Local Plan 2020-2040

Renewable Energy Topic Paper

(Preferred Options Stage)

Contents

1. Policy Context

European

1.1 Whilst the UK is no longer part of the European Union (EU), EU legislation as it applied to the UK on the 31 December 2020 is now part of the UK domestic legislation, under the control of the UKs Parliaments and Assemblies. As such EU law still applies to the UK.

European Green Deal

1.2 The European Green Deal (https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en) sets out how the EU will become a modern, resource-efficient and competitive economy ensuring:

- No net emissions of greenhouse gases by 2050;
- Economic growth decoupled from resource use; and
- No person or place left behind.

1.3 The European Green Deal does not apply in the UK except to the extent that its provisions were incorporated into UK law before 31 December 2020. Under the withdrawal agreement the UK is committed to non-regression (i.e. not weakening commitments as the stood at 31 December 2020) and the withdrawal agreement also includes a mechanism for ensuring a continuing level playing field.

European Climate Law

1.4 The European Climate Law (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32021R1119) writes into European law (but not UK law as it post-dates 31 December 2020) the goal set out in the European Green Deal for Europe's economy and society to become climate-neutral by 2050. The law also sets the intermediate target of reducing gas emissions by at least 55% by 2030 compared to the 1990 levels. The Climate Law sets out:

- A legal objective for the Union to reach climate neutrality by 2050;
- A 2030 climate target of at least 55% reduction of net emissions of greenhouse gases as compared to 1990;
- A process for setting a 2040 climate target, taking into account an indicative greenhouse gas budget for 2030-2050 to be published by the Commission;
- A commitment to negative emissions after 2050;
- The establishment of European Scientific Advisory Board on Climate Change, that will provide independent scientific advice;
- Stronger provisions on adaptation to climate change;

- Strong coherence across Union policies with the climate neutrality objective; and
- A commitment to engage with sectors to prepare sector-specific roadmaps charting the path to climate neutrality in different areas of the economy.

National

Energy Act 2013

1.5 This Act (https://www.legislation.gov.uk/ukpga/2013/32/contents/enacted) establishes the legislative framework for delivering secure, affordable and low carbon energy. The framework includes:

- Decarbonisation: a target date of 2030 for the decarbonisation of the electricity sector.
- Electricity Market Reform: specific measures to attract £110 billion investment to replace current generating capacity and upgrade the grid by 2020.
- Nuclear regulation: the interim Office for Nuclear Regulation becomes statutory as the body to regulate the safety and security of the next generation of nuclear power plants.
- Government pipeline and storage system: the Act enables the sale of the Government Pipe-Line and Storage System.
- Strategy and policy statement: ensures that the Government and Ofgem are aligned at a strategic level.
- Consumer Protection.

The Ten Point Plan for green industrial revolution

1.6 To put us on the path of net zero by 2050, the 10 Point Plan (https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution) aims for at least a 68% reduction in greenhouse gas emissions by 2030 when compared to the 1990 levels. The 10 Point Plan sets out ten points to achieve this reduction, with the following points related specifically to renewable energy:

1. Offshore wind: Producing enough offshore wind to power every home, quadrupling how much we produce to 40 Gigawatts (GW) by 2030, supporting up to 60,000 jobs.
2. Hydrogen: Working with industry aiming to generate 5GW of low carbon hydrogen production capacity by 2030 for industry, transport, power and homes, and aiming to develop the first town heated entirely by hydrogen this decade.

Energy White Paper: Powering our net zero future

1.7 The White Paper (https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future) sets out how the UK will clean up the energy system and reach net zero emissions by 2050. It builds upon the 10 Point Plan by setting out a strategy for the wider energy system that:

- Transforms energy;
- Supports a green recovery; and
- Creates a fair deal for consumers.

1.8 The paper sets out in more detail commitments on the above three objectives. The commitments specifically related to energy are:

- Generating 40 GW of offshore wind by 2030;
- Supporting the deployment of Carbon Capture, Usage and Storage (CCUS) in four industrial clusters;
- Establishing a new UK Emissions Trading System;
- Aiming to bring at least one large-scale nuclear project to the point of Final Investment Decision;
- Consulting on whether it is appropriate to end gas grid connections to new home being built from 2025;
- Growing the installation of electric heat pumps; and
- Building world-leading digital infrastructure for our energy system.

Planning and Energy Act 2008

1.9 This act (https://www.legislation.gov.uk/ukpga/2008/21/contents) sets out the powers for Local Authorities to require a proportion of the energy need related to new development to be sourced in the locality of the development through renewable energy

National Planning Policy Framework (NPPF) 2021

1.10 Whilst the NPPF (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf) is guidance and not statute, it is an important document that supports sustainable development and states that the planning system should support the transition to a low carbon future.

1.11 The NPPF states that local plans should support community-led initiatives for renewable and low carbon energy, Paragraph 158 of the NPPF sets out that when determining planning applications, local authorities should:

- Not require applicants to demonstrate the overall need for renewable or low carbon energy and to recognise that even small-scale projects

provide a valuable contribution to cutting greenhouse gas emissions (Paragraph 154a); and

- Approve the application if the impacts are (or can be made) acceptable (Paragraph 158b).

1.12 Paragraph 158b is, however, caveated with footnote 49, which states: “Except for applications for the repowering of existing wind turbines, a proposed wind energy development involving one or more turbines should not be considered acceptable unless it is in an area identified as suitable for wind energy development in the development plan; and, following consultation, it can be demonstrated that the planning impacts identified by the affected local community have been fully addressed and the proposal has their backing”.

1.13 Paragraph 158b and Footnote 49 essentially incorporates into national policy the provisions of the Written Ministerial Statement (WMS), relating to planning for wind turbine development that was issued by the Secretary of State for Communities and Local Government on 18 June 2015. This WMS stated that local planning authorities should only grant planning permission for proposals for wind energy development if the development site is in an area identified as suitable for wind energy development as identified in a Local or Neighborhood Plan.

1.14 In identifying potentially suitable areas for wind energy development, the Planning Policy Guidance (PPG) states that there are no hard and fast rules about how suitable areas for renewable energy should be identified, but in considering locations, local planning authorities will need to ensure they take into account the requirements of the technology and, critically, the potential impacts on the local environmen.. The views of local communities likely to be affected should also be listened to.

1.15 In terms of technical considerations relating to the siting of wind turbines, the PPG gives the following examples:

- Site size;
- Proximity of grid connection infrastructure;
- Predicted wind resource;
- Air safeguarding;
- Electromagnetic interference; and
- Access for large vehicles.

Local

Stafford Borough Corporate Business Plan (2021-2024)

1.16 The three year plan (https://www.staffordbc.gov.uk/corporate-plan) sets out how the council will deliver and sustain economic growth, respect the environment, support communities and ensure that the borough is a great place to live, work and visit. Within this plan, Objective 3 states:

"To tackle climate change by implementing our Climate Change and Green Recovery objectives."

1.17 Within the next three years to meet this object, the plan states that the council will:

- Reduce emissions from the councils own activities;
- Work in partnership with Government Elected Bodies, Elected Members, Public and Voluntary Sector Partners, Residents and Businesses across the borough to take action that contributes to carbon neutrality and sustainable development within communities across the natural environment;
- Mitigate and adapt to climate change; and
- Implement council green recovery objectives.

Stafford Borough Climate change and Green Recovery Strategy 2020-2040

1.18 This strategy (https://www.staffordbc.gov.uk/Climate-Change-and-Green-Recovery) sets out how the council aims to recover from the effects of the Covid-19 pandemic to achieve a more sustainable borough by protecting and enhancing the environment. The Strategy has the same four objectives as within the Corporate Business Plan.

Staffordshire Climate Change Adaption and Mitigation

1.19 AECOM was commissioned to provide technical support to develop an evidence base for new energy and sustainability policies being considered for Staffordshire County Council and its eight constituent Local Authorities, and produced the 'Staffordshire Climate Change Adaption and Mitigation' report (https://www.staffordbc.gov.uk/sites/default/files/cme/DocMan1/Planning%20Policy/New%20Stafford%20Borough%20Local%20Plan%202020-2040/Evidence%20Base%20Documents/Staffordshire_Final%20Report_Rev03%20%28Updates%29_2020-10-16_Accessibility_Comp....pdf).

1.20 The report summarises the findings with respect to sustainability-focused interventions that the Local Authorities should consider as part of their emerging Local Plans. The report is supported by the Baseline Report and should be read in conjunction with one another.

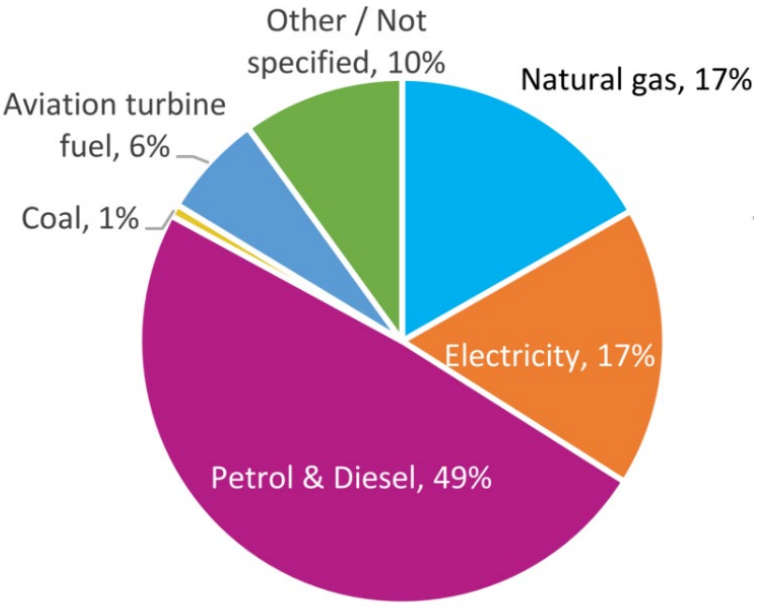
2. Local Context

CO_2 Emissions

2.1 The area defined as Stafford borough has the highest emissions overall of all the Staffordshire authorities with 1,113 kilo tonnes of CO_2 equivalent per year. This high level of emissions is due to the use of petroleum products (primarily associated with road transport), which represents nearly 50% of all emissions within the borough.

2.2 Figure 1 shows Stafford Borough's Green House Gas Emissions, taken from Climate Change Adaptation & Mitigation: Stafford Summary produced by Aecom in 2020. (https://www.staffordbc.gov.uk/sites/default/files/cme/DocMan1/Planning%20Policy/New%20Stafford%20Borough%20Local%20Plan%202020-2040/Evidence%20Base%20Documents/Stafford%20Policy%20Summary%20Addendum_Final_2020-09-11.pdf)

Figure 1: Stafford Borough's Green House Gas Emissions



2.3 In 2020, 238.1 Gigawatt hours (GWh) were consumed in the domestic setting within the borough (https://www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics).

2.4 Whilst Stafford borough has the highest emissions overall of all the Staffordshire authorities, we also have the highest number (2,395) of low / zero carbon installations for electricity.

Fuel Consumption

2.5 In 2018 the total fuel consumption for Stafford borough was approximately 3,851 Gigawatt hours (GWh). The largest proportion of fuel consumed was petroleum products, as shown in Table 1.

Table 1: Fuel consumption within Stafford Borough

Fuel Type	Industrial and Commercial (GWh)	Domestic (GWh)	Road Transport (GWh)	Rail (GWh)	Other (GWh)	Total (GWh)
Coal	7.1	11.9	-	-	0.8	19.7
Manufactured Fuels	1.1	7.4	-	-	-	8.5
Petroleum Products	103.0	83.9	1893.6	7.4	79.0	2,166.8
Gas	336.3	714.9	-	-	-	1,051.2
Electricity	350.1	221.6	-	-	-	571.7
Bioenergy and Waste	-	40.2	-	-	-	10.2
Total by sector	**797.6**	**1,079.8**	**1,893.6**	**7.4**	**79.8**	**3,858.1**

2.6 The baseline Scope 1, 2 and 3 Greenhouse Gases (GHG) emissions in Stafford are estimated to be 1,112.86 kilo tonnes of carbon dioxide equivalent ($ktCO_2e$). Of this total, Scope 1 and 2 emissions (i.e. those associated with fuel consumption and electricity used within the area boundary) account for roughly 964.76 $ktCO_2e$. Table 2 shows the Greenhouse Gas emissions for each source of emission.

Table 2: Greenhouse Gases emissions

Source of emissions	Natural Gas (tCO_2e)	Electricity (tCO_2e)	Petrol and Diesel (tCO_2e)	Coal (tCO_2e)	Other / Not specified (tCO_2e)	Scope 3 emissions (tCO_2e)	% of total
Road transportation	0	0	480,827	0	0	0	43%
Residential buildings	126,153	80,084	20,003	4,288	769	39,685	24%
Institutional buildings and facilities	23,210	62,661	15,690	0	0	15,848	11%
Industrial buildings and facilities	20,628	36,323	3,810	4,110	0	11,089	7%
Commercial buildings and facilities	16,598	12,400	4,056	0	0	5,772	3%
Aviation	0	0	0	0	70,875	0	6%
Wastewater	0	0	0	0	8,361	0	1%

Source of emissions	Natural Gas (tCO_2e)	Electricity (tCO_2e)	Petrol and Diesel (tCO_2e)	Coal (tCO_2e)	Other / Not specified (tCO_2e)	Scope 3 emissions (tCO_2e)	% of total
Agriculture*	1	1	18,261	0	0	4,359	2%
Rail	0	0	1,987	0	0	474	<1%
Livestock	0	0	0	0	21,333	0	2%
Waste disposal	0	0	0	0	3,178	0	<1%
Misc.	0	0	19	0	0	5	<1%
Percent of total (%)	17%	17%	49%	1%	9%	7%	

* Note: for most districts, this category comprises agricultural off-road transport / machinery; the SCATTER methodology does not explain the use for natural gas or electricity reported here for Stafford.

Existing Installations

2.7 Stafford borough's main renewable energy comes from photovoltaic, which is the conversion of light into electricity done predominantly through solar panels. The council itself has installed solar panels on the roof of the Civic Centre, which in its first year (2011) exceeded a CO_2 reduction of 34 tonnes. In 2013 a further 198 panel solar array was installed at Riverway Nursery (https://www.staffordbc.gov.uk/solar-power-case-studies).

2.8 Further Low / Zero Carbon (LZC) energy technologies installed within the borough are set out in Table 3. Information taken from the Climate Change Adaptation & Mitigation: Baseline Report produced by Aecom in 2020.

Table 3: Existing Low / Zero Carbon Energy Technologies within Stafford Borough

Technology	Total installations	Installed Capacity (Megawatt, Mw)	Total Generation (Megawatt hour, Mwh)
Photovoltaic (PV)	2376	11.9	8
Onshore Wind	11	2.0	4260
Hydro	1	<0.1	8
Anaerobic digestion	4	1.8	9,281
Sewage gas	1	0.2	1,060
Landfill gas	1	1.7	4,353
Plant biomass	1	2.9	10,832
Total	**2395**	**20.4**	**41,390**

2.9 The biomass plant at Eccleshall was a pioneer plant as it was one of the first dedicated bio-energy power plants in the UK. This plant has a 2.6 megawatt generator, which is fueled by miscanthus, other energy crops and clean wood chip. The plant generates enough electricity to run 2,600 homes and contributes 20,000 megawatt hours of renewable energy directly to the network (source: https://www.eccleshallbiomass.co.uk/).

Capacity

2.10 An element that must be taken into account when considering new renewable energy installations is the ability to connect into the electrical grid. Western Power Distribution has produced a network capacity map for each local authority, in terms of Stafford borough the capacity can be seen in Table 4 (source of data: https://www.westernpower.co.uk/our-network/network-capacity-map-application). It illustrates that all, except the Simplex station, have less than 10% total site capacity available. Whilst this does not prevent connection, early discussions with Western Power Distribution must occur.

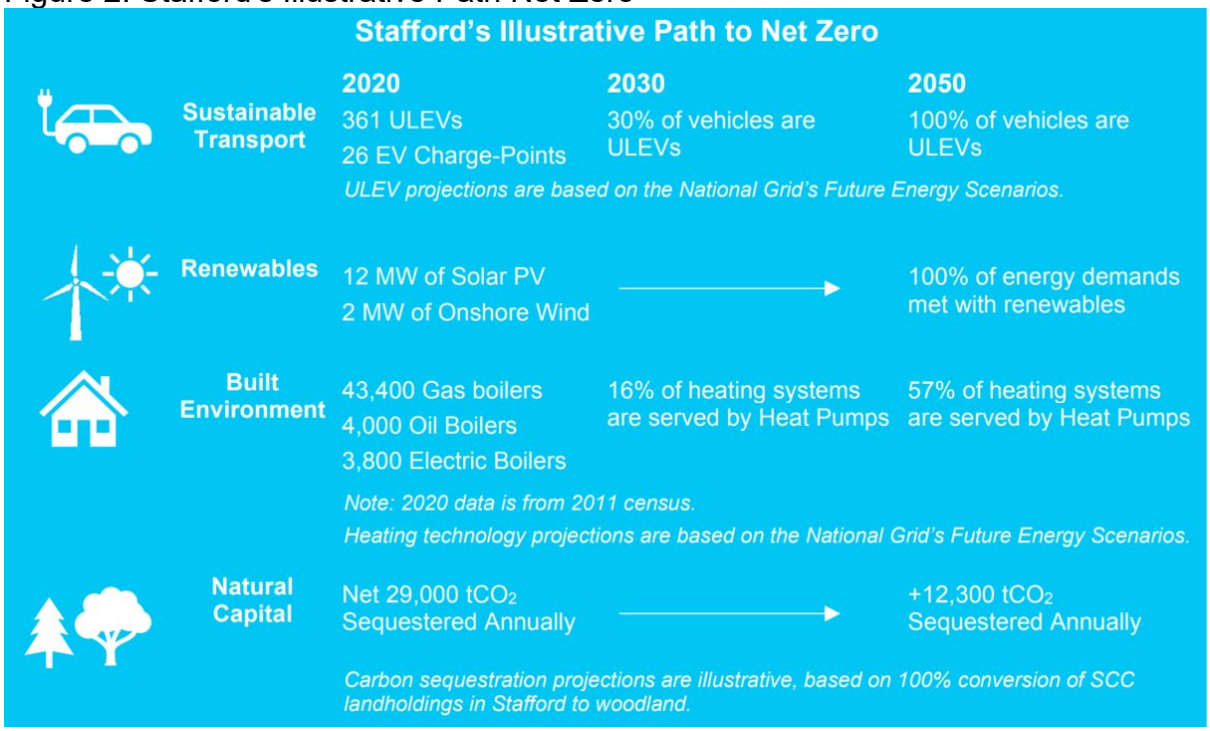
Table 4: Network Capacity within existing stations

Transformer site	Station Type	Capacity available
Meaford	Bulk Supply Point	Less than 5% total site capacity still available
Cotes Heath	Primary	Less than 10% total site capacity still available
Eccleshall	Primary	Less than 10% total site capacity still available
High Offley	Primary	Less than 10% total site capacity still available
Gnosall	Primary	Less than 10% total site capacity still available
Stafford	Bulk Supply Point	15% total site capacity still available
Stafford (South)	Bulk Supply Point	15% total site capacity still available
Simplex	Primary	20% total site capacity still available

Path to Net Zero

2.11 The AECOM Climate Change Mitigation and Adaptation report produced a summary for each authority for how they can reach net zero, shown in Figure 2. This was done through an illustration showing a path towards net zero. The below illustration shows the illustrative path for Stafford Borough.

Figure 2: Stafford's Illustrative Path Net Zero



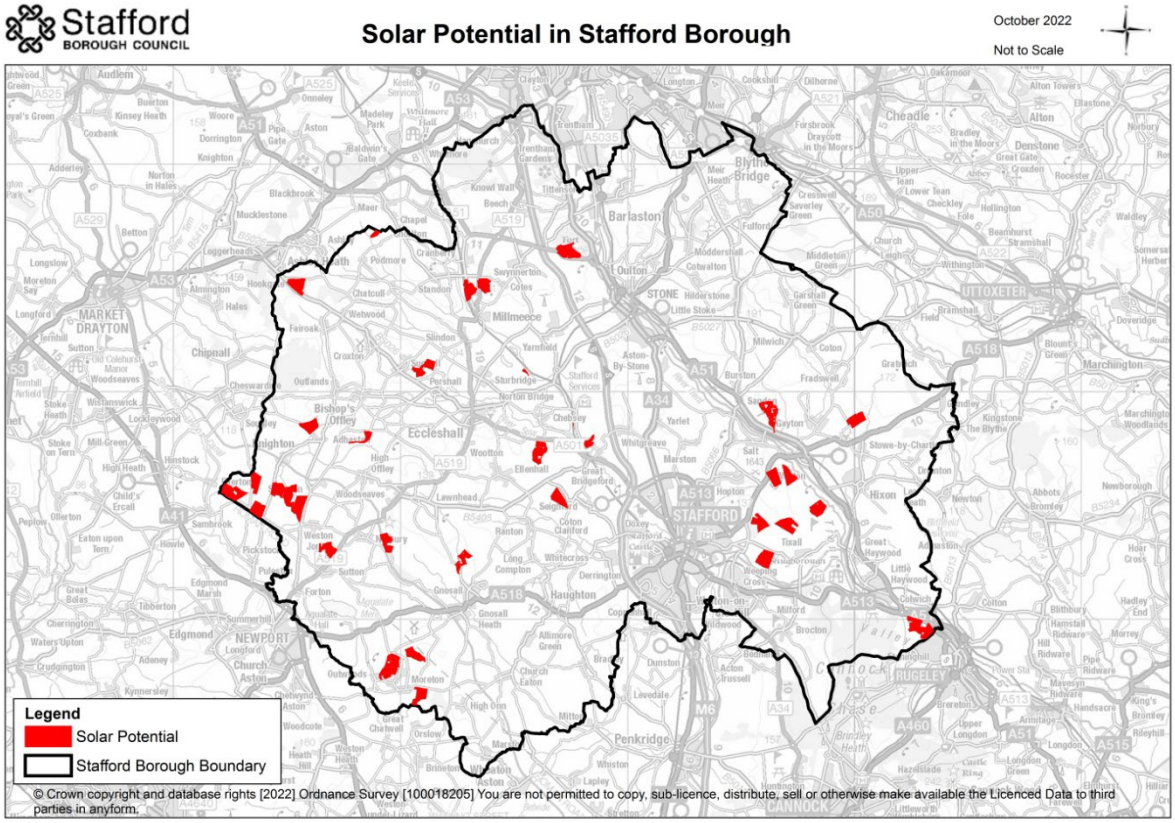
3. Strategic Renewable Energy installation locations

3.1 Stafford Borough Council has undertaken an analysis of the most suitable siting of strategic wind and solar installations, and potential locations for both have been identified. The following maps have been produced for both strategic solar and wind sites. Please note the maps show the potential locations which were identified as the most suitable for the siting of strategic wind and solar installations, and do not constitute a proposed allocation.

3.2 Solar sites require locations to be 30 acres or more in size, to allow for a 5 megawatt (MW) solar farm, considering room for panels, shading and hardware for the site.

3.3 A total of 36 solar sites were identified, with 32 sites having the potential to come forward. Figure 3 below shows the locations of these sites.

Figure 3: Potential solar sites in Stafford Borough



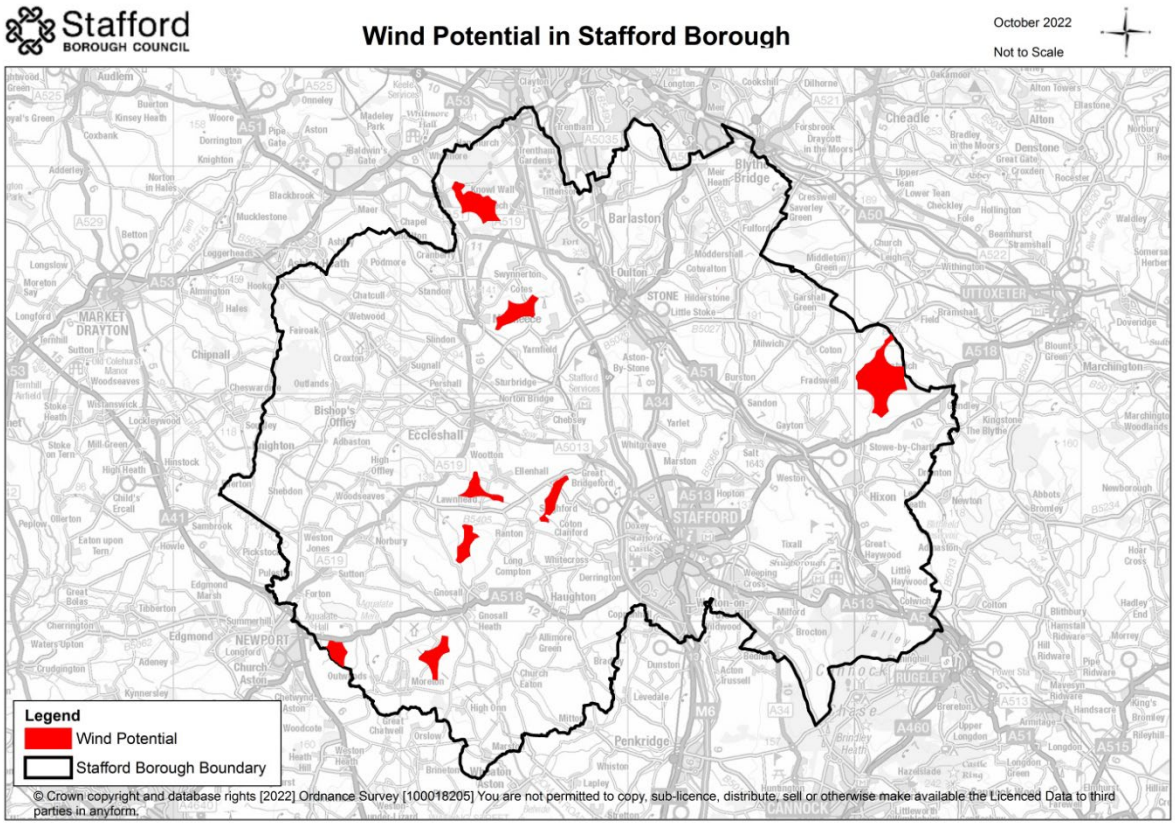
3.4 Sites were put forward in the 2010 Camco study (https://www.staffordbc.gov.uk/sites/default/files/cme/DocMan1/Forward%20Planning/Examination%20Library%202013/D45--STAFFORDSHIRE-COUNTY-WIDE-RENEWABLE-LOW-CARBON-ENERGY-STUDY.pdf) which applied GIS layers related to:

- Wind speed;
- International, national and local designations for heritage;
- International, national and local designations for landscape;
- International, national and local designations for ecology;
- Designations for archaeology;
- Space requirements;
- Air safeguarding and radar constraints from MOD and civil aviation interests;
- Electromagnetic interference to communications radar; and
- Other i.e. steep terrain of more than 20 degrees.

3.5 This allowed an analysis of the sites which would be suitable for large scale wind energy, where large is assumed to mean developments using turbines greater than 1MW. By applying these layers constraints sites where land characteristics / designations would be a firm constraint to wind development were identified and removed.

3.6 12 sites were identified as suitable for multiple wind turbine installations. Figure 4 below shows the locations of these sites.

Figure 4: Potential wind sites in Stafford Borough



4. Issues and Opportunities

4.1 There are a variety of issues in relation to renewable energy at both the national and local scale. However, there are also a range of opportunities to help address and mitigate these issues.

Issues

4.2 The issues related to renewable energy for Stafford Borough are the same as those identified nationwide. Planning policy can influence the requirement to install renewable energy within the built environment where appropriate, and can encourage the development of strategic renewable energy sites.

4.3 Specific issues are:

- Lack of national requirement for renewable energy.
- High initial cost of installation / lack of subsidies to encourage medium to large scale installation.
- Lack of capacity on the grid.
- Lack of power storage at affordable cost – the intermittency of sunshine and wind cannot provide an on-demand power source 24

hours a day, therefore there has to be storage for when the wind / sun power is unavailable.
- Landowners not willing to bring forward land for renewable energy schemes
- Cumulative impacts arising from a number of single renewable turbine applications.
- Opposition / NIMBYism.

Opportunities

4.4 The new garden community provides an opportunity to design a new settlement that is built upon renewable energy technologies.

4.5 Integration of renewable technologies into the design, siting and layout of developments and promotion of passive solar design principles.

5. Implications of Drivers for Change

5.1 Due to the effects of climate change, there is a need to reduce the use and consumption of fossil fuels and as such increase the use of renewable energy.

- More visible renewable energy technology i.e. medium/large scale solar farms.
- Infrastructure implications in terms of the national grid.

6. Objectives

6.1 The supporting objectives from the Preferred Options are:

- Contribute to Stafford Borough being net zero by ensuring that development mitigates and adapts to climate change and is future proof.
- To deliver infrastructure led growth supported by accessible services and facilities.

7. Issues and Options Consultation

7.1 Responses to Section 4 of the Issues and Options consultation demonstrated that there was a marked divergence of option expressed on the topic of renewable energy, with it being potentially one of the most contentious issues raised.

7.2 There was support for an increase in the use of renewable energy across the borough, but with the caveats that the impacts on the natural and historic environment need to be considered and that the requirements in terms of viability need to be sufficiently evaluated. However, there was no consensus

on how renewable energy should be delivered e.g. as part of new building or as large wind sites.

7.3 The council is aware that the effects on the natural and historic environment need to be taken into considering when assessing renewable applications, and have produced a policy which supports renewable energy schemes when located in suitable locations on the condition that all the policy requirements are met.

8. Policy

8.1 In order to address the effects of climate change a proactive approach to renewable and low carbon energy has been taken. As this topic paper sets out there are opportunities to increase the use of renewable energy not only within the built environment but also via strategic medium / large scale sites.

POLICY 4: Climate change development requirements

A. Proposals must demonstrate that all resources are used efficiently, as part of the construction and operation of a building. All major development should set out how embodied emissions have been taken into consideration through the production of an embodied carbon assessment.

Net zero operational energy: residential

B. In order to demonstrate net zero carbon operational energy, all new dwellings must demonstrate through an energy statement, that the following have been achieved:

    1. No on-site fossil fuel combustion;

    2. Energy use is minimised, demonstrated through space heating demand of less than 15kWh/m^2/year and operational energy use of less than 35kWh/m^2/year; and

    3. On-site renewable generation is maximised, equivalent to at least the on-site energy demand.

Alternatively, compliance can be demonstrated through Passivhaus Standard accreditation, using the Passivhaus Planning Package.

Net zero operational energy: non residential

C. In order to demonstrate net zero carbon operational energy, all new major non-residential development must demonstrate through an energy statement, that the following have been achieved:

    1. No on-site fossil fuel combustion;

    2. Energy use is minimised appropriate to the end use;

    3. On-site renewable energy generation is maximised, equivalent to the on-site energy demand; and

Alternatively, compliance can be demonstrated by using BREEAM Excellent level accreditation, with outstanding level for energy use (Credit Ene01) or through an alternative compliance route with prior agreement.

D. Residual energy demand for new residential and non-residential buildings should be met through onsite renewable energy schemes, but if this is not technically feasible, the requirement may be met elsewhere by means of offsite renewable energy generation. Where this is the case, the development proposal must demonstrate how additional renewable energy generation is procured to make up the on-site shortfall in generation. The offset mechanism will require agreement with the council.

Other requirements

E. Development must also:

    1. Incorporate water efficient features and equipment into all new residential development to achieve a maximum water usage of 110 litres per person per day;

    2. Follow the principles of the energy hierarchy; and

    3. Demonstrate through the energy statement and/or design and access statement (where applicable) that opportunities to incorporate sustainable design features where feasible (such as rainwater harvesting and greywater recycling, green roofs, maximising use of recycled materials, orientating buildings to optimise solar gain) have been maximised.

POLICY 40: Renewable and low carbon energy

A. The policies map identifies areas in which proposal for one or more wind turbines and proposals for solar photovoltaic generation will be supported in principle provided they are in accordance with the following paragraphs of this policy and other policies of this plan.

B. Renewable and low carbon energy infrastructure, excluding proposals for one or more wind turbines to which paragraph C applies, will be supported if the following criteria are met:

    1. The impacts are (or can be made) acceptable; and

    2. The proposal is, where applicable, accompanied by decommissioning details compliance with which will be conditioned to ensure restoration of the site following cessation of energy production.

C. In assessing whether impacts are acceptable under paragraph A.1. in areas where other renewable energy schemes are in operation the cumulative effect of additional developments of this nature will be an important consideration.

D. In accordance with national policy, proposals for one or more wind turbines will be supported only in areas identified as suitable for wind turbine development in this plan or a made neighbourhood plan and for which, following consultation, it can be demonstrated that the planning impacts identified by the affected local community have been fully addressed and the proposal has their backing. This restriction will not apply to applications for the repowering of existing wind farms.