme could disappear and the value of the funds collected might not be worth the effort even if the price of carbon was increased.

Given the complexities around setting up an offsetting scheme and the uncertainties around the value of such a scheme given future changes to Building Regulations and the implications for residual carbon emissions we would suggest not progressing this as a policy option for the Local Plan.

4.11 Improvement in processes

A final area for consideration is to improve the Council's internal processes around energy strategies for new developments. As illustrated below this is partly about setting clear requirements for what developers are required to do, having a thorough check through the pre-planning and planning approval process and doing checks though to construction.

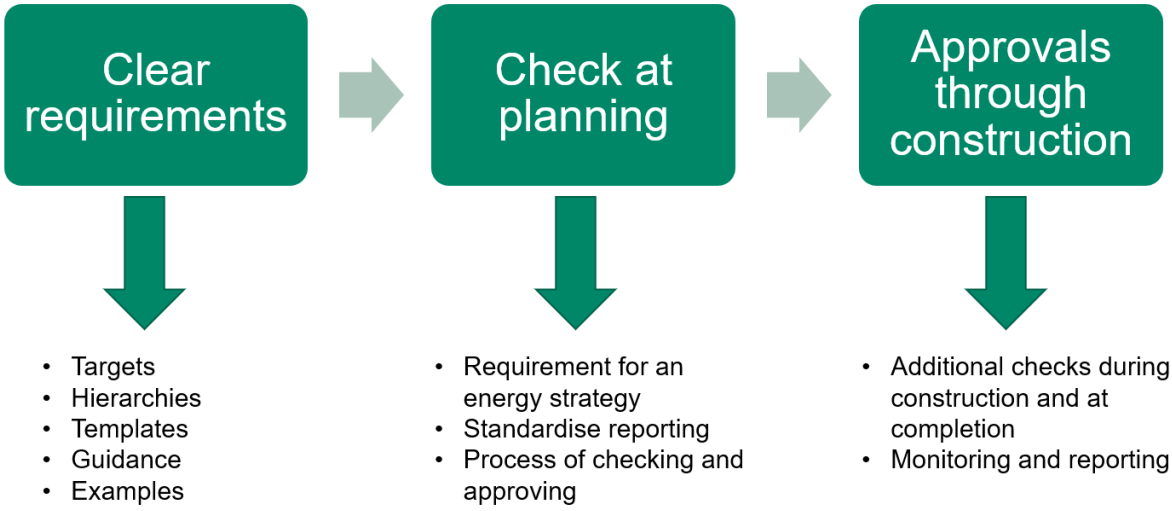


Figure 11: Illustration of the potential elements of an improved process

A key component of an improved process would be a standardised energy statement format for each development that requires developers to document the energy strategy and the relevant information related to the specific policy requirements chosen for inclusion in the Local Plan.

Some guidance would need to be produced to assist developers in producing the energy statement, which could be a simple document or go into detail and include standardised tables, graphs, templates and examples. The energy statement could be either a standard requirement for all schemes or a simpler checklist could be required for smaller schemes of less than say 5 or 10 units. More guidance material would incur additional resources but should deliver efficiencies in the longer term and improved outcomes if developers have a better understanding of the process and the strategies are in a consistent format as well as making the approval process easier. As a minimum, the guidance would need to clearly explain how the energy statement should be structured and what information is required to demonstrate compliance with each policy.

An improved process would have some cost and resource requirements for the Council. Additional resources would be needed to perform these checks and those members of staff would need sufficient knowledge of energy systems and calculation software to appraise the statements which would either involve hiring new staff, training existing staff or paying for external support.

The extent to which additional monitoring and checking are carried out between planning and completion could be potentially scaled to suit the development. The standard Building Control checks might suffice for smaller schemes but additional checks throughout the process could be applied to larger schemes.

4.12 Policy options recommended for consideration

The following table sets out the range of policy options that could be considered for inclusion within the Local Plan. For each option we have shown a low, medium and high level of intervention, all of which would go beyond the national requirements and current standards, but which would have different implications for both internal resourcing and development viability. These options were presented and discussed with the Council in the workshops that we carried out as part of this commission.

	Low **Limited additional requirements but better processes**	**Medium** **Improved targets and better processes**	**High** **Significantly higher targets and better processes**
Fabric Standards	**Building Regulations target but improved energy strategy process** Current fabric standards to 2026 (assuming transition period for Part L 2025) then Part L improved standards from 2026 onwards. Improved checking through Planning and Building Control including requirement for an energy statement with standardised methodology. Support for developers to make improvements through guidance and information.	**Stronger processes** Requirement to demonstrate in an energy statement, Standard methodology to quantify performance, more checking through the planning process.	**Improved targets** Space heating target 30 kWh/m^2/yr for residential. Potential to require Passivhaus standard on specific sites. Stronger processes as described in 'Medium' option, but extra checks would be required for the improved targets.
Heat source	**Building Regulations target but improved energy strategy process** Gas boilers or direct electric until 2026 (assuming transition period for Part L 2025) then electric heat pumps from 2026 onwards. Improved checking through Planning and Building Control including requirement for an energy statement with standardised methodology. Support for developers to make improvements through guidance and information.	**Heat hierarchy** Requirement to follow a heat hierarchy which would require developers to prove alternative options. Enforce hierarchy through the approval of energy strategies with some flexibility to assess on a site-by-site basis.	**Low carbon heat requirement** Requirement for all new developments to include low carbon heating, effectively banning gas boilers in advance of Part L 2025.
Low carbon generation	**Building Regulations target but improved energy strategy process** Part L 2021 likely to require PV but may not be needed from Part L 2025 (as target will be met by electric heat pumps). Improved checking through Planning and Building Control including requirement for an energy statement with standardised methodology. Support for developers to make improvements through guidance and information.	**Presumption of PV on all developments** Requirement for developers to include PV and seek to maximise this on all sites (within technical and financial constraints) or to present a clear case where PV is not installed.	**Targets for minimum PV** Set specific targets for the minimum amount of PV to be installed, linked to the roof area or building footprint.
Demand management	**No requirement**	**Requirement to assess** Requirement to report on consideration of thermal storage, batteries and smart systems as part of energy statement. Support for developers on potential options through guidance and information	As Medium - unlikely to be sufficient evidence to require hard targets
Whole-Lifecycle carbon	**No requirement**	**Requirement to assess** Requirement to calculate and report on Whole-lifecycle carbon for larger schemes. Potential to use energy strategy process and guidance to support developers to look at options to reduce.	As Medium - unlikely to be sufficient evidence to require hard targets

Table 3. Summary of policy options recommended for consideration with varying levels of intervention

4.13 Policy scenarios for testing

For several of the policy options described above we have been able to model the potential impact on carbon emissions and energy demands. In order to enable the quantification we have made some assumptions on the different scenarios as described in the following table:

Scenario	Ref	Details
1	A1. BAU	Business as usual option 1: All new developments meet current Part L 2021 for all development planned during the Local Plan period
2	A2. BAU 2	Business as usual option 2: All new developments meet current Part L 2021 up to and including 2025 but Part L 2025 from 2026 onwards
3	A3. ASHP	All new developments install Air Source Heat Pumps (so ASHP is adopted ahead of Part L 2025)[21]
4	A4. Min PV	All new developments install a required amount of PV (for modelling purposes this has been limited to residential buildings with an assumption of 3 kWp per house and 1.5 kWp per flat (where this would be the share of a larger array)
	A4. Max PV	All new developments install a higher required amount of PV (for modelling purposes this has been limited to residential buildings with an assumption of 6 kWp per house and 3 kWp per flat (where this would be the share of a larger array)
5	A5. Space Heating Requirement	All new residential developments meet a maximum target of 30 kWh/sqm/yr for space heating
6	A6. Passivhaus 10%	10% of new residential developments meet the Passivhaus standard
	A6. Passivhaus 100%	100% of new residential developments meet the Passivhaus standard

Table 4: Scenarios defined for testing

These scenarios were used in the model described in Section 3 to determine the impact on the carbon emissions and energy demand calculated for the development proposed in the Local Plan. The results are shown on the following pages.

[21] In practice this would include all electric heat pump solutions, however, for illustration the performance specification for ASHPs only has been modelled.

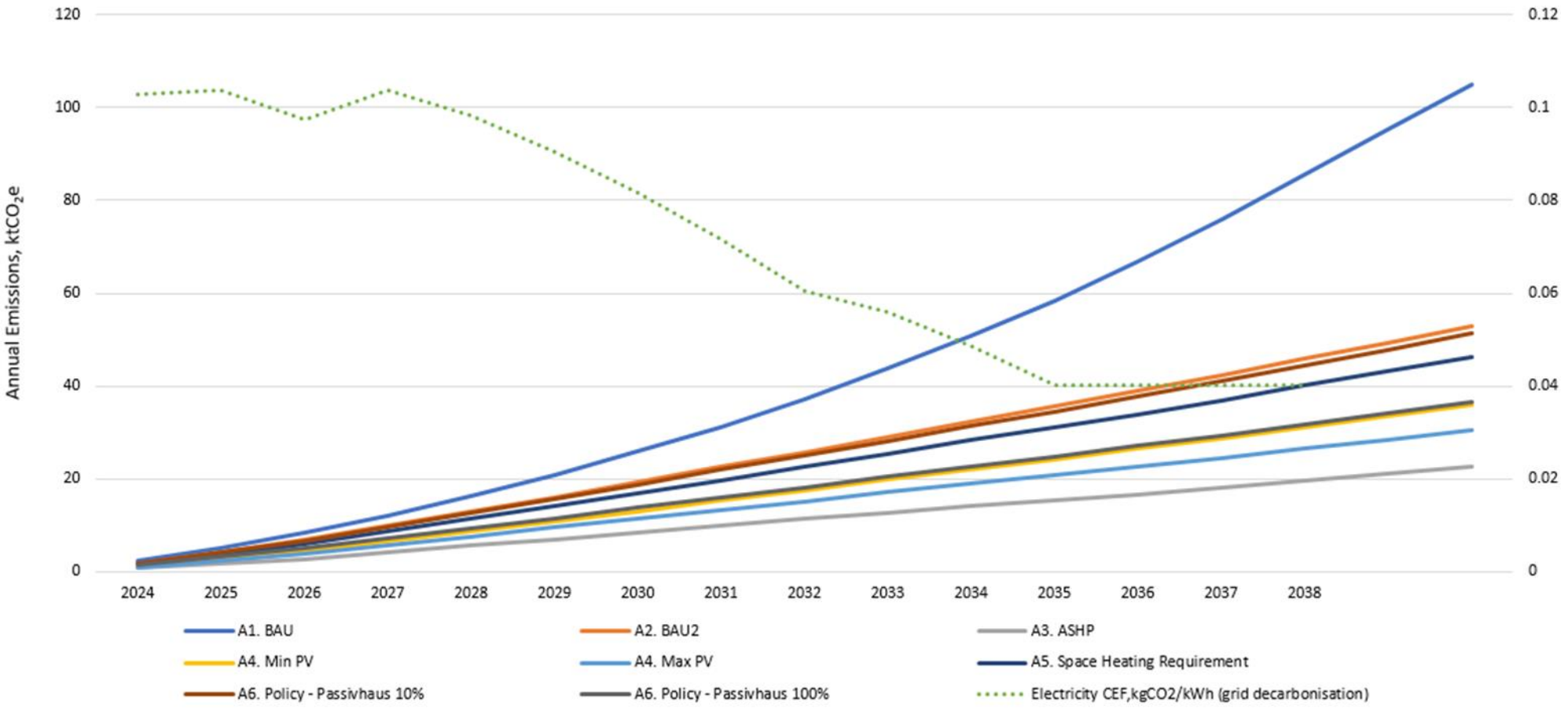


Figure 12: Cumulative carbon emissions associated with the new development anticipated during the Local Plan period under different policy options

This graph shows that the most significant impact comes from ensuring the use of electric heat pumps in all new developments, particulalry in the years before this is likely to be mandated by regulations. The next most impactful option is the requirement for PV. As the carbon factor of electricity drops this affects some of these options as if all energy use is based on electricity then all solutions tend to zero, this is why adoption of electric heat pumps in the early years has such a big impact.

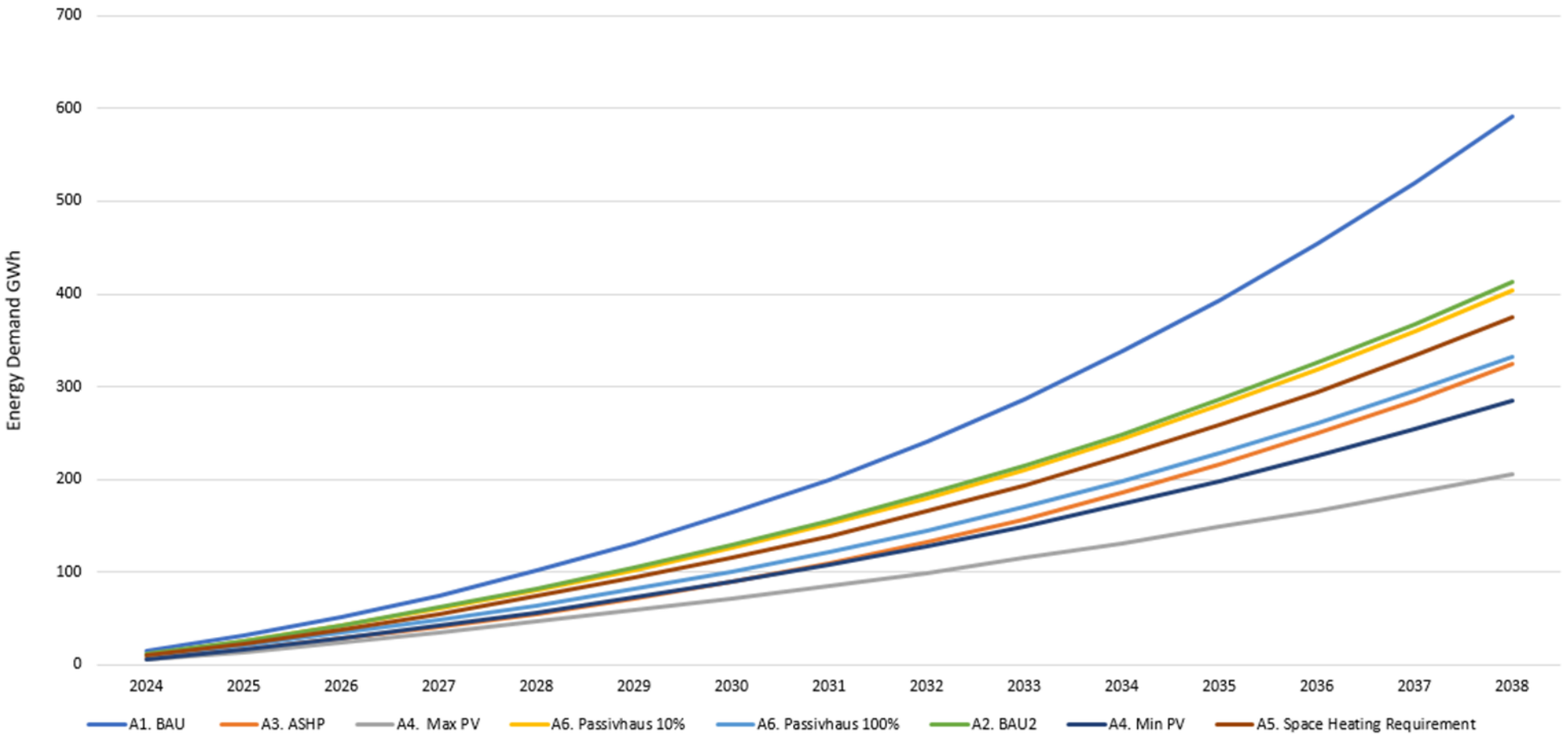


Figure 13: Cumulative energy demands associated with the new development anticipated during the Local Plan period under different policy options

This graph shows a similar story to the previous one but when the options are assessed in energy consumption terms there is some difference in the relative impact, with PV coming out as the most effective, followed by ASHP and the use of Passivhaus. The impact in energy consumption terms is a good proxy for occupant energy costs.

4.14 Estimated cost implications

The following table sets out the estimated cost implications for the scenarios derived from the policy options described above. These have been derived from publicly available information, the sources of which are described below. This information has been submitted for use in the viability assessment process.

Scenario	Model ref (see previous graphs)	Description	Implications	Cost implication	Cost data	Source
1	A1. BAU	Part L 2021 only	Part L 2021 remains in place for whole plan period		Baseline costs	
2	**A2. BAU2**	**Part L 2021 and then Part L 2025**	**Part L 2021 from now until 2026 (assuming transition period) then Part L 2025 (FHS/FBS) thereafter**	**Additional costs associated with proposed policy from 2026 onwards (allowing for transition arrangement)**	**Assume no uplift**	**Assumption based on information published by DLUHC on the notional buildings for Part L 2021 and 2025. No uplift assumes costs even out due to the removal of PV and WWHR and the addition of ASHP and slightly better fabric.**
3	A3. ASHP	Heat pump requirement before Part L 2025	Requirement for all dwellings to install electric heat pumps ahead of expected requirement in Part L 2025 (so from start of plan period to 2026)	Extra costs associated with ASHP from Plan start date until 2026	Assume no uplift (achieved by a change in strategy)	As above
4	A4. Min PV A4. Max PV	Include PV	Requirement for all buildings to include PV (either assume minimum or a requirement to maximise)	Min: Assume average of 3 kWp per house and 1.5 kWp per flat (share of larger array) Max: Assume average of 6 kWp per house and 3 kWp per flat (share of larger array)	Baseline assumption for Scenario 2 assumes no PV: <4 kWp: £1k per installation plus £800 per kWp >4 kWp: £1.1k per kWp	Table 1b - The Future Homes Standard 2019 Consultation on changes to Part L (conservation of fuel and power) and Part F (ventilation) of the Building Regulations for new dwellings: Impact Assessment (2019)
5	A5. Space Heating Requirement	Space Heating Target	Requirement to achieve an improvement in space heating performance to achieve a target of 30 kWh/m^2 for space heating	Costs for improvements on the FHS notional building	Average £2,500 per dwelling for MVHR and improved Air Permeability	Based on inclusion of MVHR and Air Permeability improvement using data from: Appendix D Table D2 of https://www.theccc.org.uk/publication/the-costs-and-benefits-of-tighter-standards-for-new-buildings-currie-brown-and-aecom/ (2019)
6	A6. Passivhaus 10% A6. Passivhaus 100%	Passive House Target	Requirement for all dwellings to be constructed to passive house standard	Costs for additional building performance to meet PH standards plus administration costs	8% uplift based on Part L 2013 specification (so assume approx. 5% uplift on Part L 2021)	Information from the Passivhaus Trust[22]

Table 5. Policy scenarios for viability testing

[22] https://www.passivhaustrust.org.uk/UserFiles/File/research%20papers/Costs/2019%20PHT%20Costs%20Summary%20web.pdf

4.15 Impact on viability

The policy options and associated cost assumptions were provided to HDH Planning & Development Ltd who have undertaken the Local Plan Viability Assessment, which aims to assess the cumulative impact of the emerging policies on overall viability. In the Viability Assessment the policy options for building energy performance standards described in the previous sections have been assessed alongside a wide range of other emerging policies to provide the evidence base and recommendations for a pragmatic approach, balancing the aspirations to go beyond national standards and deliver higher levels of performance against the need to deliver against other objectives and maintain a level of viability that will enable the proposed development to be delivered.

In regards to Building Energy Performance standards, based on the analysis undertaken, the Viability Assessment suggests the following policy obligations:

12.91 c) "2025 Part L (energy efficiency), with Air Source Heat Pumps and Photovoltaic panels"

This approach incorporates policy scenarios 2, 3 and 4 (from the table in the previous section) but not policy scenarios 5 or 6. The effect would be to ensure compliance with the proposed Part L 2025 (Future Homes Standard/Future Buildings Standard) and the minimum fabric and energy efficiency performance associated with this, mandate the use of heat pumps (assuming ASHP most likely) and require the use of PV.

Based on what we currently understand about the FHS/ FBS, the additional requirements that this policy would have beyond national requirements, and the justification for these, are described below:

1. **Heat pumps being required earlier, given that this policy is likely to take effect before the proposed 2025 Building Regulations comes into force and that this would involve a transition arrangement that might delay the impact for some projects**. As described in this report, there is a strong evidence base for this policy as the most significant step to reduce the carbon emissions associated with new buildings is the switch away from gas boilers to heat pumps and the savings associated with applying this on buildings in advance of the new regulations will have a significant impact on the overall emissions associated with new development.
2. **All dwellings would be required to install PV panels.** Currently the indicative FHS/FBS specification suggests that PV may not be required as part of compliance with these standards. As shown in the policy testing above PV would have the most significant impact on both carbon emissions and energy consumption compared to all other options (apart from the earlier adoption of ASHP in the case of carbon emissions).

Although the Viability Assessment has not recommended the option for a space heating target or adoption of the Passivhaus Standard as a standard policy for all new development these policies could be used as site-specific targets where either the Council has some additional influence over the development, such as if it is on Council-owned land, or where it can be demonstrated that the viability is better and it can therefore support more policy obligations.

5. Recommendations

5.1 Summary of recommendations

Based on the analysis presented in the previous sections we have developed the following series of recommendations for addressing building energy performance through the new Local Plan:

1. **Energy Hierarchy:** Require all new developments to follow a clear energy hierarchy.
2. **Demand reduction:** Require all new developments to reduce energy demands and consider introducing targets where practical and viable.
3. **Overheating and cooling:** Require all new developments to assess overheating risks and mitigate these through design, avoiding the use of active cooling systems unless essential.
4. **Low carbon heating systems:** Require all development to install heating systems that align with carbon neutral policy, and which are designed to maximise efficiency.
5. **Solar generation:** Require all development to install PV and seek to maximise the potential scale of installation and assess the potential for Solar Thermal if appropriate.
6. **Demand management:** Require all new developments to consider energy storage and smart energy systems.
7. **Whole Life-Cycle Carbon Emissions:** Encourage the assessment of whole life-cycle carbon emissions and the consideration of measures to minimise these.
8. **Energy strategy and process:** Require all new developments to complete an energy statement, that is checked, enforced and monitored through the Planning approval and Building Control process, to demonstrate compliance with the requirements.
9. **Guidance:** Consider producing an SPD or technical guidance documents to support developers in complying with the requirements.

These recommendations are described in more detail over the following pages, with specific information on:

- Description and evidence base – a description of the policy and the supporting evidence base;
- Approach – an overview of how it could be implemented, considering variables for applying the policy and key implications or challenges;
- Evidence and viability – the evidence underpinning the recommendations and an overview of viability; and
- Implications for implementation – an evaluation of the implications for effective implementation, compliance and monitoring and examples of similar policies where available.

5.2 Policy Recommendation 1: Energy Hierarchy – Require all new developments to follow a clear energy hierarchy

Description and evidence base

We recommend including a requirement for all developers to follow a clear energy hierarchy when developing an energy strategy for all new developments in Eastbourne. This should be documented in an Energy Statement that would be checked by the Council and do so as part of the Planning and Building Control approval process (see Policy Recommendation 8).

For the UK to reach its Net Zero target and for Eastbourne to become carbon neutral by 2030, energy demands need to be reduced and energy generation needs to be switched to renewable energy sources. Any increase in energy consumption or additional use of non-renewable energy sources from new development will make these targets more difficult to achieve.

Approach

Developments would be required to follow a standard approach to developing an energy strategy that follows the following hierarchy:

- Reduce energy demands
- Use energy efficiently
- Generate and store renewable energy
- Monitor energy use

Measures should be incorporated at the earliest design stage of a development and maintained throughout the design, construction and operation of a proposal. All opportunities to maximise compatibility with current and future use of local and onsite zero and low carbon energy technologies must be identified and pursued. The approach should be documented in an Energy Statement (see Policy Recommendation 7) to allow the Council to review this.

Evidence and viability

Many Councils have followed the energy hierarchy approach as a framework for driving better standards in new building development, examples include the GLA, Salford and Brighton. This is a standard approach to structuring the energy strategy process and helps provide the context for the subsequent policy requirements and the structure of the Energy Statement. In itself this requirement doesn't have any direct impact on costs so should not directly affect viability.

Implementation

This requirement would have indirect resource implications for the developer in relation to the work required to follow this process and document the results in the Energy Statement, which depending on the complexity of the project could require the assistance of a technical consultant. It would also have indirect resource requirements for the Council in relation to the checking and approval processes.

5.3 Policy Recommendation 2: Demand reduction – Require all new developments to reduce energy demands and consider introducing targets where practical and viable

Description and evidence base

We recommend that, in line with the energy hierarchy described in Policy Recommendation 1, all new development is required to demonstrate how energy demands and carbon emissions have been reduced through the design and specification. This would need to be documented in the Energy Statement described in Policy Recommendation 8.

The evidence provided in this report demonstrates there is a need for buildings to transition away from fossil fuels and towards electrical systems. To support this it is essential to lower overall energy demands and limit demands on the electrical infrastructure both locally and nationally. Fabric and energy efficiency measures are the most cost effective and reliable way to reduce energy demands, as well as lower CO_2 emissions and costs for occupants of new buildings.

Approach

As a base requirement, developers would be required to present the demand reduction measures and specifications in their Energy Statement, which can then be assessed through the Planning approval and Building Control processes. As described in Section 3, the current requirements in Part L 2021 should provide a good standard of fabric performance and these are expected to be improved further in the next revision – The Future Homes/Building Standard.

In addition to the more general requirement for developers to reduce demands and document performance, the Council could consider setting specific targets for some or all developments to be achieved for the fabric energy performance of all or some specific new developments. To comply with the recent Written Ministerial Statement (UIN HCWS123 dated 13/12/23) this would need to be expressed as a percentage uplift of a dwelling's Target Emissions Rate (TER) calculated using a specified version of the Standard Assessment Procedure (SAP) and be supported by well-reasoned and robustly costed rationale that ensures that development remains viable, and the impact on housing supply and affordability is considered in accordance with the National Planning Policy Framework. If the decision in the WMS is reversed or relaxed then, following the precedent set by a number of other Local Authorities, a better approach would be to use a metric linked to actual energy use such as a maximum space heating demand of 30 kWh/sqm/yr, to reflect a slight improvement on where the Building Regulations is likely to be in 2025, or a requirement to meet the Passivhaus standard which sets a maximum space heating target of 15 kWh/sqm/year.

Evidence and viability

In the long run, targets on improved fabric performance will have less of an impact on carbon emissions as the heat is provided by electric heat pumps that use electricity which will be decarbonised over the next 10-15 years. However they will reduce energy consumption and deliver reduced energy costs for building users as well as reducing demands on the local electricity network and potentially improving the heat pump performance.

There would be a cost to meeting these standards, as described in Section 4.14, which would need to be accounted for in the viability assessment. In terms of an option to apply this standard to some specific sites then this could be applied to larger schemes where the economies of scale will be better or social housing where the energy cost savings will be more important.

Implementation

This requirement would involve additional modelling work to demonstrate the fabric performance and is also likely to require some improvements to the specifications beyond Building Regulations. There would also be additional resources required to check this at the planning approval stage through assessment of the Energy Statement, and Building Control through the SAP and SBEM assessments.

In terms of precedents, the GLA has long had a policy requiring improvements in the Fabric Energy Efficiency of 10% and 15% beyond Building Regulations Part L 2013 requirements for residential and non-residential buildings respectively. Some councils like Cornwall and Bath and North East Somerset have recently adopted space heating standards of less than 30kWh/m2/yr[23].

[23] https://www.cornwall.gov.uk/media/uxgjk4jn/climate-emergency-dpd.pdf Policy SEC1

5.4 Policy Recommendation 3: Set requirements for assessing overheating risks and mitigating these through design, avoiding the use of active cooling systems unless essential.

Description and evidence base

We recommend that all new developments are required to demonstrate how they have assessed and mitigated potential overheating risks associated with the planned development.

Overheating risks are increasing as a result of climate change and designing homes with improved fabric and air tightness. Eastbourne is also likely to have greater risks associated with its location and demographic and therefore greater need to mitigate those risks than other parts of the UK and avoid these being passed onto future occupants.

Approach

All residential developments should complete the Good Homes Alliance Overheating assessment tool as part of their planning application. They should then assess the overheating risks as required by Part O of the Buildings Regulations and follow an approach to mitigating these through the design, avoiding the use of active cooling systems if possible.

The Good Homes Alliance (GHA)[24] tool is an effective way for residential developers to understand the level of overheating risk associated with a site and demonstrate where there is a need to undertake more detailed analysis. This approach has the benefit of highlighting key principles that are known to elevate or reduce risk such as size of windows and proximity of the site to sources of noise that could impact the practical use of window openings for ventilation.

More important developments or those with a significant overheating risk could be required to undertake additional assessments such as those described in CIBSE TM52[25] and TM59[26] considering the potential impact of different future climate and weather scenarios.

The assessment should be documented in the Energy Statement as it is intrinsically linked to the wider energy and heat management strategy. More details about the requirements for what analysis to undertake could be included in the policy guidance documents.

Evidence and viability

Measures to address overheating in the design of buildings in construction are likely to me more effective and will be much cheaper to implement than retrofitting these in the future. Many of the measures, particularly the passive design options can be delivered at zero or negligible costs if they are implemented early enough in the design.

Implementation

It would be relatively straightforward for the Council to review the GHA tool assumptions made by the developer and challenge these where necessary to ensure constraints are considered and mitigated. Building Regulations Part O requirements would be assessed by Building Control in the usual way along with any additional assessments if that option was taken.

There may be an element of conflict if the Local Plan seeks to promote the development of brownfield sites as these can have more constraints related to passive measures and ventilation options so may need some degree of active cooling to mitigate ventilation limits. Cooling, although less preferrable and will increase energy demand, could be considered as a useful technology to enable greater use of brownfield sites and minimise development on virgin land. Using cooling heat recovery solutions to convert waste heat into energy for domestic hot water services can help to mitigate some of the issues that cooling systems bring. Heat recovery could be included in the heating hierarchy referred to in Policy Recommendation 4.

[24] Good Homes Alliance, 'Overheating tool and guidance'. Available at: https://goodhomes.org.uk/overheating-in-new-homes
[25] CIBSE TM52: The Limits of Thermal Comfort: Avoiding Overheating in European Buildings (2013)
[26] CIBSE TM59: Design methodology for the assessment of overheating risk in homes (2017)

5.5 Policy Recommendation 4: Low carbon heating systems - Require all development to install heating systems that align with carbon neutral policy, and which are designed to maximise efficiency.

Description and evidence base

We recommend that all new developments are required to install heating systems that are aligned with the Council's carbon neutral target and to ensure that these systems are selected and designed to be as efficient as possible.

The Government have said that they plan to ban the use of gas in new homes from 2025 and proposals for the Future Homes Standard and Future Buildings Standard signalling the use of electric heat pumps as the most likely compliant solution.

Approach

A heating hierarchy could be adopted to drive this policy which could include the following

1. Connection to low carbon heat networks (where these offer improvements over onsite electric heat pumps)
2. Electric heat pumps, with the choice of systems designed to maximise efficiency (through consideration of the assessment of configuration, heat recovery, operational temperatures, heat sources)
3. Direct electric heating
4. Biomass boilers

The use of gas boilers (and other fossil fuel heating systems) would not be possible unless there was an exceptional case, and it can be proven that none of the other options are technically or financially viable.

Consideration should also be given to the use of solar thermal systems, which although they would not be sufficient to provide all the heating demand by themselves, could be used to improve overall performance of the heating system.

Evidence and viability

In practical terms this requirement should mean that most buildings are installed with electric heat pumps which will be required by Building Regulations from 2025 onwards. However as described in this report depending on the timing of the adoption of the Local Plan and both the adoption and implementation of the Building Regulations (allowing for any transition period), there might be a window to influence greater uptake and thereby secure greater total carbon emission savings.

The use of heat networks reflects the fact that these could offer benefits over individual electric heat pumps but only where they are available. We are not aware of any strategic low carbon heat networks in Eastbourne but mindful of the Heat Network Zoning Policy, which could result in the development of new projects in the coming decade.

Implementation

Developers would need to demonstrate in their Energy Statement that they have adopted the highest viable option in the hierarchy. As noted in almost all cases this would be expected to be an electric heat pump. There may be some unique cases where a direct electric heating solution may be appropriate (such as where heat demands are very low) but it will be for the developer to prove this.

5.6 Policy Recommendation 5: Solar generation – Require all development to install PV and seek to maximise the potential scale of installation and assess the potential for Solar Thermal if appropriate.

Description and evidence base

This recommends that there is an expectation that all new developments install PV, and that developers demonstrate how this has been maximised, unless it can be demonstrated that it is not viable or has been limited for genuine technical feasibility or financial viability issues.

Although PV is likely to have less of an impact on the carbon emissions from new development it will have a big impact on the total energy consumption and as a result the running costs for the occupants. Also the cumulative impact of PV on all new development will have a significantly positive impact on local grid resilience at a time when increasing pressure will be put on grid capacity and reliability.

We would also recommend adding a requirement for developers to consider solar thermal for developments with a significant hot water demand as part of their energy strategy assessment.

Approach

This policy aims to put the onus on the developer to show how they have maximised the installation of PV across the site and thereby giving them the responsibility of assessing and proving the potential or providing evidence where it cannot be installed, or the installation has been limited.

The assessment of the potential for Solar Thermal would also need to be included within the Energy Statement where relevant.

Evidence and viability

Solar PV will deliver carbon saving in the short term as well as longer-term benefits for residents and building owners in terms of energy costs and resilience. Based on the current understanding of proposals for the Future Homes Standards, PV may not be required to deliver compliance and therefore developers may not choose to install it.

Assuming the use of PV isn't part of the specification to meet Building Regulations an additional requirement to install PV would have a cost and therefore an impact on viability. However wording of the policy around an expectation to maximise within technical and financial constraints would allow the developer to address viability issues but put an onus on them to demonstrate this. Developers could also look into alternative approaches to financing the PV that might better incentivise the installations such as though pricing arrangements of the units or alternative ownership arrangements in the case of installations on blocks of flats.

Implementation

This requirement would require the developer to show in their Energy Statement that they have installed PV and roof plans to demonstrate how this has been maximised on the available roof space. If a developer proposed no PV or where it was clear that additional suitable roof area has not been used then the developer would have to demonstrate in their Energy Statement that there were either technical or financial reasons for this, which can then be assessed as part of the planning approval process. This should be relatively straightforward for planning officers to assess as part of the approval process.

5.7 Policy Recommendation 6: Storage and demand management - Require all developments to assess the potential to introduce storage and smart energy management systems.

Description and evidence base

We recommend that all new developments are asked to consider the potential for thermal and battery storage as well as smart metering and other demand management systems.

The use of these systems will provide long terms benefit for the building owners in both energy costs and resilience as well as providing wider benefits to the local power networks thereby freeing up capacity for further electrification for example for heating and transportation.

Approach

This requirement is more of a prompt for developers to consider the use of these systems as part of their energy strategy process. They would be expected to consider the options relevant for their development and document this within their Energy Statement.

This requirement is also a potential hook to allow the planning authority to push for more if, as expected within the industry, the case for these systems improves over the period of the Local Plan as they become cheaper and/or energy prices increase and show signs of greater daily fluctuation.

Evidence and viability

Given the soft wording proposed here it is assumed that this would not require significant additional work and not force additional costs that might impact on viability. It would be difficult to use stronger requirements or specific targets as there are a range of potential options that would be suitable for different building types and also less precedent and existing evidence base.

Implementation

Developers would be required to document their assessment of storage and demand management systems in their Energy Statement, and this would be checked at the planning application stage.

5.8 Policy Recommendation 7: Whole lifecycle carbon – Where appropriate, ask developers to consider whole life-cycle carbon emissions and demonstrate steps to minimise these.

Description and evidence base

We recommend that, where deemed to be appropriate, developers are asked to consider the whole-lifecycle carbon (WLC) emissions associated with the development.

Part L of the Building Regulations and most of the recommended requirements described above only address the regulated operational emissions associated with the development. It does not include the unregulated emissions or the embodied emissions which make up a significant share of the WLC emissions of a building. In particular, embodied emissions are in many cases the most significant component and this will only increase as the decarbonisation of electricity reduces the operational emissions to zero over time with embodied carbon taking longer to decarbonise.

Approach

Given the complexities around calculating WLC we would anticipate this only being required for larger schemes where the extra costs and resources to undertake the assessment can be made cost effective and the impacts are greater.

Where applied it would require developers to calculate the WLC for the development. There are software tools such as OneClick LCA and eTool LCD that can be used to do the calculations and in line with BS EN 15978:2011.

Evidence and viability

There is limited existing evidence and precedent to support a more definitive target around WLC. Undertaking these calculations this is likely to impose a cost on the developer as they are likely to need to appoint experts to undertake them and provide resource to collect the relevant information.

Implementation

Where required to the developer would be required to document both the results of the WLC assessment and the steps taken to mitigate these through the design within the Energy Statement, which would then be reviewed by the planning officer.

5.9 Policy Recommendation 8: Energy strategy and process – Require all new developments to complete an Energy Statement, that is checked, enforced and monitored through the Planning approval and Building Control process, to demonstrate compliance with the requirements.

Description and evidence base

We recommend requiring all new developments to produce an Energy Statement to accompany their planning application which would include the information necessary to assess all of the other recommended requirements. The Energy Statement would need to be part of an improved process to assess the performance of new developments throughout both the Planning and Building Control systems.

There are known issues with what is known as the performance gap, the difference between modelled and real-world performance. Part of this can be addressed through better processes, checking and monitoring through to construction.

Approach

The Energy Statement could be a standardised document that each developer would complete with a set structure. This would be supported by the guidance material proposed in Policy Recommendation 9 which could include a template with standard tables and figures. This document would form the basis of the checks on the compliance with the requirements of the other recommendations set out above both at the planning stage and through to practical completion.

Evidence and viability

Although not delivering building performance benefits in its own right, better processes improve the confidence in the real-world performance of the building.

It is assumed that, while there would be some cost and resource implications in producing an energy strategy this won't be significantly more work than would be required to comply with Building Regulation requirements and relatively insignificant.

Implementation

The energy strategy work and production of an Energy Statement could either be undertaken by the M&E engineers on the design team or experts could be appointed to complete this. There are numerous examples of Councils that ask for such reports and the GLA has been doing so for over 15 years.

This requirement could be simplified for smaller developments through the use of a standardised Energy Statement Checklist or shorter reporting format.

5.10 Policy Recommendation 9: Guidance and support – Produce a technical guidance document and consider further materials to support developers in complying the requirements

Description and evidence base

We would recommend that if adopting the previous recommendations, that guidance materials are produced to support developers to meet the requirements and also improve the consistency and quality of submissions to make the Council approval processes more efficient.

Approach

A Supplementary Planning Document (SPD) or technical guidance document could be prepared that would set out the structure and content of the Energy Statement and also potentially provide a template and standardised content such as tables and figures for the report.

Evidence and viability

The guidance document and support materials would hopefully improve viability by helping developers to complete their Energy Statements and avoiding delays to approvals.

Implementation

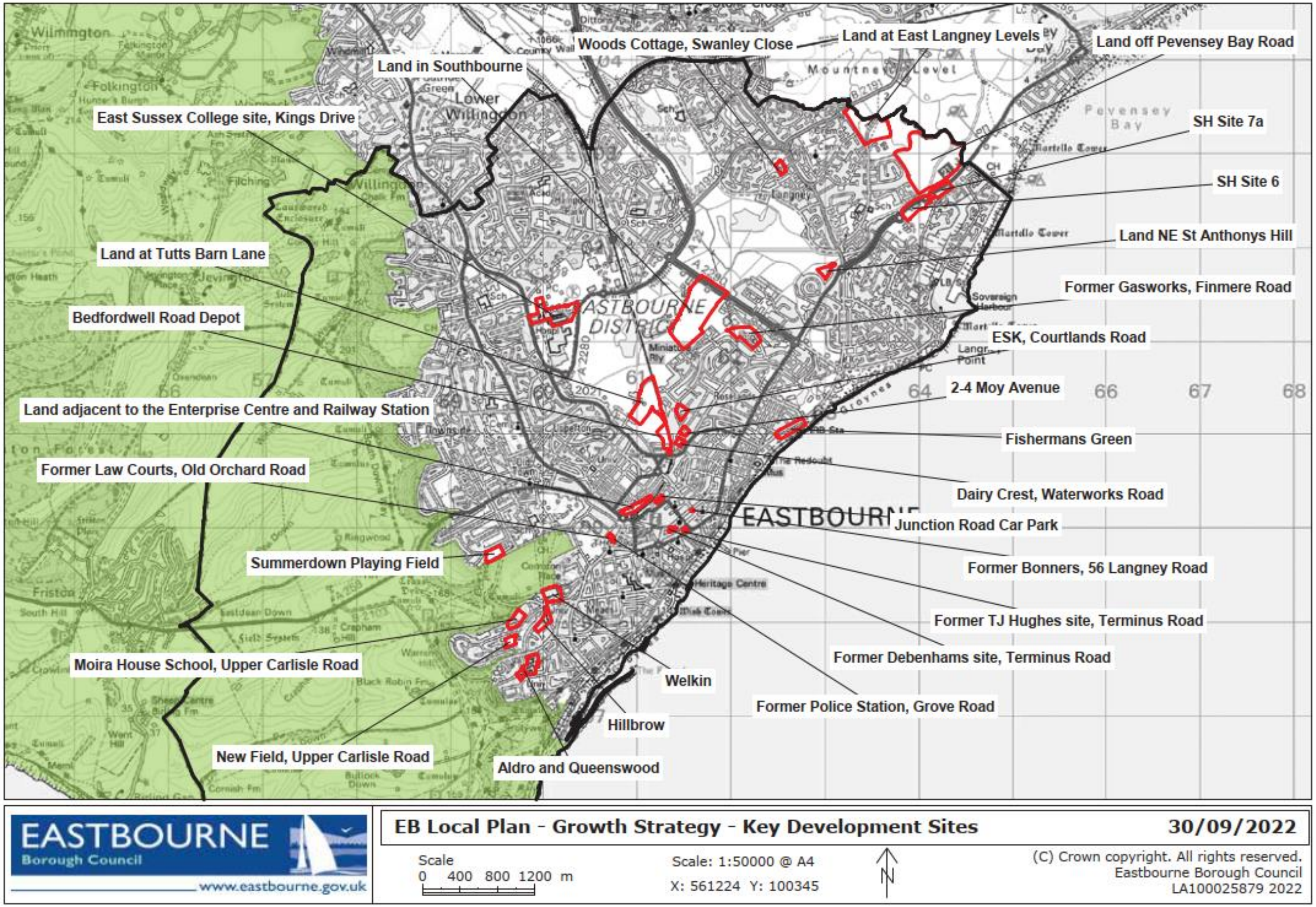
The guidance material would need to be produced in advance such that it is ready for when the Local Plan is published.

Appendix A Draft Growth Strategy Information

Neighbourhood	Completions 2019-2022	Windfall Allowance		Sites Identified in Land Availability Assessment			Total Homes	Office	Industrial / Warehouse	Total Employment
		Commitments	Change of Use / Conversion	Small sites	Medium sites	Large sites				
Town Centre	151	429	630	34	115	537	**1,896**	3,000	0	3,000
Upperton	156	173	154	7	66	0	**556**	0	0	0
Seaside	65	94	252	72	140	80	**703**	0	0	0
Old Town	2	22	70	46	42	0	**182**	0	0	0
Ocklynge & Rodmill	1	20	14	9	0	245	**289**	0	0	0
Roselands & Bridgemere	9	69	0	23	0	208	**309**	0	10,000	10,000
Hampden Park	7	29	14	77	72	0	**199**	0	0	0
Langney	48	66	14	59	12	0	**199**	0	0	0
Shinewater & North Langney	9	11	0	30	13	0	**63**	0	0	0
Summerdown & Saffrons	5	0	0	6	54	35	**100**	0	0	0
Meads	39	37	98	15	10	371	**570**	0	0	0
Ratton & Willingdon Village	0	49	0	17	0	0	**66**	0	0	0
St Anthonys & Langney Point	5	3	0	12	0	0	**20**	0	0	0
Sovereign Harbour	60	88	14	0	60	40	**262**	10,000	0	10,000
Eastbourne Park	0	0	0	0	0	390	**390**	0	30,000	30,000
East Langney Levels	0	0	0	0	0	587	**587**	0	0	0
TOTAL	**557**	**1,090**	**1,260**	**407**	**584**	**2,493**	**6,391**	**13,000**	**40,000**	**53,000**

Year	Completions	Windfall Allowance		Sites Identified in Land Availability Assessment			Total
		Commitments	Change of Use / Conversion	Small	Medium	Large	
2019/20	200						**200**
2020/21	230						**230**
2021/22	127						**127**
2022/23		245					**245**
2023/24		276					**276**
2024/25		271					**271**
2025/26		132	90	24	24		**270**
2026/27		166	90	6	12		**274**
2027/28			90	32	45	111	**278**
2028/29			90	32	45	111	**278**
2029/30			90	32	45	111	**278**
2030/31			90	32	45	111	**278**
2031/32			90	32	45	111	**278**
2032/33			90	31	46	276	**443**
2033/34			90	31	46	277	**444**
2034/35			90	31	46	277	**444**
2035/36			90	31	46	277	**444**
2036/37			90	31	46	277	**444**
2037/38			90	31	46	277	**444**
2038/39			90	31	47	277	**445**
TOTAL	**557**	**1,090**	**1,260**	**407**	**584**	**2,493**	**6,391**
Flats	*425*	*818*	*1,196*	*103*	*409*	*1,124*	***4,075***
Houses	*132*	*272*	*64*	*304*	*175*	*1,369*	***2,316***
Flats	76.3%	75.0%	94.9%	25.3%	70.0%	45.1%	63.8%
Houses	23.7%	25.0%	5.1%	74.7%	30.0%	54.9%	36.2%

Site Name	Neighbourhood	Status	Development Type	Residential Capacity	Estimated Houses	Estimated Flats	Employment Capacity	Employment Type
Land adjacent to the Enterprise Centre & Railway Station	Town Centre	LAA Large Site	Mixed Use	192	0	192	8,000	Retail / Office
Junction Road Car Park	Town Centre	LAA Large Site	Residential	80	0	80	0	
Former Debenhams site, 152-170 Terminus Road	Town Centre	LAA Large Site	Mixed Use	120	0	120	1000	Retail
Former TJ Hughes site, 177-187 Terminus Road	Town Centre	LAA Large Site	Mixed Use	65	0	65	700	Retail
Former Law Courts, Old Orchard Road	Town Centre	LAA Large Site	Residential	35	0	35	0	
Former Police Station, Grove Road	Town Centre	Commitment	Residential	50	0	50	0	
56 Langney Road	Town Centre	LAA Large Site	Residential	47	0	47	0	
Bedfordwell Road Depot	Upperton	Commitment	Mixed Use	100	85	15	500	Office
Land at Tutts Barn Lane	Eastbourne Park	LAA Large Site	Residential	270	240	30	0	
Fishermans Green	Seaside	LAA Large Site	Mixed Use	80	0	80	TBC	TBC
East Sussex College campus, Cross Levels Way	Ocklynge & Rodmill	LAA Large Site	Mixed Use	245	125	120	Education	TBC
2-4 Moy Avenue	Roselands & Bridgemere	LAA Large Site	Residential	72	0	72		
ESK, Courtlands Road	Roselands & Bridgemere	LAA Large Site	Residential	136	86	50	300	Retail
Dairy Crest, Waterworks Road	Roselands & Bridgemere	Commitment	Residential	60	0	60	0	
Land at Southbourne	Eastbourne Park	LAA Large Site	Mixed Use	85	85	0	30,000	Industrial & Warehouse
Former Gas Works site, Finmere Road	Roselands & Bridgemere	LAA Large Site	Employment	0	0	0	10,000	Industrial & Warehouse
Land off Pevensey Bay Road	East Langney Levels	LAA Large Site	Residential	375	375	0	0	
Land at East Langney Levels	East Langney Levels	LAA Large Site	Residential	212	212	0	0	
Woods Cottage, Swanley Close	Langney	Commitment	Residential	51	51	0	0	
Land North East of St Anthonys Hill	Eastbourne Park	LAA Large Site	Residential	35	35	0	0	
Sovereign Harbour Site 6	Sovereign Harbour	LAA Large Site	Employment	0	0	0	10,000	Office
Sovereign Harbour Site 7a	Sovereign Harbour	LAA Large Site	Mixed Use	40	0	40	3,000	TBC
Former Moira House School, Upper Carlisle Road	Meads	LAA Large Site	Residential	52	19	33	0	
Summerdown Field, Compton Drive	Summerdown & Saffrons	LAA Large Site	Residential	35	35	0	0	
New Field, Upper Carlisle Road	Meads	LAA Large Site	Residential	35	35	0	0	
Welkin site, Carlisle Road	Meads	LAA Large Site	Residential	113	0	113	0	
Hillbrow site, Denton Road	Meads	LAA Large Site	Residential	25	0	25	(Retain existing sports centre)	
Aldro/Queenswood, Darley Road	Meads	LAA Large Site	Residential	190	140	50		


Woods Cottage, Swanley Close
Land at East Langney Levels
Land off Pevensey Bay Road
Land in Southbourne
East Sussex College site, Kings Drive
SH Site 7a
SH Site 6
Land NE St Anthonys Hill
Land at Tutts Barn Lane
Former Gasworks, Finmere Road
Bedfordwell Road Depot
ESK, Courtlands Road
2-4 Moy Avenue
Land adjacent to the Enterprise Centre and Railway Station
Fishermans Green
Former Law Courts, Old Orchard Road
Dairy Crest, Waterworks Road
EASTBOURNE
Junction Road Car Park
Summerdown Playing Field
Former Bonners, 56 Langney Road
Former TJ Hughes site, Terminus Road
Moira House School, Upper Carlisle Road
Former Debenhams site, Terminus Road
Welkin
Former Police Station, Grove Road
Hillbrow
New Field, Upper Carlisle Road
Aldro and Queenswood
EASTBOURNE Borough Council
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