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# **Yaxley Synchronous Condenser Planning Application**

**Planning, Design and Access Statement**

Conrad Energy

29 July 2022

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# Contents

<b>1.0</b>	<b>Introduction</b>	<b>1</b>
	Report Structure	1
<b>2.0</b>	<b>Background to the Application</b>	<b>3</b>
	The Applicant	3
	Synchronous Condenser Developments	3
	Site Selection	4
<b>3.0</b>	<b>Site and Context</b>	<b>6</b>
	The Site and Surroundings	6
	Planning History	6
	Pre-Application	7
<b>4.0</b>	<b>Proposed Development</b>	<b>8</b>
	Synchronous Condenser	8
	Sustainable Urban Drainage Strategy (SuDs)	9
	Access and Security	9
	Landscaping and Trees	10
	Construction	10
	Operation and Employment	10
<b>5.0</b>	<b>Design and Access</b>	<b>12</b>
<b>6.0</b>	<b>Planning Policy Context</b>	<b>15</b>
	National Planning Policy Framework	15
	Statutory Development Plan	16
	Other considerations	18
<b>7.0</b>	<b>Key Planning Considerations</b>	<b>20</b>
	Demand and Necessity for Synchronous Condenser Development	20
	Principle of Development	23
	Heritage	24
	Biodiversity/ Ecology	24

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Highways, Access and Parking	26
Landscape and visual impact	26
Residential amenity	27
Other matters	28
<b>8.0 Summary and Conclusion</b>	<b>30</b>

## 1.0 Introduction

- 1.1 This Planning, Design and Access Statement has been prepared by Lichfields on behalf of Conrad Energy Limited. It accompanies an application for the construction and operation of Synchronous Condensers at land at The Leys And Ivy Farm, Mellis Road, Yaxley.

### Report Structure

- 1.2 This document assesses the planning considerations associated with the application proposal and considers the development in the context of national and local planning policy and guidance. It also incorporates a statement to describe the issues of design and access relevant to these proposals.

- 1.3 This Statement should be read in conjunction with the other documents that have been submitted with the planning application including:

- Completed Application Form and Certificates;
- Cover Letter to Mid Suffolk District Council;
- Planning, Design and Assess Statement (this document);
- Landscape and Visual Appraisal;
- Ecological Assessment;
- Heritage Impact Assessment;
- Transport Statement;
- Noise Report;
- Flood Risk Assessment;
- Phase 1 Geo-Environmental Assessment; and
- Drawings package, comprising;
  1. Site Location Plan (Synchronous Condenser Location Plan – Indicative Layout - YAX-SYNCO-LP-002)
  2. Existing Site Plan (Proposed Overview Plan)
  3. Proposed Layout Plan (Synchronous Condenser Proposed Plan – Indicative Layout - YAX-SYNCO-PP-003)
  4. Elevation and Roof Plan (Sectional Elevations Roof Plan - YAX-SYNCO-SEL-RP-006; Synchronous Condenser Elevations - SD-15)

- 1.4 This document is structured as follows:

Section 2.0 explains the background to the application, including the important role of synchronous condensers;

- Section 3.0 provides a description of the application site and its surroundings;
- Section 4.0 describes the proposed development;

- Section 5.0 sets out a design and access statement;
- Section 6.0 describes the planning policy context;
- Section 7.0 examines the key planning considerations relevant to these proposals;
- Section 8.0 summarises the report and draws overall conclusions.

### **Development of National Significance and Requirement for an Environmental Impact Assessment**

- 1.5 The Synchronous Condenser will provide stability and voltage support to the electricity network, especially when system faults occur within the power grid. It does not generate energy itself and does not meet any qualifying criteria to be considered a Nationally Significant Infrastructure Project ('NSIP').
- 1.6 There is no express threshold for synchronous condensers under the EIA Regulations, however Schedule 2, Part 3(a) relates to industrial installations for the production of electricity. Given that the proposals do not produce electricity, it is not considered the proposed development would fall within this part of the regulations. Therefore, the proposals are considered under Part 10(b) 'urban development projects'. For these projects, EIA is unlikely unless the project exceeds 5ha.
- 1.7 The proposed development comprises 1,940sqm of industrial floorspace on a site comprising two parts: the area where the development will be sited being approximately 2.9ha and the temporary construction access route being approximately 2.2ha. Whilst the total site area is approximately 5.1ha, the area where the development will be sited, falls well below the 5ha threshold.
- 1.8 Prior to the preparation of this planning application, an informal pre-application enquiry was submitted to Mid Suffolk District Council. A letter of response was received by the applicant, stating the validation requirements for a Synchronous Condenser in this location (ref: DC/22/01844). In the response, it was noted that the *'proposal is unlikely to be considered EIA development'*.
- 1.9 With regard to the location of the development, the application site does not lie in a 'sensitive area' as defined under Part 1, Regulation 2 of the EIA Regulations. There are no ecological statutory designations of national or international importance within the site boundary or adjacent to the site (for example a SSSI). Additionally, the site does not contain or lie adjacent to any World Heritage Sites, Listed Buildings, Conservation Areas or Scheduled Ancient Monuments.
- 1.10 In addition to this, there are not considered to be any unusual characteristics which would give rise to significant environmental effects, both during the construction process or following completion of the development.
- 1.11 As such it is not considered that EIA is required.

## 2.0 **Background to the Application**

### **The Applicant**

- 2.1 Conrad Energy is an Independent Power Producer owning and operating a range of assets including flexible generation, battery storage and solar. It contributes to a more sustainable future by supporting renewable energy growth through the deployment of generation assets. The business also provides services to customers including supply agreements, power purchase agreements and private wire. Conrad Energy has demonstrated the ability to complete projects quickly and to a very high standard.
- 2.2 Conrad Energy owns and operates over 60 sites across the UK hosting 700MW of flexible generation and over 150MW of battery storage. With more than 22 sites in construction our growing portfolio and team makes us a market leader across the board, from energy markets, to technology, regulation and finance. We are committed to facilitating the transition to net zero and meeting future requirements.

### **Synchronous Condenser Developments**

- 2.3 Electricity in the UK has historically been generated in large coal-fired and gas-fired power stations that have inherent network stabilising qualities. However, as the country transitions to a low carbon economy and strives towards net zero, these older technologies are increasingly being replaced by wind turbines, solar farms, and interconnectors. These technologies, whilst low carbon, do not possess the same network stabilising qualities as larger traditional power stations. Hence the requirement for synchronous condensers.
- 2.4 National Grid is the electricity system operator (ESO) for Great Britain. They are responsible for moving electricity around the country second by second to ensure that the right amount of electricity is where it is needed, when it is needed – always keeping supply and demand in balance. As part of their function, they must upgrade and prepare the grid network for the transition to renewable energy. Recent changes in decarbonisation, decentralisation and digitalisation are driving significant change across the electricity network, impacting how National Grid operate the system now and into the future. By 2030 it is expected there will be 40GW of offshore wind and 17GW of interconnection, both of which will present operability challenges.
- 2.5 At present, National Grid spends circa £20 million per month managing renewable energy generation due to the lack of infrastructure available to stabilise the network. This is a direct result of the decommissioning of traditional coal-fired power stations and the fast growth of renewable energy technologies like wind and solar power. As a response to this, National Grid ESO, which operates the national electricity transmission network, is developing an initiative to stabilise the generation of renewable electricity within the grid, which will nationally save consumers up to £128 million over six years – this initiative is referred to as the ‘Stability Pathfinder’ and incorporates infrastructure such as the synchronous condenser proposed at Yaxley.
- 2.6 Stability has traditionally been supplied as an inherent by-product of synchronous generation (coal and gas plants). However as these are phased out and we increase of supply of power from inverter-based technologies such as wind and solar, there is a decline

in the inherent stability of the system with greater fluctuation of power supply entering the grid, with inertia and short circuit levels falling. As such National Grid ESO have commenced a “Pathfinder” project known as ‘Stability Phase 3’ to find services to increase inertia and short circuit level in England and Wales from 2025 onwards. The proposed technology intends to provide this solution into the grid network which will further facilitate renewable energy development and enable National Grid to further decrease its dependence on traditional coal and gas generation.

- 2.7 Inertia is the mass of the system used to control frequency, while short circuit level is the amount of current that flows on the system during a fault.
- 2.8 The Stability Phase 3 tender defines five ‘regions of need’, namely: North-East England, East of England, South Coast, South-West England, and South Wales. Within each region, National Grid has identified Grid Supply Points (substations) which have the capacity to house such a connection without the need for significant modifications which would contribute substantial time and cost to the projects, further delaying the transition to renewable generation and Net Zero targets. The chosen location for this project is to connect to such a substation with this capacity.
- 2.9 Conrad Energy is proposing to install a Synchronous Condenser. A synchronous condenser (sometimes called a synchronous capacitor or synchronous compensator) is a DC-excited synchronous motor, whose shaft is not connected to anything but spins freely.
- 2.10 Synchronous Condensers help to provide the same synchronous inertia as coal or gas power plants, without the associated CO<sub>2</sub> emissions and high running costs. They can be despatched as and when required by the system operator.
- 2.11 The plant will be contained within a purpose-built acoustic enclosure to ensure that there are no adverse noise impacts on the surrounding area. Ancillary infrastructure includes external cooling fans, enclosed diesel generator and small fuel tank, transformers, flywheel, cabling and containerized control equipment. Its primary purpose is to adjust conditions on the transmission grid, including to either dynamically absorb or supply reactive power as needed to adjust the grid's voltage, or to improve power factor. After the generator is synchronized with the network it behaves like a synchronous motor with no load, providing short-circuit power to the transmission network. The Synchronous Condenser also provides the necessary inertia for the power grid by means of its rotating mass and during emergencies or contingencies the synchronous condenser can provide a significantly higher rating for a short time. It is not a generator of power.

## **Site Selection**

- 2.12 A key requirement for site selection is proximity to national grid infrastructure into which the synchronous condenser will provide stability and the grid connection must also have capacity to accept the connection. The substation at Yaxley meets both of these requirements.
- 2.13 The grid point of connection, National Grid Yaxley Substation has been identified by National Grid through the Pathfinders tender exercise, as a substation within the East of England which has the capacity to facilitate the connection of the proposed technology without significant upgrade works. Should an alternative grid point of connection be



utilised which did not have such capacity, this would carry substantial cost and time to upgrade the substation to meet the requirements for the technology, further delaying the deployment of renewable energy across the UK. To identify an appropriate and suitable site that can connect into this substation, several criteria are considered:

- Grid connection – proximity to the Grid Supply Point (Yaxley Substation). This is first and foremost the most important consideration in identification for a site as greater the distance from the substation leads to significant increases in connection costs and effectiveness of the technology. Costs High Voltage cabling are significant, including civil engineering and legal complexities of reaching the site itself. As you move further away from the substation the costs sharply rise which decreases the economic viability of a site which could result in a developer being unable to obtain funding for a project.
- Land – once a sphere of economic viability is set from the point of grid connection, all land must be considered in its appropriateness for both planning and buildability. Planning constraints such as proximity to AONB, SSSI, Greenbelt, residential and ecological receptors is given due consideration and all sites which fall within these buffers and removed. Further consideration can be given to screening visually and acoustically to minimise impacts. With regards to buildability, the chosen site must have sufficient available land to house the project (minimum 5 acres), have favourable topography and suitable ground conditions (e.g., avoiding boggy ground/marshland, contaminated land etc.)
- Land availability – fundamentally Conrad Energy must be able to physically obtain the land from a willing landowner who is prepared to lease the land for a reasonable cost and for the appropriate length of time to allow for the implementation of the technology and associated infrastructure as well as decommissioning period.

2.14 In choosing the site, the Applicant approached landowners within the vicinity of the substation. The proposed site was chosen as it is suitable and available for the proposed development.

## 3.0 Site and Context

### The Site and Surroundings

- 3.1 The site is an approximate 5.1 hectares of agricultural land located adjacent to Leys Lane, in the countryside close to the village of Yaxley (National Grid Reference 611857E, 274953N) (ref: Synchronous Condenser Location Plan – Indicative Layout, YAX-SYNCO-LP-002 Rev A)
- 3.2 The site is relatively flat fluctuating between elevations of approximately 48 m AOD in the south-east and 45 m AOD in the north-west.
- 3.3 The site is bound by Leys Lane to the north and east, a recently installed wooden post and wire fence to the south, and a hedgerow with a mature deciduous tree to the north-west. The site’s western boundary adjoins the proposed National Grid Yaxley Substation which is yet to be constructed (ref: Proposed Overview Plan). A new access route from the A140 has recently been constructed as part of the Substation’s early works. This will be a temporary access route, for use during construction, and will be decommissioned once the works are completed.
- 3.4 The surrounding area is relatively open, elevated plateau land without significant planted or built screening. Land to the north is open; the A140 and Eye Airfield (formerly RAF Eye) lies to the east; Mellis Road lies to the south and beyond that the village of Yaxley; and the west is open land. There are dwellings to the north-west of the site but otherwise the site is set away from residential and other buildings located on Mellis Road, being the main area of Yaxley village.
- 3.5 The site is located in Flood zone 1 and is therefore at low risk of flooding. The site lies within a Total Catchment (Zone 3) Groundwater Source Protection Zone (GWSPZ). There are no groundwater or surface water abstractions identified within 250 m. There are no records of historical landfill sites or Pollution Incidents identified within 250m of the site. The site does not fall within a designated Conservation Area and there are no Scheduled Ancient Monuments in the locality. There are no listed buildings within the site itself although there are a number of listed buildings and undesignated heritage assets in the wider landscape and the main built-up area of Yaxley. The site lies within the impact risk zone of the SSSIs Gypsy Camp Meadows to the north. There are recorded priority species within the locality.

### Planning History

- 3.6 A search of Mid Suffolk District Council’s online planning register has returned the following application history for the site.

Table 3.1 Planning history for Development Site

Reference	Description	Address	Decision
DC/22/02089	Approval of Details Reserved by Requirement 3 (Detailed Design, Part 5) and Amendments to previously approved plans under Requirement 22 (Amendments	National Grid Yaxley Substation Connection Land To The West Of Old Norwich Road Yaxley Suffolk	Granted - 22 Jun 2022

Reference	Description	Address	Decision
	to Approved Details, Part 1) of the Progress Power (Gas Fired Power Station) Order 2015 As Amended		
DC/22/01890	Notification from Statutory Undertaker Section 37 Exemption Electricity Act - Erection of temporary overhead line and mast	National Grid Yaxley Substation Connection Land To The West Of Old Norwich Road Yaxley Suffolk	Raise No Objection - 06 May 2022

3.7 The principle of energy-related developments within the wider area, has therefore been established.

### **Pre-Application**

3.8 Prior to the preparation of this planning application, an informal pre-application enquiry was submitted to Mid Suffolk District Council. A letter of response was received by the Applicant stating the validation requirements for a Synchronous Condenser in this location (ref: DC/22/01844). The response is included within Appendix 1.

3.9 The main concerns raised by the LPA related to landscape and visual impact; ecology, heritage impact; access; noise impact; and potential for flood risk.

3.10 This Statement and submitted information addresses matters raised by the LPA during the pre-application process.

3.11 A Landscape and Visual Assessment (LVA), Preliminary Ecological Assessment, Heritage Impact Assessment, Transport Statement, Noise Assessment and FRA have been submitted in support of this application.

## 4.0 **Proposed Development**

4.1 This planning application seeks permission for:

*‘Construction and operation of Synchronous Condensers with ancillary infrastructure, and associated works including access and landscaping on land at The Leys And Ivy Farm, Mellis Road, Yaxley’.*

4.2 The Proposed Development are two Synchronous Condensers which will provide stability to the electricity grid. It is plant in itself, although it does not generate emissions or energy. The facility comprises a flywheel that spins in order to regulate the frequency and voltage of the electricity network. In doing this, it enables increased use of renewable energy generation, which does not provide the 'inertia' that is inherent in traditional coal- and gas-fired power stations (which are now operating less frequently or being decommissioned as set out in Section 2.0).

4.3 Approximately two-thirds of the site will comprise the Synchronous Condensers facility. The entire facility will be sat on a combination of hardstanding and low maintenance grass, bound by a compound fence. Within that, the two Synchronous Condensers will be housed within a warehouse-style building, with some plant elements sited externally. The supporting elevations present the location of the proposed Synchronous Condensers. Comprehensive landscaping is proposed, including woodlands, new hedgerows, wildflower meadow and grassed areas. During construction, access will be by way of an existing temporary construction route, serving the construction of the Yaxley Substation. During operation, access to the site will be by way of Leys Lane via Yaxley Village. Adequate space on site will be provided for parking. Adequate parking space will be provided on-site for workers to attend and vacate the site safely.

### **Synchronous Condenser**

4.4 The various equipment detailed above is necessary for the function of the proposed development. From the proposed development, a connection will be provided to the Yaxley substation. The connection does not form part of the planning application as necessary works will be undertaken by the statutory undertaker.

4.5 The two Synchronous Condensers comprises a number of elements including:

#### **Outdoor Cooler**

4.6 The cooling system would consist of heat exchangers at the generator using air to cool the synchronous condenser with heat then being transferred to the water-cooling system to be cooled by the radiators outside the building. The flywheel and the oil coolers would be water cooled, with the cooling system dissipating the heat which is produced. The cooling system starts automatically at the start-up sequence.

#### **Main Generation Building**

4.7 A warehouse-style unit to house the majority of the plant equipment, ensuring that the appearance of the development is in keeping with the surroundings.

#### **Generator Circuit Breaker**

- 4.8 To connect and disconnect the synchronous condenser to and from the grid, a Generation Circuit Breaker (GCB) would be required. This would be located outside the main site building housing the generator. The GCB automatically connects the generator to the grid during synchronisation. The isolated phase bus duct is the main conduit for power distribution. It carries large currents between the generator and transformer, connecting:
- The generator to the generator circuit breaker; and
  - The generator circuit breaker with the main transformer and with a T-connection the main auxiliary and start-up transformer.

- 4.9 The system is completely insulated to make it touch proof. It also reduces the risk of multiphase short circuits in the system. The system is air insulated. One set of surge arresters is present for transient overvoltage protection near the transformer terminals.

### **Main Transformer**

- 4.10 The main transformer is used to transform the generator voltage up to grid voltage of 400 kV, thereby connecting the generator to the grid. The main transformer would likely not be enclosed within a building and would be contained by walls on north, south and west sides. Three metal column structures would support the cable connection to the high voltage connector.

- 4.11 There would also be an auxiliary transformer, a start-up transformer and a further transformer. These would also be separated by fire walls.

### **Welfare Container**

- 4.12 The proposed welfare facility will be used by visiting staff during the construction and operation of the proposed development.

## **Sustainable Urban Drainage Strategy (SuDs)**

- 4.13 The site is located in Flood Zone 1, placing it at a low risk of flooding from all identified sources. Notwithstanding this, a Flood Risk Assessment is required owing to the area of the proposal exceeds 1 hectare.
- 4.14 An illustrative surface water drainage strategy has been outlined which demonstrates that the site can accommodate surface water attenuation.
- 4.15 The SuDs comprises utilising geo-cellular crate storage beneath the north-western region of the site, restricting run-off from the site into the nearest drainage ditch located 120m to the north-west of the site. This drainage ditch is located within the wider ownership boundary.
- 4.16 A further SuDS is anticipated comprising bio-retention tree pits to add additional treatment, and amenity/ecological benefits. Approval of final details of the additional SuDs could be reserved by condition should the Council consider this to be necessary.

## **Access and Security**

- 4.17 During construction, the site will be accessed via an existing temporary construction route, serving the construction of the Yaxley Substation. This access route will be decommissioned once both sites are operational. Once operational, access to the Proposed Development will

be by way of Leys Lane, via Yaxley Village. This access road will also provide a connection to the neighbouring Yaxley Substation. Adequate parking space will be provided on-site for workers to attend and vacate the site safely.

4.18 The proposed development will be secured by means of a 2.4m palisade compound fence around the Synchronous Condensers facility, with gated access to the south of the site. The application site will be screened by proposed woodlands and hedgerows, which form part of the Landscape Plan.

4.19 Lighting will be provided on the main plant building and around the compounds. In general, lighting will be fixed off the main building to illuminate the general circulation routes. The HV/connection compound would require more focus task lighting via hinged columns. Lighting within the site will consist of motion-sensitive lighting and will be designed to be downward facing to minimise any light-spill. It is suggested that the prior approval of lighting details could be the subject of an appropriate planning condition. The site will require 24-hour operation and monitoring due to the infrequency of visits by operational staff. As part of the security arrangements, CCTV will be installed to monitor the perimeter of the Site. Approval of final details of the CCTV columns could be reserved by condition should the Council consider this to be necessary.

## **Landscaping and Trees**

4.20 As part of the proposed development, a Landscape Plan has been prepared and submitted as part of this application as well as being accompanied by a details Landscape and Visual Appraisal.

4.21 The proposed landscaping measures include:

- Native Hedgerow along the northern, eastern and southern boundaries of the site;
- Native Woodland around the perimeter of the fenced Synchronous Condensers facility;
- Wildflower/Grass Seed mixture seeding abutting the woodland areas to the east, south and west; and
- Low Maintenance Grass across the development, between plant / warehouse / hardstanding areas.

## **Construction**

4.22 The construction phase of the proposed development will last for around 16 months. In transport terms, this will amount to a peak of 96 daily trips, of which 16 will be heavy duty vehicles. During construction, access to the site will be by way of the Yaxley Substation temporary construction route, which is already constructed. Once both sites are operational, this route will be de-commissioned.

## **Operation and Employment**

4.23 Given the nature of the proposals, the synchronous condenser is always continually spinning even when not engaged to the grid. When engaged the RPM increases to generate the inertia. Maintenance would be undertaken at period points, as required.

- 4.24 During operation, the plant will be remotely controlled and unmanned. However, maintenance staff will be on site periodically to ensure the proposed development operates effectively. Given the need for maintenance and monitoring, it is estimated that the operation of the proposed development will generate the equivalent of 2 full-time jobs at the site. This is in addition to jobs created throughout the construction period of the plant.

## 5.0 **Design and Access**

5.1 This section of the report provides a statement describing the issues of design and access for the proposed development, considering matters of use, amount, layout, scale, appearance, landscaping and access.

### **Use**

5.2 The proposed use of the site is for:

5.3 *‘Construction and operation of Synchronous Condensers with ancillary infrastructure, and associated works including access and landscaping on land at The Leys And Ivy Farm, Mellis Road, Yaxley’.*

5.4 The proposed development will feed into the Yaxley 400 kV substation to reach the wider national grid network. The connection does not form part of the planning application as necessary works will be undertaken by the statutory undertaker.

### **Amount**

5.5 The total area of the site is approximately 5.1ha which is capable of accommodating the Synchronous Condensers and ancillary equipment. The Synchronous Condensers development will cover an area of 1,940 sqm and be enclosed by palisade fencing. The remainder of the site comprises the access road and associated grassland and landscape planting.

### **Design and Layout**

5.6 The specific location of the site within the wider landholding in which it is located has been selected following a thorough assessment of the whole holding. It is considered to be suitable as it is an appropriate distance from residential properties, does not lie in an area which is the subject of any landscape or ecological designations, is flat and benefits from access from the adjacent road; and is not in a prominent location.

5.7 A Site Layout Plan (ref: Synchronous Condenser Proposed Plan – Indicative Layout, YAX-SYNCO-PP-003 Rev A), provides details on the layout of the proposed development.

5.8 The plant equipment is positioned in such a location that it will have a minimal impact on the surrounding views and utilise the existing grid connection within proximity to the site. A robust landscaping scheme is proposed to the north and east of the site. An internal access road is proposed around the plant.

5.9 The synchronous condenser equipment includes:

- outdoor cooler;
- main generation building;
- generator circuit breaker;
- auxiliary transformer;
- start-up transformer;



- main transformer; and
- welfare container.

- 5.10 A formal access track will be provided from the south easter corner of the site, providing an access route around the entirety of the compound, including vehicular access to the warehouse unit that will house part of the plant equipment. To the north of the main generation building an outdoor cooler is located. To the east of the main building a generator circuit breaker and transformers are located, which provides potential to connect to the existing mains connection to the east of the site. The welfare container is located to the south of the warehouse, where associated parking is located.
- 5.11 Informal green space will be provided within the compound, the majority of which is located in the eastern extent of the site, where there are limited structures installed.
- 5.12 The layout of the equipment is designed efficiently and laid out in a formularised way so that no land is underutilised as part of this proposal.

### **Scale**

- 5.13 The scale of the proposal reflects similar synchronous condenser development and is not out of keeping for the purpose of development. The warehouse will not exceed 12m in height, with external installations at a much lower height to this, as per the elevation plan (ref. Synchronous Condenser Elevations SD-15 Rev 01; Proposed Sectional Elevations Roof Plan YAX-SYNCO-SEL-RP-006). The size of the condenser warehousing is of appropriate scale given the rural surroundings.
- 5.14 The Development meets a national need for projects which further decarbonise the Local and National electricity grid and represents the only suitable site for a scheme of this scale in the area which the applicant has identified, given its proximity to an available grid connection point.

### **Landscaping**

- 5.15 The existing vegetation at the site is to be retained where possible, creating a natural screen to the southern and eastern boundary to passing vehicles and the wider surroundings.
- 5.16 As detailed within the Landscape and Visual Appraisal (LVA), the following measures are proposed to ensure the development site is screened and enhanced:
- Native Hedgerow along the northern, eastern and southern boundaries of the site;
  - Native Woodland around the perimeter of the fenced Synchronous Condensers facility;
  - Wildflower/Grass Seed mixture seeding abutting the woodland areas to the east, south and west; and
  - Low Maintenance Grass across the development, between plant / warehouse / hardstanding areas.

## **Appearance**

- 5.17 Although the proposed development is to be located on an agricultural field, the proposed development includes sensitively designed landscaping to ensure the visual impact associated with the site is minimised.
- 5.18 As the site is somewhat rural in nature, the appearance of the proposals has been sensitively designed to protect the character of the surroundings. The site will be largely screened by the proposed palisade fencing and through the landscape design and will only be slightly perceived from Mellis Road and the A140.
- 5.19 The synchronous condensers will be housed in a warehouse-style unit which will complement the rural surroundings rather than expose the entire plant to view. However, some elements will be sat outside of the unit. The palette of materials for the proposed development will be sensitive to the existing context and compatible with the locality.
- 5.20 For security purposes palisade fencing will surround the Synchronous Condensers facility. To the northern, eastern and southern boundary of the fencing, and as noted above, trees will be planted to create a natural screen to the site, reducing impact on views for the residential properties to the south and road traffic to the south and east.
- 5.21 The proposed development must be viewed in the context of the recently consented electrical infrastructure and energy-related development in the wider area, to the west of the site.

## **Access**

- 5.22 The Proposed Development intends on making use of an existing, consented temporary construction route established for the construction of the Yaxley Substation. This access route will be decommissioned once both sites are operational. Once operational, access to the Proposed Development will be by way of Leys Lane, via Yaxley Village. This access road will also provide a connection to the neighbouring Yaxley Substation. Leys Lane is a narrow, single track highway that is also a public right of way.
- 5.23 Given the nature of the development, traffic to this site will be minimal during the operational phase, with employees attending the site for general maintenance. The proposal is not considered to have the potential to generate a level of trips which would require any additional public transport provision.
- 5.24 Notwithstanding the low traffic flows, adequate space for parking will be provided on-site for workers to attend and vacate the site safely.
- 5.25 The selected site is therefore considered to be fully accessible and is not predicted to have any adverse effects on the public highway.

## 6.0 **Planning Policy Context**

6.1 This section identifies the relevant national and local planning policies to be taken into account in the determination of this planning application.

6.2 This policy 'framework' is used as a basis for identifying a range of key planning policy considerations across the various policy documents against which this application should be assessed, to enable robust conclusions to be drawn on its appropriateness.

### **National Planning Policy Framework**

6.3 The National Planning Policy Framework [the Framework] was published in March 2012 and has since, most recently in July 2021. It sets out the Government's planning policies for England and how they are expected to be applied by Local Planning Authorities [LPAs]. The policies contained within the Framework are a material consideration in the determination of planning applications.

6.4 The cornerstone of the Framework is to proactively deliver sustainable development to support the Government's economic growth objectives and deliver the development which the country needs. Paragraph 8 advises that there are three dimensions to sustainable development: economic, social, and environmental which perform a number of roles:

- Economic objective – contributing to building a strong, responsive and competitive economy;
- Social objective – supporting strong, vibrant and healthy communities; and,
- Environmental objective – contributing to protecting and enhancing the natural, built and historic environment.

6.5 Paragraph 10 of the Framework states:

*“So that sustainable development is pursued in a positive way, at the heart of the Framework is a presumption in favour of sustainable development.”*

6.6 Paragraph 11 of the Framework is unequivocal and states that for decision taking this means:

*“approving development proposals that accord with an up-to-date development plan without delay.”*

6.7 Paragraph 155 of the Framework recognises the importance of the planning regime in delivering renewable energy. This paragraph sets out that the planning system should support the transition to a low carbon economy and, in particular, support renewable and low carbon energy infrastructure.

6.8 Paragraph 158 of the NPPF states 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 cutting greenhouse gas emissions; and*

*b) approve the application if its impacts are (or can be made) acceptable. 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.”*

## **Statutory Development Plan**

- 6.9 Section 38(6) of the Planning and Compulsory Purchase Act 2004 states that planning applications are to be determined in accordance with the Statutory Development Plan unless material considerations indicate otherwise.
- 6.10 The Mid Suffolk District Council Local Plan was adopted in 1998 and forms part of the Development Plan for the Borough. The following policies are considered to be of general relevance to the proposed development.
- 6.11 A Flood Risk Assessment has been prepared to accompany this application, as explained in Section 7.
- 6.12 This planning application is accompanied by a series of technical assessments which demonstrate that the proposals are acceptable in terms of environmental effects.
- 6.13 This application is supported by a Landscape and Visual Appraisal. From analysis of this report, it is concluded that the proposals are in accordance with Policies CS2, CS3, CS5, CL3 and CL11.

### **CS2 – Development in the countryside**

- 6.14 Refers to 'Development in the Countryside and Countryside Villages' and confirms that development in the countryside will be restricted to defined categories in accordance with other Core Strategy Policies. The Proposed Development falls under two of the defined categories being development by statutory undertakers or public utility providers, and a renewable energy project.

### **CS3 - Reduce contributions to Climate Change**

- 6.15 Refers to 'Reducing contributions to Climate Change', and states that the Council will promote and encourage the appropriate development of stand-alone Renewable Energy schemes to assist in achieving the Regional Spatial Strategy's target of 10% total electricity consumption in the East of England by 2010 and 17% by 2020.

### **CS5 – Mid Suffolk's environment**

- 6.16 Refers to 'Mid Suffolk's Environment' and requires that all development will maintain and enhance the environment, including the historic environment, and retain the local distinctiveness of the area. With respect to landscape matters: "The Council will protect and conserve landscape qualities taking into account the natural environment and the historical dimension of the landscape as a whole rather than concentrating solely on selected areas, protecting the district's most important components and encourage development that is consistent with conserving its overall character'. This planning application is accompanied

by a series of technical assessments which demonstrate that the proposals are acceptable in terms of environmental effects.

### **GP1 - Design and layout of development**

- 6.17 Refers to 'Design and Layout of Development' and sets out a series of design measures which should be considered in all developments, and states that the District Planning Authority will normally grant permission for proposals which meet these requirements. This planning application provides details regarding design and access.

### **H16 - Protecting existing residential amenity**

- 6.18 Relates to 'Protecting Existing Residential Amenity' and confirms that proposals which would result in the material loss of amenity space of primarily residential areas will be refused by the District Planning Authority.

### **T10 – Highway considerations in development**

- 6.19 Refers to 'Highway Considerations in Development' that the District Planning Authority should take into account when considering applications for development, read in conjunction with Policy GP1. A Transport Statement has been prepared to accompany this application to provide details to satisfy this policy.

### **CL3 - Major utility installations and power lines in the countryside**

- 6.20 Refers to 'Major Utility Installations and Power Lines in the Countryside', and states that new major installations for utilities and power lines exceeding 33kV should be carefully sited, to ensure minimal intrusion into the landscape. A Landscape and Visual Appraisal has been prepared to accompany this application to satisfy this policy.

### **CL8 - Protecting wildlife habitats**

- 6.21 Sets out limitations for 'Protecting Wildlife Habitats' beyond which the District Planning Authority will issue a refusal. A Preliminary Ecology Appraisal has been prepared to support this application and demonstrate compliance with this policy.

### **CL11 - Retaining high quality agricultural land**

- 6.22 Refers to 'Retaining High-Quality Agricultural Land' and confirms that the District Planning Authority will encourage the conservation of agricultural land, and that particular protection will be afforded to land graded 1, 2 and 3a of Maff's agricultural classification.

### **HB1 – Setting of listed buildings**

- 6.23 Refers to 'Protection of Historic Buildings' and states that the District Planning Authority will pay particular attention will be given to protecting the setting of listed buildings. The Heritage Impact Assessment submitted alongside this application considers these effects in line with HB1.

### **HB14 - Ensuring archaeological remains are not destroyed.**

- 6.24 Refers to 'Ensuring Archaeological Remains are not Destroyed' and states that proposals which adversely affect ancient monuments or those of national importance and their settings should be refused. Heritage Impact Assessment submitted alongside this application considers these effects in line with HB14.

## **Other considerations**

### **Emerging BMSDC Joint Local Plan**

- 6.25 A Joint Local Plan with Babergh & Mid Suffolk is currently being prepared (BMSDC Joint Local Plan).
- 6.26 The Council is currently in the process of drafting the new Joint Local Plan. The Council has confirmed that these draft policies are not currently sufficiently advanced as to be given weight at this time.

### **National Infrastructure Commissions 'Smart Power' (2016)**

- 6.27 A report by the National Infrastructure Commission (2016) estimates that smart power systems in the UK "*could save consumers up to £8 billion a year by 2030, help the UK meet its 2050 carbon targets and secure the UK's energy supply for generations.*"
- 6.28 The proposed development is designed to support the flexible operation of the National Grid and decarbonisation of electricity supply. The Development will not generate any additional electricity nor have any on-site emissions of CO<sub>2</sub>. However, by providing increased resilience in the grid it will enable existing and future renewable energy plant to operate more efficiently. As such, the proposed development will contribute to the legal obligations of the Climate Change Act 2008 (as amended) to incorporate the 2050 Net Zero target.

### **Overarching National Policy Statement [NPS] for Energy EN-1**

- 6.29 The Overarching National Policy Statement for Energy (EN-1) states that it is critical that the UK continues to secure reliable supplies of electricity as we make the transition to a low carbon economy. NPS EN-1 requires managing the risks of security of supply by ensuring sufficient electricity capacity to meet demand at all times, which will only be achieved by a diverse mix of technologies and supply routes.
- 6.30 Section 3.7 sets out the need for new electricity network infrastructure; and paragraph 3.7.3 sets out that "*it is important to note that new electricity network infrastructure projects, which will add to the reliability of the national energy supply, provide crucial national benefits, which are shared by all users of the system.*" The proposed development, in providing resiliency to the grid, is an example of new infrastructure.
- 6.31 In addition, paragraph 3.7.10 of NPS<sup>1</sup> sets out that there is an urgent need for new electricity transmission and distribution infrastructure to be provided, including reference to "ensure that it [the national grid] is sufficiently resilient...".

## **Energy White Paper ‘Powering our Net Zero Future’ (December 2020)**

- 6.32 The Energy White Paper sets out how “*the UK will clean up its energy system and reach net zero emissions by 2050*”. The White Paper notes that the transformation of our energy system will require growing investment in physical infrastructure, to extend or reinforce the networks of pipes and wires which connect energy assets to the system and maintain essential resilience and reliability.
- 6.33 The White Paper notes that it will “*support the technologies required for the transition [to increasing the levels of renewable generation]...*”, such as the proposed development.
- 6.34 The White Paper is further supported by the Government’s National Infrastructure Strategy (November 2020) which describes how the Government will put the UK on the path to meeting its net zero emissions targets by 2050.

## **UK’s Integrated National Energy and Climate Plan**

- 6.35 The UK NECP22 was produced in January 2019 and sets out the UK Government’s climate and energy objectives, targets, policies and measures covering the five dimensions of the Energy Union. The NECP makes clear that in order to meet the UK’s 2050 climate change target, improvements in energy efficiency and energy management are required. This includes smart technologies such as energy storage and system balancing.

## 7.0 **Key Planning Considerations**

- 7.1 From a review of the site, the nature of the proposed development and the pre-application response from Mid Suffolk District Council, the key planning issues arising are:
- Principle of Development, including demand and necessity for Synchronous Condenser Development;
  - Heritage;
  - Biodiversity;
  - Highways, Access and Parking;
  - Landscape and visual impact;
  - Residential amenity;
  - Other Matters including how the equipment is proposed to be installed and the nature of operations in relation to any noise, flood risk, emissions, lighting and safety.
- 7.2 Each of these issues is considered in the context of the proposed development below.

### **Demand and Necessity for Synchronous Condenser Development**

#### **National Need**

- 7.3 There is a clear national and local imperative to support decentralised energy and infrastructure to support a transition to renewable and low carbon energy networks. Synchronous Condensers, such as the one proposed, are an important part of the solution.
- 7.4 Para. 152 of the NPPF states the planning system should support the transition to a low carbon future including supporting renewable and low carbon energy associated infrastructure. This is supported by Local Plan Policy CS3 which states that the Council will promote and encourage the appropriate development of stand-alone Renewable Energy schemes to assist in achieving the Regional Spatial Strategy's target of 10% total electricity consumption in the East of England by 2010 and 17% by 2020.
- 7.5 Synchronous condensers play an important role in stabilising the electricity grid system as it becomes more reliant on renewable technology, supporting the transition to low carbon electricity generation. The key service that the Synchronous Condenser facility will provide is 'inertia', which was previously provided by fossil fuel power stations and is not provided by renewable energy technology. Inertia helps the electricity system to run at the right frequency. Without enough of it, power outages can occur. The Synchronous Condenser will generate inertia without generating electricity. This allows more renewable generation to operate and secure a stable energy system.
- 7.6 The Government's position on energy generation is established within the NPS EN-1, and this is considered to represent a material consideration in the assessment of this application. Relevant extracts from the NPS confirming support for this type of development include:



*"Fossil fuel power stations play a vital role in providing reliable electricity supplies: they can be operated flexibly in response to changes in supply and demand, and provide diversity in our energy mix. They will continue to play an important role in our energy mix as the UK makes the transition to a low carbon economy" (Paragraph 3.6.1);*

*"Some of new conventional generating capacity needed is likely to come from new fossil fuel generating capacity in order to maintain security of supply, and to provide flexible back-up for intermittent renewable energy from wind" (Paragraph 3.6.3);*

*"A number of fossil fuel generating stations will have to close by the end of 2015. Although this capacity may be replaced by new nuclear development and renewable generating capacity in due course, it is clear that there must be some fossil fuel generating capacity to provide back-up for when generating capacity is low and to help with the transition to low carbon electricity generation" (Paragraph 3.6.8); and*

*"Although our reliance on fossil fuels will fall, the transition will take some time, and gas will continue to play an important part of the UK's fuel mix for many years to come" (Paragraph 3.8.1).*

- 7.7 The NPPF is equally supportive, establishing as a core principle the need to promote development that assists the transition to a low carbon future and encouraging the use of renewable resources.
- 7.8 This shift away from a centralised energy system with large generators at NG level, to a more de-centralised energy system, generating power at the local and regional level has a number of benefits. Specifically, it ensures transmission losses are reduced (the quantity of electricity going into the system and where it is used) and facilitates renewables being connected to the network. There is also an objective of increasing the volume of renewables connected to the grid network. As noted, currently, both wind and solar generation is variable and cannot be relied upon at all times to provide consistent generation when required, therefore a balanced system of electricity generation is required.
- 7.9 Whilst the Synchronous Condenser itself does not constitute a source of renewable energy generation (it does not generate any energy itself), its purpose is to facilitate the growth in energy generation from renewable sources and to support the electricity network through the provision of 'inertia' that has been lost through the closure of traditional fossil-fuel power stations. It is therefore an essential element of energy infrastructure that is being developed alongside the growth in renewable energy generation.
- 7.10 Given the nature of the electricity supply network, this infrastructure needs to be located close to the substation it will serve and cannot be located elsewhere.
- 7.11 The proposed development will connect at 11 kV and provide grid balancing services at the local level. It responds to demand and times of stress on the grid network or in the event of unplanned outages, for short periods and is not designed to run continuously and provide base load. As it is connected at 11 kV, the direct benefit is to the local area and ensuring security of supply and resiliency. The facility would also play a critical role in supporting wider economic growth by providing a flexible form of electricity generation which will supply existing businesses and infrastructure in the area at times when there are changes in the demand for energy. The proposed infrastructure will help to ensure that blackouts are avoided which would have a significant effect on local businesses.

- 7.12 NPS for Energy (EN-1) (2011) states that it is critical that the UK continues to secure reliable supplies of electricity as we make the transition to a low carbon economy. Paragraph 2.20 states that,
- ‘to manage the risks to achieving security of supply we need:*
- Sufficient electricity capacity to meet demand at all times. Electricity cannot be stored so demand for it must be simultaneously and continuously met by its supply. This requires a safety margin of spare capacity to accommodate unforeseen fluctuations in supply or demand; and*
- A diverse mix of technologies and fuels, so that we do not rely on any one technology or fuel. Diversity can be achieved through the use of different technologies and multiple supply routes’.*
- 7.13 The Government has set out a world-leading net zero target to fight climate change and achieve net zero emissions by 2050. This was supported within the Prime Minister’s Ten Point Plan for a Green Industrial Revolution and the National Infrastructure Strategy (both dated November 2020) which set out what is required to meet this target. As part of this, there is a renewed focus on a move to renewable sources of energy and supporting this transition.
- 7.14 Electricity generated from renewable sources is now an important source of supply, but as these depend on natural conditions, such as solar and wind, there is not a consistent and stable supply. As set out in the Energy White Paper there has been a switch from coal to gas and renewable power together; and renewables now account for over one third of electricity generation, however, *“to ensure that the system is also reliable, renewables need to be complemented by technologies which provide power, or reduce demand when the wind is not blowing, or the sun does not shine” (p43).*
- 7.15 As the capacity of renewable energy sources added to the grid network increases, the development of synchronous condensers will be an essential component of electricity grid infrastructure.

### **Local Need – Pathfinders**

- 7.16 The proposed development is being brought forward in direct response to a requirement by National Grid, via the Stability Pathfinder Framework (set out in Section 2.0), for the deployment of new technologies to ensure the stability of the electricity network across the UK. Phase 3 focussed on various sites nationally, with several Grid Supply point, including Yaxley, targeted specifically by the National Grid tender.
- 7.17 For the proposed development, the Synchronous Condenser needs to be directly connected to the Yaxley Substation, hence an adjacent site is required.
- 7.18 There is an identified local demand for delivery of energy through renewable sources and a stated ambition to encourage renewable energy schemes throughout the UK in the near future. Renewable energy is dependent on time of day and weather conditions and can result in periods of high demand which cannot be immediately met by the supply generated from renewable sources.

- 7.19 For this reason, power plants such as the one proposed are required to provide greater capacity and flexibility in the energy generation network. Also, given the shift towards renewable energy will not happen instantaneously, small scale flexible power plants are important in the transition period. With an ambition to deliver an increase in renewable energy facilities comes a need for flexible power generation, as the two are interlinked and dependent on one another.
- 7.20 The NPPF states that when determining planning applications for renewable and low carbon development, local planning authorities should '*... not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions*' (Para. 154, NPPF).
- 7.21 It is therefore evident that there is a national and local imperative to support flexible power plants as an essential and complementary part of a transition to a low carbon and decentralised energy network, and to meet national energy and climate change objectives. There is a clear demonstrable need for the application proposals.

## **Principle of Development**

- 7.22 Paragraph 148 of the NPPF states 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”.
- 7.23 It is considered that the nature of the development falls within the definition of economic development set out in the NPPF (Para. 18, NPPF). This identifies the Government’s commitment to securing economic growth in order to create jobs and prosperity and to meet the challenges of global competition and of a low carbon future. The proposed facility assists in meeting these challenges by ensuring a security of energy supply whilst supporting the transition toward a renewable and low carbon economy.
- 7.24 With increasing sources of renewable energy being introduced into the grid in an effort to address climate change issues, the requirements for infrastructure, such as the proposed development is ever increasing. The proposed development is considered acceptable in principle, being in a location that could accommodate this type of development and not adversely affecting the rural environment in line with Policy CS2 of the Local Plan, which states development in the countryside will be restricted to defined categories in accordance with other Core Strategy Policies. The Proposed Development falls under two of the defined categories being development by statutory undertakers or public utility providers, and a renewable energy project.
- 7.25 As noted, there is an identified need for stability infrastructure to service the Yaxley substation and a need for a synchronous condenser to be constructed. The proposed synchronous condensers would bring significant benefits through providing essential supporting infrastructure to stabilise the electricity grid system.

7.26 The environmental effects at this location are localised and limited, and the proposal is in compliance with relevant issue specific planning policies in the Development Plan, as discussed further below.

7.27 Section 5.0 of this document provides details regarding design and access, fulfilling requirements of Policy GP1 of the Local Plan.

7.28 The pre-application advice acknowledged the role of the Pathfinder project and power inertia development in contributing to the government's objectives for net zero, 50 by 30 and ongoing energy security, stating that the principle of the proposal is acceptable providing the impacts of the development are or can be made acceptable through mitigation. A number of technical reports have been submitted as part of this planning application, which are detailed below. The technical reports were advised as part of the outcome of the pre-application process.

## **Heritage**

7.29 The site does not fall within a designated Conservation Area and there are no Scheduled Ancient Monuments in the locality. There are no listed buildings within the site itself however there are a number of listed buildings and undesignated heritage assets in the wider landscape including the main built-up area of Yaxley.

7.30 Pre-application advice from the Council confirmed that a Heritage Impact Assessment (HIA) would be required in accordance with paragraph 194 of the NPPF.

7.31 A HIA has been prepared, assessing potential impact on nearby non-designated heritage assets and their setting as a result of the Proposed Development, to support Policies CS5, HB1 and HB14 of the Local Plan. Any cumulative impacts of surrounding forthcoming developments is also being considered.

## **Biodiversity/ Ecology**

7.32 The application site lies within the impact risk zone of the SSSIs Gypsy Camp Meadows to the north. There are recorded priority species within the locality.

7.33 Pre-application advice from the Council confirmed that an assessment of the impact of the Proposed Development on protected species, with appropriate assessment and recommendations for mitigation (including biodiversity net gain and enhancement measures) would be required in accordance with the NPPF.

7.34 A Preliminary Ecological Appraisal (PEA), prepared by A1 Ecology Ltd is submitted in support of this application. The PEA included an assessment of the habitats found within the site and its immediate surroundings and the likely impact of the proposed development on habitats of ecological value and protected and notable species.

7.35 This Assessment summarises a range of ecological constraints and opportunities, alongside recommendations for pre-construction survey work and/or mitigation.

7.36 The assessment identified the following potential impacts:

- The Proposed Development would result in the loss of approximately 5.1ha ha (of which 2.2ha would be a temporary loss associated with the construction access route) of

intensively farmed arable land, however the assessment notes the land has little biodiversity value.

- The Proposed Development could give rise to possible disturbance or damage to habitats and protected species that could occur within or in the immediate vicinity of the site during construction. This risk would be greater if any clearance occurs during spring or summer.
- The Proposed Development may reduce the value of the hedgerows to the west, south and east of the site as a commuting and foraging route for bats by increased illumination, and for breeding birds as a result of increased background noise.
- The north-west corner of site is considered sensitive, due to the pond. Any purpose-built access road will remove the risk of damage to hedgerow and arboreal habitats from increased vehicular traffic on Leys Lane.
- Any landscaping or boundary fencing in the north-west corner may result in damage or destruction of the pond. Installation itself may affect the water table and thereby impact its ecological function.

7.37

The assessment concluded that there are no features requiring further investigation observed during the site visit and as such therefore no further survey of ecological features is required. The assessment also recommends minor mitigation during construction and operation, being:

- A suitably qualified ecologist to be commissioned to carry out a check of the site immediately prior to commencement of construction works.
- Establishment of an exclusion zone in the extreme north-west corner of the Application Site to ensure that no inadvertent damage will occur as a result of construction activity. If this is not possible, an ecologist should be commissioned to devise an appropriate mitigation strategy.
- Use of overnight installation of escape ramps during construction to prevent trapping vertebrates that may be present on site.
- Control of surface water to prevent harm to biodiversity from surface water runoff during construction.
- Installation and ongoing management of a species-rich hedgerow along the northern and eastern boundary of the site adjacent to Leys Lane. This already forms part of the proposed landscape plan.
- A suitable management regime should be devised for any habitats that lie within the area managed as part of the installation, including maintenance of hedgerows and control of vegetation in and around the pond – should be clear where responsibility for this lies.

7.38

Approval of final details of the recommended minor mitigation during construction and operation could be reserved by condition should the Council consider this to be necessary.

7.39

From an ecological perspective, the PEA demonstrates that the proposals are acceptable. This application is therefore in accordance with national policies and Local Plan Policies CL8 and CS5.

## **Highways, Access and Parking**

- 7.40 The pre-application advice noted that proposed development may generate additional traffic movements in the area with the most significant impact during the construction and decommissioning phases. The advice confirmed that Leys Lane is a narrow, single track highway and public right of way. It was recommended that advice be sought from SCC Highways regarding the suitability of the highway and proposed access and parking arrangements, and that the application include a transport statement and construction management plan.
- 7.41 A Transport Statement, prepared by ITP Energised, is submitted in support of this planning application. The assessment considers the potential effects on the local highway network of the construction and operation of a synchronous condenser.
- 7.42 During construction, the site will make use of the Yaxley Substation's consented and already constructed temporary access route. Once both sites are operational, the temporary access will be de-commissioned. This temporary access has been designed for left-in, left-out access to and from the Proposed Development. Vehicles originating from the north will not therefore attempt to turn right onto the access route but will divert via the A140 / Castleton Way / Eye Road roundabout just under one kilometre to the south of the access route. Similarly, southbound vehicles leaving the access route will initially turn left onto the northbound A140 and change direction at the A140 / B1077 roundabout one kilometre north of the access route junction. No site traffic will be directed via Leys Lane or Yaxley village.
- 7.43 The construction phase of the proposed development will last for around 16 months and add a peak amount of 96 daily trips, of which 16 are heavy duty vehicles. This is considered to be a change in vehicle flows of negligible significance; and not expected to materially affect accident probabilities or severities.
- 7.44 Once operational, the proposed development will generally be unattended and operated remotely. Operational traffic serving the synchronous condenser will be negligible and limited to occasional light duty vehicles of maintenance crews operating on at most a quarterly basis.
- 7.45 The Transport Statement concluded that no further management or mitigation measures are considered necessary.
- 7.46 It is, therefore, concluded that any associated transport and traffic regarding this proposal will not have a significant impact on the local and wider transport network. The proposed development, therefore, accords with Policy T10 of the Local Plan.

## **Landscape and visual impact**

- 7.47 The pre-application advice noted that the site is located in an area of generally open, elevated landscape with direct views from public highways and the rights of way network. The proposal will have an impact on the character and appearance of the area and the application documents should address this issue, together with the cumulative impact of any other relevant development.

- 7.48 Given the context of the site, Conrad Energy has selected the location and designed the proposed development to have as minimal an impact on the surrounding landscape as possible and has been sensitively designed with appropriate landscape mitigation to assimilate with the surroundings. As noted in Section 2.0, the site selection process has directed Conrad Energy to the most appropriate and available site, within proximity to the Yaxley Substation. As a result, the only available location for the site is to the west of the A140.
- 7.49 A Landscape and Visual Appraisal (LVA) prepared by DRaW is submitted as part of this application and confirms that the landscape and visual effects of the proposed development are acceptable.
- 7.50 The design of the proposals incorporates a comprehensive landscaping plan. This includes utilising existing screening along the southern and eastern boundary of the site, so that the plant equipment will be screened from view. In addition, a number of measures are identified within the LVA are proposed including the planting of native hedgerows and woodlands to the north, south and east of the site, and grassland planting across the undeveloped land amongst the Synchronous Condenser.
- 7.51 The Zone of Theoretical Visibility within the LVA indicates that the proposed development would be mostly limited to receptors within 600m of the site. Beyond this distance the development would be substantially screened by intervening trees and hedgerows.
- 7.52 With the exception of Leys Lane adjacent to the site, no notable adverse effects on views from the local road network have been identified. No adverse effects are predicted to the visual setting of designated heritage assets, including Conservation Areas at Mellis Green and Thrandeston and the Listed buildings at Boswold Hall and Yaxley, all of which lie outside the zone of theoretical visibility. Due the sparsity of residential properties in the locality and screening afforded by dense vegetation no properties would experience a significant loss of residential visual amenity, overshadowing, or loss of privacy.
- 7.53 Given the proposed landscaping, the proposed development would not have a detrimental impact on visual amenity and the character of the rural area. The proposed planting and landscaping will provide additional environmental benefits to the area, whilst providing a natural screen to the development, ensuring that there is no impact on adjacent properties and there will be no detrimental impact to the appearance of the main approach to Yaxley.
- 7.54 The proposal therefore complies with Policy CS5, CL3 and H16 of the Local Plan.

## **Residential amenity**

- 7.55 There are dwellings to the north of the site and within the main area of Yaxley village that may be affected by the proposed development.
- 7.56 The pre-application advice noted that the application should include a noise impact assessment, including a cumulative assessment of other relevant development.
- 7.57 A Noise Impact Assessment, prepared by Inacoustic and is submitted as part of this planning application. The assessment identifies that the proposed development will give rise to rating sound levels that do not exceed the measured background sound level in the area, thus giving rise to a 'Low Impact' in BS4142 terms. The maximum 1/3 octave sound

power level for the main transformer at 100Hz is assumed to not exceed 99 dB (linear). No further mitigation is therefore required as part of the design.

7.58 As the proposed development conforms to the British Standard and National Planning Policy (as set out in the report), the Assessment concludes that noise should not be considered a constraint.

7.59 The proposal therefore complies with Policy H16 of the Local Plan.

## **Other matters**

### **Ground Conditions**

7.60 A Phase I Geo-Environmental Assessment, prepared by GEG Geo Environmental Group, I submitted as part of this planning application. The report determines potential contamination risks and associated potential environmental liabilities relating to the site and its proposed use as a synchronous condenser facility.

7.61 Given the historic agricultural use of the site, the report concludes that limited contamination sources are anticipated and that no potentially significant geo-environmental hazards or abnormals have been identified to date. To confirm the potential geotechnical and environmental parameters associated with the site via a detailed intrusive Phase II Geo-Environmental Ground Investigation. A soakaway storm drainage could be potentially suitable locally on the site based on the anticipated ground conditions.

7.62 The proposed development therefore accords with Policies CS5 and CL11 of the Local Plan.

### **Construction**

7.63 The construction phase of the proposed development will last for around 16 months and add a peak amount of 96 daily trips, of which 16 are heavy duty vehicles. This is considered to be a change in vehicle flows of negligible significance; and not expected to materially affect accident probabilities or severities.

### **Potential for Flood risk**

7.64 As the site area is over 1ha a flood risk assessment is required.

7.65 An illustrative surface water drainage strategy has been produced for the proposed development which shows that the site can accommodate surface water attenuation for events, up to and including, the 1 in 100 year storm +45% allowance for climate change.

7.66 The FRA confirms that the proposed development is suitable in the location proposed; is unlikely to place additional persons at risk of flooding; and is unlikely to increase flood risk elsewhere as a result of the proposed development through the loss of floodplain storage, impedance of flood flows or increase in surface water runoff.

7.67 A further SuDS is anticipated comprising bio-retention tree pits to add additional treatment, and amenity/ecological benefits. Approval of final details of the additional SuDS could be reserved by condition should the Council consider this to be necessary.



- 7.68 In accordance with Policy CS5 of the Local Plan, a Flood Risk Assessment (FRA) prepared by Ashfield Solutions Group is submitted as part of this planning application. The report outlines recommendations for the development to incorporate which seeks to keep the risk designation of surface water as Low.

**Socio-Economic Benefit**

- 7.69 The proposed development will bring benefits in terms of adding resilience to the electricity grid with the associated and sustainable socio-economic benefits this brings. The project will create direct local employment opportunities during construction and operation; and in-directly through the supply chain.
- 7.70 The proposed development would also deliver economic development and would help meet national policy to support sustainable development by helping to ensure the continuity of the energy supply, therefore providing an essential community and economic service.

## 8.0 **Summary and Conclusion**

- 8.1 This Planning Statement has been prepared by Lichfields, on behalf of Conrad Energy in support of a full planning application to Mid Suffolk District Council for the erection of a synchronous condensers on land at The Leys And Ivy Farm, Mellis Road, Yaxley.
- 8.2 The grant of planning permission for a synchronous condenser will ensure a reliable energy supply in the national grid. With the move towards de-centralisation and reliance in coal and gas-fired power stations reducing, the inertia that was an inherent part of this infrastructure is no longer available. As such developments, such as the proposed development are required to provide this ‘inertia’.
- 8.3 The Government recognises the importance of this type of infrastructure in providing stability. They will provide an integral role in supporting the UK’s energy mix and the transition to a low carbon economy. The proposal would therefore meet a recognised need for this type of development.
- 8.4 The proposed site would enable a connection to the substation identified by National Grid through the Pathfinders process. The site therefore represents an appropriate location given the prevailing operational requirements for the facility.
- 8.5 Having considered potential environmental impacts of the proposed development, the technical assessments that have been submitted with the planning application demonstrate that there will be no significant adverse impacts on heritage; biodiversity; highways, access and parking; landscape/visual; residential amenity; noise; flood risk; emissions; lighting and safety. In addition, the proposed development will create job opportunities during the construction and operational phases of development.
- 8.6 As set out in Section 6.0 of this Statement, the proposed development is in conformity with the statutory Development Plan, Mid Suffolk District Council Local Plan, when its policies are considered as a whole. The Local Plan was adopted in 1998 and pre-dates more recent Government policy objectives and national strategy for increased renewable energy, and support for increased grid capacity and stabilisation so as to contribute to the UK’s Carbon Net Zero obligations. There are no identified material considerations that outweigh the proposal’s conformity with the Plan and, indeed, there are a range of material considerations set out in this Statement that serve to support the grant of planning permission.
- 8.7 In accordance with the NPPF, the application proposal represents sustainable development and should be approved without delay.

# **Appendix 1 Pre-application advice**



Celebrating  
**60**  
years

**Birmingham**

0121 713 1530

birmingham@lichfields.uk

**Edinburgh**

0131 285 0670

edinburgh@lichfields.uk

**Manchester**

0161 837 6130

manchester@lichfields.uk

**Bristol**

0117 403 1980

bristol@lichfields.uk

**Leeds**

0113 397 1397

leeds@lichfields.uk

**Newcastle**

0191 261 5685

newcastle@lichfields.uk

**Cardiff**

029 2043 5880

cardiff@lichfields.uk

**London**

020 7837 4477

london@lichfields.uk

**Thames Valley**

0118 334 1920

thamesvalley@lichfields.uk



@LichfieldsUK

**lichfields.uk**