

Appendix B – Site Selection Exercise





Sperberry Hill Solar Array and BESS Project

Site Selection Exercise

Prepared for



Brockwell Storage & Solar Limited

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Well House Barns, Chester Road, Bretton, Chester, CH4 0DH

Camelia House, 76 Water Lane, Wilmslow, Cheshire, SK9 5BB

T: 0344 8700 007
enquiries@axis.co.uk
www.axis.co.uk

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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

- 1.1.1 This document reports the Site Selection Exercise (SSE) for the proposed Sperberry Hill Solar Array and associated Battery Energy Storage System (BESS) project. It has been prepared in support of a full planning application made by Brockwell Storage and Solar Limited (BSSL), hereafter referred to as the 'Applicant', to North Hertfordshire District Council (NHDC).
- 1.1.2 The Sperberry Hill Solar Array and BESS project (hereafter referred to as the 'Proposed Development') comprises a solar array with a maximum export capacity of 25 MW and includes 12.5 MW of associated battery storage and a range of other ancillary infrastructure. It is described in detail in the Planning Design and Access Statement (PDAS) also submitted in support of the planning application.
- 1.1.3 The main part of the Proposed Development, comprising the solar panels, transformer and inverter stations, and the battery energy storage system etc., is located on land south of Wymondley substation, to the south-east of St Ippolyts, in North Hertfordshire (hereafter referred to as 'the Site').
- 1.1.4 The scheme, and the planning application, also include the grid connection. This runs via a high voltage underground cable connection from the on-site DNO Substation to the National Grid Wymondley Substation. The route would follow the eastern Site boundary up to the east of Redcoats Farmhouse to Stevenage Road, before following the public highway along Stevenage Road and Blakemore End Road to the Substation entrance.
- 1.1.5 In totality, the Site (the planning application boundary) comprises 35.5 hectares (ha) of land, nearly all in agricultural use, bar parts of the grid connection route.
- 1.1.6 As described in greater detail in the aforementioned PDAS, and referenced further below, the Proposed Development ostensibly relates to a resubmission, albeit with a series of scheme amendments / improvements, of an earlier planning application for a solar and BESS project refused by NHDC in November 2023 (ref: 22/00709/FP). The proposal which was the subject of the previous application is hereafter referred to as the '2023 Scheme'.



1.2 Context for the SSE

- 1.2.1 The planning application for the 2023 Scheme was not supported by a bespoke SSE, although there was significant text (in the supporting PDAS) relating to site selection and site constraints within the district, particularly around the necessity of the use of Green Belt land. This information was prepared during late 2021 and early 2022, relative to the 2023 Scheme planning application being submitted in February 2022.
- 1.2.2 In order to strengthen the case for this resubmitted Sperberry Hill proposal, the Applicant has now revisited the site selection process for the following reasons:
- To highlight contemporary published information (including new national policy) around the main factors influencing solar development site selection;
 - To provide a clear and transparent description of the current constraints of connecting new electricity generation capacity located within the district to the grid;
 - To update the key development constraints; and
 - To reinforce the need for solar development within the district's Green Belt and underline the suitability of the current application site.
- 1.2.3 It is explicitly acknowledged that this SSE has been written after the Applicant had secured the Sperberry Hill site and indeed after submission of the application for the 2023 Scheme. Nevertheless, it reflects various processes undertaken by the Applicant and their consultants in securing an interest in the application site. Further it uses a structured site selection process, to test the efficacy of selecting the application site from an up-to-date technical and planning perspective.

1.3 Site Requirements and Structure of the SSE

- 1.3.1 The Proposed Development is a large / commercial scale ground-mounted solar energy project. The need for the Proposed Development, both from a national and local perspective, are described in the aforementioned PDAS and a Local Need Assessment report, respectively. The Applicant's position is that need is firmly established and this matter is not given further consideration in this SSE report.



- 1.3.2 Having established ‘the need’, then clearly sites need to be identified on which the need can met. Large / commercial scale ground-mounted solar energy projects require, by definition, a large amount of land. National Policy Statement for Renewable Energy Infrastructure (EN-3) (DEZNZ January 2024) states, at paragraph 2.10.17, that: *“Along with associated infrastructure, a solar farm requires between 2 to 4 acres for each MW of output. A typical 50MW solar farm will consist of around 100,000 to 150,000 panels and cover between 125 to 200 acres. However, this will vary significantly depending on the site, with some being larger and some being smaller”*.
- 1.3.3 The Applicant is proposing a 25 MW (export capacity) solar farm and thus needed to identify a suitable site of the scale described above. Taking into account the additional battery storage element of the solar scheme, the Applicant effectively needed to find a site of around 35 hectares (86 acres).
- 1.3.4 As considered subsequently, there are no available development sites or brownfield land sites within North Herts district of this scale. This is common throughout the country, which is why large / commercial scale ground-mounted solar energy schemes are almost universally located on open agricultural land.
- 1.3.5 As a consequence of the above, this report charts the SSE resulting in the identification of land suitable for the Proposed Development.
- 1.3.6 This SSE is divided into three main sections following on from this Introduction. The sections are as follows:
- **Section 2.0** describes the main factors influencing site selection;
 - **Section 3.0** sets out the SSE methodology;
 - **Section 4.0** applies the methodology and works through the various stages of the SSE before reporting the outcome; and
 - **Section 5.0** provides a concise summary of the findings and relevant interpretation.

2.0 THE MAIN FACTORS AFFECTING SITE SELECTION

2.1 Introduction

- 2.1.1 There is no definitive approach to site selection for commercial scale ground mounted solar arrays. However, over the past decade or so, industry has developed an approach with a number of consistent elements based around the main factors affecting site selection. These factors encompass the technical, commercial, planning and environmental constraints which shape the site selection process.
- 2.1.2 To better aid understanding and give the factors a policy footing, they are now summarised within National Policy Statement (NPS) for Renewable Energy Infrastructure (EN-3), primarily in paragraphs 2.10.18 – 2.10.48.
- 2.1.3 In addition, Solar Energy UK, a trade association representing the solar industry, has produced a Site Selection Factsheet (June 2024).¹ The two documents have much in common.
- 2.1.4 The key factors related to the approach to site selection have been set out in the sub-sections below, drawing firstly from the NPS and then the Factsheet. Direct quotations are provided in italic text.

2.2 NPS EN-3

- 2.2.1 The NPS deals with the topic of site selection under the heading: *“Factors influencing site selection and design”*. The main factors are considered to be:
- i. *“Irradiance will be a key consideration for the applicant in identifying a potential site as the amount of electricity generated on site is directly affected by irradiance levels.*
 - ii. *Many solar farms are connected into the local distribution network. The capacity of the local grid network to accept the likely output from a proposed solar farm is critical to the technical and commercial feasibility of a development proposal.*

¹ <https://solarenergyuk.org/resource/factsheet-site-selection/>

- iii. *Larger developments may seek connection to the transmission network if there is available network capacity and/or supportive infrastructure.*
- iv. *In either case the connection voltage, availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal.*
- v. *The route and type of terrain traversed by the cabling linking the solar project to the grid connection may also have an impact on the project's viability.*
- vi. *To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs, applicants may choose a site based on nearby available grid export capacity.*
- vii. *Proximity of a site to dwellings - Utility-scale solar farms are large sites that may have a significant zone of visual influence. The two main impact issues that determine distances to sensitive receptors are therefore likely to be visual amenity and glint and glare.*
- viii. *While land type should not be a predominating factor in determining the suitability of the site location applicants should, where possible, utilise suitable previously developed land, brownfield land, contaminated land and industrial land. Where the proposed use of any agricultural land has been shown to be necessary, poorer quality land should be preferred to higher quality land avoiding the use of "Best and Most Versatile" agricultural land where possible.*
- ix. *Whilst the development of ground mounted solar arrays is not prohibited on Best and Most Versatile agricultural land, or sites designated for their natural beauty, or recognised for ecological or archaeological importance, the impacts of such are expected to be considered.*
- x. *It is recognised that at this scale, it is likely that applicants' developments will use some agricultural land. Applicants should explain their choice of site.*
- xi. *Applicants will need to consider the suitability of the access routes to the proposed site for both the construction and operation of the solar farm with the former likely to raise more issues.*

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- xii. *Given that potential solar farm sites are largely in rural areas, access for the delivery of solar arrays and associated infrastructure during construction can be a significant consideration for solar farm siting.*
- xiii. *Proposed developments may affect the provision of public rights of way networks.*
- xiv. *Applicants are encouraged to design the layout and appearance of the site to ensure continued recreational use of public rights of way where possible during construction, and in particular during operation of the site”.*
- xv. Regard should be had to how a potential site may give rise to impacts under the following headings:
- *“Biodiversity, ecological, geological conservation and water management*
 - *Landscape, visual and residential amenity*
 - *Glint and glare*
 - *Cultural Heritage*
 - *Construction including traffic and transport noise and vibration”.*

2.3 Solar Energy UK Site Selection Factsheet

2.3.1 The factsheets provides the following information on factors affecting site selection:

- i. *“Sites will need to be:*
- *Large enough to meet individual project aims to contribute toward legal decarbonisation targets.*
 - *Financially viable and technically feasible within a time period that responds to the urgent need for solar projects. This will include considerations such as the ability to connect into the National Electricity Transmission System (NETS) via a Point of Connection (PoC),topography and irradiation levels.*
 - *Capable of accommodating a scheme where the benefits outweigh the adverse impacts.*



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- ii. *The availability of a connection to NETS and sufficiently high irradiance levels are fundamental to the site selection process and are typically the main drivers for an area being identified for potential solar development.*
 - iii. *Land is then identified within a suitable distance of the PoC, generally aiming to keep the development nearby to minimise the length of the required grid connection works and associated environmental disruption. This means that the site selection process is limited to a given radius, which is ideally under 5km for 132kV and under 2km for 33kV. The distance varies depending on numerous variables including grid costs, which differ from project to project depending on the level of contestable and non-contestable works. Therefore, substantial parts of the country are not currently feasible for utility scale solar development.*
 - iv. *A high-level desktop assessment is then undertaken, typically including:*
 - *Agricultural land classification and land type, recognising that land type should not be a predominating factor in determining the suitability of the site location and ground-mounted solar will likely use some agricultural land . Solar development is not prohibited on Best and Most Versatile (BMV) land, but it's use is less preferable than poorer quality land.*
 - *Accessibility, to ensure the site has, or could have, suitable construction and operational access routes.*
 - *Other planning and environmental factors such as biodiversity, landscape and visual amenity, cultural heritage and flood risk.*
 - v. *Landowners of sites with good development potential are then approached to ascertain if the land is potentially available to accommodate a solar farm development. If the land is available, preliminary technical assessments would then be commissioned to establish site specific opportunities and risks to further scope in or out and refine potential development areas. Where landowners are not interested or commercial agreements cannot be reached, the land is deemed not available for development”.*

3.0 METHODOLOGY

3.1 Introduction

- 3.1.1 There is no universal, defined methodology for conducting an SSE. However, having regard to the main factors affecting site selection, and contemporary widespread experience of such exercises in a busy energy sector, there is a general consistency in approach; albeit different developers, locations, commercial factors and scales of development are all likely to influence the precise methodology.
- 3.1.2 Regardless of any variances in approach, the essential factor is setting out a clear, reasoned and planning based methodology, and then applying it objectively and consistently. This is what the SSE has sought to do.
- 3.1.3 The SSE has been divided into a number of distinct Stages which start at defining the study area and then progressively drill down until areas of potentially suitable land sufficient to accommodate the project have been identified. With the exception of the work to determine grid connection capacity, the study largely adopts a GIS map based approach to identifying land, with refined mapping produced at the various Steps in the SSE process.
- 3.1.4 The final step in the process, Stage 5, is engaging with landowners of the identified land, ascertaining a willingness to participate in the proposal and coming to commercial terms. This Stage 5 falls outside of the scope of the SSE set out in this report, which instead is fully focussed on the earlier land finding stages.

3.2 The Stages

- 3.2.1 The SSE Stages are as follows:
- **Stage 1 – Study Area:** Identification / definition of the extent of the Study Area.
 - **Stage 2a – Grid Connection:** Plotting the potential grid connection points within the Study Area.
 - **Stage 2b – Establishing Grid Connection Capacity:** Undertaking an analysis of sites / locations on the network where capacity may exist for accepting a 25 MW export connection. The locations where capacity exists will form the basis

for Area(s) of Search.

- **Stage 3 – Technical, Environmental and Planning Constraints:** For the Area(s) of search, applying a range of technical, environmental and planning land use constraints which will prohibit the development of a 25MW solar farm.
- **Stage 4 – Site Selection Within the Opportunity Areas:** Identification of the residual areas of land arising from the application of the foregoing factors, which remain as being theoretically suitable to accommodate a 25MW solar farm. Thereafter, a high-level consideration of the comparative suitability areas of the remaining areas to aid Stage 5.

3.2.2 As described above, the **Stage 5** work culminating in securing a commercial interest in land falls beyond the scope of the SEE here reported.

4.0 THE SITE SEARCH EXERCISE

4.1 Stage 1 – Study Area Definition

- 4.1.1 The Proposed Development is located within North Herts district and represents a large-scale development within a district context. The LNA has identified an overwhelming need for new renewable generation within the district if it is to move towards its net zero ambition by 2040. As a consequence, the Study Area has been defined as the full administrative area of NHDC.

4.2 Stage 2a – Grid Connection

- 4.2.1 As set out in Section 2.0, NPS EN-3 states with regard to the grid connection of solar arrays that the: *“..... availability of network capacity, and the distance from the solar farm to the existing network can have a significant effect on the commercial feasibility of a development proposal.....The route and type of terrain traversed by the cabling linking the solar project to the grid connection may also have an impact on the project’s viability.... To maximise existing grid infrastructure, minimise disruption to existing local community infrastructure or biodiversity and reduce overall costs, applicants may choose a site based on nearby available grid export capacity”*.
- 4.2.2 It is recognised that solar farms of the scale proposed by the Applicant can potentially connect to the grid either via existing substations or a high voltage power line on the transmission network. However, as explained further below, where the main supply points² for the transmission network have no capacity, a connection to a high voltage transmission line is not possible.
- 4.2.3 Having regard to the foregoing factors, the Applicant has adopted a 4km search³ radii from substations, including those which are main supply points (within or within 4km of North Herts district). The requirement to consider connection to a high voltage transmission line only arises in the event the subsequent analysis identifies capacity in the main supply points.

² Grid Supply Points (GSP)

³ A 4km radius search area is double that suggested in Solar Energy UK’s Factsheet for a solar project connecting at 33kV. Accordingly, the 4km radius is a very robust approach, and the aforementioned guidance is indicative of the reduced viability of connecting a scheme into the 33kV network at a distance beyond 2km.

- 4.2.4 The Study Area and existing 132kV substations and EHV substations (>22kV); together with the associated search radii / offsets are shown on **Figure 1**.

4.3 Stage 2b - Establishing Grid Connection Capacity

Introduction

- 4.3.1 Electricity supply in the UK relies upon ‘transmission’ and ‘distribution’ networks. Electricity transmission is the large-scale movement of electricity at the highest voltage levels from power stations to large, centralised substations where voltage is stepped down. Electricity distribution refers to the dispatch of this lower voltage electricity to homes and businesses.
- 4.3.2 Adopting an analogy, the transmission network is like the motorways, carrying vehicles (electricity) at high speed (high voltage) across the country. This is the network of large pylons, overhead lines and underground cables around the country. The distribution networks are the local roads, connecting motorways with communities to allow vehicles to complete their journey. These are the smaller pylons, overhead lines and underground cables carrying lower voltage electricity.
- 4.3.3 All solar farms connect to a specific point on the electrical grid. That point is called the ‘point of connection’ (POC). The POC is different for utility-scale projects (larger commercial schemes) than for smaller and community scale solar projects. The Sperberry Hill scheme is a larger utility-scale project.

Connections to a Substation

- 4.3.4 Utility-scale projects can connect directly into a distribution-level substation (132 kV or below) or into a transmission-level substation (275 kV or 400 kV). Higher voltage equipment is much more expensive and, therefore, smaller projects (less than c.100 MW) typically cannot afford to connect at transmission level. The main purpose of substations is to step down or step up the electricity voltage. When transmitting electricity over long distances, it is more efficient to use higher voltages. However, in order to be used in homes and businesses, electricity must be converted to lower voltage levels.
- 4.3.5 Substations are generally the most suitable places to connect energy projects because they typically already have the infrastructure required to connect the project in the safest and most economical manner.



Connections to an Overhead Line

- 4.3.6 In certain circumstances, projects can connect into overhead lines (at distribution or transmission level depending on the project size) by upgrading or replacing a pylon. This is known as a ‘tee-off’ connection and is only possible if it is deemed safe and economical by the network operator. This is a less common method of connecting an energy project due to the cost and the impact on the electricity system.

Distance to a POC

- 4.3.7 As described previously under the heading of ‘The Main Factors Affecting Solar Site Selection’, there is a key deliverability objective of locating a solar farm as close as possible to the POC. In order to supply the electricity generated by the project to the electricity grid, a cable or an overhead line is required to connect the project to the POC (this is often known as the grid connection). This is typically an underground cable because overhead lines are generally difficult to obtain consent for due to the visual impact.
- 4.3.8 The cost of laying an underground cable is dependent on the voltage level, the length of the route and the obstacles along the way. In urban areas this cost increases dramatically with hard-digging required through roads and pavements often containing other services and utilities. As a result, connections with long sections through built-up urban areas are seldom viable.
- 4.3.9 In addition to the cost of materials and labour, grid connection cost increases with length due to the cost of easements on third-party land. Finally, the installation of underground cables can cause disruption to communities and local road users during construction.
- 4.3.10 Accordingly, for the reasons outlined above, the optimal solution is to site the solar farm as close as possible to the POC.

Capacity Issues

- 4.3.11 Even having located a prospective solar farm close to a substation or overhead line, it does not necessarily mean interconnection will be possible. In short, the infrastructure may not have enough capacity to handle the electricity currently flowing through it plus the electricity that the proposed solar farm would generate.

- 4.3.12 The UK faces substantial obstacles in connecting new renewable energy projects to the grid. Many solar farms and warehouse roof-mounted systems face waits of 10-15 years to secure grid connections. These delays create a barrier to growing solar capacity despite the UK's goal to quintuple solar power to 70 GW by 2035.
- 4.3.13 The long wait times are causing a ripple effect, blocking future renewable projects from moving forward. Furthermore, the pipeline of contracted projects waiting for connections across Great Britain has ballooned to over 500 GW.

Grid Connections for New Renewables Development Within North Herts District

- 4.3.14 The Applicant has investigated connection at both a transmission and distribution level. Any constraints that are found in the transmission substations will directly impact the substations downstream at the distribution level, therefore problems with capacity should be considered at both.

Transmission Level Connection

- 4.3.15 The substations at transmission voltage level (275 kV and 400 kV England and Wales) can be categorised in two types: the pure transmission substations, linking two parts of the transmission networks and the Grid Supply Points (GSPs). A GSP is a 'Systems Connection Point' at which serve as the interface between the transmission and distribution network.
- 4.3.16 There are 3 GSPs relevant to transmission through North Herts district. Of these, only one lies within the district itself, or within 4km of its boundary, being the Wymondley GSP (and substation). The second GSP, Sundon, lies on the north-western edge of Luton; and the third, Pelham, is located well outside of the district, lying circa 8km north of Bishop's Stortford.
- 4.3.17 Figure 1 identifies the GSP at Wymondley. In addition, it shows all of the other distribution level substations that could, from a 4km distance threshold perspective, theoretically serve a solar farm in North Herts district. All of the identified substations are fed directly from three GSPs (i.e. Sundon, Pelham and Wymondley). The issues that are found at the GSP level generally affect connections at downstream substations at distribution level. This is because a project will need to send some its generation back upstream and through the GSP, unless all its generation is

consumed locally which is very unlikely. For this reason, it is critical to understand the constraints and capacity at the three GSPs.

- 4.3.18 UK Power Networks provide online information about each GSP on their Network Operational Data Dashboard. This provides a clear understanding of several current operational factors associated with each GSP. These are shown in the screengrab image below, the first relating to the Wymondley GSP.

Grid Supply Point:

WYMONDLEY

Grid Supply Point - Overview

Connected DER Capacity (MW) 	235.9
Total Generation Pipeline Capacity (MW) 	574
Capacity Awaiting Transmission Reinforcement (MW) 	489.5
Materiality Headroom (MW) 	0
Fault Level Headroom (kA) 	3
New Developer Earliest Connection Date 	2032
Information based on	August 2024 Appendix G Update

- 4.3.19 The main factor of interest from a connection perspective is the Materiality Headroom (MW). This is defined as: ‘The export capacity availability at the GSP. It is the difference between the maximum export capacity at the GSP assessed by ESO [Electricity System Operator], and the current sum of generation as this GSP’. Where, as is the case here, this value is zero MW, this means that there is currently no available capacity for anyone to connect a new power generation project. The Dashboard also shows the earliest connection date for any new generation project is 2032. Furthermore, there is a queue of around 490 MW at this GSP that cannot be connected until Transmission Reinforcement Works have been completed.
- 4.3.20 The same Dashboard information has been provided for the Sundon and Pelham GSPs below.

Grid Supply Point:

SUNDON

Grid Supply Point - Overview

Connected DER Capacity (MW) ⓘ	447.1
Total Generation Pipeline Capacity (MW) ⓘ	876
Capacity Awaiting Transmission Reinforcement (MW) ⓘ	654
Materiality Headroom (MW) ⓘ	0
Fault Level Headroom (kA) ⓘ	0
New Developer Earliest Connection Date ⓘ	2031
Information based on	August 2024 Appendix G Update

Grid Supply Point:

PELHAM

Grid Supply Point - Overview

Connected DER Capacity (MW) ⓘ	208.2
Total Generation Pipeline Capacity (MW) ⓘ	830.2
Capacity Awaiting Transmission Reinforcement (MW) ⓘ	529.9
Materiality Headroom (MW) ⓘ	0
Fault Level Headroom (kA) ⓘ	3
New Developer Earliest Connection Date ⓘ	2032
Information based on	August 2024 Appendix G Update

- 4.3.21 These illustrate, as for the Wymondley GSP, that there is currently no available capacity for anyone to connect a new generation project to either GSP and that the earliest connection date for any new generation project is 2031 and 2032, respectively. Furthermore, both have queues in excess of 500 MW that cannot be connected until Transmission Reinforcement Works have been completed.
- 4.3.22 Based upon this information, it is demonstrably the case that there is no connection capacity into the transmission network either through the GSP substations or through the network of transmission lines and pylons which cross the district and which feed into them. Furthermore, a 25 MW project is far too small to afford a transmission-level connection.

Distribution Level Connection

- 4.3.23 Having dismissed transmission level connection, the other consideration is connection to the substations serving the distribution network. These are the 14 distribution-level substations illustrated on Figure 1.
- 4.3.24 These have each been analysed using publicly available online data from UKPN. The approach in this instance differs from that used at the GSPs and instead focusses on demand and supply at each of the primary substations.
- 4.3.25 The distribution-level substations each have a peak demand which is derived from the relevant Long Term Development Statement (LTDS) produced by UKPN. This is a MW figure.
- 4.3.26 A generation project connected at distribution level supplies some of its generation locally. However, there is not always sufficient demand locally to consume all of a project's generation. In this case, some generation flows back upstream to the GSP and through to the wider transmission network. This is the reason that projects connected at distribution level are also affected by constraints at transmission level.
- 4.3.27 The amount of a project's output that could be consumed locally can be estimated by subtracting the contracted background (projects already accepted to connect) from the substation's peak demand. If the contracted background exceeds the peak demand then the prospective project will need to export some of its generation upstream and will therefore be subject to transmission-level constraints.
- 4.3.28 The tabular image below shows the LTDS peak demand and contracted generation position at each of the 14 distribution-level substations.

Substation	GSP	Materiality Headroom	LTDS peak Demand	Contracted generation
Stopsley Primary 33/11 kV	Sundon	0 MW	13	
Luton North Grid 132kV	Sundon	0 MW	34.3	>280
Luton Airport Primary 33/11 kV	Sundon	0 MW	14.1	1.4
Luton South Grid 132kV	Sundon	0 MW	58.6	>67.99
Stevenage Primary 33/11kV	Pelham and Wymondley	0 MW	13.1	7.8
North Stevenage Primary 33/11 kV	Pelham and Wymondley	0 MW	12.1	
Stevenage Grid 132kV	Pelham and Wymondley	0 MW	61.6	90.88
Reed Primary 33 kV	Pelham and Wymondley	0 MW	6.4	
Wymondley Grid 132kV	Pelham and Wymondley	0 MW	54.8	494.64
South Hitchin Primary 33/11 kV	Pelham and Wymondley	0 MW	11.4	
North Hitchin Primary 33 kV	Pelham and Wymondley	0 MW	17.8	5.052
Letchworth Grid 132 kV	Pelham and Wymondley	0 MW	89.3	>130.158
Letchworth Factory 33/11 kV	Pelham and Wymondley	0 MW	14.6	7.658
Melbourne Primary 33/11 kV	Pelham and Wymondley	0 MW	5.2	

- 4.3.29 The table shows that nine of the substations do not have enough peak demand for the 25 MW capacity of the Sperberry Hill solar scheme. Furthermore, it shows for the five substations which have sufficient peak demand to accommodate a scheme with 25 MW of capacity, each already has contracted capacity well in excess of the peak demand. Hence there is no residual capacity that could be used to connect a 25 MW solar scheme without exporting upstream and encountering the transmission-level constraints described previously.

Findings

- 4.3.30 Analysis has been undertaken of grid connection capacity to accommodate a new power generation scheme located within North Herts district. Grid capacity availability has been reviewed for both the transmission and distribution networks. Neither has the capacity to accommodate 25 MW of export capacity. This demonstrates how important the grid connection agreement that the Sperberry Hill project has which allows 25 MW of solar generation to connect when ready, without the need for any transmission level reinforcements.
- 4.3.31 Accordingly, the only POC available for the Sperberry Hill solar scheme is its currently contracted capacity into the Wymondley substation. No alternative POC exists, nor is one likely to emerge in the short to medium term.
- 4.3.32 Further it can be seen that there are no new grid connections available until at least 2031/32 (at the earliest) to serve new commercial scale power generation projects within North Herts district.
- 4.3.33 In conclusion, from an SSE perspective, there is only a single Area of Search arising from Stage 2b and this relates to the land within the 4km radius of the Wymondley substation. This Area of Search is carried through to Stage 3.

4.4 Stage 3 – Technical, Environmental and Planning Constraints

- 4.4.1 The identified technical, environmental and planning constraints that have been adopted for the SEE and applied to the Area of Search are:
- i. Green Belt: whilst solar schemes can be permissible in the Green Belt, and many have been approved in the designation, including within North Herts district; where a scheme can be delivered outside of the Green Belt this is a clear planning preference.

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- ii. Built-up / urban areas: it is demonstrably the position that there is no prospect of delivering a solar array in these areas.
 - iii. Sites of Special Scientific Interest: it is considered this designation represents an insuperable constraint on solar development.
 - iv. Allocated Housing Land: land subject to contemporary housing allocations in the Local Plan.
 - v. Safeguarded land: it is considered that a solar farm would not be acceptable on land removed from the Green Belt and specifically safeguarded for future housing provision.
 - vi. Ancient woodland and blocks of mature woodland: it is considered that a solar farm would not be acceptable on land requiring the removal of ancient woodland or other blocks of mature woodland.
 - vii. Other Solar Schemes: land occupied by other solar schemes.
 - viii. Golf courses: solar farms cannot be developed on functioning golf courses.
- 4.4.2 The outcome of applying the Stage 3 technical, environmental and planning constraints to the Area of Search is shown on **Figure 2**. The resultant remaining areas, referred to as 'Opportunity Areas' are shown on **Figure 3**.
- 4.5 Stage 4 – Site Selection Within the Opportunity Areas**
- 4.5.1 Having regard to Figure 2, the resultant remaining areas of land potentially suitable for a solar farm are shown on **Figure 3** i.e. the Opportunity Areas.
- 4.5.2 Having regard to the Opportunity Areas and the siting of a prospective 25 MW solar farm, the following factors are considered relevant.
- i. The Opportunity Areas represent the only location where a new, commercial scale solar farm could feasibly be developed within the district. To illustrate how constrained the district is, the Opportunity Area covers 31km², compared to the overall district size of 375km² i.e. just under 8.3% of the district.
 - ii. First and foremost is the objective of looking for land as close as possible to the grid connection point at Wymondley substation. This improves the

viability of the development and minimises disruption to local communities during construction (as described in Section 2 previously).

- iii. Whilst best and most versatile (BMV) agricultural land is not a fundamental barrier for solar farm development (see paragraph 2.2.1 ix previously), having regard for the desirability to utilise lower grades of agricultural land (i.e. not BMV) a copy of the provisional agricultural land classification for the 4km radius within which the Opportunity Areas sit, has been provided as Figure 4. This shows the entire area comprises Grade 2 and Grade 3 agricultural land only.⁴ Thus, at the site selection stage, there is merit in avoiding the Grade 2 Land (provisionally BMV) and focussing on the Grade 3 land (provisionally either Grade 3a which is BMV, or Grade 3b which is not BMV). Accordingly, as Figure 4 shows, this eliminates a reasonably large section of the Opportunity Areas lying north-east of Wymondley substation.
- iv. The Opportunity Areas lying north-east of Wymondley substation are also less attractive from a potential cumulative impact perspective given the approved Wymondley solar farm, the location of which can be seen on Figure 2.
- v. From a visual impact and security perspective, it is also more desirable to avoid being adjacent to the main urban edges of Hitchin, Letchworth Garden City and Stevenage.
- vi. The foregoing indicates a likelihood that the solar sites are located south and east of the substation.
- vii. Having given regard to identifying contiguous areas of agricultural land of a scale suitable to accommodate a 25MW solar farm, the Applicant undertook commercial discussions with the owner of Rush Green Farm. He was willing to support a solar array proposal and to enter into commercial terms for its potential development.

⁴ The Sperberry Hill site being shown as Grade 3

5.0 FINDINGS AND INTERPRETATION

5.1 Findings

- 5.1.1 The SSE has sought to adopt a clear, reasoned and planning based methodology, which has been applied objectively and consistently. Its starting point was to select the entirety of North Herts district as the study area. It also sets out the main factors affecting site selection, most of which are described in national planning policy.
- 5.1.2 Analysis has been undertaken of grid connection capacity to accommodate a new power generation scheme located within North Herts district. Grid capacity availability has been reviewed for both the transmission and distribution networks. Neither has the capacity to accommodate 25 MW of export capacity.
- 5.1.3 Accordingly, the only POC available for the Sperberry Hill solar scheme is its currently contracted capacity into the Wymondley substation. No alternative POC exists, nor is one likely to emerge in the short to medium term.
- 5.1.4 The SSE set a 4km radius around the Wymondley substation which was defined as the Area of Search. Within this area a range of technical, environmental and planning land use constraints have been identified which will prohibit the development of a 25MW solar farm.
- 5.1.5 The residual parcels of unconstrained land within the Area of Search are the Opportunity Areas. They represent the only location where a new, commercial scale solar farm could feasibly be developed within the district. To illustrate how constrained the district is, the Opportunity Area covers 31km², compared to the overall district size of 375km² i.e. just under 8.3% of the district.
- 5.1.6 Having had regard to several other factors such as locating as close as possible to the POC, provisional mapping of BMV agricultural land and potential cumulative impacts; the current application site was selected, the owner of which was willing to support a solar array proposal and to enter into commercial terms for its potential development.

5.2 Interpretation

- 5.2.1 It is well established in planning, that applicants / developers do not have to prove that the site they have selected is the very best site and that no better alternative



sites exist. Rather they ultimately just need to establish that their site / scheme is suitable in its own right, in planning terms.

5.2.2 Notwithstanding, the SSE has demonstrated that there is very limited land within North Herts district where it is potentially feasible and suitable to locate a solar farm. The current application site, which is located on land lying immediately adjacent to Wymondley substation, falls within such land.

5.2.3 Whether the application site is the very best site within the district to locate a solar farm, is not a relevant question. However, having regard to all of the factors considered within this SSE; Axis judges that it will be amongst the best sites and that few, if any, preferable, deliverable sites exist.