Blythe House Solar Farm

Planning Statement

Novus Renewable Services Ltd

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Executive Summary

Corylus Planning and Environmental Limited was instructed by Novus Renewable Serviced Limited to prepare and submit a full planning application to Staffordshire Moorlands District Council for the installation of a solar farm with battery storage facility, substation and associated works at land at Blythe House Farm, ST10 4JN.

The site comprises approximately 42 hectares located between the A50 and the Derby to Crewe railway line, within Flood Zone 1. The site is predominantly low-grade agricultural land and does not lie within a designated landscape.

The proposed solar panels would have an export capacity of approximately 27.7MWp and the battery store would have an import/export capacity of 30MWp. The site has been chosen primarily due to the availability of a connection to the National Grid.

The potential impacts of the proposed development have been assessed by a range of technical assessments which have demonstrated that it will not be harmful. The proposed development would not increase flood risk on or off the site, it would not result in unacceptable levels of noise and construction vehicles can be satisfactorily managed within the local highway network.

The application has been supported by ecological surveys which have informed a proposed landscape and ecological mitigation scheme. This has resulted in a Biodiversity Net Gain score of 69.88%. The proposed development would not have a harmful impact upon the setting of designated heritage assets and a gradiometer survey has indicated that there is limited archaeological interest within the site.

A Landscape and Visual Impact Assessment has assessed the potential impact of the development upon the character and appearance of the landscape. The provision of new and enhanced hedgerow planting, woodland and scrub planting will, as it matures, reduce the visual impact of the development which in turn will reduce the overall landscape character impact. The overall harm that would result from the proposed development to the character and appearance of the landscape would be limited and would be outweighed by the public benefits of the proposal.

The UK has committed to achieving Net Zero by 2050, and at a local level, following the declaration of a Climate Emergency in 2019, Staffordshire Moorlands Council is proposing to be carbon neutral by 2030 and has set a target of increasing the amount of renewable energy in the District to 318MW by 2030. The proposed solar farm will make a contribution to achieving these targets and the proposed battery store will provide resilience to the National Grid enabling an increased reliance upon renewable sources of energy.

The proposed solar development accords with the objectives of sustainable development as set out within the National Planning Policy Framework. Furthermore, it accords with the policies of the adopted Local Plan, specifically policy SD 2. It should therefore be approved without delay.

Table of Contents

1 Introduction

This planning statement has been prepared on behalf of Novus Renewable Services Limited (the "applicant") to accompany a full planning application for a solar farm on land at Blythe House, Draycott in the Moors, ST10 4JN which is submitted to Staffordshire Moorlands District Council (the "LPA")

The planning statement should be read in conjunction with the technical reports and assessments which have been produced to support the application.

This statement will describe the location and context of the application site and the relevant planning policies. The statement will go on to assess the proposed development against these policies and will consider any relevant material considerations.

2 Site location and context

The application site (hereafter referred to as "the site") is located within open countryside approximately 1.5 km to the south-west of the village of Draycott in the Moors and approximately 2km to the south-east of the village of Upper Tean. The site is positioned between two elements of linear infrastructure. To the north-east of the site is the A50 trunk road and the south-east is the Derby to Crewe railway line.

The site straddles the parishes of Checkley and Draycott in the Moors

The site does not lie within a designated landscape.

The site comprises agricultural (pasture) land and is adjacent to an existing solar farm referred to as "Lower Newton solar farm".

A Public Right of Way (PRoW) "Draycott in the Moors 15" follows the route of the lane to the north-west of the site. PRoW "Draycott in the Moors 14" runs along the western boundary of the site and through the, adjacent, existing solar farm. At the parish boundary, this PRoW is known as "Checkley 7" and continues in a south-easterly direction towards Blythe House. PRoW "Checkley 5" follows the route of an existing farm track at the eastern boundary of the site. It crosses PRoW "Checkley 5" before joining with PRoW "Checkley 15" just to the north of the railway line. A plan of the PRoWs can be found within the accompanying Design and Access Statement.

There is an overhead 132kV kv electricity line which crosses the site east to west towards the south of the site.

3 The proposed development

3.1 Solar panels

3.1.1 The Technology

Solar farms generate electricity from sunlight using photovoltaic panels. The panels are mounted on to a framing system which is fixed into the ground. The panels are dark in colour and tilted to absorb as much light as possible. Although the reference is to "sunlight", the panels actually absorb daylight (i.e visible light) so will continue to generate electricity, even on a cloudy day.

Electricity generated by the panels is in Direct Current (DC) form and converted to Alternating Current (AC) form by inverters. Voltage is stepped up by transformers within the solar farm. From these, the electricity flows through underground cabling to a client substation and then to the Distribution Network Operator (DNO) substation to be exported to the local grid network.

Solar farms are now a relatively common feature within the landscape and will increasingly become so as traditional fossil fuelled electricity generation is replaced by renewables. The development of solar farms in the UK was stimulated over the period 2011-2017 by the availability of Government subsidies. These are no longer available, but new solar farms are viable without them due to improvements in technology which has resulted in more efficient, longer lasting panels.

3.1.2 The Proposed Solar Farm

The layout of the proposed solar farm is shown on plan number BF/315/16 Rev F. The proposed solar farm will be adjacent to the existing solar farm but will not be operated as an extension to that solar farm.

The solar panels will have a maximum height of panels above ground of 3.1 m and the angle of tilt approximately 20-25 degrees.

String inverters will be sited to the rear of the panels and there will be eight pairs of transformer structures located towards the western boundaries of both compartments.

The substation will be located within the western compartment and electricity from the solar farm will be exported to the Grid via a connection to the existing overhead electricity line.

Three shipping container type structures will be located at the site and will be used for the storage of spare components and equipment required for the on-going management and maintenance of the site when it is operational.

The installation will be fenced to a maximum height of 2 metres with deer fencing, including openings to allow wildlife travel into and across the site. The site will be monitored by CCTV mounted on poles and no external lighting is proposed. Examples of the supporting infrastructure can be found within the accompanying Design and Access Statement.

3.2 Battery Storage

3.2.1 The Technology

Renewable sources of electricity are becoming increasingly important to enable net zero targets for carbon emissions to be met. However, renewable electricity generation, such as solar and wind power is intermittent. Therefore, to deliver a consistent supply of electricity to homes and businesses, energy storage will be required to compliment the energy mix.

There are a number of methods by which energy can be stored and exported to the grid, but battery storage is one of the cheapest and least impactful options available in the UK. It is one of the most frequently used technologies and the efficiency of batteries is constantly improving. In simple terms, battery storage works by importing electricity from the distribution network, or by charging directly from a renewable generator (when co-located with a solar park) at times of low demand.

The electricity is then stored within the battery modules (usually lithium-ion batteries as proposed within this application). The stored electricity is exported to the distribution network at times of high demand.

Within the proposed development, the battery modules will be stored within container type structures, arranged within a racking system with an internal monitoring and fire suppression system. Each container will have a heating, ventilation and air cooling (HVAC) unit.

Battery storage is relatively simple to install as the containers themselves are delivered ready assembled onto site.

An alternative to battery storage is peaking plants (also known as spinning/operational reserve). They are effectively backup generators that come online at times of peak demand, but these have no storage/import ability, just the ability to export and are therefore simply standby systems. Many are coming to the end of their operational life and being fossil fuel driven are less desirable for future use and are unlikely to be replaced by similar technology.

Another alternative to battery storage is flywheels or gravity storage. These are not yet deployable on any scale within the UK. The UK grid system has had a number of pumped hydro and thermal storage systems that have been available for decades, but no new facilities like these have been built for some time.

Battery storage is therefore the most straightforward form of energy storage, which avoids additional reliance upon fossil fuels and significant, often irreversible, engineering works.

By the end of 2019, UK battery storage capacity had topped 900MW and the technology has improved greatly in recent years. The drive for electric vehicles has meant huge investment into battery technology, vastly improving performance and reducing price. It is a safe and mature technology.

Battery as a grid connected storage is therefore competitive and widely available. Relative to their size, batteries have high storage density, they take up relatively little space, are flexible, easy to build and therefore have minimal environmental impact. Battery storage facilities have the ability to react with sub-second response times that many technologies do not, which is beneficial for the grid.

3.2.2 The Proposed Battery Storage Facility

The battery storage facility will be located towards the north-eastern boundary of the site, and to the north of the existing solar farm. It will comprise:

- Sixteen pairs of storage containers sited on concrete plinths either side of a Power Conversion Systems (total of 32 containers)
- Two auxiliary transformers
- Palisade fencing

The battery storage facility will be monitored remotely, 24 hours a day. Each battery cell will be monitored for mechanical conditions (temperature) and electrical parameters (voltage, current, state of charge, etc.) and there are fail-safe procedures in place in the unlikely event that a cell malfunction was to occur. This provides extremely high levels of protection for the battery and surrounding environment. In summary, the following levels of protection are designed into the system:

- In the event that the temperature of a cell exceeds the normal operating threshold, then the battery operation is automatically stopped to interrupt any current flow.
- Electrical isolation of a module can be realised by opening the DC contactors;
- An internal fuse to each battery cell protects against over current and thermal run-away;
- An over-charge safety device on each cell interrupts the charging current above a specific threshold; and
- As a last resort, and in the very unlikely event that pressure in a battery cell increases despite the previous controls, then a safety vent (located at the top of the cells) would open to release the pressure. The gas release would not lead to any material leaking.

The design of the facility provides the appropriate spacing between each battery unit.

3.2.3 Substation

A substation is required on site and will be the main point of connection between the solar farm and the National Grid. It includes a 'switch' mechanism to shut the Solar Installation off from the network in the event of a fault (much like a household fuse box). The substation compound will house the switch room, transformers, capacitor banks, relay rooms and storage area, within palisade security fencing.

3.3 Construction, operation and decommissioning

To assist in providing a flexible decision it is requested that a five-year implementation period is attached to the decision notice through condition.

The construction period for the proposed development is expected to take 16 weeks and a Construction Traffic Management Plan has been submitted with the application.

Once operational, the solar farm will require 1-2 visits per month for maintenance. It is envisaged that such trips will be made by cars or small/medium sized vans.

The operational period of the solar farm will be 40 years from the first export of electricity. At the end of this period, the site will be decommissioned. All structures and hard surfacing will be removed, and the land will be restored to agricultural use.

The decommissioning and restoration processes will be controlled by a decommissioning statement to be secured by a planning condition.

3.4 Pre-application advice

Pre-application advice was sought from the LPA in the Spring of 2021 (reference PAD/2021/0014). The proposed development at that time was for a larger site. The response received discussed the requirement to justify the selection of this site including an assessment of brownfield sites and greenfield sites with lower ALC. Advice was also provided regarding the potential impacts of the proposed solar farm upon heritage assets. Unfortunately, the comments of the LPA's Landscape Officer were not provided

The pre-application response included responses from the Environment Agency and the County Council's Rights of Way team. The advice from the latter was followed up in respect of the position of a PRoW according to the definitive maps.

4 Planning policy and legislation

4.1 Moving towards net zero

Carbon dioxide (CO2) is a major contributor to global warming, causing climate change. That is why the Government has committed to reduce carbon emissions. Alarming figures have recently been published[1], demonstrating the impact of global warming upon the UK's climate:

- 2020 was the third warmest year for the UK in a series from 1884, and also the third warmest for Central England in a series from 1659.
- All the top 10 warmest years for the UK in the series from 1884 have occurred since 2002.
- 2020 included the fifth warmest winter (December 2019–February 2020).
- 2020 was the UK's fifth wettest year in a series from 1862, with 116% of the 1981–2010 average and 122% of the 1961–1990 average rainfall.
- 2020 was one of the least snowy years on record.
- 2020 was the eighth sunniest year for the UK in a series from 1919, with 109% of the 1981–2010 average and 113% of 1961–1990 average sunshine hours.

In 2016, the UK signed the Paris Agreement, which is a global agreement between nations to reduce global warming, specifically to keep the increase in global temperature to below 2° C above pre-industrial levels and to pursue efforts to limit the increase to 1.5° C.

The Paris Agreement requires each country to determine, plan and report on the contribution that it takes to mitigate global warming, the Nationally Determined Contribution (NDC).

[1] International Journal of Climatology. Royal Meteorological Society July 2021

In June 2019, parliament passed legislation requiring the government to reduce the UK's net emissions of greenhouse gases by 100% relative to 1990 levels by 2050. Doing so would make the UK a 'net-zero' emitter.

In December 2020, the UK Government communicated its new NDC to the United Nations Framework Convention on Climate Change (UNFCCC). The NDC commits the UK to reducing economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels.

The ambitious target of net zero carbon emissions by 2050, can be achieved, but according to the National Grid publication "Future Energy Scenarios"[2] it requires "*... immediate action across all key technologies and policy areas and full engagement across society and end consumers*". This will include at least 1.4 GW of solar electricity to be built every year from 2020 to 2050.

The government announced a number of policy updates throughout 2020 culminating in a new energy white paper 'Powering our net-zero future'.

The paper follows up on the Prime Minister's ten-point plan for Government investment into green energy with the aim of levering billions of pounds of private investment to support the creation of up to 250,000 jobs by 2030. The White Paper sets out a strategy for a wider energy system that:

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

Amongst the ambitions and targets are headline grabbing measures such as bringing forward the ban on the sale of new petrol and diesel cars from 2030, however the paper recognises the basis of a low carbon net-zero electricity system is crucial in the transition and will be delivered most significantly by wind and solar generation.

The Covid-19 pandemic has generated calls for a "green recovery" and in June 2020, the Climate Coalition[3] wrote to the UK Prime Minster with a plan for a "Green, Fair and Healthy Recovery". This seven-point plan supports:

- A sustainable economic recovery in the UK must promote climate resilient investments and growth in green jobs, including, speeding up development of a zero-carbon power system built to support the cleanest and cheapest forms of energy;
- Accelerate private sector investment in the UK clean energy transition;
- The Net-Zero Rule;
- Protect and restore UK ecosystems and nature-rich green space.

The shift to "Clean Energy" offers an opportunity to ensure that energy costs are fair and affordable. The White Paper identifies that the cost of electricity has traditionally been determined by the underlying price of gas or coal and the intention of the White Paper is that there will be a positive change for consumers as more electricity is generated from renewable sources.

In December of 2020, the climate change committee (CCC) produced its 6th Carbon Budget: UK's path to net zero. This included the following recommendation to Government: "*Local Plans should support renewable energy and low carbon heat. Local Planning Authorities should review Local Plans.*

[2] Future Energy Scenarios. National Grid.ESO. July 2020
[3] https://www.theclimatecoalition.org/greenrecovery

These should include an energy policy that takes a positive and proactive approach to renewable energy generation and storage."

The Government Energy white paper, Powering our Net Zero Future (December 2020) confirms that "*Our energy system is dominated by the use of fossil fuels and will need to change dramatically by 2050 if we are to achieve net zero emissions".* It also confirms that *"Clean electricity will become the predominant form of energy*".

This underlines three key aspects:

- the reliance on electricity as a power source (rather than fossil fuels) will dramatically increase;
- the electricity will be produced from sources with fluctuating supply;
- therefore a significant increase in the deployment of electricity storage will be required.

In April 2021, the UK Government's target to cut emissions by 78% by 2035 compared to 1990 levels was set out in law. This new target is described as being "*one of the most ambitious climate targets in the world*". Six months later, the UK Government committed to decarbonise the country's electricity system by 2035, 15 years ahead of the commitment made in the Energy White Paper.

There is therefore an overwhelming drive, both internationally and nationally, to reduce carbon emissions quickly and efficiently to prevent the devastating effects of Climate Change. In addition to that, there is an ambition that the economic recovery from the Covid-19 pandemic is a green recovery. In October 2021, the Government presented to Parliament the strategy document "Net Zero Strategy: Build Back Greener". This sets out how the Government intends to reach net zero by 2050 and to fuel a "*Green Industrial Revolution*". The publication of this report coincided with the UN Climate Change Conference of the Parties (COP26) held in Glasgow where 120 world leaders committed to phasing down coal. The UK Prime Minister reported to Parliament following COP26 *"...We have, for the first time, a worldwide recognition that we'll not get climate change under control as long as our power stations are consuming vast quantities of the sedimentary super-polluter that is coal*"[4].

Staffordshire Moorlands Council declared a climate emergency on 10th July 2019 and Staffordshire County Council declared a climate emergency on 25th July 2019.The Council has published the Climate Action Plan Part 1, and a Draft Part 2[5]. The Draft Part 2 sets out a Vision that Staffordshire Moorlands will become carbon neutral by 2030. This draft sets out that this will include the generation of renewable energy within the district of 318 MW by 2030.

4.2 Planning Policy

4.2.1 Local Plan

The starting point for the determination of any planning application is set out in law within Section 38(6) of the Planning and Compulsory Purchase Act 2004. This states that "*If regard is to be had to the development plan for the purpose of any determination to be made under the planning Acts the*

[4] Prime Minister Boris Johnson's statement to the House of Commons on COP26.15.11.2021

[5] https://www.staffsmoorlands.gov.uk/article/6621/Our-climate-change-work

determination must be made in accordance with the plan unless material considerations indicate otherwise".

The relevant Development Plan is the Staffordshire Moorlands Local Plan, adopted in September 2020.

The policies that are of particular relevance to the consideration of the application are those that relate to renewable energy, heritage, biodiversity and landscape.

- SS1 Development Principles
- SD 1 Sustainable Use of Resources
- SD 2 Renewable/Low carbon Energy
- SD 5 Flood Risk
- DC 2 The Historic Environment
- DC 3 Landscape and Settlement Setting
- C3 Green Infrastructure
- NE1 Biodiversity and Geological Resources
- NE2 Trees Woodland and Hedgerows

4.2.2 National Planning Policy Framework

The National Planning Policy Framework (NPPF) (July 2021) is a material consideration. It has at its heart, three overarching and interdependent objectives – environmental, economic and social sustainability.

The NPPF supports proposals for renewable and low carbon energy. Paragraph 158 states that when determining planning applications for renewable and low carbon development, local planning authorities should not require applicants to demonstrate the overall need for renewable or low carbon energy and should approve the application if its impacts are (or can be made) acceptable.

4.2.3 National Planning Practice Guidance

Planning Practice Guidance (PPG) is an online source which supplements the NPPF.

Paragraph: 013 Reference ID: 5-013-20150327 (Revision date 27 03 2015) sets out the particular planning considerations that relate to large scale ground-mounted solar photovoltaic farms which a local planning authority will need to consider, including:

- where a proposal involves greenfield land, whether (i) the proposed use of any agricultural land has been shown to be necessary and poorer quality land has been used in preference to higher quality land; and (ii) the proposal allows for continued agricultural use where applicable and/or encourages biodiversity improvements around arrays[6].
- that solar farms are normally temporary structures and planning conditions can be used to ensure that the installations are removed when no longer in use and the land is restored to its previous use;
- the proposal's visual impact, the effect on landscape of glint and glare and on neighbouring uses and aircraft safety;

[6] Reference: a speech by the Minister for Energy and Climate Change, the Rt Hon Gregory Barker MP, to the solar PV industry on 25 April 2013 and written ministerial statement on solar energy: protecting the local and global environment made on 25 March 2015

- the need for, and impact of, security measures such as lights and fencing;
- great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance;
- the potential to mitigate landscape and visual impacts through, for example, screening with native hedges;
- the energy generating potential, which can vary for a number of reasons including, latitude and aspect.
- in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography the area of a zone of visual influence could be zero.

4.2.4 National Policy Statements

National Policy Statements (NPS) have been produced by the Government for the delivery of Nationally Significant Infrastructure Projects, including energy projects. They provide a relevant context for the consideration of this application. Whilst NPSs EN-1 (Overarching Energy) and EN-3 (Renewable Energy) do not specifically refer to solar generated power they reiterate the urgent need for renewable energy electricity projects to be brought forward. Proposed updates to NPSs EN-1 and 3 in November 2021 [7]identify that, as part of the strategy for the low-cost decarbonisation of the energy sector, solar farming provides a clean, low cost and secure source of electricity.

5 Planning considerations

5.1 Principle of solar farm

The need for renewable and low carbon sources of energy is made very clear in the legislation committing the UK to a zero-carbon economy, and within National and Local policy.

Policy SD2 (Renewable/Low-Carbon Energy) of the adopted local plan supports the development of both small and large scale renewable energy or low-carbon energy schemes subject to a number of considerations, including:

- the degree to which the scale and nature of a proposal impacts on the landscape, particularly having regard to relevant Landscape Character evidence and impact on the Peak District National Park (taking into account both individual and cumulative effects of similar proposals);
- the degree to which the developer has demonstrated any environmental/economic/social benefits of a scheme, as well as how any environmental or social impacts have been minimised (e.g. visual, noise or smell);
- the impact on designated sites of European (or successor), national and local biodiversity and geological importance in accordance with policy NE 1;
- the impact on the amenity of residents and other interests of acknowledged importance, including the historic environment;

[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1015302/nps-consultation-document.pdf

- the degree to which individual proposals reflect current local evidence regarding the feasibility of different types of renewable or low-carbon energy at different locations across the District;
- in the case of solar energy proposals that are not affixed to buildings or structures, applicants will be expected to demonstrate that they have examined whether previously developed land is available before greenfield land. Where agricultural land is proposed, poorer quality land should be utilised before higher quality agricultural land.

This section of the statement will discuss the sequential approach to the identification of the proposed site and will demonstrate how the proposed solar farm will not result in demonstrable harm. It will also demonstrate how the development will include deliverable mitigation and enhancement measures.

5.2 Site Selection

Local and national planning policies supports solar farms on a wide range of land types, including agricultural land. As discussed in the previous section, it a requirement of local plan policy SD 2, that applications for solar farms should demonstrate why previously developed land is not available, before a greenfield site can be considered.

There is no specific guidance regarding any geographic area that should be considered when assessing potential sites, it is considered reasonable to define the search area using distance to the Point of Connection (PoC) as the key parameter; that is a solar farm without a feasible grid connection is not viable.

The area of search for this project was based upon the fact that capacity exists on the PoC to the electricity grid and, therefore, a location-specific opportunity is created to make a significant contribution towards renewable energy generation from this PoC. In order to fulfil this opportunity and, therefore, meet the same need for increased renewable energy provision, which the proposal would achieve, it is reasonable and appropriate to only consider sites that may be capable of connecting to that same point of connection.

In addition to the area of search with respect to the grid connection available, the viability of any development of a subsidy-free solar project depends on the scale and therefore the land required to deploy such a development.

5.2.1 Previously Developed Land

As a starting point the applicant sought to identify:

- Land allocated for renewable energy; and
- Land allocated for another land use that could be comparable to renewable energy development, such as employment land uses.

Further to the use of the Development Plan to identify previously developed land, the following sources were reviewed:

- The National Land Use Database;
- The Estates Gazette; and
- Staffordshire Moorlands Brownfield land register.

With regard to development on brownfield sites, a review of the LPA's Brownfield Register (Part 1 (2020) has been undertaken. Out of the 17 sites listed only one site (London Leek Mill LE079) was not allocated or subject to a pending or determined planning application. This site is a relatively small, constrained site within an urban area and unsuitable for a solar farm.

Further to the above a manual search using aerial imagery and online mapping sources such as Google Earth was used to seek any potential land which the met the definition of Previously Developed Land (PDL) within the NPPF Glossary. No suitable allocated or PDL was identified.

5.2.2 Identifying Lower Grade Agricultural Land

The Agricultural Land Classification ("ALC") system classifies land into five grades (1-5), with Grade 3 subdivided into sub-grades 3a and 3b. The 'best and most versatile' land (BMVL) is defined as Grades 1, 2 and 3a; this is considered to be land which is most flexible, productive and efficient in responses to inputs and which can best deliver food and non-food crops for future generations.

Policy SD 2 advises that where agricultural land is to be used for a solar farm, poorer quality land should be used over BMVL. This reinforces the guidance contained within local plan policy SD 1 (Sustainable Use of Resources) and within the NPPF.

The search area was screened for sites, with filtering carried out to exclude any sites predicted as being of ALC Grade 1 or 2 and then Geographical Information System (GIS) was used to map ALC within the area of search, as well as the NPPF Footnote 9 constraints and solar specific constraints:

- Area of Outstanding Natural Beauty
- Sites of Special Scientific Interest
- Special Protection Area (including 400m buffer)
- RAMSAR sites
- World Heritage Sites
- Special Areas of Conservation
- Scheduled Ancient Monuments
- Registered Parks and Gardens
- Local Nature Reserves
- National Parks
- Unsuitable topography, with significant gradients;
- Green Belt;
- Flood Zones 2 and 3;
- Public Rights of Way;
- Built up areas;
- Non-compatible Allocated Sites;
- Infrastructure, such as railway lines and road; and
- Natural features, such as lakes or woodland.

Land within the area of search that remained unencumbered by constraints through this filtering process was identified and considered further for both suitability and availability. The Application Site met this detailed filtering criteria and an ALC Survey was then undertaken for the site which concludes that the vast majority of the site is Grade 4, and therefore lower grade agricultural land and not BMVL. Subsequently detailed site assessments have been undertaken which are discussed in more detail in Section 5.3.

This robust process sought to steer the site selection to areas of lower grade agricultural land, which were unconstrained from a technical and environmental perspective.

A common comment often levelled at solar farm developments is "Why can't they be put on the roofs of existing buildings?" It is possible to put panels on the roofs of buildings, both commercial and industrial, but this is dependent upon many factors including the suitability of the roof structure and orientation. The incorporation of solar panels within new builds, both residential and commercial, is a more practical solution, but until this requirement is set out in Building Regulations, developers of those projects do not have to provide them. Roof mounted solar panels on new housing will be a constituent part of the overall energy mix however, rather than replacing the need for ground mounted solar farms and other renewable technologies that are needed to deliver the target for the UK to become net zero by 2050 and the recent announcement by the Prime Minister that the UK should work towards 100% of its energy needs coming from renewable sources by 2035.

5.3 Biodiversity, trees and Green Infrastructure

One of the key objectives of sustainable development, as set out within the NPPF, is an "environmental" objective which is achieved through the protection and enhancement of the natural, built and historic environment through actions such as improving biodiversity and moving to a low carbon economy.

The NPPF advises, at paragraph 174, that planning decisions, amongst other criteria, should "*…contribute to and enhance the natural and local environment by: recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land*".

The overarching objective of Policy NE1(Biological and Geological Resources) of the adopted local plan is to conserve and enhance the biological geological resources of the District by positive management and by the strict control of development. This includes ensuring that all developments, where possible, seek to deliver a net gain in biodiversity proportionate to the size and scale of the development. Mitigation and compensation measures should be appropriately scheduled and managed according to the nature, size and scale of the development

Policy SD 1 (Sustainable Use of Resources) requires developments to retain ecological connectivity "*…as far as possible*". Policy C3 (Green Infrastructure) requires, amongst other criteria, that developments create new wildlife habitats, increase biodiversity, and increase tree cover where it is appropriate to the landscape.

The guidance notes within the emerging Local Plan refer to the DEFRA publication 'Biodiversity 2020, A Strategy for England's biodiversity and ecosystems services', and advises that this, along with the practice guide "*…could where appropriate, inform plan-making and decision-making on planning applications*". Paragraph 174 of the NPPF requires planning decisions to provide net gains for biodiversity. The Environment Act became law in November 2021 and requires development to

provide at least 10%Biodviersity Net Gain (BNG). There is a transitional period for this requirement to come into effect and secondary legislation is awaited.

The application is accompanied by an Ecological Impact Assessment (EcIA) and BNG calculations. Wintering and breeding bird surveys have been undertaken alongside testing for Great Crested Newts in ponds within and in close proximity to the site.

The proposed development has been designed to preserve and enhance biodiversity. A designated area towards the south-western boundary of the site is proposed in which an existing pond is located. A new pond will be created, alongside new scrub planting, hedgerow planting and wildflower seeding. Wildflower seeding will also be used across two compartments to the north-east of this area. Ecological connectivity and habitats will be retained and enhanced through the retention of hedgerow planting, enhancement to hedgerows and new hedgerows planting. Mammal gates will be installed within the perimeter fencing to enable the movement of wildlife, in particular badgers, across the site.

The bird surveys have identified a number of bird species, including Skylarks, using the site for nesting and foraging. Construction works can be timed to avoid the nesting season, and this can be secured through the submission of a Construction Ecological Management Plan. The use of agricultural land for solar farms does not prohibit the continued use of these sites by birds, and the mitigation and enhancement measures proposed along with appropriate management measures will ensure that the site remains as a habitat for farmland birds.

The proposed development will achieve a biodiversity net gain of 80.13 habitat units (69.88%) and 4.23 linear units (24.74%) across the site.

The application is accompanied by an assessment of the Agricultural Land Classification (ALC) undertaken by Kernon Countryside Consultants Ltd. The assessment has identified that the majority of the site is Grade 4 agricultural land with approximately 14% being higher grade (Grade 3a). This area of BMVL would be underneath an area of solar panels. It is considered that there would not be a significant long-term loss of BMVL, as a resource for future generations because the solar panels would be fixed into the ground with piles resulting in limited soil disturbance. The panels could be removed in the future with no permanent loss of soils, subject to a decommissioning scheme to be agreed by the LPA. Excavated soil will be stored on site as bunds.

An additional benefit resulting from the proposed solar farm, will be taking the soils out of intensive arable practices such as frequent tilling and ploughing for up to 40 years which will be beneficial to carbon storage. It has been shown through nationwide research, supported by Defra[8], that 60 per cent of the UK's total soil carbon is stored in grasslands, and also that this carbon is sensitive to the way land has been farmed. Professor Richard Bardgett from The University of Manchester who led the research team said "*Our findings suggest that by managing our grasslands in a less intensive way, soil carbon storage could be important to our future global carbon targets, but will also bring benefits for biodiversity conservation.*". A recent Science Note by the British Soil Society confirms this and states that "*Sequestering carbon in soils and vegetation (by adding more carbon than is lost), is important for long term soil resilience and health*"[9]

[8] Legacy effects of grassland management on soil carbon to depth. 8 Feb 2016 https://www.manchester.ac.uk/discover/news/huge-carbon-stores-under-grasslands-discovered/
[9] Science Note: Soil Carbon https://soils.org.uk/wp-content/uploads/2021/11/Long_BSSS_Science-Note_FOR-DIGITAL.pdf and https://soils.org.uk/wp-content/uploads/2021/11/Short_BSSS_Science-Note_FOR-DIGITAL.pdf

The application is also accompanied by an Arboricultural Impact Assessment. The proposed development seeks to retain existing trees (except for those that are diseased/decaying) and they will be protected during construction, the details of which will be set out within Tree Protection Plan which can be secured by condition.

The application is considered to accord with the environmental objectives of the NPPF, policies SD1 and C3 of the adopted local plan.

5.4 Economic benefit

The proposed solar farm would provide economic benefits during the construction period, directly through employment where possible, and indirectly through the use of local supply chains and services.

Once operational, the development will not require on site employees but will result in additional employment through long term maintenance and management of the site. It will support the rural economy by supplementing the income from agriculture.

The proposed solar farm would have a maximum export capacity of up to 27.7MW which would provide enough electricity to power around 7,107 homes a year, equivalent to 16% of homes in the district[10]. This is the same as boiling 266,518,652 kettles or charging 666,297 Nissan Leaf electric cars[11].

The proposed solar farm will save approximately 5,601 tonnes of carbon dioxide per year[12].

The applicant is committed to providing Community Benefit Funds (CBF) for every project it develops. It is understood that CBFs are a matter separate to planning but that it is widely accepted that, in the event planning permission is granted for most renewable energy projects, that some form of CBF is often provided. The applicant will discuss the principles of that CBF with local stakeholders in due course. Typically, a CBF would be set up so it could be administered by the Parish Councils and used to support local environmental projects.

At a higher level, the proposed solar farm will contribute towards savings that will, in time, be realised by the consumer. Currently, the largest part of a householder's energy bill is the cost of buying energy which has traditionally been determined by the underlying price of gas or coal. However, globally, renewable energy is currently the cheapest available source of new electricity generation[13] and as the UK and other countries move towards decarbonising their energy supplies, it is expected that wholesale energy prices may reduce as the reliance upon gas and coal reduces. In turn, this saving will be passed on to the consumer.

[10] Household data from BEIS - Using Mean Electricity Usage figures by Local Authority http://www.gov.uk/government/collections/sub-national-electricity-consumption-data/
[11] Nissan Leaf Standard model with a 40kW battery: https://ev-database.uk/car/1106/Nissan-Leaf
[12] Greenhouse gas reporting: conversion factors 2021: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021
[13] World Energy Outlook 2021 https://www.iea.org/reports/world-energy-outlook-2021

5.5 Heritage -Designated Heritage Assets

Heritage Assets are sites and buildings of historical value which range from local to international significance. The NPPF sets out that "*These assets are an irreplaceable resource and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations*". A "*designated"* heritage asset is a building or site that has been designated under legislation, e.g. a Listed Building or a Scheduled Monument.

Policy DC2 (Historic Environment) of the adopted local plan advises that in relation to heritage assets, the Council will seek to preserve and where possible enhance heritage assets including their setting. The policy sets out the requirement for the submission of a heritage statement.

In addition to local and national planning policy guidance, under Sections 16 and 66 of the Planning (Listed Buildings and Conservation Areas) Act 1990, LPAs must have special regard to the desirability of preserving a listed building or its setting or any features of special architectural or historic interest which it possesses.

In accordance with local plan policy DC2, the application is accompanied by a Heritage Environment Desk-Based Assessment (HEDBA) prepared by Wessex Archaeology.

There are no designated heritage assets within the site. Blythe House, approximately 70m to the south of the site, is a Grade II listed building, dating from the 17th century, but rebuilt in the 18th century with 19th century additions. Approximately 660m to the south-west of the site and to the west of the railway line is the Scheduled Monument known as "Paynsley Hall moated site and outer enclosure".

A historic water meadow, an undesignated heritage asset has also been identified. The majority of this feature lies outside of the application site. A very small part of the proposed development, primarily the biodiversity enhancement area is within this historic water meadow. adjacent to the western boundary of the site and will not be utilised for panels or infrastructure.

The HEDBA has identified that the wider rural landscape contributes to the setting of Blythe House. The proposed solar farm will represent a change to the setting of the listed building but the proposed development will not diminish the ability to understand the direct and functional relationship between it (as a historic farm complex) and the wider landscape.

In respect of the Scheduled Monument, the site is not considered to have had a historic connection to it. There is some limited intervisibility and the proposed development will be potentially visible and while there may be a minor change to its setting, it will not result in harm to its significance.

The HEDBA has concluded that while there may be some change to the setting of Blythe House and Paysnley Hall these changes will not impact upon the significance of the heritage assets and therefore the proposed solar farm would not result in harm to the setting of the heritage assets. Furthermore, any change to the settings will be entirely reversible as the solar panels and associated equipment will be removed from the site when no longer in operational use.

However, if the LPA concludes that the level of harm is "*less than substantial*, this harm needs to be weighed against the public benefits arising from the development, in accordance with paragraph 202 of the NPPF. There are clear benefits in respect of the delivery of much needed renewable energy,

carbon savings, enhancements to biodiversity and economic benefits which, the applicant believes will outweigh any harm that may be identified.

The proposed solar farm is considered to accord with the environmental objectives of the NPPF and local plan policy DC2.

5.6 Heritage -Archaeology

There are no designated archaeological features (i.e. Scheduled Ancient Monuments) within the application site. In accordance with advice received at the pre-application stage, a gradiometer (geophysical) survey has been undertaken. The preliminary results indicate that there is limited archaeological potential within the site. At the time if the submission of the planning application, the evaluation report is being finalised and will be submitted when completed.

5.7 Highway safety

The proposed development will not generate high levels of vehicle movements. The greatest number of vehicle movements associated with the development will be during the construction period and therefore the application is accompanied by a Construction Traffic Management Plan (CTMP).

Construction works will take approximately 16 weeks and a construction compound will be provided within the site. The CTMP has assessed the most suitable route for construction vehicles to the site.

The majority of construction vehicles would travel to the site via the A50. There is no direct access from the A50 into the site, and vehicles will travel northwards and join the A521 at the Tean Roundabout. From here, they will travel southwards along the A521 /Uttoxeter Road before turning right on to the farm access that currently serves Lower and Upper Newton Farms.

The construction of the battery store will require a large crane and low loader vehicles which will need an alternative route due to height restrictions on the aforementioned route. These vehicles will follow the A50/A521/Uttoxeter Road route but will turn off sooner, on to the Old Cresswell Road. The use of this single-track road by large vehicles will be managed and vehicles will be escorted.

The proposed development would not compromise highway safety and it would have a negligible impact upon the local highway network.

5.8 Hydrology

National and local policy planning policies seek to minimise risks of flooding by directing development away from areas at high risk from flooding. Policy SD5 (Flood Risk) requires developments to incorporate Sustainable Drainage Systems (SuDS).

The application is accompanied by a Flood Risk Assessment (FRA) and a Surface Water Management Plan.

The site lies entirely in Flood Zone 1 with a very low risk of flooding that is with an Annual Exceedance Probability (AEP) of lower than 0.1% (1 in 1,000).

On site infiltration tests have been undertaken and have confirmed that surface water run-off will be able to infiltrate into the ground.

Solar panels, generally, do not prevent rainwater from infiltrating into the ground, Runoff is able to infiltrate the soil either beneath the panels or under adjacent panels. Internal access roads and the majority of hard standing area will be permeable (e.g. gravel)

Where there are limited impermeable areas (e.g. the storage container, transformer bases, and the DNO/Customer substations), run-off will be directed to adjacent permeable gravelled areas. The infiltration areas have been designed for the 1% AEP (1 in 100 annual probability) with allowance for climate change.

The FRA concludes that with these measures in place, the proposed development would be in accordance with the requirements of the NPPF. It would not increase the risk of flooding on or off the site.

5.9 Landscape and visual

The NPPF at paragraph 174 advises that planning decisions should contribute to and enhance the natural and local environment by "… *recognising the intrinsic character and beauty of the countryside".* However, the NPPF does not seek to protect all of the countryside from development, and instead concentrates protection on "*valued landscapes*".

Policy SS10 (Other Rural Areas Strategy) supports development which has an essential need to be located in the countryside. The policy seeks to enhance and conserve the quality of the countryside and specifically refers to renewable energy schemes, requiring them to be of an appropriate scale, type and location. Policy DC3 (Landscape and Settlement Setting) seeks to protect, and where possible, enhance the local landscape and the setting of settlements within the District. Policy SD2 (Renewable/Low-carbon energy) also makes specific reference to the impacts of a renewable energy development upon the landscape with specific reference to having had regard to landscape character.

Guidance in PPG notes the visual impact of a solar farm can be properly addressed within the landscape if planned sensitively and that there is the potential to mitigate landscape and visual impacts through, for example, screening with native hedges.

The site is agricultural land, predominantly pasture, located on a relatively gentle south-west facing slope within the wide shallow valley of the River Blithe. The majority of the fields are enclosed by continuous hedgerows of varying height and most follow an irregular pattern. There are taller hedgerows and hedgerow trees at the north-eastern side of the site.

The site does not lie within a designated landscape. The site is positioned on the north-western edge of the "Needwood and South Derbyshire Claylands" National Character Area[14] and within the "Settled Plateau Farmland Slopes" character type as defined by the LPA's Landscape and Character Assessment of the District[15].

[14] Natural England NCA Profile: 68. Needwood & South Derbyshire Claylands (NE390) (2013)
[15] Landscape and Settlement Character Assessment of Staffordshire Moorlands (2008) Wardell Armstrong

A Landscape and Visual Impact Assessment (LVIA) accompanies the application. This has assessed the impact of the proposed development upon both the character and the appearance of the landscape from several public viewpoints within the vicinity.

The introduction of a solar farm within a rural landscape will inevitably have an effect upon the character and appearance of that landscape. The extent to which the effect will be harmful will depend upon a number of factors including the context of the site, the topography of the site, existing screening and proposed landscape mitigation.

In the case of the site of the proposed solar farm, the remoteness and potential tranquillity of the site has already been significantly eroded by the busy A50 road to the north. The railway line, the existing solar farm and the overhead power lines also impact upon the rural character of the site. The proposed solar farm will have an impact upon the landscape, but additional planting has been proposed which, as it matures will serve to substantially reduce the visual impact of the development thereby reducing the overall landscape character impacts both within the immediate vicinity of the site and within the wider area.

Furthermore, the mitigation planting and management schemes will provide significant benefits in respect of landscape structure, habitat connectivity and biodiversity enhancement, which is likely to have a positive impact upon the landscape condition and the value of the local landscape character area. Overall, the limited resultant harm to the character and appearance of the landscape will be offset by the delivery of renewable energy, and it is considered that the proposed development accords with the environmental objectives of the NPPF, policies SS10, DC3 and SD2.

5.10 Pollution

The NPPF, at paragraph 174, states that developments should not contribute to unacceptable levels of all types of pollution. Noise pollution is specifically referred to within paragraph 185; noise should be mitigated for and reduced to a minimum and should not give rise to *"…significant adverse impacts on the health and quality of life*". Light pollution is also referred to within the same paragraph of the NPPF and again the impact upon local amenity, intrinsically dark landscapes and nature conservation should be limited.

At a local level, policy SD2 (Renewable/Low Carbon Energy) requires a planning application to demonstrate how any environmental impacts, which includes noise, will be minimised and Policy SD4 (Pollution and Water Quality) refers to all types of potential sources of pollution that may arise from a development which again includes, noise, along with water and light pollution.

The site can be operated without the need for external lighting. The security cameras which will monitor the site will be infra-red and will operate at night-time without the need for any additional source of light. There will be a motion-sensor downward LED light on the external elevation of the DNO substation. This is a requirement of the DNO for safety reasons. The small size of this light and the downward projection will ensure that there will be no harmful light pollution.

There will be no industrial processes occurring within the solar farm that could result in pollution of watercourses.

The main potential source of noise within the development is the battery storage facility, due to the HVAC units The battery storage facility has therefore been located away from residential properties

and adjacent to the A50. A Noise Impact Assessment accompanies the application which has established that the proposed development will not result in a harmful level of noise.

The application therefore accords with the environmental objectives of the NPPF and Local Plan policies SD2 and SD4.

5.11 Sustainability

Sustainable development is described as "*… development that meets the needs of the present, without compromising the ability of future generations to meet their own needs.*"[16]

A solar farm is inherently sustainable as it will provide a renewable source of energy, reducing the reliance upon fossil fuels. This statement has previously addressed how the development will not result in a permanent loss of BMVL for future generations and this also applies to mineral resources.

The Minerals Local Plan for Staffordshire (2015-2030) was adopted by Staffordshire County Council in 2017. An interactive map is not available on the website of Staffordshire County Council, however it appears that part of the site could lie within the Minerals Safeguarding area as defined by Policy 3 of the Minerals Local Plan. The purpose of the policy is to prevent the unnecessary sterilisation of known deposits of minerals by non-mineral development. However, the policy does not constitute an allocation and the suitability and practicality of extracting the resource at this site has not been assessed. Although the quantity, quality or value of the mineral resource is currently not known, the key consideration is that the solar farm is not a permanent development. It will operate for a maximum of 40 years with no disturbance to the mineral resource. When the solar farm ceases to operate, all of the panels, batteries and supporting infrastructure will be removed from site and the mineral resource can be extracted, if it is determined that the resource is suitable for extraction.

The re-use and recycling of materials is also a consideration of the sustainability of a development. During the construction process, there is expected to be minimal waste and any that does arise, will be taken off site and recycled where possible.

Both the solar farm and the battery storage facility are largely modular in their construction, which means that should one element fail, such as an individual PV panel or battery cell, it can be replaced, maintaining the overall performance of the development. On-going management and maintenance will ensure that the development continues to run as efficiently as possible for its operational period.

The decommissioning of the site will be undertaken in accordance with the environmental legislation and technology available at that time. The scheme of decommissioning can be agreed with the LPA and secured by condition.

Many of the component parts of the solar farm and the battery storage facility can be dismantled, recycled, and re-used. This includes the battery cells and as the technology matures, it is expected that recycling or reconditioning processes will become more widespread and efficient.

[16] Our Common Future, UN World Commission on Environment and Development 1987

5.11.1 Previously Developed Land

After the site has been decommissioned, the land will revert to agricultural use. Pre-application consultation with the local community raised a concern that the site after decommissioning will be considered by the LPA as "Brownfield" or "Previously Developed Land" (PDL).

The NPPF defines PDL as "*Land which is or was occupied by a permanent structure, including the curtilage of the developed land ….and any associated fixed surface infrastructure. This excludes: land that is or was last occupied by agricultural or forestry buildings; land that has been developed for minerals extraction or waste disposal by landfill, where provision for restoration has been made through development management procedures; land in built-up areas such as residential gardens, parks, recreation grounds and allotments; and land that was previously developed but where the remains of the permanent structure or fixed surface structure have blended into the landscape"*.

The solar farm will be a temporary development and provision will be made for the restoration of the site through the requirement for a decommissioning plan. Therefore, the decommissioned solar farm will not be considered to be PDL in accordance with the current definition within the NPPF.

6 Summary and conclusion

At both national and local levels, the harmful implications of climate change are recognised, and laws and actions have and are being made to tackle the climate emergency. There is an increasingly urgent need for renewable energy to contribute to the decarbonisation of the country's electricity system.

It has been demonstrated through technical assessments and surveys that the proposed solar farm would not result in harm to biodiversity or public safety, nor would it increase the risk of flooding on or off the site. Additional woodland, hedgerow and scrub planting would provide biodiversity enhancements and would provide screening of the solar farm. A significant increase in Biodiversity Net Gain would be delivered by the proposed development.

At a time when there is a climate emergency, and as the country looks towards a green recovery following the Covid-19 pandemic, it is of key importance that renewable energy developments are encouraged, promoted and delivered swiftly. The proposed development is considered to accord with the relevant national and local plan policies and should therefore be approved without delay

Planning

Landscape

Architecture

Hydrology

Ecology

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