ADUR DISTRICT COUNCIL

Draft Supplementary Planning Document;

Sustainable Energy

Public Consultation

March 2019

ADUR DISTRICT
COUNCIL

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HOW TO HAVE YOUR SAY

This SPD has been prepared to help people including prospective applicants to better understand the intentions of Policies 8 and 19 of the Adur Local Plan and Policy SH1 of the Shoreham Harbour Joint Area Action Plan. It sets out the steps applicants will need to go through, and the information they will need to supply to demonstrate compliance with the councils policies on sustainable energy. It will also assist Officers and Members by giving them a framework against which relevant applications can be assessed. Once adopted, the SPD will form a material consideration in planning decisions.

How to have your say

Public consultation runs from XXXX to XXXX.

The Council will consider the comments received and where appropriate will make amendments before adopting the Supplementary Planning Document

Where can I view this document?

You can view the document online at:

https://www.adur-worthing.gov.uk/adur-ldf/spd-and-guidance

Paper copies of the document are also available for inspection at the Council Offices at Portland House, Worthing, The Shoreham Centre[1], and Lancing, Shoreham and Southwick libraries.

How do I comment?

Comments will be accepted by email or letter.

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If you have any queries please contact the Planning Policy Team using the details above.

[1] The Shoreham Centre, Pond Road, Shoreham-by-Sea, BN43 5WU

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INTRODUCTION

This Sustainable Energy Supplementary Planning Document (SPD) is intended to provide helpful guidance to developers on meeting the energy policies set out in Adur Local Plan 2017 (Adur LP) and the Submission Shoreham Harbour Joint Area Action Plan (JAAP).

The document includes clarification of the policies in the two development plan documents. It describes how developers can demonstrate that policies have been met by proposed development, through; undertaking assessments of energy demand; developing strategies to reduce and meet the energy demand; and developing Energy Statements to support planning applications.

This document relates to:

- new major residential and non-residential developments proposed in the Adur Local Plan area
- all new development in the Shoreham Harbour Regeneration Area (excluding householder applications)
- all new development in the proposed Shoreham Heat Network Area (excluding householder applications)
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These developments are required to meet energy policy requirements and submit Energy Statements.

However, this SPD encourages *all developments* to submit Energy Statements to demonstrate how they are delivering clean, smart sustainable, development, in the spirit of wider sustainability objectives of the Plans.

The purpose of the energy policies in the plans are to ensure that development delivers secure, affordable, low carbon growth, increases future energy resilience, and helps to deliver the strategic objectives of the government's National Planning Policy Framework (2018), Industrial Strategy (2017) and the Clean Growth Strategy (2017).

Adur District Council is committed to increasing renewable and low carbon decentralised energy through the Local Plan. The Council has committed to the UK100 Cities target of 100% clean energy by 2050. The requirement for renewable and low carbon energy in proposed development is aligned with the National Planning Policy Framework which requires all local planning authorities to deliver radical reductions in greenhouse gas emissions and support renewable and low carbon energy.

SECTION 1

1 What is the policy background?

Legislation and national policy

1.1 The following legislation provides the national and international context for the local policies:

The **Planning and Compulsory Purchase Act 2004** sets out the legislative framework for development planning in England. The Act requires that:

Development plan documents must (...) include policies designed to secure that the development (...) contribute to the mitigation of, and adaptation to, climate change.[1]

1.2 The **Climate Change Act 2008** introduced a statutory target to reduce carbon dioxide and other greenhouse gas emissions by at least 80% below 1990 levels by 2050[2]. To meet this target, the UK will need to reduce emissions by at least 3% a year. Five carbon budgets have been set in law which set out interim targets for the UK. The current budget requires a minimum 57% reduction in carbon emissions by 2030.

1.3 The **Planning and Energy Act 2008** allows local planning authorities to impose reasonable requirements for:

a) a proportion of energy used in development in their area to be energy from renewable sources in the locality of the development;
b) a proportion of energy used in development in their area to be low carbon energy from sources in the locality of the development;
c) development in their area to comply with energy efficiency standards that exceeds the energy requirements of building regulations.[3]

1.4 A Written Material Statement (2015) proposed the removal of Part (c) to exempt residential dwellings. However this has not been brought into force, and the provisions of the act remain in place. The government has stated that local planning authorities are not restricted in their ability to require energy efficiency standards above building regulations.[4]

[1] Section 19 (1A) of the Planning and Compulsory Purchase Act 2004, as amended by Section 182 of the Planning Act 2008.
[2] Section 1 of the Climate Change Act 2008.
[3] Section 1 (1) of the Planning and Energy Act 2008.
[4] Government response to the draft revised National Planning Policy Framework consultation (p.48) (2018)

National policy

1.5 The **National Planning Policy Framework (NPPF) (2018)** sets out the government's planning policies for England and how these are expected to be applied. The NPPF expects the planning system to support the transition to a low carbon future in a changing climate, and to contribute to *"radical reductions in greenhouse gas emissions"*.

1.6 The NPPF requires plans to adopt proactive strategies to mitigate and adapt to climate change, in line with the provisions and objectives of the Climate Change Act 2008.[5]

The NPPF sets out how, to support the transition to a low carbon future in a changing climate, the planning system should:

- ***help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience (...); and support renewable and low carbon energy and associated infrastructure* (paragraph 148).**
- ***help increase the use and supply of renewable and low carbon energy and heat, plans should: provide a positive strategy for energy from these sources, that maximises the potential for suitable development, while ensuring that adverse impacts are addressed satisfactorily (including cumulative landscape and visual impacts); (...) and 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* (paragraph 151).**

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* (paragraph 153).**

1.7 The **Planning Practice Guidance (PPG)**[6] is an online resource which provides additional and detailed guidance on aspects of the NPPF. The PPG highlights the importance of addressing climate change as one of the key land use planning principles.[7] Increasing the amount of energy generated from renewable and low carbon technologies is important to ensure future energy security, and to reduce greenhouse gas emissions to

[5] Paragraphs 148-149 (including footnote 48) of the National Planning Policy Framework (2018).
[6] The Planning Practice Guidance may be updated to reflect the new NPPF and therefore this section of the draft Energy SPD May be updated prior to adoption.
[7] Paragraphs 6-001 - 6-002 of the Planning Practice Guidance.

slow down climate change. The PPG highlights the importance of enabling and encouraging decentralised energy opportunities, such as district heating and cooling.[8]

1.8 The **UK Clean Growth Strategy** '*Leading the way to a low carbon future*' (2017) sets out the government's ambition to deliver growth that is clean and an energy system that is low carbon, resilient, smart and secure. It states that we *need to reduce the emissions created by heating our homes and businesses, which account for almost a third of UK emissions. If done in the right way, cutting emissions in these areas can benefit us all through reduced energy bills, which will help improve the UK's productivity, and improved air quality, while the innovation and investment required to drive these emissions down can create more jobs.*

1.9 The Clean Growth Strategy (2017) recognises that Local Authorities can play an important role in improving the energy performance of buildings in line with Government ambition. In addition, the Government's Industrial Strategy (2017) includes a goal to enable business and industry to improve energy efficiency by at least 20 per cent by 2030. The revised NPPF states that any local requirements for the sustainability of buildings should reflect the Government's policy for national technical standards.

Local Policy

Adur Local Plan 2017

1.10 The **Adur Local Plan** (adopted December 2017) provides a comprehensive vision and strategy for the future of Adur until 2032. Key challenges for the Plan include the need to: improve infrastructure; address climate change; work towards achieving sustainability; and to balance development and regeneration requirements against the limited physical capacity of Adur without detriment to environmental quality.

Adur Local Plan Vision statement includes that the following will be achieved by 2032:

V6: High standards of design will have become an essential part of all new development

V10: Progress will have been made towards a low carbon, sustainable community through sustainable construction, energy efficiency, the use of renewable energy, (...) and to make a significant contribution to low and zero carbon energy production.

[8] Paragraph 6-009 of the Planning Practice Guidance.

1.11 To meet its obligations under the legislation and national policy context set out above, Adur Local Plan includes the following Policy 19 on Energy Schemes and Renewable Energy:

ALP Policy 19: Decentralised Energy, Stand-alone Energy Schemes and Renewable Energy

An assessment of the opportunities to use low carbon energy, renewable energy and residual heat/ cooling for both domestic and non-domestic developments must be provided with any major planning application. This must include details of:

- Any new opportunities for providing or creating new heating/cooling networks.
- The feasibility of connecting the development to existing heating / cooling / CHP networks where these already exist.
- Opportunities for expansion of any proposed networks beyond the development area over time, and to plan for potential expansion.

Where viable and feasible, commercial and residential developments in areas identified in the Shoreham Harbour Heat Network Study (2015) will be expected to connect to district heating networks where they exist.

Stand-alone energy schemes will also be supported subject to compliance with other policies in this Plan.

All new major development will be expected to incorporate renewable/low carbon energy production equipment to provide at least 10% of predicted energy requirements.

1.12 This supplementary planning document provides further detail on how to prepare an Energy Statement to accompany planning applications for major development.[9] The purpose of an Energy Statement is to demonstrate that climate change mitigation measures comply with Policy 19 of the Adur Local Plan. It also ensures sustainable energy is an integral part of the development's design and evolution. Smaller developments are also encouraged to meet the standard and submit an Energy Statement.

Heating and cooling networks

1.13 Decentralised heating and cooling systems and networks can provide an extremely cost effective approach to minimising CO_2 emissions, especially where networks can be expanded to accommodate new and existing developments over time. Heating and hot water for buildings account for 40% of UK energy use and 20% of greenhouse gas

[9] Major development is defined in the **Town & Country Planning (Development Management Procedure) (England) Order 2015** as 10 or more dwellinghouses, or sites of 0.5 hectares or more where it is not known if the development will have 10 or more dwellinghouses; the provision of a building or buildings where the floorspace to be created is 1,000m^2 floorspace or more, or development on sites of 1 hectare or more.

emissions. The Climate Change Committee estimates that district heating can meet 20% of domestic heating and hot water needs by 2030. The Clean Growth Strategy (2017) includes policies to roll out low carbon heating, and phase out the installation of high carbon fossil fuel heating.

1.14 **All proposals for major development must include an assessment of the opportunities for decentralised heating and cooling networks.** See Section 3 for guidance on how to address decentralised energy, heating and cooling networks in the Energy Statement.

Shoreham Heat Network

1.15 Shoreham Heat Network Partnership[10] is exploring the potential for a heat network serving parts of Shoreham-by-Sea town centre and Shoreham Harbour. **All development in these areas will be required to connect to the network once it is complete. Heating/cooling systems must therefore be designed to be compatible with future connection to a network.**

Renewable and low carbon energy generation

1.16 Building related energy consumption is a significant contributor to greenhouse gas emissions. The hierarchy of reducing demand; using energy efficiently; supplying energy efficiently and then using appropriate on-site renewable/low carbon energy generation is the most cost-effective means of reducing energy consumption and greenhouse gas emissions for new developments. Section 2 sets out the different technologies this may include.

1.17 **All major development is expected to incorporate renewable/low carbon generation of a minimum of 10% of predicted energy requirements. Best practice is to use total energy requirements (regulated and unregulated).**

1.18 **The total energy demand should only be calculated after:**

- **the scheme is compliant with Part L 2013 Building Regulations;**
- **reductions from energy efficiency measures have been calculated and deducted; and**
- **reductions achieved by connecting to a heat network have been calculated and deducted**

1.19 See Section 5 for guidance on how to address low and zero carbon energy generation in the Energy Assessment.

[10] The partnership members are: Shoreham Harbour Regeneration, Adur District Council, West Sussex County Council, Shoreham Port Authority

Shoreham Harbour Joint Area Action Plan

1.20 Adur District Council is working in partnership with Brighton & Hove City Council and West Sussex County Council to regenerate Shoreham Harbour and surrounding areas to prepare the **Shoreham Harbour Joint Area Action Plan**. The Councils intend to adopt the plan in summer 2019. Policy SH1: Climate change, energy and sustainable building requires all new development within the regeneration area to incorporate low and zero carbon decentralised energy opportunities.

JAAP Policy 8: Shoreham Harbour Regeneration Area (excerpt)
New development at the harbour will be expected to meet high standards of environmental efficiency and a Sustainability Statement will be required as supporting information to accompany all development proposals in the parts of the Shoreham Harbour Regeneration Area within Adur. The Sustainability Statement should be set out in accordance with the Sustainability Statements Guidance Note for Shoreham Harbour Regeneration Area. Development will be expected to incorporate low and zero carbon decentralised energy generation, in particular heat networks, and required to either connect, where a suitable system is in place (or would be at the time of construction) or design systems so they are compatible with future connection to a network.

1.21 **All development proposals within the Shoreham Harbour Regeneration Area are required to submit a Sustainability Statement.** The energy assessment required by Policy 19 of the Adur Local Plan, should be incorporated into this Sustainability Statement. See the Shoreham Harbour Sustainability Statement Guidance for further details.

2 What is renewable and decentralised energy?

2.1 **Detailed below, is information on a range of renewable energy technologies, some of which should be included as part of the proposed scheme so that at least 10% of the proposed development's predicted energy requirements are provided by renewable energy, in accordance with Policy 19 of the Adur Local Plan. See Section 4 'How should an Energy Statement be structured'.**

For details on the information you should submit with your application for selected technologies, please refer to the table in Appendix 2

Renewable energy	
(Image to be added)	**What is it?** Energy derived from a source that is continually replenished, such as wind, wave, solar, hydroelectric and energy from plant material, but not fossil fuels or nuclear energy. Although not strictly renewable, geothermal energy is generally included.
Where is this technology appropriate?	Can be utilised at a variety of scales, on both residential and non-residential developments. Where they are suited will be dependent upon the technology type (refer to technologies listed below).

Decentralised energy	
	**What is it?** Decentralised energy is produced close to where it will be used, rather than at a large remote power station and sent through the national grid. This local generation reduces transmission losses and lowers carbon emissions. Decentralised energy can refer to energy from waste plants, CHP, district heating/cooling, geothermal, biomass or solar energy generation. Decentralised energy generation schemes can have various different ownership models so the economic benefits can be shared with various and potentially local stakeholders.
Where is this technology appropriate?	Can be utilised at a variety of scales, on both residential and non-residential developments. Where they are suited to will be dependent upon the technology type (refer to technologies listed below).

What Renewable Energy Technologies are there?

Photovoltaics (PV)	
	**What is it?** Photovoltaics (PV) or photovoltaic cells capture solar radiation from the sun converting it into electrical energy. PV requires daylight to work, however does not require direct sunlight. The amount of energy produced will be greater during the summer months due to longer periods of daylight. The amount of energy produced is also diminished by overcast weather and/or if the array is shaded. The optimum orientation of PV cells is within 45° of south, and can be roof mounted, roof integrated or building integrated.
Where is this technology appropriate?	Any type of residential or non-residential development. It can be roof mounted or ground mounted.

Solar water heating (SWH)

What is it?

As with photovoltaics, solar hot water (SHW) systems utilise the sun's solar radiation. However, instead of converting it to electrical energy, SHW utilises the solar radiation to heat water. SHW systems can either be closed or open. In a closed system, a heat transfer fluid is heated at the collector or plate and then is transferred to a hot water tank. In an open system, the water is directly heated at the collector or plate. SHW panels or collectors should be orientated within 45° of south with an optimum roof pitch of 30°. There are two main types of SHW: evacuated tubes (shown) or panels. Evacuated tubes have higher efficiency.

Where is this technology appropriate?	All development: residential and non-residential where there is appropriate hot water demand. It can be roof-mounted or ground-mounted.

Wind turbines

What is it?

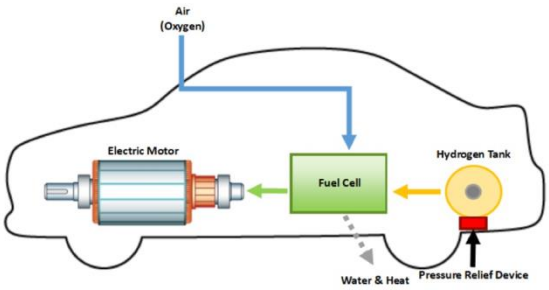
Wind turbines work by the blades of the turbine, turned by the wind, turning a generator, which then converts the kinetic energy into electrical energy. Energy generated can either be used in development, stored in batteries or exported to the grid in times of surplus.

Wind speed is critical to the performance of wind turbines. In order to assess wind speeds, ideally a site wind survey should be undertaken which covers a period of at least 12 months, in order to demonstrate that wind speed at a given site can supports wind technology.

Where is this technology appropriate?	All development: both residential and non-residential. Can be roof-mounted or ground-mounted. However, onshore turbines can only

	be permitted where identified in a local plan. This currently applies only to the South Quayside area of Shoreham Harbour.

Fuel cells

	**What is it?** A cell that acts like a constantly recharging battery, electrochemically combining hydrogen and oxygen to generate power. For hydrogen fuel cells, water and heat are the only by-products and there is no direct air pollution or noise emissions.
Where is this technology appropriate?	Fuel cell technology can be applied as a transport energy solution but also stationary fuel cells can be used for commercial, industrial and residential primary and backup power generation.

Biomass fuelled electricity and heat generating plant

	**What is it?** Biomass technology uses organic materials, either directly from plants or indirectly from industrial, commercial, domestic or agricultural products to generate heat. Biomass does not include fossil fuels. Biomass products can include: • Woody biomass – such as logs, wood chips, wood pellets and energy crops; • Non woody biomass – such as animal waste, industrial waste and biodegradable products from food processing. Biomass is considered to be carbon neutral as the energy released from biomass on burning is the same as that absorbed during its production. The most common biomass technologies are biomass boilers, where the fuel can be fed manually or automatically. Internal or external storage areas will be required to store biomass products.

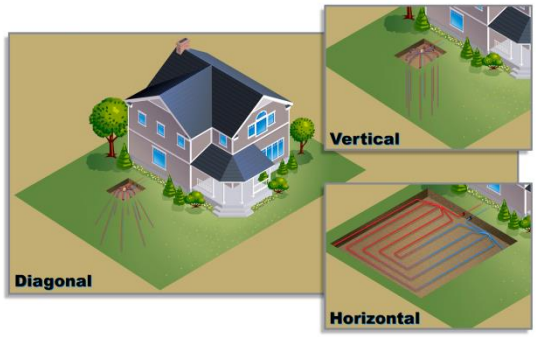
Where is this technology appropriate?	All development: both residential and non-residential. However, biomass is not suitable within Air Quality Management Areas.

Air source heat pump

What is it?
Air source heat pumps extract the ambient heat energy in outside air and use this for heating or cooling and to produce domestic hot water. These systems can be used in new development or retrofitted. They can be used where the ground conditions and limited space preclude the use of ground source heat pumps which generally have higher levels of efficiency. Heat pumps are most efficient in well insulated properties with high levels of airtightness.

Where is this technology appropriate?	All development: both residential and non-residential.

Water/Ground source heat pump



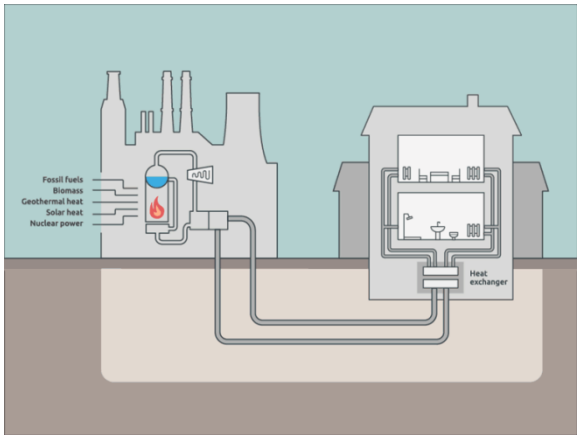
What is it?
Underground pipes are used to absorb heat from the ground which is transferred to a heat distribution system that can provide heating as well as preheated domestic hot water. A large space is required for the pipes to be buried underground at a depth of around 1m with the majority of the heat exchanger under open land with exposure to sunlight. Alternatively vertical heat exchangers (bore holes) may be used at a depth of 15 to 150 m where space is limited.

- Vertical heat exchangers are expensive. Permission to drill boreholes may be required.
- Feasibility depends on the ground conditions

Where is this technology appropriate?	All development: both residential and non-

	residential. There may be archaeological reasons which would make this technology unsuitable in certain locations.

District heating

	**What is it?** District heating utilises a network of highly insulated pipes to capture and transfer heat from a variety of energy sources (such as an energy centre that includes heat generating plant, or heat produced as a by-product of industrial processes) to heat both residential and non-residential properties (space heating and hot water). District heating offers a much more efficient, and low carbon, way of heating properties.
Where is this technology appropriate?	District heating is very expensive to install, therefore it would be more suited to densely concentrated developments, such as blocks of flats.

Combined Heat & Power (CHP) and Combined Cooling, Heat & Power (CCHP)

Image to be added	**What is it?** CHP units burn gas or oil to generate both heat and power and are therefore a much more efficient way of producing energy. CHP can provide significant carbon emission reductions however unless it is powered by bio-fuel it is not considered to be a renewable technology.
Where is this technology appropriate?	CHP can be used for a variety of scales. The main markets for CHP tend to be those with high heat requirements, for example flats, high density housing, supermarkets, leisure centres, hospitals and industrial sites which will require larger scale CHP units. The Council will particularly encourage schemes of 10 dwellings or 1,000m^2 or more to consider the potential for CHP.

3 What are the principles for meeting planning requirements on sustainable energy?

Principle 1: The Energy Statement

A. The Council requires an Energy Statement to be submitted for:
   - all development proposals within the Shoreham Harbour Regeneration Area (as part of the Sustainability Statement) (see Map, Appendix 4)
   - all development proposals within the Shoreham Heat Network Area (see Map, Appendix 4)
   - major development proposals in the Adur Local Plan area.

B. The Council strongly encourages an Energy Statement to be submitted for all other development proposals demonstrating carbon reductions beyond current Building Regulations compliance.

C. The Energy Statement should demonstrate the proposal's contribution to reducing carbon dioxide emissions in accordance with the following energy hierarchy:
   1. Be lean: use less energy
   2. Be clean: supply energy efficiently
   3. Be green: use renewable energy.

D. As a minimum, the Energy Statement should include:
   - a calculation of the regulated energy demand and associated carbon dioxide emissions at each stage of the energy hierarchy
   - proposals to reduce carbon dioxide emissions through the energy efficient design of the site, buildings and services (Stage 1: Be lean)
   - proposals to further reduce carbon dioxide emissions through the use of decentralised energy, heating and cooling (Stage 2: Be clean)
   - proposals to further reduce carbon dioxide emissions through the use of on-site renewable energy technologies (Stage 3: Be green).

IMPORTANT:

A draft Energy Statement should be prepared during design stages. If the proposal is subject to pre-application advice, it is recommended that a draft Energy Statement be submitted for pre-application stage discussions.
A full Energy Statement should be submitted with the full planning application.

Principle 2: Energy demand assessments

A. In accordance with current Building Regulations (Part L), the Council requires that developments involving both new and existing buildings calculate and assess their energy demand and carbon emissions.

B. The Energy Statement should set out the building fabric and services measures specific to the scheme, and demonstrate the extent to which they exceed building regulations. Baseline emissions should also take account of emissions associated with uses not covered by Building Regulations including all internal lighting, cooking and all electrical appliances.

C. Baseline emissions for dwellings should establish:

- A Target Emissions Rate (TER) calculated through the standard Building Regulations 2013 methodology SAP 2009 (unless superseded)
- Additional emissions associated with 'unregulated' energy.

D. Baseline emissions for non-domestic development should establish:

- A Target Emissions Rate (TER) calculated through the standard Building Regulations 2013 methodology (unless superseded) established through dynamic modelling
- Additional emissions associated with 'unregulated' energy.

Principle 3: Use less energy (be lean)

A. The design of developments should prioritise passive measures to minimise energy demand by reducing the need for heating, cooling and ventilation systems, and reducing the reliance on mechanical lighting, heating and cooling. Passive design measures should take account of landform, layout, building orientation, massing and landscaping.

B. All development is expected to meet the requirements of Part L Building Regulations (2013 or subsequent update) solely from energy efficiency measures.

C. Non-domestic development proposals must achieve the following minimum BREEAM standards:
- Excellent: for all development proposals within the Shoreham Harbour Regeneration Area
- Very good: for all development proposals elsewhere in the Adur Local Plan area

D. Development proposals are strongly encouraged to achieve a minimum 19% reduction in CO_2 emissions in dwellings over Part L Building Regulations requirements (2013 or subsequent update) solely from energy efficiency measures.

How much carbon reduction should housing development achieve?

The Written Ministerial Statement of 25 March 2015 (HCWS488) set out the government's new national planning policy on the setting of technical standards for new dwellings. The Ministerial Statement stated that Local Authorities would continue to be able to require energy performance standards higher than Building Regulations up to the equivalent of Code for Sustainable Homes Level 4 (Code for Sustainable Homes Level 4 equates to 19% below Part L Building Regulations 2013). More recently, the government confirmed in its response to the draft revised NPPF consultation that local authorities' powers to require energy efficiency standards from new housing above Building Regulations (Planning and Energy Act 2008) are unrestricted by the Framework.

All development is strongly encouraged to achieve a 19% reduction on the Dwelling Emission Rate (DER) against the Target Emission Rate (TER) based on the 2013 Edition of the 2010 Building Regulations (Part L), whilst meeting the TER solely from energy efficiency measures as defined within the Standard Assessment Procedure (SAP) calculation model.

This requirement is equivalent to the energy performance requirements in the Code for Sustainable Homes Level 4 and ensures an energy demand reduction first approach in line with the energy hierarchy. A 19% improvement beyond Part L (2013) can be achieved entirely through energy efficiency measures (such as enhanced insulation, glazing, airtightness and high efficiency heating and hot water heat recovery). Developers will be expected to provide evidence of the level of carbon reduction achieved in the dwellings through submission of SAP calculation reports at the design and built stages.

Principle 4: Supply energy efficiently (be clean)

A. As part of the energy statement, an assessment of the opportunities for connection to a heat network must be submitted for:
    - all development proposals within the Shoreham Harbour Regeneration Area as part of the sustainability statement
    - all development proposals within the Shoreham Heat Network Area
    - major development proposals elsewhere in the Adur Local Plan area.

B. Submission of an assessment of the opportunities for connection to a heat network is strongly encouraged for other development proposals.

C. The energy statement should demonstrate that heating and cooling systems and technology have been selected in accordance with the following hierarchy:

Heating and cooling hierarchy

System:

1. Connection to existing heating/cooling network (most preferred)
2. Site-wide heating/cooling network
3. Building-wide heating/cooling network
4. Individual heating/cooling systems (least preferred)

Technology:

1. Renewable/waste energy sources (such as biomass, heat pumps, solar thermal) (most preferred)
2. Low carbon technologies (such as gas-CHP)
3. Conventional systems (such as gas or direct electric) (least preferred)

Principle 5: Renewable energy

A. As part of the Energy Statement, an assessment of the opportunities for renewable energy generation must be submitted for:
   - all development proposals within the Shoreham Harbour Regeneration Area as part of the sustainability statement
   - major development proposals elsewhere in the Adur Local Plan area.

B. Submission of an assessment of the opportunities for renewable energy generation is strongly encouraged for other development proposals.

C. The Energy Statement must demonstrate a 10% saving in CO_2 emissions from onsite renewable energy generation. This will be calculated after compliance with Building Regulations (Part L), energy efficiency savings and connection to a heating/cooling network.

D. The Energy Statement must provide the rationale for the chosen renewable energy technologies, and demonstrate that they are the most suitable options for the proposed development scheme. Appendix 2 'Additional information required for energy technologies' provides further details of the information requirements.

Principle 6: Alternative solutions

A. Energy and carbon dioxide reduction targets should be met on-site. Where it is clearly demonstrated that these cannot be fully achieved on-site, the council will consider alternative solutions in the vicinity of the development. The Energy Statement should set out any proposed alternatives, and provide evidence that these would deliver an equivalent saving of CO_2.

Principle 7: Monitoring and addressing building energy performance

A. The Energy Statement must set out the proposed measures to monitor the energy performance of the development.

B. The Energy Statement must set out the proposed measures to address any gap between predicted and actual energy performance of the development.

Principle 8: Feasibility and viability

A. If an applicant does not consider it feasible to meet any of the requirements of this SPD, the Energy Statement must demonstrate that all options have been explored and appraised.

B. If an applicant does not consider it viable to meet the requirements of this SPD, the Energy Statement must be accompanied by a full open-book viability appraisal clearly demonstrating that this is the case. The viability appraisal must:
   - Be completed by a suitably qualified, independent individual.
   - Include baseline energy consumption and carbon emissions calculations for regulated and unregulated energy use
   - Compare the financial viability of a compliant scheme with the proposed scheme
   - Provide a breakdown of the cost estimates and assumptions used for the assessment
   - Present Internal Rate of Return (IRR), capital expenditure, cost and carbon savings as outputs.

C. The Council may seek independent advice to review the feasibility and/or viability evidence submitted. The cost of this review will be borne by the applicant.

D. The Council will consider the potential benefits of a development by weighing these against the resulting harm from non-compliant development.

E. The Council will expect applicants to identify and install those measures that are feasible and/or viable.

F. Where development is phased, the Council may require a review of viability and/or feasibility evidence.

Principle 9: Retrofitting existing buildings

A. The requirement for an Energy Statement (as set out in Principle 1) also applies to the development, extension and/or change of use of existing buildings.

B. As part of the Energy Statement, an assessment of the opportunities to retrofit energy efficiency measures; decentralised energy, heating and cooling; and renewable energy generation must be submitted.

C. Where retrofitting measures are not identified at application stage, the Council will seek to secure the implementation of retrofit measures through planning conditions and/or obligations.

Why retrofit existing buildings?

To achieve the reduction in greenhouse gas emissions required by the Climate Change Act 2008 a significant improvement to the energy performance of the existing building stock is essential. The Government's Clean Growth Strategy (2017) recognises the importance of retrofitting existing buildings with energy efficiency measures. Installing decentralised energy, heating and cooling, and renewable energy generation can make a significant contribution to reducing greenhouse gas emissions.

Sustainable refurbishment is important because the majority of older buildings do not meet current energy performance standards. Retrofitting such buildings makes them appropriate for current and future use. The Principles in this SPD apply to proposals for development, extension and/or change of use of existing buildings as well as to new development. The Energy Statement should set out the retrofit measures to be delivered as part of the scheme

The Council recognises that there may be challenges in adapting some existing buildings. Where this is the case the Energy Statement should demonstrate if it is not feasible and/or viable to achieve the standards as set out in Principle 8.

Principle 10: Historic buildings and conservation areas

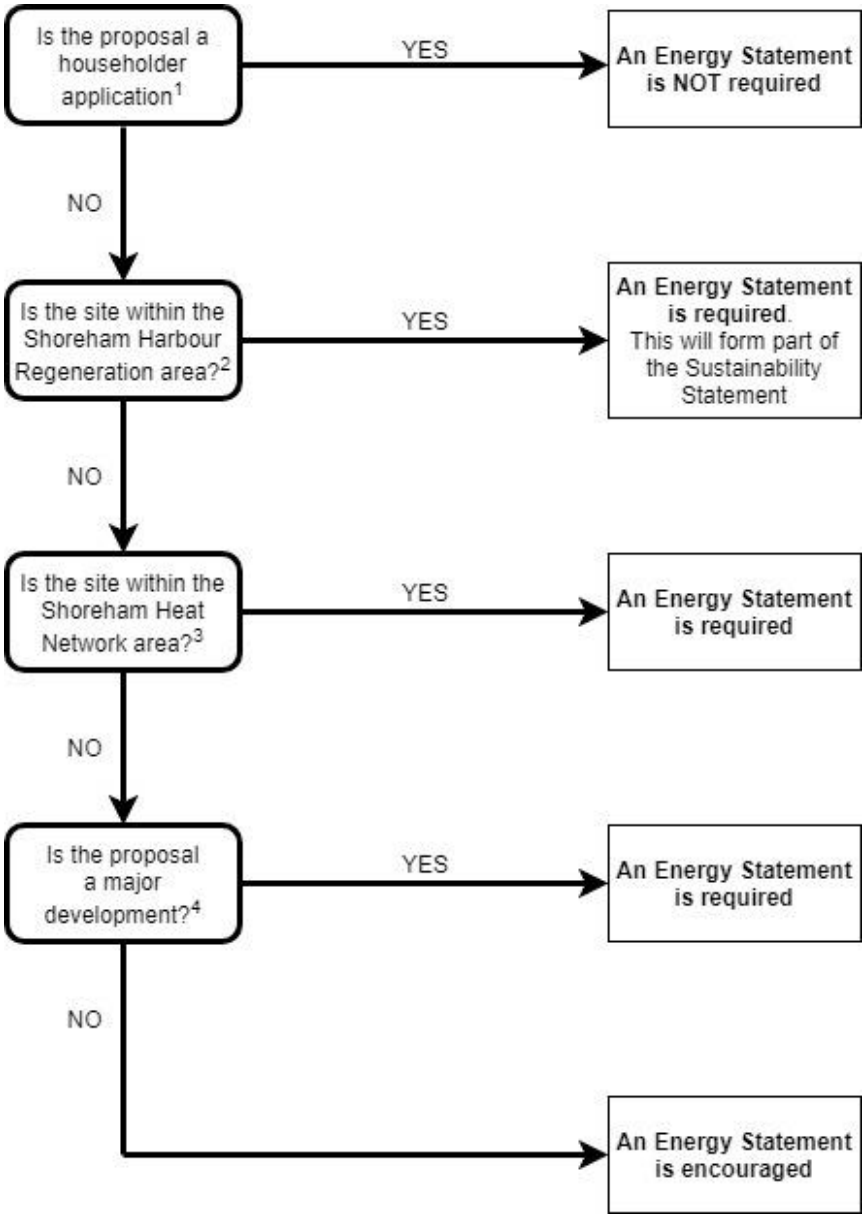
A. Development affecting a historic building, or its setting, and/or a conservation area is expected to comply with the principles of this SPD. The Energy Statement should set out the proposals for meeting the requirements sympathetically.

B. The Council will consider the evidence in the Energy Statement alongside Policies 16 and 17 of the Adur Local Plan which address the historic environment, and the impact on the heritage asset and/or its setting.

4 Is an Energy Statement required?

Please use this flowchart to identify how the requirements apply to your proposed scheme:

Start here:



[1] Householder applications include works to a domestic dwelling house, including, extensions, loft conversions, conservatories, dormer windows, new or altered access, garages and outbuildings, garden fences or walls and satellite dishes.
[2] See Appendix 4 map
[3] See Appendix 4 map
[4] Major development is 10 or more dwellinghouses, or sites of 0.5 hectares or more where it is not known if the development will have 10 or more dwellinghouses; the provision of a building or buildings where the floorspace to be created is 1,000 sqm or more, or development on sites of 1 hectare or more).

5 How should an Energy Statement be structured?

5.1 This section explains how Energy Statements should be developed. It sets out what information will be expected by Adur District Council.

5.2 The Energy Statement should calculate the energy demand and CO_2 emissions from the scheme using dynamic modelling and then demonstrate the proposal's contribution to reducing carbon dioxide emissions in accordance with the following energy hierarchy:

1. Be lean: use less energy
2. Be clean: supply energy efficiently
3. Be green: use renewable energy

5.3 In alignment with the energy hierarchy, the Energy Statement should include the following information, step by step:

1. a calculation of the regulated energy demand and associated carbon dioxide emissions at each stage of the energy hierarchy
2. proposals to reduce carbon dioxide emissions through the energy efficient design of the site, buildings and services (Be lean)
3. proposals to further reduce carbon dioxide emissions through the use of decentralised energy, heating and cooling (Be clean)
4. proposals to further reduce carbon dioxide emissions through the use of on-site renewable energy technologies (Be green)

The Council requires an Energy Statement to be submitted for:

- all development proposals within the Shoreham Harbour Regeneration Area (as part of the Sustainability Statement) (see Map, Appendix 4)
- all development proposals within the Shoreham Heat Network Area (see Map, appendix 4)
- major development proposals elsewhere in the Adur Local Plan area

The Council strongly encourages an Energy Statement to be submitted for <u>all</u> other development proposals.

Energy Statement Suggested Outline Structure and Graph

5.4 The following outline summary table is a suggested format that developers can use to submit their Energy Statement (one for each building and one for the scheme as a whole). Each element of the suggested outline Energy Statement is explained in the following pages.

Energy Statement Suggested Outline Structure

	Energy Statement Summary	Energy demand (kWh/yr)	Energy consumption savings (%)	CO_2 emissions (kg/yr)	CO_2 emission savings (%)
Step 1	**Calculate the baseline scheme compliant with 2013* Building Regulations**				
Step 2	**Calculate the proposed scheme after energy efficiency measures**				
Step 3	**Calculate the proposed scheme after connection to a heating/cooling network**				
Step 4	**Calculate the CO_2 emission savings target (10% of CO_2 emissions after Stage 3)**				10%
		Energy generation (kWh/yr)	**Energy generation savings (%)**	**CO_2 emissions (kg/yr)**	**CO_2 emission savings (%)**
Step 5	**Calculate the proposed scheme after renewables savings to meet the 10% reduction target as a minimum**				
		Net energy demand (kWh/yr)	**Net energy consumption savings (%)**	**Net CO_2 emissions (kg/yr)**	**Net CO_2 emission savings (%)**
Step 6	**Calculate the net energy demand and CO_2 emissions from the baseline scheme after all reductions**				
Step 7	**Show this information in graph form**				
Step 8	**Summarise the measures taken under Step 2, 3 and 4 to achieve the total savings**				

*The baseline scheme must be a 2013 Building Regulations compliant building (please note that use of the building regulation backstops/software default is not equivalent to a compliant building and is therefore not acceptable)

Step 1
Calculate the baseline scheme compliant with 2013* Building Regulations

5.5 Current Building Regulations (Part L) requires that developments involving new and existing buildings (including extensions greater than 100m^2 and greater than 25% of existing floor area) calculate and assess their energy demand and carbon emissions. Different methodologies apply to different types of building - **the most effective way of calculating these emissions is to hire a qualified professional to do the calculation using the relevant methodology.**

5.6 Part L Building Regulations 2013 currently provide the baseline standard that all new buildings must meet.

5.7 Planning policies are not in place to duplicate regulations. Energy Statements should therefore set out the building fabric and services measures specific to the scheme and demonstrate the extent to which they exceed building regulations. Benchmark estimates are not acceptable. Applicants are encouraged to demonstrate site-specific or innovative measures that show energy efficiency is fundamental to a scheme's design.

5.8 Baseline emissions should also take account of emissions associated with uses not covered by Building Regulations 'unregulated energy' including all internal lighting, cooking and all electrical appliances.

5.9 Baseline emissions for dwellings should establish: A Target Emissions Rate (TER) calculated through the standard Building Regulations 2013 methodology SAP 2009. Additional emissions associated with non Building Regulations elements can be established by using BREDEM (BRE Domestic Energy Model). The modelling should be completed for a representative sample of domestic properties.

5.10 Baseline emissions for non-domestic development should establish: A Target Emissions Rate (TER) calculated through the standard Building Regulations 2013 methodology established through dynamic modelling. Additional emissions associated with non Building Regulations elements should be established by using individual end use figures (for example catering and computing) from CIBSE guide baselines (e.g. CIBSE Guide F), Energy Consumption Guide 19, or evidence established through previous development work. A short summary of the modelling work output (e.g. a BRUKL report) should be provided in an appendix of the energy assessment.

Step 2
Calculate the proposed scheme after energy efficiency measures

5.11 Applicants should then explore energy efficiency measures that could be installed to help to reduce energy use in the scheme through efficiency measures applied to space and water heating, space cooling and electricity demand.

5.12 By reducing energy demand through energy efficiency first, a more efficient scheme will be delivered, and the proportion of renewable energy provision for Step 4 will also be reduced.

Step 3
Calculate the proposed scheme after connection to a heat and cooling network

5.13 As part of the Energy Statement, an assessment of the opportunities for decentralised energy, heating and cooling must be submitted for:

- all development proposals within the Shoreham Harbour Regeneration Area as part of the sustainability statement
- all development proposals within the Shoreham Heat Network Area
- major development proposals elsewhere in the Adur Local Plan area

5.14 Submission of a decentralised energy, heating and cooling assessment is strongly encouraged for **all** other development proposals.

5.15 The energy statement should demonstrate that heating and cooling systems and technology have been selected in accordance with the following heating and cooling hierarchy:

System:

1. Connection to existing heating/cooling network (most preferred)
2. Site-wide heating/cooling network
3. Building-wide heating/cooling network
4. Individual heating/cooling systems (least preferred)

Technology:

1. Renewable/waste energy sources (such as biomass, heat pumps, solar thermal) (most preferred)
2. Low carbon technologies (such as gas-CHP)
3. Conventional systems (such as gas or direct electric) (least preferred)

5.16 Centralised communal wet heating systems are encouraged rather than individual gas boilers or electric heating, particularly in locations within or near to identified heat network priority areas. In order to safeguard future connection to heating/cooling networks, individual heating/cooling systems will not normally be permitted, unless it can be demonstrated that it is not feasible and/or viable to do so.

5.17 All developments should seek to minimise such CO_2 emissions as far as possible, including through designing out the need for heating and cooling as far as possible.

Connecting to existing heating/cooling networks

5.18 Developments are required to connect to existing decentralised energy (DE) networks where these exist or are proposed in the vicinity of the scheme. A map of the Decentralised Energy Network proposed for the Shoreham Harbour Area is shown in Appendix 4.

Developing new heating/cooling networks

5.19 Opportunities for developing new decentralised energy (district heating/cooling) networks should also be explored through an assessment of the feasibility of linking a development's heating system with neighbouring buildings with significant and complementary heat loads to create a local DE network. To achieve this, the development itself could become an energy 'hub' which provides heat, via a district heating network, to one or more existing neighbouring buildings; alternatively the development could be supplied with heat from an energy centre within a nearby building or development. Such a system would be likely to be more efficient, particularly where it makes use of Combined Heat and Power (CHP), may become viable where it may not have been previously, or where it allows a greater proportion of a building's heat load to be met via CHP. Reductions in CO_2 emissions made to existing buildings as a result of shared networks can be included within a development's CO_2 savings.

Ensuring on-site heating and cooling systems minimise CO_2 emissions

5.20 Where a connection to a wider energy network is not possible, onsite heating (and cooling) systems should be designed to minimise CO_2 emissions. To enable this and to ensure schemes are future proofed for future connection to district heating/cooling networks, all major schemes, and minor developments where feasible, should incorporate a communal heating network linking all elements of the development. Communal systems are the preferred heating and hot water solution because they satisfy three key criteria. That is, they: i) provide one point of external connection enabling heat and hot water supply from a future decentralised energy system; ii) future proof a development by facilitating alternative onsite low carbon/renewable heating solutions; iii) maximise energy efficiency and minimise CO_2 emissions.

5.21 Following the energy hierarchy, Combined Heat and Power (CHP) or Combined Cooling, Heat and Power (CCHP) should also be incorporated wherever viable.

Future proofed design which should enable a future connection

5.22 All developments and minor developments where reasonably possible should be designed to be future proofed to allow connection to a district heating network if/when such a network becomes available in the future. Technical design standards to enable connection are set out in Appendix 2.

Overheating and active cooling demand

5.23 The need for active cooling should be reduced as far as possible. The extent to which the cooling demand has been minimised – through use of passive design features (e.g. solar shading to control heat gains, thermal mass to manage heat, building massing, orientation

and layout) and passive ventilation (e.g. passive stack ventilation) – should be specified. Where the use of passive ventilation is not sufficient to guarantee building occupants' comfort, proposals for mechanical ventilation and/or cooling should include details of the infrastructure being proposed, including energy/carbon efficiencies and any opportunities to take advantage of free cooling and/or renewable cooling sources. Where appropriate, opportunities should be investigated to improve cooling efficiencies through the use of locally available sources such as ground cooling and canal water cooling.

5.24 The early involvement of services engineers is encouraged to ensure that opportunities for low/zero carbon heating, cooling and ventilation systems are optimised as an intrinsic part of the building design.

5.25 Given the projected rise in summertime temperatures due to climate change, which will also be exacerbated by the urban heat island effect, applications should demonstrate how a development has been designed to prevent overheating.

Step 4
Calculate the CO_2 emission savings target (10% of CO_2 emissions after Stage 3)

5.26 Calculate the CO_2 emissions savings target. This is 10% of the emissions calculated at Step 3.

Step 5
Calculate the proposed scheme after renewables savings to meet the 10% reduction target as a minimum

5.27 Developments should maximise the use of renewable energy in order to meet the overall CO_2 reduction target as a minimum.

5.28 Energy assessments should set out consideration of each renewable energy technology in Section 3 of this SPD. All these technologies are considered potentially technically feasible in West Sussex (according to the West Sussex Energy Study). Full details of the proposed renewable technologies should be provided, including how they will be integrated into any communal heating network.

5.29 When calculating the contribution that ASHPs make towards onsite carbon reduction, clear calculations should demonstrate which portion of the heat load met by the ASHP is actually renewable (i.e. the electrical energy used to operate the pump, and the associated CO_2, should be subtracted from calculations of energy provided and CO_2 saved by renewables).

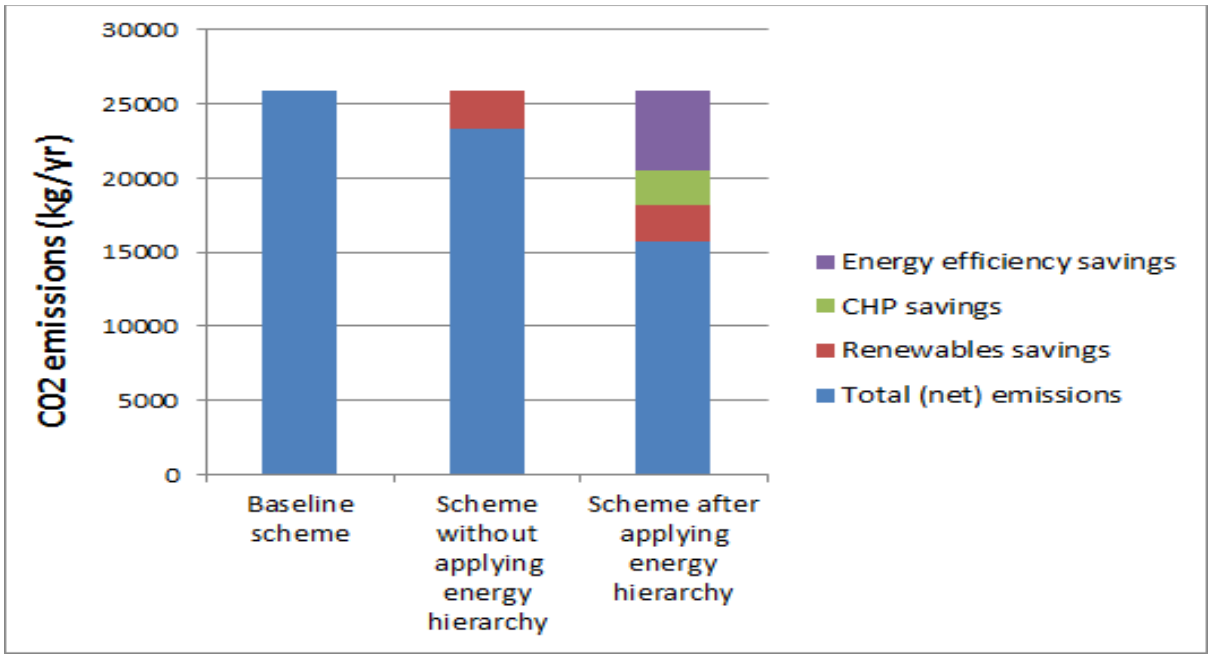
Step 6
Calculate the net energy demand and CO_2 emissions from the baseline scheme after all reductions

5.30 Subtract the generated energy and CO_2 emissions savings calculated at Step 5 from the energy demand and CO_2 emissions calculated at Step 3. This is the net energy demand and CO_2 from the scheme after all reductions, and allowance for renewable energy generation.

Step 7
Show this information in graph form

5.31 It is suggested that this information should also be represented in graphic form. This should show all reduction in emissions against the 2013 compliant baseline, clearly showing CO_2 savings from energy efficiency, Combined Heat and Power or district heating (CHP/DH) and then renewables, as per the example below (savings shown are illustrative only):

CO_2 savings from following energy hierarchy



5.32 As the above graph demonstrates, if the energy hierarchy is followed, the scheme can provide a lower renewable energy provision to meet the 10% target. Importantly, the scheme will also be more energy efficient with lower carbon emissions, and lower energy bills.

Step 8
Summarise the measures taken under Step 2, 3 and 4 to achieve the total savings

5.33 This should include:

- Which energy efficiency measures are proposed
- Heating/cooling network connection proposed for which aspects of the scheme
- Which renewable energy technologies are proposed.

5.34 This summary will help the planning authority when considering the planning application, in the reporting process to Planning Committee, and in annual monitoring.

What good practice examples are there locally?

Here are some examples of local good practice:

Shoreham Harbour Eco Port	**Website:** https://www.shoreham-port.co.uk/
One of only eleven ports in the UK to hold Eco-Port status, Shoreham Harbour is leading the way by continually assessing its environmental impact and developing strategies that will reduce its carbon footprint. In 2015, planning permission was granted for the erection of two Norvento nED100 wind turbines which are now in full operation. Together they generate 475,000 kWh of electricity per year saving over 134 tonnes CO_2. The amount of energy generated is more than enough to power the port's Pump House. Shoreham Harbour has also made major strides forward in large scale solar energy, having installed over 9,000 solar panels on Port Authority owned buildings. Its first array was completed at Hove Enterprise Centre in 2012. More recently, the port has seen much larger installations, having worked in partnership with Brighton Energy Co-op. In total, the port generates 2.2 mega watts of electricity annually through these technologies.	

Eco Open Houses - Portland House, Richmond Road, Worthing. (Worthing Eco Open Houses 2018 by Transition Town Worthing)	**Website:** http://worthing.greenopenhomes.net/homes/portland-house-richmond-road-2024
Adur & Worthing Councils have committed to reducing their carbon footprint having installed 154 solar panels on the roof of Portland House in Worthing. The scheme will generate 40,000 kWh of electricity each year, helping to reduce their fuel bills and saving them 11.4 tonnes of CO_2/year. The Council have also replaced all lighting with low-energy LED lighting, and have introduced electric vehicle charging points and safe bicycle storage to encourage low carbon forms of transport.	

Energy efficiency: Commercial LED lighting retrofit - East Sussex National Hotel and Golf Club	**Website:** http://www.eastsussexnational.co.uk/
East Sussex National Hotel and Golf Club saved £970/year on their energy bills by switching 70 fluorescent lamps situated in each of their building's stairwells to low-energy LEDs. These were switched on 24 hours/day and were therefore an obvious place to begin saving energy. They also installed sensor light switches in each of the stairwells so that the lights only switched on when they sensed movement in the stairwells. Through lighting improvements only, CO_2 emissions were reduced by 1.8tonnes/year.	

Solar PV, Electric vehicle and Battery Storage domestic retrofit: Juniper Walk, Shoreham. **(Worthing Eco Open Houses 2018)**	**Website:** http://worthing.greenopenhomes.net/homes/juniper-walk-shoreham-2027
A private home in Shoreham installed an ideal energy combination of the future: Solar PV, battery storage and a home charging point for an Electric Vehicle. The system includes a roof mounted 6.27kW PV array; a 14kW Tesla Powerwall 2 battery and 32amp home charge point for electric vehicles. In the Winter the Powerwall battery is used to store cheap energy at night from the national grid and is used to power the house during the day when there is peak load on the grid. The EV can also be charged overnight to avoid peak electrical demand. In the Summer the Powerwall battery stores electricity from the Solar PV and is used to power the house when there is no sun. For 6 months through summer over 90% of the power for the house and the EV comes from the Solar PV. For a few weeks all the power for the car comes from the PV and Powerwall 2 so driving the car is Zero Emission and Zero Cost. The annual generation from solar PV is 6MWh. The annual household consumption is 6.5MWh (House = 5.5MWh + 1 Car = 1MWh). This means the house is carbon neutral for electricity, and 50% carbon neutral for the EV. With these, plus lighting and heating upgrades, the EPC rating for the house in 2018 is A (93), the previous rating in 2015 was D (62).	  

APPENDIX 1 – ENERGY STATEMENT TEMPLATE

Name of proposal:	*[INSERT TEXT HERE]*
Type of application (pre-application, outline, full, condition discharge, reserved matters)	*[INSERT TEXT HERE]*

Is the site within the Shoreham Harbour regeneration Area? YES/NO
Is the site within the Shoreham Heat Network Area? YES/NO

Table 1: Energy Statement Summary

	Energy Statement Summary	Energy demand (kWh/yr)	Energy consumption savings (%)	CO_2 emissions (kg/yr)	CO_2 emission savings (%)
Step 1	**Calculate the baseline scheme compliant with 2013* Building Regulations**				
Step 2	**Calculate the proposed scheme after energy efficiency measures**				
Step 3	**Calculate the proposed scheme after connection to a heating/cooling network**				
Step 4	**Calculate the CO_2 emission savings target (10% of CO_2 emissions after Stage 3)**				10%
		Energy generation (kWh/yr)	**Energy generation savings (%)**	**CO_2 emissions (kg/yr)**	**CO_2 emission savings (%)**
Step 5	**Calculate the proposed scheme after renewables savings to meet the 10% reduction target as a**				

	minimum				
		Net energy demand (kWh/yr)	**Net energy consumption savings (%)**	**Net CO_2 emissions (kg/yr)**	**Net CO_2 emission savings (%)**
Step 6	**Calculate the net energy demand and CO_2 emissions from the baseline scheme after all reductions**				

*The baseline scheme must be a 2013 Building Regulations compliant building (please note that use of the building regulation backstops/software default is not equivalent to a compliant building and is therefore not acceptable)

Step 7	**Show this information in graph form**
[INSERT GRAPH HERE]	
Step 8	**Summarise the measures taken under Step 2, 3 and 5 to achieve the total savings**
[INSERT TEXT HERE]	

TABLE 2: Energy Strategy

The Executive Summary must be accompanied by a full energy strategy for the development. Please provide full details of how the scheme complies with the principles of this SPD and the relevant policies in the Adur Local Plan and/or Shoreham Harbour Joint Area Action Plan. Please see information requirements below:
1. **Passive design** - Provide details of passive design measures included in the development, explaining how these measures will reduce energy demand. These include: • Building form (eg. internal layout, building materials used. etc.) • Orientation and shading - including orientation of roofs to maximise solar energy potential. • The positioning of openings - to allow the penetration of solar radiation, visible light, and for ventilation. • Thermal mass (to reduce the need for heating during winter)
[Insert text here]
2. **Energy efficiency** - Provide details of physical measures to ensure the energy efficient use of the building, explaining how these measures will reduce energy demand. These include: • Use of insulating materials (with a high energy performance) - eg. levels of roof insulation, wall insulation, air tightness, etc. • Minimisation of thermal bridging

- Use of materials with a high energy performance (low U-values)
- Electrical appliances
- Low-energy fixtures (eg. LED lighting)

[Insert text here]

3. **Heating, cooling and hot water** - Provide details of measures to minimise the amount of energy and carbon dioxide emissions used to heat and/or cool the building and provide hot water (in accordance with the heating hierarchy). These include:

System:

- Connection to existing heating/cooling network (most preferred)
    - Protected pipe routes
    - Plant room location
    - Plant room design
- Site-wide heating/cooling network
- Building-wide heating/cooling network
- Individual heating/cooling systems (least preferred)

Technology:

- Renewable/waste energy sources (such as biomass, heat pumps, solar thermal) (most preferred)
- Low carbon technologies (such as gas-CHP)
- Conventional systems (such as gas or direct electric) (least preferred)

[Insert text here]

4. **Overheating** - Provide details of measures to minimise the amount of energy and carbon dioxide emissions used to prevent the building from overheating during warm weather. These include:

- Ground cooling
- Canal water cooling
- Minimise internal heat generation through energy efficient design
- Reducing the amount of heat entering the building in summer
- Use of thermal mass and high ceilings to manage the heat within the building
- Ventilation - Passive (most preferred); Mechanical (least preferred)

[Insert text here]

5. **Renewable technologies** - Provide details of renewable energy technologies used to generate energy used onsite in the table below. These include:

- Solar PV (Photovoltaics)
- Solar Thermal (Solar Water Heating)
- Wind turbines
- Biomass fuelled electricity and heat generating plant
- Air source heat pump
- Water/Ground source heat pump
- District heating
- Combined Heat & Power (CHP) and Combined Cooling, Heat & Power (CCHP)

Technology type (eg. PV, solar thermal, biomass)	**Description**	**Capacity from this technology (kW)**	**Estimated annual generation (kWh)**	**Total CO_2 saving from this technology (kg CO_2/m^2)**
Example: *Solar PV*	*28m² of 345W PV panels, 16% efficiency*	*3kWp*	*2550 kWh*	*1045*
[Add lines as needed]				
TOTAL				

Please provide the rationale for the chosen renewable energy technologies, and demonstrate that they are the most suitable options for the proposed development scheme below:

6. **Energy Performance Gap** - Note how the Performance Gap will be addressed following construction of the building. This must include:

- The proposed measures to monitor the energy performance of the development.
- The proposed measures to address any gap between predicted and actual energy performance of the development.

[Insert text here]

7. **Feasibility and viability** - As per Principle 8 in the Supplementary Planning Document, if you do not consider it feasible to meet any of the above

requirements please use this section to provide the following:

A. Demonstrate that all options have been explored, and the reasons why the meeting the requirement/s is not feasible.
B. Outline which measures meeting the requirements that are feasible.

Please note: If it is considered that any of the requirements are not feasible, a full open-book viability appraisal should be submitted alongside this Energy Statement which clearly demonstrates that this is the case. The viability appraisal must:

- Be completed by a suitably qualified, independent individual.
- Include baseline energy consumption and carbon emissions calculations for regulated energy use
- Compare the financial viability of a compliant scheme with the proposed scheme
- Provide a breakdown of the cost estimates and assumptions used for the assessment
- Present Internal Rate of Return (IRR), capital expenditure, cost and carbon savings as outputs.

[Insert text here]

APPENDIX 2

Additional information required for energy technologies

For each technology selected to deliver the minimum 10% target, the information listed below will be required. This must be set out in your Energy Statement and submitted with the planning application. The information will then be assessed as part of the decision-making process to establish whether the policy requirements of Policy 19 of the Adur Local Plan have been met.

Technology	Information required
Photovoltaics (PV)	• Description of technology • Capacity-electrical output (kWp) • Estimated energy generation (kWh/yr) • Design of the module or array • Elevations to show proposed location • Orientation/roof pitch • Roof plans and detail of roof mounting arrangement and methods of fixing, if applicable. • Potential shading from trees and other buildings • Visual impact assessment • Landscape Character • Biodiversity impacts
Solar Water Heating (SHW)	• Description of the technology • Capacity i.e. number of panels or tubes, total area • Estimated energy generation (kWh/yr) • Elevations to show proposed location • Orientation/roof pitch • Roof plans and detail of roof mounting arrangements and methods of fixing, if applicable • Potential shading from trees and other buildings • Visual impact assessment • Landscape Character • Biodiversity impacts
Wind turbines	• Description of technology • Capacity- electrical output (kW) • Estimated energy generation (kWh/yr) • Layout plan showing the site size, boundary and location of infrastructure (e.g. location of turbines, substation, access tracks) • Elevation plan • Roof plan to show location of wind turbine (if roof mounted) • Average site wind speed (minimum 12 months) and further justification to fully demonstrate that the proposed wind

	turbine would actually deliver the wind output claimed • Grid connection • Proximity to dwellings • Noise, vibration and visual impact assessment • For large wind turbines further information will be required, including topple zones, radar interference, microwave transmission buffers, archaeological assessment, consideration of impact on birds/bats, etc. & Air Traffic Control • Evidence of consultation with appropriate bodies such as Network Rail, the Highways England, the Health and Safety Executive to establish if there would be any potential impacts on rail, road, rivers or other infrastructure or development, e.g. topple zones, cabling, and vibration impacts. radio/signalling impacts, shadow flicker • Visual impact assessment • Landscape Character • Biodiversity impacts
Fuel Cells	• To Be Added
Biomass fuelled electricity and heat generating plant	• Description of technology and fuel supply • Capacity – boiler specification (kW) • Estimated energy generation (kWh/yr) • Floor plans and elevations showing the location and design of the plant, flue and storage facilities; • Details of vehicle access to and from the plant and estimated vehicle movements • Source of fuel supply, principal transport routes to and from the supply • Landscaping and visual impact of plant • Details of noise emissions • Details of air pollution impacts and mitigation measures • Evidence of consultation with appropriate bodies such as DEFRA / Natural England Biodiversity impacts
Air source heat pump	• Description of technology e.g. air-to air, air-to water system • Capacity-for heating and cooling (kW) • Estimated energy generation (kWh/yr) • Elevations to show location and design • Visual impact assessment • Noise report (should be available from the manufacturer) to include localized background noise too
Water/Ground source heat pump	• Description of technology • Capacity-for heating and cooling (kW) • Estimated energy generation (kWh/yr)

	• Number and location of boreholes/trenches • Location of pipe work • Connection details to the building • Plan showing tree locations and their potential rooting zones • Archaeological assessment, where applicable • Evidence of consultation with appropriate bodies such as the EA, as regards potential soil contamination, and Natural England as regards potential ecological issues
District heating	• Description of technology including fuel type to be used • Capacity – plant specification, electrical output (kWe), heat output Wth) • Estimated energy generation (kWh/yr) for electricity and heat separately • Layout plan showing site size, boundary and location of infrastructure (e.g. location of boiler house, CHP units and boilers, storage area, pipe networks) • Floor plans and elevations • Details of connection to distribution network • Noise and visual impact assessment • Details of operation and management of installations • Where appropriate, source of fuel supply, principal transport routes to and from the supply • Details of vehicle access to and from the plant and estimated vehicle movements • Biodiversity impacts
Combined Heat & Power (CHP) and Combined Cooling, Heat & Power (CCHP)	• Description of technology including fuel type to be used • Capacity – plant specification, electrical output (kWe), heat output Wth) • Estimated energy generation (kWh/yr) for electricity and heat separately • Layout plan showing site size, boundary and location of infrastructure (e.g. location of boiler house, CHP units and boilers, storage area, pipe networks) • Floor plans and elevations • Details of connection to distribution network • Noise and visual impact assessment • Details of operation and management of installations • Where appropriate, source of fuel supply, principal transport routes to and from the supply • Details of vehicle access to and from the plant and estimated vehicle movements • Biodiversity impacts

APPENDIX 3 – GLOSSARY & FURTHER INFORMATION

GLOSSARY	
Biomass	Biomass is the total dry organic matter or stored energy of plant matter. As a fuel it includes energy crops and sewage as well as forestry and agricultural residues
Clean Growth	**(to be added)**
Combined Heat and Power	The combined production of electricity and usable heat is known as Combined Heat and Power (CHP). Steam or hot water, which would otherwise be rejected when electricity alone is produced, is used for space or process heating.
Community heating	Community heating is the distribution of steam or hot water through a network of pipes to heat a large area of commercial, industrial or domestic buildings or for industrial processes. The steam or hot water is supplied from a central source such as a heat-only boiler or a combined heat and power plant.
Energy efficiency	This is about making the best or most efficient use of energy in order to achieve a given output of goods or services, and of comfort and convenience. This does not necessitate the use of less energy, in which respect it differs from the concept of energy conservation.
Fuel cell	A cell that acts like a constantly recharging battery, electrochemically combining hydrogen and oxygen to generate power. For hydrogen fuel cells, water and heat are the only by-products and there is no direct air pollution or noise emissions. They are suitable for a range of applications, including vehicles and buildings.
Heating/Cooling network	**(to be added)**

Major Development	Major development is defined in the **Town & Country Planning (Development Management Procedure) (England) Order 2015** as 10 or more dwellinghouses, or sites of 0.5 hectares or more where it is not known if the development will have 10 or more dwellinghouses; the provision of a building or buildings where the floorspace to be created is 1,000m^2 floorspace or more, or development on sites of 1 hectare or more.
Photovoltaics	The direct conversion of solar radiation into electricity by the interaction of light with electrons in a semiconductor device or cell.
Renewable energy	Energy derived from a source that is continually replenished, such as wind, wave, solar, hydroelectric and energy from plant material, but not fossil fuels or nuclear energy. Although not strictly renewable, geothermal energy is generally included.

Sources of further information

Heat Networks Delivery Unit: Support and guidance for local authorities developing heat networks.

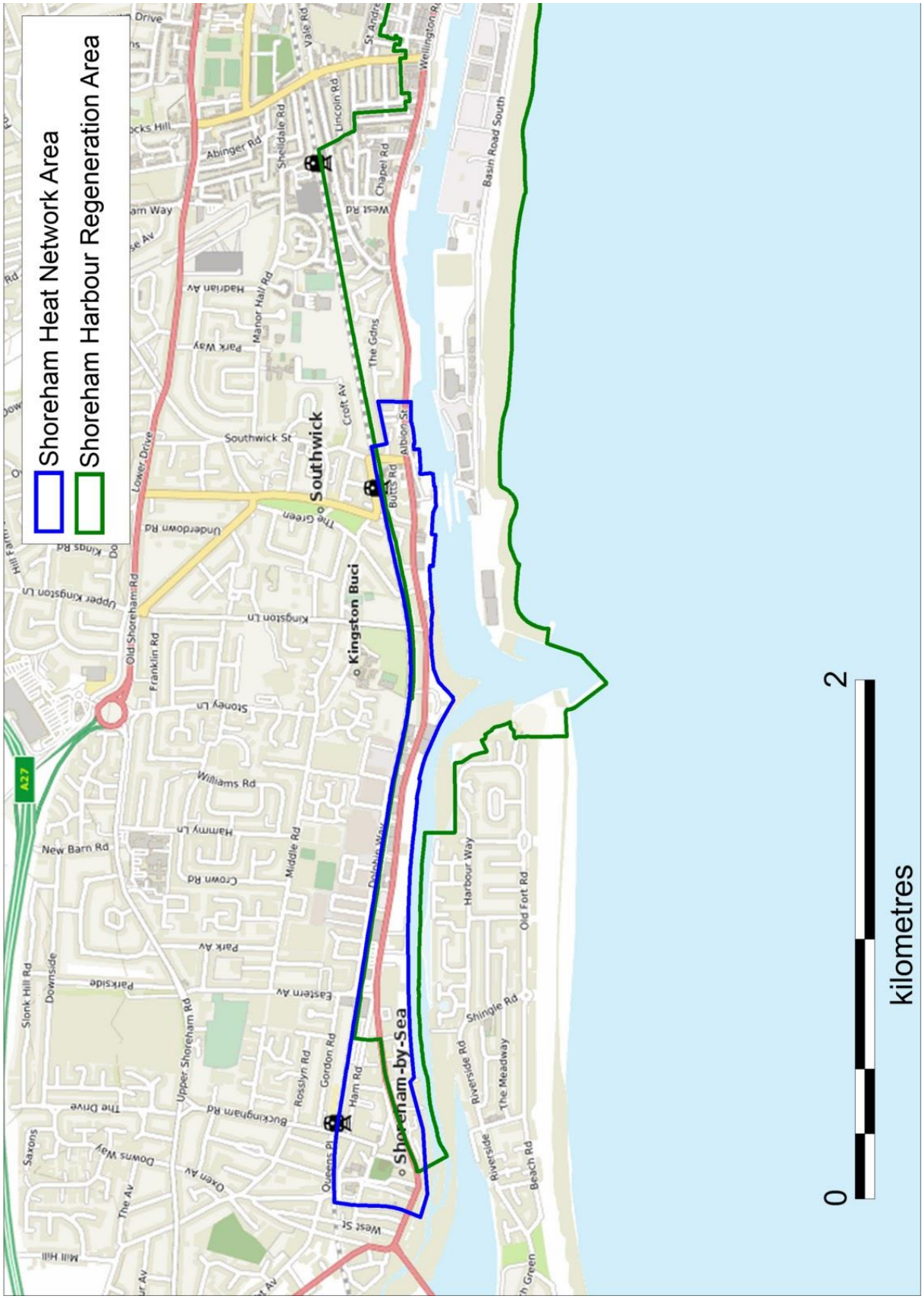
CIBSE Heat Networks Code of Practice:

Domestic Renewable Heat Incentive: The Domestic Renewable Heat Incentive (Domestic RHI) is a government financial incentive to promote the use of renewable heat. Switching to heating systems that use eligible energy sources can help the UK reduce its carbon emissions and meet its renewable energy targets.

Non-Domestic Renewable Heat Incentive: The Non-Domestic Renewable Heat Incentive (RHI) is a government environmental programme that provides financial incentives to increase the uptake of renewable heat by businesses, the public sector and non-profit organisations.

UK Green Building Council: UKGBC is a national member organisation uniting the UK building industry using sustainability as a catalyst to positively transform the places people use every day.

APPENDIX 4 - MAP



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