

APPENDIX 2: TOPIC PAPERS

Vision for Carbon Reduction: To minimise energy demand and meet all heat and power requirements without increasing carbon emissions to allow Leeds to meet its climate emergency commitment of zero carbon by 2030

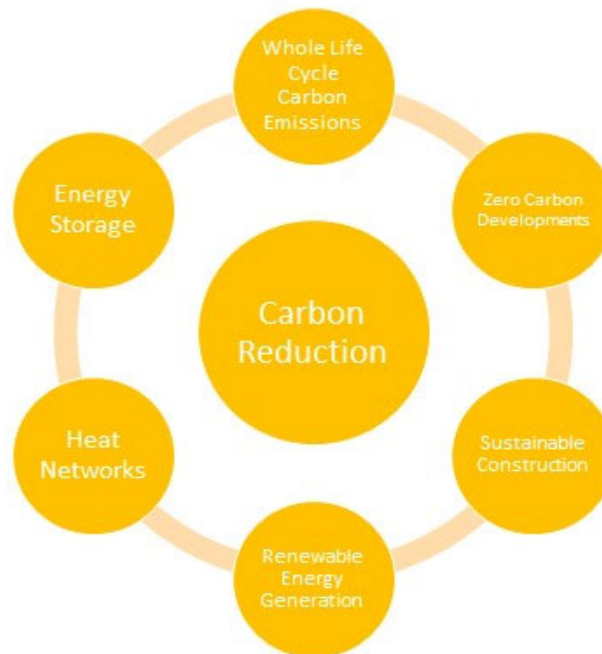
What is this topic about?

As part of our aspiration to make Leeds zero carbon by 2030 we need to make changes to the way buildings are built in Leeds and to how we generate renewable energy.

Where are we now?

Our current Local Plan has many effective policies on carbon reduction and renewable energy generation and they have seen real improvements in the way development is built in Leeds. However, they don't go far enough to make us zero carbon by 2030, so we think we need to go further.

The proposed policy areas



Where do we want to get to?

•We want new developments to measure carbon emissions across the whole life-cycle of a building.

•We want new buildings to be sustainable constructed and be zero carbon

•We want to ensure we've delivered enough renewable and low carbon energy to meet zero carbon aspirations.

Have your say

We need your views on whether you think our aspirations for the Local plan Update are correct. If you agree with our vision, how do you think we can get there? If you disagree, what do you think we should be doing instead?

LEEDS LOCAL PLAN UPDATE

REGULATION 18 CONSULTATION TOPIC PAPER

CARBON REDUCTION

BACKGROUND TO THE TOPIC

‘Right now, we are facing a man-made disaster of global scale. Our greatest threat in thousands of years. Climate change.’ David Attenborough 2018

OBJECTIVE: Minimise energy demand and meet all demands for heat and power without increasing carbon emissions to allow Leeds to meet its climate emergency commitment of zero carbon by 2030.

Leeds City Council is committed to taking significant action to mitigate and adapt to the impacts of Climate Change. There is a legal duty under section 19(1A) of the Planning and Compulsory Purchase Act 2004 to ensure that climate change mitigation and adaptation is a core objective of a local authorities’ planning policy.

Climate change is also a key concern of Leeds residents. As part of The Big Leeds Climate Conversation, a survey of Leeds’ residents found that **94.8%** are worried about the effects of climate change on future generations and **96.7%** think that public sector organisations have a responsibility to reduce their own carbon footprint and make it easier for individuals to make more environmentally-friendly choices¹.

Section 182 of the Planning Act 2008 puts a legal duty on local authorities to include policies on climate change mitigation and adaptation in Development Plan Documents. Additionally para 148 of the NPPF requires the planning system to help to:

‘Shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.’

It is therefore essential for this legal and policy requirement to be addressed in the Local Plan.

The Local Plan currently has several policies that help reduce and mitigate against the impacts of climate change. However, these policies were written and adopted prior to the Council declaring its Climate Emergency. Therefore it is essential to update and

¹<http://democracy.leeds.gov.uk/documents/s198402/Climate%20Emergency%20Report%20Annex%20%20191219.pdf>

add new policies, using up to date evidence, to help Leeds meet its zero carbon goal by 2030.

Existing policies have made positive impacts on carbon reduction but they may not go far enough. The table below shows the trend of CO2 reductions across the whole of Leeds since 2005, the year when Local Authority data was first published by the Government. Figures are recalculated annually and are published 2 years in arrears. The latest data published in 2020 is therefore from 2005 – 2018.

Carbon Dioxide emissions reduction in Leeds District by major emitter							
Year	CO ₂ emissions (m tonnes)	Per capita % reduction	Absolute % reduction	Absolute CO ₂ reduction (m tonnes)	Industry % reduction	Domestic % reduction	Road Transport % reduction
2005	4.951	0.0	0.0	0.0	0.0	0.0	0.0
2006	4.933	0.5	0.4	0.019	-1.3	1.3	1.9
2007	4.778	4.0	3.5	0.174	3.2	5.3	1.2
2008	4.709	5.7	4.9	0.242	4.2	5.6	4.9
2009	4.253	15.1	14.1	0.699	16.7	14.4	8.9
2010	4.431	12.0	10.5	0.521	12.3	8.4	10.8
2011	4.015	20.6	18.9	0.937	21.7	19.5	12.8
2012	4.248	16.8	14.2	0.703	14.6	13.5	14.6
2013	4.112	19.8	17.0	0.840	17.8	16.5	16.1
2014	3.630	29.6	26.7	1.321	30.3	29.5	15.2
2015	3.401	34.7	31.3	1.550	39.6	31.5	15.5
2016	3.242	38.4	34.5	1.710	44.8	35.2	14.2
2017	3.085	41.7	37.7	1.867	48.7	38.6	15.6
2018	3.088	41.9	37.6	1.863	48.2	39.0	15.5

We would like to hear your views on suggestions for planning policy intervention as detailed in the following section.

POLICY TOPIC AREAS

WHOLE LIFE-CYCLE CARBON EMISSIONS

Background

Whole life cycle carbon emissions or ‘embodied carbon’ refers to the carbon emissions resulting from the construction and use of a building over its entire life, including the carbon that is emitted from the operation of a building once it is complete and its end of life demolition and disposal.

The net zero carbon construction of a building can be achieved through the use of low carbon products and materials (and their transportation) and the use of carbon offsets or net export of on-site renewable energy to off-set carbon. As the product supply chain includes less and less carbon over time and in response to demand, so less carbon off-setting will be needed.

The net zero carbon operation of a building can be achieved through reducing energy demand through a high level of energy efficiency and by powering the development from on-site and/or off-site renewable energy sources, with any remaining carbon balance offset.

Whole life net zero carbon includes the following elements:

1. Construction products and processes
2. Operation of the building
3. Maintenance, repair, refurbishment and water use
4. Demolition, waste, disposal
5. Carbon savings from material re-use.

The UK Green Business Council (UKGBC) has produced the following summary diagram which identifies the ten key requirements for net zero operational carbon buildings:

<https://www.ukgbc.org/wp-content/uploads/2020/02/UKGBC-Net-Zero-Operational-Carbon-One-Pager.pdf>

Current Policy Position

Our current planning policy approach is focussed on reducing operational energy use but we don't at present ask for any reduction of the embodied carbon which is emitted through construction materials and the processes used to create them and transport them and the maintenance of buildings, repair and replacement as well as dismantling, demolition and eventual material disposal.

Rationale for an Enhanced Policy Framework

We want to influence the following elements of whole life cycle net zero carbon:

1. Reduce construction impacts – through a whole life carbon assessment

2. Reduce operational energy use – through improvements in the energy efficiency of buildings
3. Increase renewable energy supply – through the identification of suitable areas for renewable energy generation in the district
4. Off-set any remaining carbon – through a carbon off-setting methodology

In order to fully capture a development's carbon impact across the whole of its life, planning applicants would need to calculate the whole life emissions and demonstrate how they can be minimized. This approach would lead to a significant reduction in carbon emissions and support the circular economy (where materials are retained in use at their highest value for as long as possible and are then re-used or recycled, leaving a minimum of residual waste).

Proposed Policy Options

We'd like to explore options for how we can integrate policies related to whole life-cycle carbon emissions, with some of the initial options raised below.

Option 1: Require a whole life-cycle carbon assessment to be submitted in support of all major planning applications to demonstrate how carbon emissions during construction and operation of the development could be reduced to achieve zero carbon across the whole carbon life cycle of the development

Option 2: Require assessments to be submitted until 2026 but after that date require development to meet a set of benchmarks to achieve zero carbon across the whole carbon life cycle of the development. This would stagger the requirement for development to meet whole life cycle zero carbon so as to give the industry time to prepare for the change.

For both options consideration needs to be given to what the application size threshold should be to trigger a whole life cycle carbon assessment so it avoids placing an undue burden on smaller developers.

The UK Green Building Council has provided guidance² for those who are looking to measure the whole life cycle emissions of a development. The Royal Institute of Chartered Surveyors (RICS) have also published a professional statement on conducting whole life carbon assessment for the built environment³. London's draft local plan includes a policy (Policy SI 2) that sets out a requirement for developments to calculate and reduce WLC emissions and they are currently consulting on their Whole Life-Cycle Carbon Assessments guidance⁴ note for the implementation of this policy.

Are you a developer or builder that has tried this approach? Was it straightforward? Do you think that including this as a requirement will encourage carbon use to be

² <https://www.ukgbc.org/sites/default/files/UK-GBC%20EC%20Developing%20Client%20Brief.pdf>

³ <https://www.rics.org/globalassets/rics-website/media/news/whole-life-carbon-assessment-for-the--built-environment-november-2017.pdf>

⁴ <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance-and-spgs/whole-life-cycle-carbon-assessments-guidance-consultation-draft#Stub-301723>

considered at the earliest stages of design and layout so as to deliver carbon benefits in a viable manner?

Consultation Questions

- 1. Do you think that planning policy should seek to reduce the embodied carbon emissions across the whole life cycle of a development?**
- 2. Do you have any further thoughts on whole life-cycle carbon reduction, such as how quickly it should be used to require zero carbon development, or whether all developments should be required to carry out assessments?**

OPERATIONAL ENERGY CARBON REDUCTION

Background

The Committee on Climate Change recommendations state net zero is only credible if policy to reduce emissions ramps up significantly. The UKGBC have identified that to achieve the Government commitment of zero carbon by 2050, the UK must halve its emissions by 2030. This means that all new development needs to be built to be net zero carbon long before that date.

We expect buildings not to waste energy by being built to be as energy efficient as possible. This also helps to reduce household fuel bills (and support initiatives for 'affordable warmth'), improve business competitiveness, create jobs in the energy service sectors and provide resilience in our energy supply. Cost implications are much lower when energy efficiency measures are included in a new building than when they are retrofitted and it would be a waste of resources to construct buildings now that will require retrofitting in the future. Planning is limited in the role it can play in helping to retrofit existing properties to become more energy efficient. Whilst planning can promote the reuse of land and existing Council owned properties can be retrofitted through Council initiatives and funding, requiring the retrofitting of private properties is generally beyond the scope of planning policies.

Section 1 of the Planning and Energy Act 2008 gives local planning authorities the power to set energy efficiency performance standards that exceed those required in Building Regulations. Whilst this power will be amended by Section 43 of the Deregulation Act 2015, the Government has confirmed that it has no current plans to commence Section 43 of the Act. The March 2019 update to National Planning Policy Guidance states:

In their development plan policies, local planning authorities:

- Can set energy performance standards for new housing or the adaptation of buildings to provide dwellings, that are higher than the building regulations, but only up to the equivalent of Level 4 of the Code for Sustainable Homes.*
- Are not restricted or limited in setting energy performance standards above the building regulations for non-housing developments.'*

However, with the Government signalling that radical changes are to be made to the Planning system, through the White Paper and subsequent revisions to the NPPF and NPPG, it is considered appropriate to consider the Council's response to the carbon efficiency of buildings now. There is no similar restriction in national policy on seeking energy needs of the development to be met by renewable or low carbon energy, such as solar panels or air source heat pumps

Current Policy Position

The Council currently has a planning policy that goes further than national building regulations. Core Strategy Policy EN1 requires major development to be 20% more energy efficient than the Building Regulations standard and requires 10% of the

energy needs of the development to come from renewable or low carbon energy sources. The objective is also met by Core Strategy Policy EN2 which requires major commercial development to be built to the BREEAM Excellent standard (which includes mandatory energy standards).

Rationale for an Enhanced Policy Framework

The current policy EN1 has helped contribute to significant increases in the energy efficiency of new developments. However, the requirements of that policy will not deliver the Council's climate emergency commitment to make the city carbon neutral by 2030. As such it is appropriate to look at options for achieving zero carbon in new development (including improvements in energy efficiency) as well as increasing the proportion of energy needs that are met by renewable or low carbon energy.

Policy EN1 has the potential to achieve even greater energy savings and this would help residents who are in fuel poverty by reducing the amount of energy they have to use to heat their homes and increase energy security by reducing reliance on fossil fuels that are imported from outside the UK.

Within Leeds there are some great examples of innovative approaches to carbon reduction. Greenhouse is a development of 166 flats, work spaces, on site gym, café and other amenities which won the RIBA White Rose Award for Sustainability in 2010. The scheme has high levels of insulation, a ground source heat pump, solar panels, roof mounted wind turbines, water recycling systems and sustainable construction materials. Further information on this development can be found within the Council's Building for Tomorrow Today Supplementary Planning Document.



Greenhouse, South Leeds

LILAC is a housing community of 20 eco-build households constructed from prefabricated cells of timber and straw all of which are super insulated. Solar water heaters and mechanical ventilation heat recovery units ensure a stable indoor air temperature. Through communal management and a strong community ethic, a LILAC household is projected to have a carbon footprint which is 65% less than a normal household. More can be found within their environmental and social impacts report published in 2020⁵.



Lilac, Bramley, West Leeds

Proposed Policy Options

We're keen to explore policy options that will deliver zero carbon developments, in a way that is feasible, realistic and viable. Options for the replacement of Policy EN1 could include the following:

Option 3. Require all development to be built so that carbon emissions associated with the building's operational energy are zero or negative

OR

Option 4. Gradually increase improvements in energy efficiency beyond the current 20% improvement combined with renewable energy use to achieve zero carbon emissions in new development by 2030. This option would need consideration of what the appropriate increases should be.

⁵ [Lilac-Impact-Final-Draft-Compressed-200dpi.pdf](#)

OR

Option 5. Require the energy needs of the development to come exclusively from renewable or low carbon energy sources, either on-site (such as air and ground source heat pumps) or off-site (such as from a solar or wind farm).

Option 5 without energy efficiency measures does not help to meet the objective to reduce energy demand but it avoids potential policy conflicts regarding the cap on energy performance standards in the NPPG associated with Option 4. It may also help to drive the provision of renewable energy in the district and therefore reduce reliance on fossil fuels. It may provide a cheaper way for developers to achieve zero carbon in operational energy but it restricts the freedom of the occupier to choose their energy provider. The Council proposes to identify suitable areas in the district for renewable and low carbon energy generation, and supporting infrastructure (see Option 9 below). Option 3 gives the developer the flexibility to choose the most appropriate solution for them to achieve zero carbon on operational energy which may be through a combination of energy efficiency measures and renewable energy generation.

AND

Option 6. Use carbon off-setting to address any residual carbon reductions needed to achieve zero carbon through a financial contribution to be spent on energy efficiency improvements, renewable energy generation projects, tree planting or carbon capture. Developers would still need to do everything they can to achieve zero carbon in the first instance but this option might be helpful to off-set any remaining carbon.

These options are not an exhaustive list and some of them could be used together.

Consultation Questions

3. Do you think we should require new development to achieve a zero carbon energy performance standard for the operational use of the buildings?

4. Should developments still be required to include on-site renewable energy as well as meeting energy efficiency standards? If so, what proportion of the energy needs of the development should be met by renewable energy?

SUSTAINABLE CONSTRUCTION

Background

Sustainable construction concerns the assessment of how environmentally responsible and energy efficient a construction project is. A number of standards exist, with perhaps the most well-known being BREEAM (Building Research Establishment Environmental Assessment Method).

BREEAM sets standards for the following factors:

- Energy: building operational energy and CO2 emissions
- Management: management policy, commissioning, site management and procurement
- Health and Wellbeing: indoor and external issues (noise, light, air, quality, etc.)
- Materials: environmental impacts of building materials
- Transport: transport-related CO2 and location-related factors
- Water: building consumption and efficiency
- Waste: construction and operational waste management
- Pollution: water and air pollution
- Land Use & Ecology: site and building footprint and ecological value and conservation.

All of these factors influence the overall performance of a development and in many cases they reflect the standards that are in other adopted policies, so meeting BREEAM helps the developer address a number of planning policy priorities. Good design standards and adequate ventilation is necessary in combating the effects of an increase in temperature without reliance on high energy alternatives such as air conditioning units and personal fans.

The benefit of standards such as BREEAM Residential is that they give an overall assurance of the sustainability of a development (not just energy) and the developer is required to obtain an independent assessment to verify that the standard has been achieved.

Current Policy Position

Leeds wants all development to be built to a high standard across a whole range of sustainability measures. To achieve this we adopted Policy EN2 in our Core Strategy to require specific construction standard ratings to be achieved and adopted the Building for Tomorrow Today— Sustainable Design and Construction Supplementary Planning Document (SPD) to help developers design and construct sustainable developments within Leeds. For major residential development it was required to be built to Level 6 of the Code for Sustainable Homes and major commercial development to be built to BREEAM excellent standard.

However, in 2015 the Government abolished the Code for Sustainable Homes and consequently the Council amended Policy EN2 accordingly through the Core Strategy Review. The revised policy still asks for BREEAM Excellent for non-residential

development but for residential development it only asks for a water consumption standard (in line with the Government's Technical Standards).

This has led to development such as The Greenhouse where low water consumption measures, photovoltaic panels and a communal heat and power system are visible reminders of the more modern and sustainable approach to construction and design.



Greenhouse, South Leeds

Rational for an Enhanced Policy Framework

As set out above, our current policies for sustainable construction have been limited by changes to national guidance and are not as ambitious as was originally intended. Whilst we have not been able to set policy to encourage all development to achieve these standards where we are able (e.g. through our own development) we have sought to go further.

The Council uses The Leeds Standard for its own council house building programme. This standard prioritises high quality design, space standards and energy efficiency standards in new build council homes. Regarding energy efficiency, the standard encourages a fabric first approach and energy efficient hot water and heating systems. Based on assessment, Leeds Standard dwellings shall produce an average 0.9 tonnes of carbon dioxide every year (the average household causes circa 6 tonnes per year).

Energy efficiency is a key component of most sustainable construction standards but the options proposed now for development to achieve zero carbon across the whole life cycle of a development need to improve even more. One way of helping to achieve this is through measuring of the improvement through accreditation by a sustainable construction rating method – which provides a standard against all of the different sustainable construction factors. Consideration should be given as to whether we want to introduce another method to measure sustainability for residential development to replace the Code for Sustainable Homes, such as the BREEAM Residential (known as the Home Quality Mark).

In practice the Council already sets high standards for development of its own council housing developments. We are suggesting in this consultation that all development meet these higher standards.

Proposed Policy Options

We're looking to explore policy options for how higher environmental standards of construction could be integrated into planning policy. These options could include:

Option 7: Require residential development to achieve a specific sustainable construction rating / standard eg BREEAM Residential (Home Quality Mark).

Option 8: Create our own set of standards across a range of sustainable construction measures equivalent to Code for Sustainable Homes Level 6.

Consultation Questions

6. Do you think that Leeds should set a standard for sustainable construction of new residential development?

7. If so, do you think we should use one of the established sustainable construction rating systems such as BREEAM Residential or create our own set of standards?

RESILIENCE TO HEAT

Background

By 2070 the average summer day could be between 1.4 and 5.1 degrees warmer leading to significant impact on people's health and wellbeing due to overheating. Heat stress occurs at temperatures of over 35 degrees centigrade with an impact on productivity and effects on sleep that can lead to illness and it can even lead to death, particularly in people over 65. Currently it is estimated that there are 2,000 heat-related deaths in England and Wales, every year. This figure is expected to increase to 7,000 by 2050 as a result of climate change⁶.

The NPPF tells us to '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.' (para.150 a).

Permitted development rights allow conversion of office development to residential. There is often little consideration of overheating when those changes of use take place. In September 2015 there were rooms in such developments that reached temperatures of 47 degrees centigrade.

Current Policy Position

There are no policies within the Local plan that specifically consider the overheating of homes and buildings however it is considered in the Building Regulations.

Rationale for an Enhanced Policy Framework

Given the importance of adapting to the impacts of climate change we feel it is important that the Local Plan considers how new developments could be made more resilient to the impacts of heat.

Proposed Policy Options

We're keen to explore new policy options that could increase the resilience of homes and buildings to the effects of over-heating. These options could include requiring developers to use the 'cooling hierarchy' to avoid buildings being at risk of over-heating. This might involve the use of passive design to minimise unwanted heat gain and manage heat – for example by using building orientation and natural shading. It could also incorporate the use of natural cooling by allowing outside air to ventilate and cool a building without the use of a powered system, for example through windows that can open and ventilation. Alternatively, air conditioning could be included in the mix of solutions. However, given the energy intensive nature of air conditioning systems it may be that the use of such systems could be a last resort when a satisfactory level of cooling cannot be achieved naturally.

⁶ <https://www.theccc.org.uk/uk-climate-change-risk-assessment-2017/ccra-chapters/people-and-the-built-environment/>

Consultation Questions

- 7. Do you agree that the Local Plan should contain a policy designed to increase resilience to the impacts of heat?**
- 8. How do you think Leeds could ensure that homes are more resilient to overheating?**

RENEWABLE ENERGY GENERATION

Background

National policy recognises the role of the planning system to '*support renewable and low carbon energy and associated infrastructure*' (para 148). Consideration needs to be given as to what is the best way for Leeds to do that.

Current Policy Position

Core Strategy Policy EN3 encourages investment in renewable energy and low carbon infrastructure and the NRWLP (Table 5.1) sets minimum targets for installed and grid connected energy for each type with an overall target of 81MW by 2021. Leeds has already granted consent for a total of 77.90 MW, mostly from the Hook Moor Wind Farm at Micklefield and the Council's Energy Recovery Facility at Cross Green. 26MW of the total will be provided by a private Energy Recovery Facility at Skelton Grange Road. There have been no planning applications for wind energy development in Leeds since 2015. This follows the Government's 2015 changes to planning policy relating to onshore wind development, combined with the withdrawal of subsidies for renewable energy generation.



Hook Moor Wind Farm, Micklefield

Rationale for an Enhanced Policy Framework

The Government's 2015 changes have meant that our existing Local Plan maps showing the wind resource across Leeds will not be a sufficient basis for the consenting of wind farm applications. Consequently, if Leeds is to give any further consents for wind turbines the wind speed map in the Core Strategy will need to be replaced with a map showing areas with potential for wind energy development, which would then be shown on the Policies Map. A similar approach could be taken for solar farms. This approach would ensure that Leeds was maximising opportunities for local

renewable energy generation and reduce reliance on fossil fuels ahead of the Government's plans for decarbonisation of the grid by 2050.

Consideration should be given as to whether local renewable generation is the right option for Leeds as projects such as the wind farm at Hornsea provide far more renewable energy than could ever be generated locally. However local renewable energy generation helps Leeds to be more energy secure, it avoids the inefficiencies associated with loss of energy during its transmission (which is greater the further it has to go), it creates local jobs and it can provide opportunities for community benefits. Furthermore local renewable energy generation, such as solar farms, may provide opportunities for new developments to be directly powered by them and therefore achieve zero carbon in their operational energy use.

Defining an area where there are opportunities for renewable energy generation helps to guide energy providers to the most appropriate locations and reduces speculative applications. It will help the Council to meet its climate emergency commitment by providing local sources of zero carbon energy which can be used to power industry, homes and business in the district and will be a helpful step towards providing spatial guidance for any central government decarbonisation agenda.

Proposed Policy Options

As part of the Local Plan Update we are considering possible options for renewable energy generation in Leeds, such as from wind and solar farms. There is no requirement for Local Authorities to set targets for renewable energy generation, and with national efforts to decarbonise the electricity grid, it may be considered that such an approach would be unnecessary. In such a scenario it may still be beneficial to set policies for how applications for renewable energy would be assessed. Alternatively, by setting targets, we could also identify suitable areas in the district for different types of renewable energy.

The NRWLP currently includes a criteria based policy that we use for assessing wind farm applications but a similar policy may also be beneficial for other large scale energy generating facilities which have similar issues to those of wind farms. The wind farm policy could therefore be expanded to cover solar farms and energy storage.

Consultation Questions

9. Do you consider that Leeds should set targets for different types of local renewable energy generation?

10. Do you have any views about where facilities for local renewable energy generation, such as wind and solar farms, should be located?

HEAT NETWORKS

Background

Leeds City Council and its partners Vital Energi are constructing a heat network, via underground pipes, around Leeds City Centre which re-uses the heat produced from the Recycling and Energy Recovery Facility (RERF) to supply a low carbon form of heat in the urban area to local homes and businesses. When complete, the network will connect nearly 2,000 homes and businesses providing low carbon heat and hot water, equating to a saving of 11,000 tonnes of carbon emissions per year.

Current Policy Position

Core Strategy Policy EN4 asks for developments to connect into the heat network where possible and, in areas that are too far away from the heat network, to create a new district heat network serving the development. In all cases development should be designed to be ready to connect to a future heat network. This policy has been successful and is addressed by developers. The current network is shown on the map in Appendix 1. The Local Development Order for the district heating network is currently being reviewed and will be formally consulted on later in 2021.

Rationale for an Enhanced Policy Framework

However, in most cases the outcome is that developments are designed so as to be ready for connection to a future heat network, rather than being connected to the existing network or a new network. We want to further encourage the use of heat networks by identifying the opportunities for new development to connect in a Heat Networks Supplementary Planning Document (SPD) to which Policy EN4 would be the 'parent' policy. This would bring planning policy on heat networks together in one place.

Proposed Policy Options

Given the relative success of the heat network it may be considered unnecessary to update existing policies. Alternatively, it might be beneficial to supplement the existing heat networks policy with a detailed SPD to help match up heat networks with potential customers.

Consultation Questions

11. Would you like to see more connections made to the heat network or are there other more effective ways to reduce emissions?

ENERGY STORAGE AND DISTRIBUTION

Background

Electricity storage means a generating station, or any part of a generating station that generates electricity from stored energy. These are often large, industrial looking buildings that would need to be carefully sited to avoid amenity issues for neighbouring uses. Stored energy is energy that is converted from electricity, and then stored for the purpose of its future reconversion into electricity. This covers a wide range of electricity storage technologies. It can support the use of low carbon technologies, reduce the overall costs of operating the system and help avoid or defer costly reinforcements to the networks.

Renewable energy can sometimes result in energy being produced when it is not needed and therefore can be lost. Energy storage can help reduce this loss by storing this energy for future use. Whilst storage can take a number of different forms, the most commonly used for electricity is the chemical battery. Storage has the following benefits:

- Storage of renewable energy for use later when it's needed
- Provide backup power when blackouts occur
- Provide voltage stabilisations or other grid balancing services.

Electricity storage is already being deployed across Great Britain and there is currently around 3GW of storage on the system, the vast majority of which is pumped hydro (BEIS, 2019). National Grid's Future Energy Scenarios (FES) predict that between 12-29GW of electricity storage could be deployed by 2050. It is very likely that Leeds will need to provide some energy storage within the district, particularly to help manage the supply that is generated from renewable energy generating facilities which might not be constantly producing at times of need.

Areas suitable for energy storage need to be within good proximity to the grid at locations where the sub station has capacity for the connection. Proximity to a power generation source is also useful. Industrial areas offer good potential especially if sites have poor accessibility so as to reduce the impact on the more accessible sites in the employment land supply. The Northern Powergrid map of sub stations in the district can be viewed from this link:

<https://www.northernpowergrid.com/generation-availability-map>

HYDROGEN

In addition to electrical energy storage, the storage and distribution of hydrogen can play a key role in enabling the UK economy to achieve net zero. It can provide a source of energy for domestic heating, heavy transport, aviation and industrial processes. In order for hydrogen to fulfil this role, it would require Britain's gas network companies to transition from natural gas to hydrogen. A plan that would allow this can be found in

Britain's Hydrogen Network Plan⁷. This plan identifies the role that planning should perform in order for this transition to occur:

The planning system will need to be able to accommodate a large volume of applications for hydrogen production, storage, pipeline and other facilities.

In order for applications to be determined quickly and efficiently, one option is for the Council to identify areas or list criteria where hydrogen infrastructure is appropriate such as in areas of existing industry or near major transport hubs.

Current Policy Position

There is currently no guidance in the Local Plan against which to consider planning applications for energy storage. The Government has committed to providing some planning guidance on this issue but it is not yet available.

Rationale for an Enhanced Policy Framework

Given that there are currently no policies within the Local Plan on this topic we believe that a new local policy would be beneficial. This could include a target to establish how much energy storage is needed in the district. This will mean that once the target is met, applications in the green belt will no longer be able to demonstrate very special circumstances to justify approval for what is inappropriate development in the green belt.

The Aire Valley Leeds Area Action Plan (AVLAAP) acknowledges the growing need for energy storage and identifies that some of the industrial parts of the Aire Valley may offer potential locations given the nature of sites and locations available within industrial areas such as Cross Green and Stourton, particularly sites which are otherwise difficult to develop for employment or other uses. There may be other similar industrial areas in the district that offer a suitable location for such infrastructure. Energy storage proposals will need to be subject to other planning considerations such as visual amenity and impact on adjoining uses and the landscape setting.

Proposed Policy Options

Whilst there is no requirement to set policies on energy storage and distribution, it may be considered beneficial to introduce one. This policy could set a target for energy storage and identify suitable areas for it, including hydrogen. Or alternatively, it could identify suitable areas for energy storage (including hydrogen) without setting a target.

Consultation Questions:

12. Do you think that a new policy is required to guide the location of energy storage proposals, including electricity and hydrogen?

13. Do you think that a target should be set for the amount of energy storage in Leeds?

⁷ <https://www.energynetworks.org/industry-hub/resource-library/britains-hydrogen-network-plan.pdf>

APPENDIX 1: Map of District Heating Network (source Local Development Order 2017)

