STATERA

BALANCING THE GRID

CULHAM STORAGE LIMITED

PLANNING DESIGN AND ACCESS STATEMENT

May 2024

Contents

Introduction

1.1 This report has been prepared by Statera Energy Limited for a proposed Battery Energy Storage System ("BESS") facility at Culham Science Centre, Thame Lane, South Oxfordshire, OX14 3ES.

1.2 The purpose of this Planning Statement is to provide an assessment of the proposed development in relation to development plan policy and other relevant material considerations, as well as providing a Design and Access Statement. It also considers the policy of the UK Government towards the importance of lower carbon energy, reliable energy supplies and the benefits that will arise from the construction and operation of the Proposed Development.

The Applicant

1.3 Since 2015 Statera Energy has been developing and operating flexible energy generation and battery storage schemes, with operational sites in Hertfordshire, Essex, Yorkshire, Teesside and Wiltshire. Statera has 1,020MW of assets operational or under construction, with a further 13 gigawatts (GW) in development, comprising a mix of pumped storage, battery storage, flexible generation and hydrogen production.

1.4 All projects are developed in-house, managed through their construction and on to operation, where they are overseen by a dedicated asset management team which includes its own industry leading technical expertise.

The Application

1.5 The Application is a full planning application to construct a battery energy storage system (BESS) connected directly to National Grid.

1.6 Statera Energy is seeking detailed planning permission for the proposed development of a Battery Energy Storage System (BESS), comprising a 500 megawatt (MW) battery storage facility with associated infrastructure, access and landscaping, with a connection into the Culham Jet Substation.

1.7 The UK Atomic Energy Authority (UKAEA) has written a letter of support for The Application on 22 June 2022 (see **Appendix 1**) in their letter the UKAEA explain that the Proposed Development would provide the following range of direct and indirect benefits to the Science Centre:

- **Resilience** – A secondary cable route and electricity supply would reduce outages, increase resilience and allow for UKAEA to secure addition supplies for the growth of facilities in future;
- **Stability** – Substantially stabilised grid connection helping gain approval for facilities which have fast changes and large power requirements;

- **Financial benefits** – UKAEA electricity costs will be reduced as the costs for the reconfigured substation where the BESS connects will be shared nationwide by National Grid as part of its transmission network costs;
- **Attractiveness** – Increasing the resilience of the high-powered connection will help attract tenants, future fusion facilities and attract new businesses, such as high-power advanced computing, to the area; and
- **Opportunity** – The Proposed Development would increase the UKAEA's ability to deploy assets such as the jet flywheel generators or consider new large-scale generator research and development opportunities.

The Site Location

1.8 The Proposed Development is located within the administrative boundary of South Oxfordshire District Council (SODC), north of the Culham Science Centre and near Clifton Hampden. The site covers a total area of 26.8 hectares (ha).

1.9 The site comprises areas of open fields and is crossed by a tarmac track (Thame Lane, a non-public highway) as well as an existing farm track.

1.10 The site is accessed from the east, south-east and south by the Thame Lane, which connects to Abingdon Road to the south.

1.11 As per the South Oxfordshire Local Plan[1], the site lies within the Oxford Green Belt (Policy STRAT6), an area that offers protection to the historic setting of Oxford and to areas surrounding the city. Furthermore, part of the site is located within the Nuneham Courtenay Grade 1 Registered Park and Garden (covered by Policy ENV10) and lies adjacent to the Nuneham Courtenay Conservation Area (ENV8). The Culham Science Centre lies to the immediate south-east of the site (STRAT8 - Culham Science Centre), with the proposed extension to the substation partially within this STRAT8 site, and an urban expansion area lies immediately to the west of the site (STRAT9 – Strategic Allocation), as discussed in ES Volume 1, Chapter 1: Introduction and EIA Methodology.

[1] *South Oxfordshire District Council. (2020). The South Oxfordshire Local Plan 2011-2035. Available at: https://www.southoxon.gov.uk/south-oxfordshire-district-council/planning-and-development/local-plan-and-planning-policies/local-plan-2035/adopted-local-plan-2035/*

The Proposed Development

Purpose

2.1 BESS facilities provide a means of allowing electricity from the grid to be imported and stored at times of low demand/high generation, which can then be exported back into the grid at times of higher demand / system stress.

2.2 System frequency is also a continuously changing variable that is determined and controlled by the second by-second (real time) balance between system demand and total generation. If demand is greater than generation, the frequency falls while if generation is greater than demand, the frequency rises. If the transmission system is not maintained within the required frequency tolerance system stress can result in widespread power supply issues and damage to network infrastructure.

2.3 Battery storage is a key part of UK energy strategy and provides the National Grid with balancing services to help accommodate increasing levels of renewable energy generation.

2.4 By importing excess renewable energy from the grid and storing it, batteries can capture energy that would otherwise be lost / unutilised. In respect of their storage ability, batteries offer opportunities to support the intermittent nature of renewables by storing the excess energy they produce and importing it back into the grid when demand requires.

2.5 During situations when primary power sources (e.g. traditional power stations) are interrupted, BESSs can bridge the gap in production, thus avoiding potential blackouts. It should be noted that the UK electricity network is wholly interconnected and issues in one geographic location can have far reaching implications on the network. Accordingly, BESSs offer additional capacity to deal with system stress and any variations in grid frequency at both a local and national level.

2.6 As has been recognised by National Grid's 2016 System Operability Framework (SOF): "Faster response is more effective and so less response is needed if speed can be increased." BESSs are able to respond more rapidly than other types of balancing services, as they have no start-up delays. As such BESSs can balance the real-time requirements of the national grid more efficiently. Indeed, BEIS' review of electricity market arrangements (REMA) in 2022 found that "frequency response markets have helped to deploy new batteries".

2.7 The Proposed Development has come forward following the Government's reform of the Nationally Significant Infrastructure Project ("NSIP") process through the Infrastructure Planning (Electricity Storage Facilities) Order 2020 (the "Storage Order") aimed at reducing barriers to investment and delivery of large BESS over a 50MW capacity.

2.8 The Government considers that larger capacity BESS developments are crucial to meeting the countries overall net zero 2050 target, as well as its target to decarbonise the power system by 2035, which will require a substantial growth in renewable energy generation, along with electricity storage to balance the intermittent generation from renewables, and stability services to keep the national grid stable.

2.9 National Grid's Future Energy Scenarios document (July 2022) states "we expect battery storage to make up the largest share of storage power capacity in all scenarios by 2050 to help with shifting demand within the day and managing network constraints as battery costs fall". This meant that the FES foresees battery use rising "from 1.6GW in 2021 to as much as 20GW by 2030 and 35GW by 2050".

2.10 To be most effective in contributing to the country's targets, the proposals need to be of a large capacity (i.e., over 50MW) and located in an area where there is a significant need for new capacity to support renewable energy generation.

2.11 These factors have driven the site selection process and the scale and types of technology proposed.

Development Elements

2.12 The Proposed Development comprises a 500 megawatt (MW) battery storage facility, with 296 sound insulated lithium ion battery units housed within standard shipping containers (6.3m x2.4m x 2.8m)and 37 larger (12m x 9.5m x 4.05m) noise insulated inverter houses to accommodate the inverters and transformers.

2.13 Furthermore, the Proposed Development will comprise the following components:

- Vehicle tracks 4.5m wide and vehicle hard standing areas;
- Loose permeable gravel around the battery units and buildings, with an impermeable membrane layer lining the compound areas;
- Erection of 2.4m high weld mesh fencing around the compounds (steel palisade around the customer substation) and 4m high wooden acoustic fence. CCTV security cameras will be mounted on 4m high posts;
- Three water storage tanks;
- An electricity substation compound with a seven 33 Kilovolt (kV) switch house/control room (13m x 5.5m x 3.5m), comprising transformers, busbars and other equipment of up to 9m in height;
- One storm water attenuation lagoons;
- A new permissive path within a landscaped area at the northern extent of the site;
- A 4m high acoustic fence that runs along the west and south side of the BESS compound;
- An earth bund along the western boundary of the site;

- Removal of the non-public highway track (Thame Lane) within the site, and the upgrading of the existing farm track to a 4.5m wide macadam surface;
- Works to be undertaken by National Grid Electricity Transmission (NGET) as the statutory undertaker for electricity transmission in England and Wales.
  - a new drawn down tower,
  - cable easement, and
  - substation extension
- Extensive landscaping in the form of hedge and woodland planting, and provision of a wildlife pond.

2.14 The grid connection for the Proposed Development would be via high voltage underground cable from the National Grid Substation on Thame Lane to the south of the site.

2.15 Works to be undertaken by National Grid Electricity Transmission (NGET) includes an extension to one of the existing substations within the Culham Science Centre (CSC) as part of a wider upgrade of its electrical infrastructure. The extension will be on the east side of the northern substation. A high voltage underground cable will run from this extension to a proposed connection tower, which will be situated within the Registered Park and Garden, north of the BESS. The tower will allow the underground cable to connect aerially across to the existing overhead line. In terms of functionality, this is the only practical point of connection. The connection tower will be set within a compound protected by palisade fencing with proposed scrub and tree planting to reduce its visibility within the landscape.

The Need for Development

3.1 As we continue the transition towards a low carbon economy, renewable energy is ever more prominent as the lowest cost form of electricity generation for consumers. At the same time renewable energy is helping to ensure security of electricity supply for the United Kingdom while providing a cleaner, greener outlook for future generations.

3.2 With a higher proportion of our energy sourced from renewables, it is becoming increasingly challenging to balance the UK electricity system because of the intermittency of wind and solar output. For example, in summer months on bright, windy days it is not uncommon for too much electricity to be generated, whereas on cloudy wind-less days in winter months there may be a shortfall. In each case, National Grid, acting as the System Operator, will need to take balancing actions to ensure that supply meets demand.

3.3 Battery storage facilities can support this constant need for balancing. Statera's battery systems are developed using proprietary control logic, and designed to deliver the most efficient, reliable service that can adapt to the various market conditions to help provide a secure supply of electricity to the end consumer at the lowest cost.

3.4 Services that can be provided:

- **Frequency response –** The balance between supply and demand of electricity is reflected in the grid frequency (50Hz in the UK), and it is National Grid's role as system operator to keep the system in balance. If supply exceeds demand, the frequency rises above 50Hz, if demand exceeds supply, frequency falls below 50Hz. Most electrical devices require frequency to be in a certain range – if frequency goes outside of this range for a prolonged period of time the UK can encounter black-outs or electrical devices, such as televisions or computers, will turn off to protect themselves. Our batteries can respond in sub second times to dynamically balance supply and demand on a second-by-second basis, providing a valuable tool to National Grid in helping to "keep the lights on".

- **Renewables integration –** Due to their nature, batteries can both supply energy when demand outstrips supply, but also absorb energy when supply exceeds demand (such as excess wind or solar), meaning this energy is not wasted, but stored to release when required.

- **Capacity Market –** If a major power plant, such as a large nuclear reactor or large gas generator, fails during the depths of winter, this could potentially lead to blackouts across the country unless other generation can be brought on line to replace the power lost by the failed plant. Capacity Market participants provide these back-up services. All of Statera's assets are designed to deliver this reserve service to National Grid.

3.5 The combination of fast responding electricity storage and generation will help manage the system and provide power at times of peak demand to help provide stability, resilience and energy security to the UK's electricity system.

3.6 Statera's flexible assets open the door for more solar and wind power to be added to the grid while maintaining grid stability, enabling a green low carbon future.

3.7 An article in the Financial Times - G7 to target sixfold expansion of electricity storage (26.04.24) summarises that G7 countries are set to agree a global target this weekend to increase electricity storage capacity sixfold from 2022 to 2030, as countries grapple with how to keep the lights on while shifting to intermittent wind and solar power. The talks mark the first time G7 energy and climate ministers have met since almost 200 countries agreed at the UN COP28 climate talks in December to "transition away" from fossil fuels. At the meeting in Dubai they also agreed to double energy efficiency and triple renewable energy capacity by 2030. Officials involved in the G7 talks have said the energy storage target was a "good" solution and showed that countries were taking the agreement reached in Dubai seriously by focusing on implementation. Energy storage aims to stockpile excess energy when conditions for renewables are optimal, using options such as batteries, then discharge it as necessary.[2]

3.8 A report commissioned by Energy UK in February 2016 to support the use of Electricity Storage in the Energy Sector states.

Electricity storage is widely regarded to be the single most important technological breakthrough likely to happen over the period to 2030 and a complete 'game changer'.

3.9 National Grid's FES indicates that up to 20GW of battery storage might be needed by 2030.

3.10 Statera has identified that the Proposed Development Site is located within an area that requires additional backup capabilities to meet peak demand and can provide critical ancillary services at a strategic substation and important area of the grid network. Through discussions with the National Grid a TEC offer has been received for this facility, which critically enables export and import for a battery system.

3.11 The location next to Culham substation presents the opportunity to precisely secure the right sort of grid connection offer allowing import and export for the battery system. The need for this type of facility is a direct consequence of the amount of renewable and intermittent generation that is now installed in the UK. The proposal supports renewable planning policy in the National Planning Policy Framework and would help meet National Grid's requirement for ancillary services.

Environmental Impact Assessment

4.1 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations) set out in Schedule 1 those developments for which an Environmental Impact Assessment (EIA) is mandatory and, in Schedule 2, those where an EIA may be required.

Schedule 1

4.2 The Proposed Development does not fall under any of the project descriptions within Schedule 1, such as crude-oil refiners, thermal and nuclear power stations, and therefore it is not 'Schedule 1 Development' that would automatically require an EIA.

Schedule 2

4.3 The Proposed Development does fall within the definition under paragraph 3(a) (Energy industry – Industrial installations for the production of electricity, steam and hot water), as listed in Column 1 of Schedule 2. However, for this type of development to be 'Schedule 2 Development', consideration must be given to whether the site is either:

a) located in a 'sensitive area' (as defined under Regulation 22), or

b) one where the relevant screening thresholds and criteria for paragraph 3(a) categories of development are met or exceeded, which in this case are that the area of the development exceeds 0.5 hectares.

4.4 Only if the criteria for at least one of (a) or (b) above are met or exceeded does consideration need to be given to whether significant environmental effects are likely, and whether an EIA is required.

4.5 Given that the site area of the Proposed Development is approximately 27ha, the Proposed Development, therefore, exceeds the applicable threshold and criteria of Schedule 2 paragraph 3(a).

4.6 Consideration is therefore given to Schedule 3 of the EIA Regulations, which sets out the criteria for screening Schedule 2 development. Schedule 3 includes the characteristics and location of the development and the types and characteristics of the potential impact.

4.7 In determining whether EIA is necessary for an individual project, Schedule 3 of the EIA Regulations set out the criteria to assess the significance of effects. In summary, the criteria fall under three broad headings:

- Characteristics of development – taking into account aspects such as size, raw material usage, emissions and risk of accidents;
- Location of development – the environmental sensitivity of the areas likely to be affected including existing land uses and the capacity of the existing environment to 'absorb' the new development;
- Characteristics of the potential impact – in particular with regard to its extent, complexity, probability, duration and frequency, in relation to the characteristics and location of the development.

4.8 The EIA Scoping Report considered that the Proposed Development could give rise to likely significant effects with regards to archaeology, heritage, landscape and visual impact, land take and soils (agriculture) and operational climate change effects. The Proposed Development is therefore 'Schedule 2 Development' and constitutes 'EIA development' as per the EIA Regulations.

4.9 South Oxfordshire District Council confirmed on the 30/01/2023 that an EIA would be required P22/S4551/SCO.

Design and Access

Introduction

5.1 This section comprises the Design and Access Statement (DAS) and has been written to meet the requirements of Section 42 of the Planning and Compulsory Purchase Act 2004 and UK Government National Planning Practice Guidance.

5.2 This section describes the physical characteristics of the scheme and the assessment process that has led to the design of the layout. This document also contains an access statement which considers the suitability of the proposed access for its users, both vehicular and pedestrian.

Planning Application Documentation

5.3 This DAS should be read in conjunction with the details contained within this Planning Statement and the associated submitted material to gain a full understanding of the proposed development. Together these documents provide a comprehensive assessment of the proposed development and its impact on the local environment.

5.4 In March 2014 the Government published online National Planning Practice Guidance (PPG) which, amongst other things, provides guidance on the content of Design and Access Statements. The PPG explains that a DAS must:

- Explain the design principles and concepts that have been applied to the proposed development; and,
- Demonstrate the steps taken to appraise the context of the proposed development, and how the design of the development takes context into account (Paragraph: 031 Reference ID: 14-031-20140306).

5.5 In order to assess the design principles and concepts of the proposed development, the following criteria have been used:

- Use and Function
- Amount
- Layout
- Security
- Access
- Landscaping; and,
- Appearance.

Use and Function

5.6 In order to progress a development's design, it is important to understand its use and function i.e., the purpose of the development.

5.7 As discussed in detail within Section 2 of this Planning Statement the development comprises the provision of services using batteries to store electricity which can be used to benefit the wider Grid network, along with essential upgrades to the National Grid infrastructure.

5.8 The service is designed to provide ancillary services and flexible back-up power at very short notice. Unlike a traditional power station, the ancillary services required by National Grid demands that the BESS respond very rapidly to calls of frequency voltage and reactive power support and peaks in energy demand.

Amount of Development

5.9 The Proposed Development covers a total site area of approximately 26.8 hectares.

5.10 The Proposed Development would comprise up to 296 shipping containers modified to accommodate batteries, 37 noise insulated inverter houses, 7 control rooms, 3 shipping containers for storage and one as a welfare unit and 3 fire water storage tanks. The compound is protected with a 2.5 m high steel mesh fence.

5.11 An extensive landscape scheme is proposed to screen the Proposed Development and enhance the biodiversity of the local area which includes, new tree belt screen and improved grass seed mixes.

Layout

5.12 The containers would be arranged in several parallel blocks to fit the shape of the Site, considering the presence of the existing hedgerows and overhead power lines crossing the Site.

5.13 The layout of the proposed facility has been led primarily by functional requirements and contractor specifications. This principle is to locate the batteries within as small a footprint as possible, subject to cooling and enabling the safe access and movement between the battery units.

Landscape

5.14 The site lies within the Oxford Green Belt, with part of the site located within the Nuneham Courtenay Registered Park and Garden, with Nuneham Courtenay Conservation Area to the north of the site. The Proposed Development will be visible from a short section of the Oxford Green Belt Way, whereby to the north and east the site benefits from visual enclosure provided by Lock Wood and rising ground. The

Proposed Development will not be visible from within the Thames valley. The Culham Science Centre and the proposed urban expansion area will provide enclosure to the south and west. The railway to the west passes the site in a cutting and so the Proposed Development will not be visible to rail users. No dwellings overlook the site apart from Warren Farm to the west which lies in the centre of a proposed urban expansion area (STRAT9 of the South Oxfordshire Local Plan).

Crime

5.15 The facility will be enclosed by new 2.5m high fencing to offer site security and ensure that the equipment is protected from vandalism.

5.16 Day and night infrared cameras are included which will activate as soon as a person or vehicle moves into monitored space, triggering a 'recorded event' in addition to standard 24/7 recording of the site.

5.17 On site speaker system to alert any intruder that they are being recorded.

5.18 24/7 monitored CCTV that have mobile security staff that can attend if we can't get to site quick enough and a facility to call the local police station if needed.

5.19 High grade security locks on all access gates.

5.20 All equipment on site has a coded lock so that if anyone did get into site there is still the security of the high voltage rooms, low voltage rooms and the BESS and inverters.

Appearance

5.21 Containers are being proposed because they have the minimal impact in terms of scale and visibility. The colour can be agreed with the Council but we are proposing a dark green colour.

Access

Construction Phase

5.22 The construction period is anticipated to last up to 18 months, approx. 8 to 10 months for civil and 8 months for commissioning. The basic construction programme can be broken down in to the following phases.

- Enabling Works
- Ground Civil Works
- Main Civil Works
- Electrical Connection Works
- Commissioning

5.23 A temporary construction compound will be created on site, this will be used for lorry turning and as a set down area during construction. This area will be reinstated post project completion.

5.24 All shuttle vehicles will be able to enter the site and unload within the compound area. There will be no queuing, parking or unloading on the public highway.

5.25 The cabins and containers are manufactured off site, delivered by HGV in modules and are rapidly craned into position onto pile foundations, resulting in an efficient build period.

5.26 The maximum number of traffic movements of construction vehicles in any one day will be circa 50 Heavy Duty Vehicles (HDVs) however this is the peak and will be confined to the early earthworks / civils phase of the project.

5.27 The deliveries (and staff) will be directed to the construction compound. Equipment will be stored in the construction laydown area until it is required within the construction site, however much of the equipment will arrive pre-assembled and be installed directly on arrival.

5.28 Construction traffic will access the site via the existing road to the west of the industrial estate, currently used as an agricultural access track off Abingdon Road, before joining onto Thame Lane. Access through Culham Science Centre has also been organised for the electrical connection of the site via the Culham Jet National Grid substation.

Operational Phase

5.29 Due to the nature of the facility, once installed, there is minimal on-site activity required during the plant life cycle. The facility will be remotely controlled / monitored, and operatives will visit the site on an ad hoc basis.

5.30 Parking during the operational phase of the development has been accommodated within the Application Site.

5.31 During the lifetime of this development access to the facility will be via Thame Lane which connects to the Abingdon Road to the south.

5.32 Provision has been made for both pedestrian and vehicular access when required.

Decommissioning Phase

5.33 The Proposed Development would be operational for up to 40 years.

5.34 When the Proposed Development is decommissioned, the lithium-ion batteries housed in their containers and other infrastructure will be removed. Currently a significant proportion of the material can be recycled and research is ongoing within the industry to increase this amount. Due to the limited quantity of foundations, hard surfacing and heavy infrastructure, combined with the fact that the majority of the site will be retained as grassland, the land will be easier to restore than more intrusive development with more significant foundations.

Planning Policy Context

6.10 As per the South Oxfordshire Local Plan, the site lies within the Oxford Green Belt (Policy STRAT6), an area that offers protection to the historic setting of Oxford and to areas surrounding the city. Furthermore, part of the site is located within the Nuneham Courtenay Grade 1 Registered Park and Garden (covered by Policy ENV10) and lies adjacent to the Nuneham Courtenay Conservation Area (ENV8). The Culham Science Centre lies to the immediate south-east of the site (STRAT8 - Culham Science Centre), with the proposed extension to the substation partially within this STRAT8 site, and an urban expansion area lies immediately to the west of the site (STRAT9 – Strategic Allocation).

6.11 Section 38 (6) of The Planning and Compulsory Purchase Act 2004 states that planning decisions should be made in accordance with the development plan unless material considerations indicate otherwise.

Local

6.12 The site is located within the jurisdiction of South Oxfordshire District Council (SODC) as the Local Planning Authority and determining authority for this application. The Local Plans considered to be of relevance to the Proposed Development are identified below.

- The Culham Neighbourhood Plan (adopted June 2023)[3], and
- South Oxfordshire Local Plan 2035 [4]

6.13 The Culham Neighbourhood Plan (adopted June 2023) represents the views of the local community with regard to the future of Culham up to 2041. It has been designed to operate within the adopted South Oxfordshire Local Plan in the Culham Neighbourhood Plan area.

6.14 The South Oxfordshire Local Plan 2035 was adopted at a meeting of Full Council on 10 December 2020. It forms part of the Development plan for the district and replaces the South Oxfordshire Local Plan 2011 and Core Strategy. Policies contained in the Local Plan that are relevant to the consideration of this application are set out below.

South Oxfordshire Local Plan 2035

6.15 Policy STRAT1 sets out the overall strategy, which development proposals must accord with. The Strategy states at criterion i) that major new development should be focussed in the Science Vale, which includes sustainable growth at Culham to that this area can

[3] https://www.southoxon.gov.uk/south-oxfordshire-district-council/planning-and-development/local-plan-and-planning-policies/neighbourhood-plans/emerging-neighbourhood-plans/culham/
[4] https://www.southoxon.gov.uk/south-oxfordshire-district-council/planning-and-development/local-plan-and-planning-policies/local-plan-2035/adopted-local-plan-2035/

provide an enhanced role in providing jobs and services with improved transport connectivity.

6.16 Policy STRAT4 relates to the Strategic Allocations in the Plan, stating that new development will be provided in the strategic allocations in order to deliver the scale and distribution of development set out in Policy STRAT1.

6.17 Policy STRAT6 deals with the Green Belt and acknowledges that the Green Belt boundary has been altered to accommodate the strategic allocations at sites STRAT8-STRAT14 (inclusive) with those boundaries confirmed on the Green Belt boundary maps at Appendix 4 of the Local Plan. The policy goes on to state that where land has been removed from the Green Belt, new development should be carefully designed to minimise visual impact.

6.18 Policy STRAT8 allocates land at CSC for development and confirms its removal from the Green Belt. The policy states:

'Proposals for the redevelopment and intensification of the CSC will be supported where this does not have an unacceptable visual impact, particularly on the character and appearance of the surrounding countryside and the Registered Parkland associated with Nuneham House. 1)

- In combination with the adjacent strategic allocation (Policy STRAT9) this site will deliver at least a net increase in employment land of 7.3 hectares (with the existing 10 hectares of the No.1 site retained but redistributed across the two strategic allocations). The exact siting and phasing of the employment development must be agreed through the master planning and subsequent planning application process including addressing any heritage assets and their settings in accordance with Policy ENV6 and the NPPF.
- Proposals for development on the site should seek to achieve a net gain in biodiversity. Any residual biodiversity loss should be offset through a recognised offsetting scheme.
- Opportunities that support job growth and appropriate diversification or enterprise "clustering" will be supported to complement the wider development proposed in the area. Working proactively with the UK Atomic Energy Authority and development partners a masterplan for the site that facilitates this growth must be prepared and agreed with the Local Planning Authority.
- Proposals will be expected to deliver low carbon development and renewable energy in accordance with STRAT4.
- The CSC is removed from the Green Belt and inset as shown on Land inset from the Green Belt Boundary (Appendix 4) to enable this development to be brought forward.'

6.19 Policy STRAT9 – Land Adjacent to Culham Science Centre covers 217 hectares of land to be developed to deliver approximately 3,500 new homes, with approximately

2,100 homes within the plan period, a net increase of at least 7.3 hectares of employment land in combination with the adjacent Science Centre, 3 pitches for Gypsies and Travellers and supporting services and facilities.

6.20 Policy INF1 relates to infrastructure provision and requires new development to be served and supported by appropriate on and off-site infrastructure and services. The policy requires new development to take account of existing infrastructure, and infrastructure required as a consequence of the development, to ensure necessary provision is in place to meet the needs of the development.

6.21 Policy INF2 – Electronic Communications; states the Council will work with Oxfordshire County Council and others to promote faster, more reliable and more comprehensive coverage of electronic communications. Proposals for all new development should ensure appropriate infrastructure is provided during construction, sufficient to enable all development to be connected to full fibre broadband without any post development works.

6.22 Policy INF4 deals with water resources and requires all development proposals to demonstrate that there is, or will be, adequate water supply, surface water, foul drainage and sewerage treatment capacity to serve the whole development.

6.23 Policy TRANS2 cover the promotion of sustainable transport and accessibility and seeks to ensure that, inter alia, new development is located close to or along existing strategic transport corridors, bus and/or rail services; and ensure that new development is designed to encourage walking and cycling.

6.24 Policy TRANS3 – Safeguarding of Land for Strategic Transport Schemes; Land is safeguarded to support the delivery of the following identified transport schemes:

- Clifton Hampden bypass
- A new Thames River crossing between Culham and Didcot Garden Town
- Didcot Northern Perimeter Road
- Science Bridge, Didcot
- (A4130/ B4493) Didcot Central transport corridor improvements
- Southern Didcot Spine Road
- A4130 road safety improvements
- A bypass for Watlington
- A bypass for Benson
- A4074/ B4015 (Golden Balls) junction improvements
- A bypass for Southern Abingdon
- A new Park and Ride site at Sandford to the south-east of Oxford.

6.25 Policy TRANS4 – Transport Assessments, Transport Statements and Travel Plans relates to proposals for new developments which have significant transport implications that either arise from the development proposed or cumulatively with other proposals will need to submit a Transport Assessment or a Transport Statement, and where relevant a Travel Plan. These documents will need to take into account Oxfordshire County Council guidance and Planning Practice Guidance27 and where appropriate, the scope should be agreed with Highways England.

6.26 Policy TRANS5 relates to the considerations that need to be considered in all types of development proposals, including, inter alia, safe and convenient access for all users to the highway network; appropriate transport infrastructure; covered and safe cycle parking; and safe and convenient routes for cyclists and pedestrians.

6.27 Policy ENV1 relates to the landscape and countryside, and states that South Oxfordshire's landscape, countryside and rural areas will be protected against harmful development. Development will only be permitted where it protects and, where possible, enhances features that contribute to the nature and quality of South Oxfordshire's landscapes.

6.28 Policy ENV2 – Biodiversity – Designated Sites, Priority Habitats and Species states the highest level of protection will be given to sites of international nature conservation importance (Special Areas of Conservation). Development that is likely to result in a significant effect, either alone or in combination, on such sites will need to satisfy the requirements of the Conservation of Habitats and Species Regulations 2017 (as amended).Sites of Special Scientific Interest (SSSI) are of national importance. Development that is likely to have an adverse effect on a SSSI (either on its own or in combination with other developments) will only be permitted in exceptional circumstances, where it can be demonstrated that the benefits of the development in the location proposed clearly outweigh any harm to the special interest features and the SSSI's contribution to the local ecological network. In such circumstances, measures should be provided (and secured through planning conditions or legal agreements) that would mitigate or, as a last resort, compensate for the adverse effects resulting from development.

6.29 Policy ENV3 deals with Biodiversity and states that all development should provide a net gain in biodiversity, and in particular, proposals that will conserve, restore and enhance biodiversity in the district will be supported. As a minimum, the policy stipulates that there should be no net loss of biodiversity, and proposals should be supported by evidence to demonstrate a biodiversity net gain using a recognised biodiversity accounting metric.

6.30 Policy ENV4 – Watercourses; relates to land that contains or is adjacent to a watercourse must protect and where possible, enhance the function and setting of the watercourse and its biodiversity. As a last resort development should provide mitigation for any unavoidable impacts.

6.31 Policy ENV5 seeks to ensure that new development proposals contribute towards the provision of additional Green Infrastructure and protect and enhance existing Green Infrastructure.

6.32 Policy ENV6 proposals for new development that may affect designated and non designated heritage assets should take account of the desirability of sustaining and enhancing the significance of those assets and putting them to viable uses consistent with their conservation. Heritage assets include statutorily designated Scheduled Monuments, Listed Buildings or structures, Conservation Areas, Registered Parks and Gardens, Registered Battlefields, archaeology of national and local interest and non-designated buildings, structures or historic landscapes that contribute to local historic and architectural interest of the district's historic environment, and also includes those heritage assets listed by the Oxfordshire Historic Environmental Record.

6.33 Policy ENV7 – Listed Buildings states development proposals that would result in less than substantial harm to the significance of a listed building will be expected to:

- minimise harm and avoid adverse impacts, and provide justification for any adverse impacts, harm or loss of significance;
- identify any demonstrable public benefits or exceptional circumstances in relation to the development proposed; and
- investigate and record changes or loss of fabric, features, objects or remains, both known and unknown, in a manner proportionate to the importance of the change or loss, and to make this information publicly accessible.

Changes of use will be supported where it can be demonstrated that the new use can be accommodated without any adverse effect on the significance of the building and its setting.

6.34 Policy ENV8 – Conservation Areas seeks to ensure proposals for development within or affecting the setting of a Conservation Area must conserve or enhance its special interest, character, setting and appearance.

6.35 Policy ENV9 development must protect the site and setting of Scheduled Monuments or nationally important designated or undesignated archaeological remains. Applicants will be expected to undertake an assessment of appropriate detail to determine whether the development site is known to, or is likely to, contain archaeological remains. Proposals must show the development proposals have had regard to any such remains.

6.36 Policy ENV10 seeks to ensure new developments converse the special historic interest, character or setting of a battlefield, or park or garden.

6.37 Policy ENV11 – Pollution – Impact from Existing and/or Previous Land Uses on New Development (Potential Receptors of Pollution) states, development proposals should be appropriate to their location and should be designed to ensure that the occupiers of a new development will not be subject to individual and/or cumulative adverse effect(s) of pollution. Proposals will need to avoid or provide details of proposed mitigation

methods to protect occupiers of a new development from the adverse impact(s) of pollution.

6.38 Policy ENV12 – Pollution – Impact of Development on Human Health, the Natural Environment and/or Local Amenity (Sources); states development proposals should be located in sustainable locations and should be designed to ensure that they will not result in significant adverse impacts on human health, the natural environment and/or the amenity of neighbouring uses.

6.39 Policy DES1 seeks to deliver high quality design in new developments and lists a series of criteria which will be considered by the Council is determining whether a proposal amounts to 'high quality' development. A number of these criteria overlap with other policies in the plan which relate to matters such as biodiversity, energy and sustainability, green infrastructure and accessibility.

6.40 Policy DES2 – Enhancing Local Character states all new development must be designed to reflect the positive features that make up the character of the local area and should both physically and visually enhance and complement the surroundings.

6.41 Policy DES3 – Design and Access Statements Policy DES4 - Masterplans for Major Development states here an application is required to be supported by a Design and Access Statement, this must demonstrate how the development proposal meets the design objectives and principles set out in the South Oxfordshire Design Guide.

6.42 Policy DES7 – Efficient Use of Resources looks to ensure that new development are required to make provision for the effective use and protection of natural resources where applicable.

6.43 Policy DES8 seeks to promote sustainable design in new developments, to minimise the carbon and energy impacts of their design and construction. Proposals must demonstrate that they are seeking to limit greenhouse emissions through location, building orientation, design, landscape and planting considering any nationally adopted standards and in accordance with Policies DES10: Carbon Reduction and DES7: Efficient use of Resources.

6.44 Policy DES9 subsequently deals with renewable energy and states that the Council will encourage the incorporation of renewable and low carbon energy applications within all developments.

6.45 Policy DES10 relates to carbon reductions in new developments. The policy states that non-residential development proposals are required to meet the BREEAM excellent standard (or a recognised equivalent assessment methodology), and where over 1,000m2 of new floorspace is proposed, at least a 40% reduction in the carbon emissions compared with a 2013 Building Regulations compliant base case. An Energy Statement will be submitted to demonstrate compliance with this policy for all newbuild non-residential schemes over 1000m2.

6.46 Policy EP1 – Air Quality states development must have regard to the measures laid out in the Council's Developer Guidance Document and the associated Air Quality Action Plan, as well as the national air quality guidance and any Local Transport Plans.

6.47 Policy EP2 – Hazardous Substances states development which involve the use, movement or storage of hazardous substances will only be permitted where a suitable and sufficient risk assessment has been carried out and identified control measures implemented to adequately reduce risk as far as reasonably practical to the health and safety of users of the site, neighbouring land and the environment. Development within the vicinity of an installation involving hazardous substances or activities will only be permitted if the impact on health and safety of occupants of that development is acceptable. The Council will seek to reduce the potential for conflicting land uses and promote safety of people and protection of the environment.

6.48 Policy EP3 – Waste Collection and Recycling states development proposals for non-residential use must ensure:

- sufficient space is provided for the storage of communal recycling and refuse containers; and
- provision is made that is adequate for the proposed use. The location and design of recycling and refuse provision should be integral to the design of the proposed development.

National

Overarching National Policy Statement for Energy (EN-1)

6.49 The National Policy Statements (NPSs) are material considerations to applications under the Town and Country Planning Act 1990 (as amended). EN-1 is the national policy on energy and establishes the need for energy related development, with the Government not requiring decision makers to consider need on individual applications because of this. The Proposed Development will help meet this need and, moreover, with the battery storage it will address intermittency and help to relegate the role of fossil fuels as a back-up.

6.50 Paragraph 1.7.2 states that energy National Policy Statements should speed up the transition to a low carbon economy and help to realise UK climate change commitments sooner than continuation under the current planning system. It is also acknowledged that the development of new energy infrastructure, at the scale and speed required to meet the current and future need, is likely to have some negative effects on biodiversity, landscape/visual amenity and cultural heritage, however in general it should be possible to mitigate satisfactorily the most significant potential negative effects.

6.51 The Government's policy on energy infrastructure development in Part 2 of EN-1 is critical to understanding the policies on need. Paragraph 2.1.1 states that there are three key goals, namely reducing carbon emissions, energy security and affordability. Large scale infrastructure plays a "vital role" in ensuring security of supply (paragraph 2.1.2).

6.52 The transition to a low carbon economy is dealt with at paragraphs 2.2.5 to 2.2.11. The UK needs to wean itself off a high carbon energy mix, to reduce GHG emissions, and to improve the security, availability and affordability of energy through diversification. Under some of the "illustrative" 2050 pathways electricity generation would need to become virtually emission free.

6.53 Paragraph 2.2.23 states that "The UK must therefore reduce over time its dependence on fossil fuels, particularly unabated combustion. The Government plans to do this by improving energy efficiency and pursuing its objectives for renewables, nuclear power and carbon capture and storage".

6.54 Paragraph 3.3.10 also states that as part of the UK's need to diversify and decarbonise electricity generation, the Government is committed to dramatically increasing the amount of renewable energy capacity. With paragraph 3.3.11 going onto state that an increase in renewable electricity is essential to enable the UK to meet its commitments under the EU Renewable Energy Directive.

6.55 Paragraph 3.3.12 highlights that there are a number of other technologies which can be used to compensate for the intermittency of renewable generation, such as electricity storage. Although Government believes these technologies will play important roles in a low carbon electricity system, the development and deployment of these technologies at the necessary scale has yet to be achieved.

6.56 Overall, section 3.4 identifies that large scale deployment of renewables will help the UK to tackle climate change, reducing the UK's emissions of carbon dioxide by over 750 million tonnes by 2030. Paragraph 3.4.5 makes it clear that "The need for new renewable electricity generation projects is therefore urgent".

6.57 In September 2021, the Government published the revised energy NPSs that support decisions on major energy infrastructure. These documents, when finalised, will guide decision-makers on the application of government policy when determining development consent for nationally significant energy infrastructure under the Planning Act 2008.

6.58 Both the existing and proposed energy NPSs state that they can also be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended).

6.59 Below is a summary of the material considerations set out within the newly published draft energy NPSs as they apply to the Proposed Development.

National Planning Policy Framework[5]

6.60 The National Planning Policy Framework (December 2023) (NPPF) sets out the Government's planning policies for England and how these should be applied. At its core is the need for the planning system to contribute to the achievement of sustainable

[5] https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf

development – meeting the needs of the present without compromising the ability of future generations to meet their own needs.

6.61 Paragraph 8 of the NPPF explains that achieving sustainable development means the planning system has three overarching and interdependent objectives:

- "an economic objective - to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;
- a social objective - to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being; and
- an environmental objective - to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."

6.62 The environmental objective in particular is applicable to renewable energy developments.

6.63 Paragraph 11 of the NPPF stipulates when determining planning applications a presumption in favour of sustainable development should be applied and specifically:

For plan-making this means that:

a) approving development proposals that accord with an up-to-date development plan without delay; or

b) where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:

i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or

ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole."

For decision-taking this means:

c) approving development proposals that accord with an up-to-date development plan without delay; or

d) where there are no relevant development plan policies, or the policies which are most important for determining the application are out-of-date, granting permission unless:

i. the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed; or

ii. any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole.

6.64 Paragraph 12 underlines that the presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making. The policies within the Local Development Framework are considered below.

6.65 Section 6 of the NPPF refers to building a strong competitive economy, Paragraph 87 states planning policies and decisions should recognise and address the specific locational requirements of different sectors. This includes making provision for clusters or networks of knowledge and data-driven, creative or high technology industries; and for storage and distribution operations at a variety of scales and in suitably accessible locations.

6.66 Paragraph 88 in particular states that in supporting a prosperous rural economy planning decisions should enable the development and diversification of agricultural and other land based rural business.

6.67 Paragraph 104 states that planning policies and decisions should protect and enhance public rights of way and access, including taking opportunities to provide better facilities for users, for example by adding links to existing rights of way networks including National Trails.

6.68 Paragraph 115 directs that development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

6.69 Paragraph 124 (a) states that planning policies and decisions should “encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities to achieve net environmental gains – such as developments that would enable new habitat creation or improve public access to the countryside.”

6.70 Paragraph 153 states when considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. ‘Very special circumstances’ will not exist unless the potential harm to the Green Belt by

reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.

6.71 Paragraph 156 sets out When located in the Green Belt, elements of many renewable energy projects will comprise inappropriate development. In such cases developers will need to demonstrate very special circumstances if projects are to proceed. Such very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.

6.72 Paragraph 157 sets out that the planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change. It should help to: shape places in ways that contribute to radical reductions in greenhouse gas emissions, minimise vulnerability and improve resilience; encourage the reuse of existing resources, including the conversion of existing buildings; and support renewable and low carbon energy and associated infrastructure.

6.73 Paragraph 163 sets out that when determining planning applications for renewable and low carbon development, local planning authorities should:

a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to significant cutting greenhouse gas emissions;
b) approve the application if its impacts are (or can be made) acceptable58. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas; and
c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site, and approve the proposal if its impacts are or can be made acceptable.

6.74 Paragraph 165 sets out that Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk. Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

6.75 Paragraph 173 directs that when determining any planning applications, local planning authorities should ensure that flood risk is not increased elsewhere. Where appropriate, applications should be supported by a site-specific flood-risk assessment. Development should only be allowed in areas at risk of flooding where, in the light of this assessment (and the sequential and exception tests, as applicable) it can be demonstrated that:

a) within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location;

b) the development is appropriately flood resistant and resilient such that, in the event of a flood, it could be quickly brought back into use without significant refurbishment;

c) it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate;

d) any residual risk can be safely managed; and

e) safe access and escape routes are included where appropriate, as part of an agreed emergency plan.

6.76 Paragraph 174 states that planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
b) 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, and of trees and woodland;
c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate

6.77 Paragraph 185 sets out the principles that local planning authorities should apply to protect and enhance biodiversity and geodiversity, plans should:

a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and
b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and

identify and pursue opportunities for securing measurable net gains for biodiversity.

6.78 Paragraph 191 states that planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum potential adverse impact resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason; and
c) limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

6.79 Paragraph 200 states in determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes, or has the potential to include, heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.

6.80 Paragraph 208 states where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.

6.81 The Glossary of the NPPF defines renewable and low carbon energy, including energy for heating and cooling as well as generating electricity. Renewable energy covers those energy flows that occur naturally and repeatedly in the environment including from the sun. Low carbon technologies are those that can help reduce emissions (compared to conventional use of fossil fuels).

Planning Practice Guidance

6.82 The key aim of the Planning Practice Guidance is to provide easily accessible and understandable guidance on the implementation of the policies within the NPPF. It contains specific guidance on planning policies for renewables energy developments and on how planning applications should be determined with regards to their impact on

the natural and historic environment. Consideration of the fundamental aspects of this guidance in relation to the application are detailed below.

Renewable and Low Carbon Energy 2015

6.83 The guidance provides further advice on renewable and low carbon energy projects to facilitate the delivery of the low carbon future. It states that the government remains committed to increasing the amount of energy from renewable and low carbon technologies to ensure that the UK has a secure energy supply, to slow down climate change and to stimulate new jobs and businesses.

Climate Change 2019

6.84 Addressing climate change is stated as being one of the core land use planning principles which the NPPF expects to underpin decision-taking on planning applications. The guidance seeks to ensure that the planning system helps to implement the objectives of the Climate Change Act 2008 by radically reducing greenhouse gas emissions and adapting to the forecast impacts of climate change. The guidance makes it clear that Councils need to take account of global climate change including, for example, providing opportunities for renewable and low carbon energy technologies.

Natural Environment 2019

6.85 The guidance was updated in July 2019 to address how planning can take account of the quality of agricultural land and that an agricultural land classification assessing the quality of farmland can enable informed choices to be made about its future use within the planning system. Planning decisions should take account of the economic and other benefits of the best and most versatile agricultural land. There are five grades of agricultural land, with Grade 3 subdivided in 3a and 3b. The best and most versatile land is defined as Grades 1, 2 and 3a.

Determining issues and assessment

Introduction

8.1 This section outlines the determining issues identified from the planning policies in the preceding section and assesses the proposed development against these issues in order to determine whether it complies with the Development Plan and other relevant policy guidance.

8.2 The acceptability of the principle of development is assessed as well as a detailed assessment of the main policy considerations pertinent to the proposal. These specifically cover design, landscape and visual, hazards and human health impacts, highways, water management, heritage, ecology, noise and air quality. Detailed considerations of these elements are also provided in the assessments supporting this Application.

Sustainable Development

8.3 Among the key changes introduced by The National Planning Policy Framework (NPPF) was a new policy presumption in favour of development that contributes to sustainable development. This is reflected within South Oxfordshire Local Plan 2011-2035, Adopted December 2020. As the Proposed Development is to support the consistent delivery of renewable energy it is considered by its very nature to be a sustainable development. Notwithstanding this, this section demonstrates the compliance with the three strands of sustainable development set out within the NPPF which comprise of social, economic and environmental benefits.

Benefits of the Proposed Development

8.4 The proposed development will provide the following benefits:

- **Supporting the transition to a lower carbon economy**

  The Policies within the Development Plan, NPPF and EN-1 support the shift towards the delivery of low carbon energy generation. The proposed development will help to achieve this by providing a critical supporting role to renewable energy generation at times either when it is not operating and/or unable to generate sufficient energy to meet demand or when the frequency of the grid is imbalanced.

- **Maintaining energy security**

  The need for flexible and decentralised energy generating facilities is well established within the national planning policy context. The NPPF sets out at paragraph 93 the importance of the planning system in minimising vulnerability

and providing resilience in energy generation and supply. The Proposed Development is therefore required to compliment the mix of electricity generation and to meet the Government's objective of maintaining a reliable electricity supply. The ancillary services are able to balance supply and demand and are able to respond rapidly to the short-term variations in local demand and fluctuations in the output from renewable energy sources.

- **Employment Benefits**

  The construction of the Proposed Development will directly support approximately 40 workers for 18 months. Indirectly, the construction of the facility could potentially also generate employment opportunities within the local supply chain for those companies providing services to the Proposed Development, for example engineering and maintenance services, plant and equipment supply and haulage. Once operational the Proposed Development, in conjunction with other similar developments, will provide two part-time jobs for operation and maintenance of the facility.

- **Local Amenity**

  The site will allow for public access via permissive paths and the creation of new woodland planting and wildflower meadows improving accessibility for locals in an area otherwise inaccessible.

Landscape and Visual

8.5 A Landscape and Visual Impact Assessment has been undertaken in winter, a time of greatest visibility across the landscape, and has been used to inform the evolution of the design.

8.6 It is concluded that the proposed electrical infrastructure will significantly adversely affect the landscape character of the part of the Site in which it lies and initially and to a lesser extent the character of a small part of Nuneham Park. It is proposed to enhance this part of the parkland, including restoring a historical tree belt along the Parish boundary. This will have a beneficial effect on the character, setting and visual amenity of the parkland, although this will take many years to be effective. There will be no significant adverse residual effects on the character of the wider countryside beyond the parkland within ten years. The only significant adverse effect of the Proposed Development on visual amenity will be to walkers using a short stretch of the Oxford Green Belt Way, a stretch already adversely affected by the existing electrical infrastructure and CSC. Permissive access to the parkland, which includes a fine viewpoint over the Thames Valley and along a new permissive path will be a benefit, particularly given the proximity of a large mixed use development area to the west. The beneficial aspects of the Proposed Development, in terms of parkland restoration, public access and Biodiversity Net Gain are considered to be greater than the limited adverse landscape and visual effects.

8.7 It is therefore considered the Proposed Development is compliant with the requirements of the NPPF, PPG and policies ENV1, ENV5 of the SODCLP

Ecology and Biodiversity

8.8 Statera instructed Ecology by Design to conduct an Ecological Impact Assessment (EcIA) and Biodiversity Net Gain Assessment (BNG), along with further targeted protected species surveys.

8.9 Habitats within the site are of negligible intrinsic ecological interest due to being common and widespread, however, they are of biodiversity value, having a baseline value of 68.89 habitat units. In the absence of mitigation, habitat loss to accommodate the proposals would result in a loss of biodiversity habitat units and potentially reduce suitability of the site for badger, brown hare and reptiles.

8.10 A Landscape and Ecological Management Plan (LEMP) has been prepared for the Proposed Development and will sit alongside The Application.

8.11 The Proposed Developed with its extensive planting scheme would result in 109.62 on-site habitat units post-intervention i.e. a 59.14% increase from the baseline. The new hedgerows will deliver 5.10 hedgerow units.

8.12 It is therefore considered the Proposed Development is compliant with the requirements of the NPPF, PPG and policy ENV3 of the SODCLP.

Archaeology and Built Heritage

8.13 Statera instructed Oxford Archaeology to undertake the geophysical survey of the Site along with a Heritage Impact Assessment.

8.14 The Proposed Development will have no impact on any nationally designated archaeological assets. The Proposed Development has been assessed as has having a high potential to contain prehistoric and Roman deposits and low potential to contain post-Roman deposits.

8.15 The Proposed Development is considered to have the potential to result in Significant adverse effects on buried archaeological remains. Completion of further evaluation works (ES Volume 3, Appendix: Cultural Heritage – Annex 4) and implementation of a strategy for archaeological mitigation would not remove likely significant effects associated with the enabling and construction works given that there is the potential for the resource to be lost, however the scale of the effect would be reduced. Mitigation of the archaeological remains through excavation or similar strategy would ensure that any archaeological remains within the site are appropriately preserved by record prior to

any adverse construction effects. Any strategy would be agreed with South Oxford District Council, Oxford County Council, and their archaeological advisor in advance of development.

8.16 The Proposed Development has the potential to indirectly affect designated heritage assets in the surrounding area by changing their setting.

8.17 The two sensitive assets in the vicinity of the site are Nuneham Courtenay Registered Park and Garden and Nuneham Courtenay Conservation Area, which lie to the north of the site. The construction and decommissioning activities associated with the Proposed Development will introduce Significant adverse effects on the designated heritage assets within the landscape associated with the alteration to their setting via noise, dust, vehicle and plant movements and visual changes, however, these impacts will be temporary and short term.

8.18 The Proposed Development includes the following design mitigation measures to minimise or remove the adverse impacts to surrounding heritage assets including:

- Establishment of new hedgerows immediately around the battery storage facility to shield the site from public view;
- Wider landscaping including the establishment of new scrubland and woodland to the north of the battery storage facility along the limit of Nuneham Courtenay Registered Park and Garden, and re-establishing a historic tree belt along the south-west boundary of the Registered Park and Garden, enhancing this part of the park;
- Establishment of new permissive paths for the duration of the planning application to enable greater enjoyment of previously inaccessible part of the Nuneham Courtenay Registered Park and Garden; and
- Considerate design of infrastructure as to blend into the surrounding landscape.

8.19 Furthermore, pre-construction mitigation in the form of a programme of archaeological evaluation and mitigation to manage impacts on below ground archaeological remains and deposits through preservation in record will be undertaken if required.

8.20 It is therefore considered the Proposed Development is compliant with the requirements of the NPPF, PPG and policies ENV6, ENV9 and ENV10 of the SODCLP.

Traffic and Highway Safety

8.21 The construction period is anticipated to last 18 months with an average workforce of up to 50 personnel, although this may peak briefly at 70 personnel for particular milestones during the construction period.

8.22 The maximum number of traffic movements of construction vehicles in any one day will be circa 50 Heavy Duty Vehicles (HDVs) however this is the peak and will be confined to the early earthworks / civils phase of the project.

8.23 Construction work and construction traffic movements will not take place on Sundays, bank holidays or after 13.00 on a Saturday unless such work is associated with an emergency or with the prior written consent of the local authority

8.24 It should be noted that apart from the construction phase of the development where there would be an increase in traffic movements, once installed, the development will be unmanned and a passive installation with very minimal extra traffic movement. Once operational, the Proposed Development will be unmanned and would be operated remotely, although access would be needed for occasional maintenance inspections and an annual service to ensure continued efficient operation. Traffic generated during operation would therefore be negligible. 14 parking spaces are proposed. Given that the Proposed Development will be unmanned it is considered that this level of parking is appropriate.

8.25 It is therefore concluded that the Proposed Development would not have any unacceptable adverse impacts on the function, safety and character of the local or strategic highway network and that adequate parking provision is provided.

8.26 It is therefore considered the Proposed Development is compliant with the requirements of the NPPF, PPG and policies TRANS2b. TRANS 3, TRANS4 and TRANS5 of the SODCLP.

Noise and vibration

8.27 Statera instructed RPS to undertake a noise impact assessment of the Proposed Development.

8.28 The layout of the Proposed Development comprises the following plant: battery containers, inverters, inverter transformers and substation.

8.29 An environmental sound survey was undertaken by Sol Acoustics in May 2017, this has been used to inform the noise assessment in this report.

8.30 A 3D noise model was built based on the proposed site layout to predict the specific sound levels from the operation of the proposed development at the noise sensitive receptors. The 3D acoustic model included noise source data provided by the client and manufacturer's data.

8.31 A BS 4142:2014+A1:2019 assessment was undertaken to establish the likelihood of an adverse impact occurring at receptors, due to noise generated by the proposed development.

8.32 The outcome of the BS 4142:2014+A1:2019 assessment showed that, when considered in context, the NSRs are expected to experience a low impact due to industrial noise generated by the proposed battery storage site. This is the lowest category set out in BS 4142:2014+A1:2019. Therefore, no specific noise mitigation measures are required to reduce noise levels at receptors.

8.33 With the consideration of the context, it is concluded that levels of sound arising from the operation of the proposed development will not result in an adverse or significant adverse impact at any of the nearby noise sensitive receptors.

8.34 With regards to national and local planning policy, it is considered that the results of the assessment demonstrate that the proposed battery storage facility will not result in an adverse impact to amenity at the nearby receptors.

8.35 It is therefore considered that the development is compliant with the requirements of the Noise Policy Statement for England (NPSE), the National Planning Policy Framework (NPPF) and is below the Lowest Observable Adverse Effect Level (LOAEL) as set out in Planning Practice Guidance on Noise (PPG-N). Noise should therefore not be considered a material issue in terms of planning.

Fire Liaison Strategy

8.36 Statera instructed Greston Associates to produces a Fire Liaison Framework.

8.37 Statera has been operating Battery Energy Storage System (BESS) sites since 2015, with sites now across Hertfordshire, Essex, Yorkshire, and Wiltshire. No fire events have been recorded at any of our sites.

8.38 All of Statera's operational BESS sites comply with all applicable UK Health, Safety & Environmental legislation.

8.39 The spacing of containers will be based on National Fire Protection Association standard NFPA855 for the installation of stationary energy storage systems.

8.40 The batteries are exceptionally high quality and have been tested to Underwriter Laboratories UL9540A standard.

8.41 Statera work with Fire Industry Association and wider industry to ensure the latest technology is built into the design.

8.42 Lithium Iron Phosphate chemistry does not exhibit thermal runaway until temperatures are in the region 150-200 degrees C. These temperatures have never been reached in any of our site.

8.43 The batteries themselves also have overtemperature protection and fire suppression initiation, which operates as follows, again well below thermal runaway temperatures:

- Level 1@54℃: reporting the warning message

- Level 2@57℃: reporting the warning message will request to reduce the charge/discharge power by 50%
- Level 3@60℃: force open the relay and power shut down

8.44 Statera has consulted with Oxfordshire Fire and Rescue Services and has agreed a Fire Liaison Frame. This framework covers;

- Pre-planning
- Site Commissioning (post planning approval)
- Operational delivery

8.45 It is therefore considered the Proposed Development is compliant with the requirements of the National Fire Protection Association standards, the NPPF, PPG and the SODCLP.

Hydrology and Flood Risk

8.46 A site-specific Flood Risk Assessment (FRA) in accordance with the NPPF and PPG ID7 has been prepared to support the application for the development of a Battery facility and associated infrastructure.

8.47 EA mapping shows that the site is located within Flood Zone 1, which is land assessed as having a less than 1 in 1,000 annual probability of river or sea flooding.

8.48 The majority of the site is at a 'Very Low' risk of surface water flooding. Small discreet areas of 'Low' risk are identified within the eastern portion of the site and along Thames Lane adjacent to the southern boundary. During a low-risk scenario, depths within these areas do not exceed 0.3m, with velocities between 0.25 – 1.00 m/s.

8.49 The site susceptibility to groundwater flooding has been assessed as low.

8.50 The site is not at risk of flooding from reservoir infrastructure failure.

8.51 The proposed development type is defined as 'Essential Infrastructure' in the NPPF and PPG.

8.52 There will be an increase in impermeable area at site, therefore surface water will be attenuated and discharged from the site via an attenuation blanket. MicroDrainage calculations indicate that the overall attenuation requirement for the development is approximately 4085 m^3 for the 1 in 100 year storm event plus a 40% allowance for climate change.

8.53 The drainage strategy incorporates a number of surface water cleaning techniques in order that any discharges are as 'clean' as reasonably practicable.

8.54 The impacts of the increase in surface water runoff will be reduced by the incorporation of appropriate and practicable SuDS mitigations measures in the built design.

8.55 This FRA and supporting documentation illustrate that the development area is at low risk of flooding from all sources and meets the requirements of the NPPF and Planning Practice Guidance.

Green Belt

8.56 Statera instructed Quod to undertake the Green Belt assessment for the Proposed Development.

8.57 The Proposed Development does not fall within the exceptions listed in paragraphs 154 and 155 of the NPPF and is by definition inappropriate development in the Green Belt. In these circumstances, Paragraph 153 of the NPPF sets out that very special circumstances will not exist unless "*the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly out-weighed by other considerations"*.

8.58 In accordance with the NPPG, the assessment of openness considered the spatial and visual impact, impacts from the duration of the development and the degree of activity and concluded that whilst there will be harm to the openness of the Green Belt, the harm would be limited to a localised area adjacent to existing and future urban development resulting in minor harm to the openness of the Green Belt overall.

8.59 The assessment against the five Green Belt purposes in paragraph 143 of the NPPF concluded that, cumulatively, there will be a negligible to minor harm to the relevant Green Belt purposes resulting from the encroachment from the development of land currently used for agriculture and taking into account the benefits of the proposed landscaping enhancements enabling renewable energy generation.

8.60 The Proposed Development will result in a range of wider environmental and other benefits, these have been demonstrated to clearly outweigh the harm to the Green Belt and other harms identified above. These benefits and their respective weight in the balancing process are summarised below:

8.61 Overall, the Green Belt assessment considers that identified harms to the Green Belt and other harms, are clearly outweighed by significant benefits of meeting national energy needs and associated environmental benefits which constitutes very special circumstances justifying this development in the Green Belt

8.62 It is therefore considered the Proposed Development is compliant with the requirements of the NPPF, PPG and policies STRAT 1and STRAT6 of the SODCLP.

Agricultural Land Classification

8.63 Statera instructed SOYL Precision Farming to carry out an Agricultural Land Classification survey.

8.64 The agricultural land at the site has been classified as mixture of Grade 2 and Grade 3a.

8.65 The soils on-site are described as comprising a mixture of loamy sand, sandy loam and sandy clay loam with a range of gravel content in the subsoil. They are all well drained except for at the north-eastern extent of the site which are over clay

8.66 The strategic locating of the BESS site has been set out within the Site Selection Report which accompanies the application.

8.67 The layout of the proposed facility has been led primarily by functional requirements and contractor specifications. This principle is to locate the batteries within as small a footprint as possible, subject to cooling and enabling the safe access and movement between the battery units.

8.68 It is therefore considered the Proposed Development is compliant with the requirements of the NPPF, PPG and the SODCLP.

Conclusion

9.1 The Proposed Development seeks planning permission for the construction of a Battery Energy Storage System to provide ancillary services to the national grid and cover peak supply demands on the local distributed power network.

9.2 The Proposed Development accords with the Government's national planning policy including the NPPF and EN-1 with respect to providing reliable electricity generation capacity to support the shift towards a low carbon, reliable electricity supply and the relevant saved policies of the South Oxfordshire Local Plan. The Project will provide for the need for efficient and flexible supply to meet peak energy demands within the local power network. This should be afforded significant weight in the assessment and determination of this Application.

9.3 For the reasons demonstrated in Section 8 of this report and the supporting statements, there are no significant adverse impacts associated with the Proposed Development.

9.4 In the balance of considerations, therefore, the presumption in favour of sustainable development is confirmed, as the benefits identified significantly and demonstrably outweigh any potential adverse impacts.

9.5 There are no other material considerations that indicate that planning approval should not be granted. Instead it is concluded that the proposed facility draws considerable support from these material considerations.

Appendix 1. UKAEA Letter of Support

UK Atomic Energy Authority

Support Division
Culham Science Centre
Abingdon OX14 3DB

Tel: +44 (0) 1235 464626

www.uk-atomic-energy.org.uk

Mr Andrew Troup
Stratera Energy Ltd
145 Kensington Church Street
London
W8 7LP

22 June 2022

SUBJECT - LETTER OF SUPPORT FROM UKAEA

UKAEA has remained in touch with Statera Energy since its engagement with the earlier battery storage project consented by SODC in 2016. The proposed development by Statera Energy would provide the UKAEA Culham Science Centre with an enhanced connection to the UK National Grid that will give it greater power security, resilience and stability. This will contribute significantly to one of the UK's goals for the campus to continue to be a world leading fusion facility, driving growth and employment in the region.

UKAEA would be pleased therefore to support the Statera proposal which gives specific benefits to UKAEA. These are listed below:-

Benefits to Culham Science Centre

The proposed development by Statera Energy provides the Culham Campus with several direct and indirect benefits:

1) **Resilience.** An alternative cable route to supply electricity will reduce 400kV outages so these would only be very short term if at all. It is also possible that the campus could be simultaneously fed from both points of supply and therefore would have a very high degree of resilience. Design proposals for the future reconfiguration of the UKAEA substation will allow UKAEA to secure additional supplies for facilities in the future.
2) **Stability.** The response of the National Grid at UKAEA's connection point will be substantially stabilised by the Statera Energy proposal so indirectly helping gain approval for facilities which have fast changes and large power requirements.
3) **Financial benefits.** Annual electrical connection costs that are currently met by UKAEA will be reduced as these costs for the reconfigured substation will be shared nationwide by National Grid as part of its transmission network costs.

4) **Attractiveness.** The Culham Science Centre is a unique science and technology park with high-power National Grid connectivity. Increasing the resilience of this high-power connection will help CSC attract tenants, future fusion facilities and create the opportunity to locate facilities such as high-power advanced computing, thus attracting new businesses to Culham.
5) **Opportunity**. This proposal would increase UKAEA's ability to deploy assets such as the JET flywheel generators or consider new large scale generator R&D opportunities.

Thank you.

[redacted]

Antonia Jenkinson
CFO & Director of Property and Commercial Services
[redacted]