

Preliminary Environmental Information Report Non-Technical Summary

October 2013



**PARSONS
BRINCKERHOFF**

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LIST OF ABBREVIATIONS

AGI	Above Ground Installation
CCGT	Combined Cycle Gas Turbine
CEMP	Construction Environmental Management Plan
CHP	Combined Heat and Power
CO	Carbon Monoxide
DCO	Development Consent Order
EA	Environment Agency
EIA	Environmental Impact Assessment
ES	Environmental Statement
FRA	Flood Risk Assessment
GCN	Great Crested Newt
GTG	Gas Turbine Generator
GW	Gigawatts
ha	Hectares
HGV	Heavy Goods Vehicles
km	Kilometres
LVIA	Landscape and Visual Impact Assessment
m	Metres
MSDC	Mid Suffolk District Council
MW	Megawatts
NO _x	Nitrous Oxides
NPS	National Policy Statement
NSR	Noise Sensitive Receptor
NTS	National Transmission System
PEIR	Preliminary Environmental Information Report
PPL	Progress Power Limited
RGE	Reciprocating Gas Engines
SCGT	Simple Cycle Gas Turbine
SEC	Sealing End Compound
SoS	Secretary of State
SUDS	Sustainable Drainage Systems
TA	Transport Assessment
UK	United Kingdom
WPL	Watt Power Limited

1 INTRODUCTION

1.1 Overview

1.1.1 This document is the non-technical summary of the Preliminary Environmental Information Report (PEIR) for the Progress Power Project (hereafter referred to as 'the Project'). It has been prepared by Parsons Brinckerhoff on behalf of Progress Power Limited (PPL).

1.1.2 PPL is promoting a new natural gas fired power station on land at the former Eye Airfield located in Eye, Mid Suffolk.

1.1.3 The four main elements of the proposed Project would comprise:

- A Simple Cycle Gas Turbine (SCGT) gas fired power generating station (referred to as the '**Power Generation Plant**') designed to provide an electrical output of up to 299 Megawatts (MW);
- A new electrical connection (referred to as the '**Electrical Connection**') to export electricity from the Power Generation Plant to the substation within the Electrical Connection Compound;
- A new electrical connection compound comprised of a new substation and sealing end compound (SEC) (referred to as the '**Electrical Connection Compound**') to export electricity from the Power Generation Plant to the National Grid; and
- A new gas pipeline connection (referred to as the 'Gas Connection') to bring natural gas to the Power Generation Plant from the existing National Gas Transmission System (NTS) in the vicinity of the site;

together with all access requirements.

1.1.4 It is proposed that the Power Generation Plant would operate as a 'peaking plant'. This means that it would have an intermittent operating regime (i.e. not running 24/7), with maximum operational hours not exceeding 1500 hours per year. It is designed to provide back-up generation capacity to respond quickly and efficiently to both short-term variation in customer demand and intermittent output from renewable power generation.

1.1.5 The proposed Project is classified as a Nationally Significant Infrastructure Project, which means that a Development Consent Order (DCO) is required to build, operate and maintain it. The proposed DCO Application will be processed and examined by the Planning Inspectorate who will make a recommendation to the Secretary of State for Energy and Climate Change (Secretary of State). The final decision on the application is made by the Secretary of State (SoS). The main

PEIR and this non-technical summary have been prepared in accordance with Regulations 2 and 10 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009. They present information specifically aimed at assisting consultees and local communities to understand the nature, scale, and location of the proposed Project.

- 1.1.6 Copies of the main PEIR and this non-technical summary may be examined during a consultation exercise being carried out by PPL between 3 October 2013 until 7 November 2013 at Ipswich County Library, Diss Library, Eye Library, Ixworth Library and Stradbroke Library.
- 1.1.7 Copies of the main PEIR and this non-technical summary can also be found on the Project website: www.progresspower.co.uk
- 1.1.8 PPL welcomes your comments on the proposals and the information provided in this non-technical summary. Representations can be made:
- By email to: info@progresspower.co.uk
 - In writing to: Freepost RTEY-JYYB-ERSR, Progress Power Ltd, 49 York Place, Edinburgh, EH1 3JD
 - By phone: 01603 417722
- 1.1.9 Representations must be received on or before 7 November 2013.

1.2 Needs and Benefits of the Project

- 1.2.1 The Government's policies in relation to Nationally Significant Infrastructure Projects are set out in National Policy Statements (NPSs). NPS EN-1 (the Overarching Energy NPS) states that "gas will continue to play an important role in the electricity sector – providing vital flexibility to support an increasing amount of low-carbon generation and to maintain security of supply" (paragraph 3.6.2).
- 1.2.2 Gas is a reliable fuel source. It is acknowledged by the Government as being essential to a low-carbon economy and to underpin the country's energy security. In addition, gas provides back-up to power generation from renewable sources, particularly wind power, which is an increasingly prevalent but intermittent energy source. Modern gas fired power plants are among the most efficient and cleanest forms of electricity power generation.

1.3 Planning Policy Context

- 1.3.1 The Department for Energy and Climate Change has published a number of NPSs in relation to energy infrastructure, which were designated by the SoS in July 2011. These NPSs set out national policy against which proposals for Nationally Significant Infrastructure Projects are assessed and decided on.
- 1.3.2 Due to the nature of the proposed Project (which would generate over 50 MW of electricity), four of the designated NPSs are considered relevant to the determination of the proposed DCO Application:
- Overarching National Policy Statement for Energy EN-1: This sets out national policy for energy infrastructure as defined by the Planning Act 2008, which provides the primary basis for decisions by the SoS;
 - National Policy Statement for Fossil Fuel Electricity Generating Infrastructure EN-2: This sets out policies specific to the determination of applications for fossil fuel electricity generating infrastructure;
 - National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines EN-4: This sets Government policy on the relevant considerations and factors that should be taken into account as to route selection for developers for, inter alia, gas pipelines; and
 - National Policy Statement for Electricity Networks Infrastructure (EN-5): This provides the primary basis for decisions taken by SoS on applications it receives for electricity network NSIPs, including the relevant considerations and factors that should be taken into account related to route selection.
- 1.3.3 NPS EN-1 states that consideration may be given to planning policy outside the NPSs where it is important and relevant to the SoS's decision. Other national planning policies have therefore been considered in the preparation of the PEIR as these may be relevant to the determination of the proposed DCO Application.

1.4 The Developer

- 1.4.1 The developer of the Project is Progress Power Limited (PPL). PPL is an energy development company established for the Project by Watt Power Limited (WPL) of Edinburgh. WPL wishes to develop gas fired power plants at Eye and elsewhere in the UK to support the UK Government's drive to a low carbon economy.

1.5 Purpose of the Document

- 1.5.1 Due to the nature and size of the proposed Project, PPL is undertaking an Environmental Impact Assessment (EIA). The EIA considers the potential impacts, both positive and negative, of the proposed Project.
- 1.5.2 This document is a summary (in non-technical language) of the PEIR for the proposed Project. It has been prepared to provide information on the proposed Project as part of the pre-application consultation process for the proposed DCO Application. It presents a summary of the preliminary environmental information and assessments which have been completed to date and identifies the additional information or studies required in order to complete the EIA. Feedback received during the pre-application consultation process will help to influence the final designs of the proposed Project and refine the EIA.
- 1.5.3 The findings of the EIA will be presented in an Environmental Statement (ES) that will be submitted with the proposed DCO Application to the Security of State (SoS).

2 PROJECT AND SITE DESCRIPTION

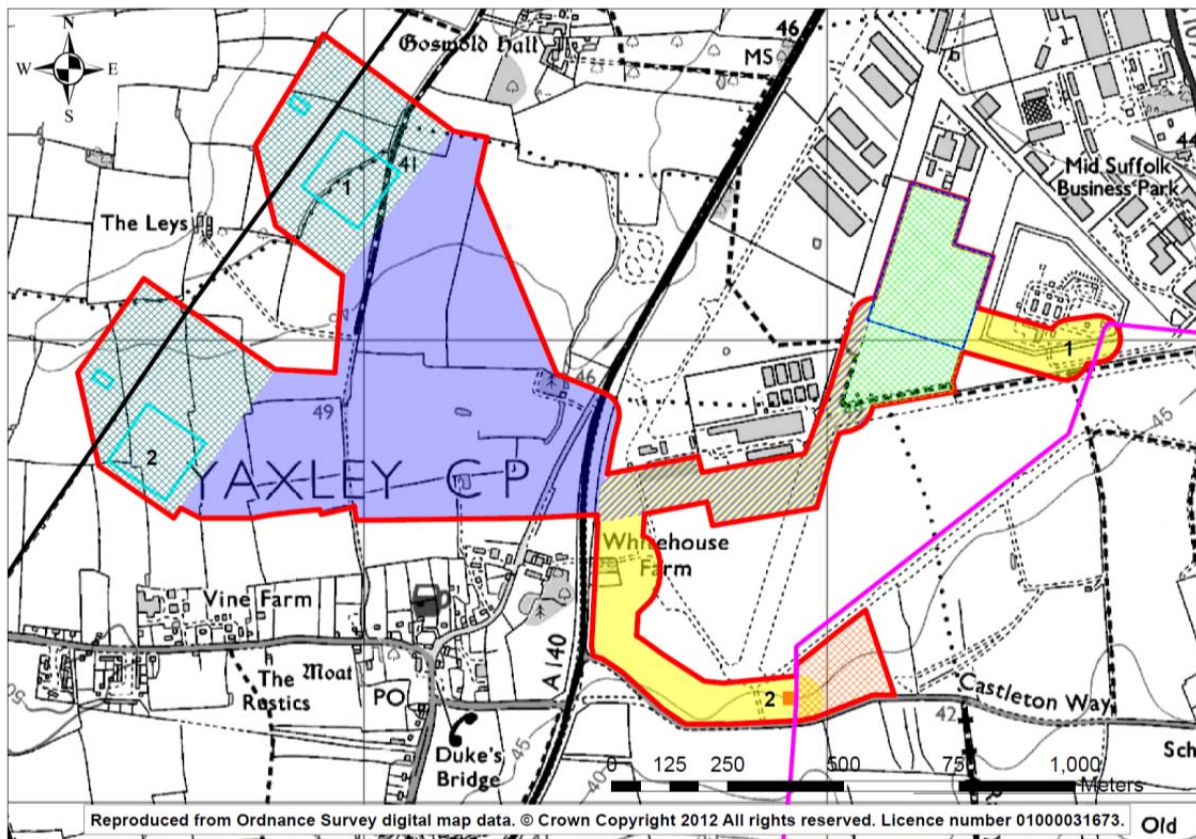
2.1 Site and Surroundings

- 2.1.1 The Project Site is shown in Figure 2.1, being the current project red line boundary which includes all options currently under consideration by PPL as explained in further detail in this non-technical summary. Any temporary areas for equipment / material laydown, required during construction of the Project, would also be located within the Project Site. The Project Site lies entirely within the administrative boundary of Mid Suffolk District Council (MSDC).
- 2.1.2 The Power Generation Plant would be situated within a 10 hectares (ha) plot of land located within the former Eye Airfield. The former Eye Airfield accommodates several industrial parks, including: Brome Industrial Estate (to the north), Eye Airfield Industrial Estate (to the north-east), Mid Suffolk Business Park (to the east) and Oaksmere Business Park (to the west). The Project Site is located approximately 1 kilometre (km) north west of Eye Town Centre. The footprint of the Power Generation Plant would, however, be smaller than the full 10 ha site. Figure 2.1 shows the preliminary preferred location of the Power Generation Plant within the 10 ha site.
- 2.1.3 The Power Generation Plant site and immediate surrounding area is characterised by agricultural land and the remnants of a former World War 2 airfield, including the runway and the access roads. Buildings that once formed part of the airfield have been replaced by units

accommodating various industrial activities including a power generation facility (the Eye Chicken Litter Power Plant) and a National Grid Gas Compressor Station. Additionally, there are two large (130m high) wind turbines (Eye Airfield Wind Turbines) within 200m to the north west of the proposed Power Generation Plant site. Two more wind turbines (130m high) have received planning permission and these will be constructed by Eye Wind Power Ltd to the south of the site at Baldwin Farm.

- 2.1.4 The Power Generation Plant site can be accessed from the existing road network via a private road to the south, Potash Lane, which in turn connects to Castleton Way, via the former main runway. Castleton Way provides connectivity to the B1077 to the east and the A140 to the west. The closest point of the B1077 to the site is approximately 460m east.
- 2.1.5 At this stage in the proposed Project, the preferred route options for the Gas Connection, Electrical Connection and the location and layout of the Electrical Connection Compound have yet to be finalised. The options under consideration are illustrated in Figure 2.1.
- 2.1.6 Construction and maintenance access for the two options for the Electrical Connection and Electrical Connection Compound is likely to follow the final Electrical Connection route corridor once agreed, although some small maintenance access may utilise Leys Lane. It is likely, however, that access improvement works would be required at the northern end of Old Norwich Road, between White House Farm and the fishing pond. Construction of the Electrical Connection would require the carrying out of road works on the A140, Old Norwich Road and Leys Lane, as both Electrical Connection Option 1 and Electrical Connection Option 2 will run across these roads.
- 2.1.7 Construction and maintenance access for Gas Connection Option 1 (see Figure 2.1) would be via Castleton Way and Potash Lane.
- 2.1.8 Construction and maintenance access for Gas Connection Option 2 (see Figure 2.1) would be via Castleton Way and Potash Lane and an access over private land. Construction of Gas Connection Option 2 would involve some temporary road works across Potash Lane whilst the underground pipe was being installed.

Figure 2.1: Project Site Location Map



- Proposed Redline Boundary (Incorporating alternative Options)
- 400kV Overhead Line
- National Gas Transmission System
- Power Generation Plant Area (Inc Laydown & Maintenance)
- Preliminary Preferred Location of the Power Generation Plant
- Substation & SEC Area Options 1 & 2 (Inc Laydown Area)
- Preliminary Preferred Locations for Substation & SEC Options 1 & 2
- Gas Above Ground Infrastructure for Option 2
- Gas Above Ground Infrastructure Laydown Area
- Electrical Connection Route Corridor Options
- Overlap between Electrical and Gas Connection Corridor Options
- Gas Connection Route Corridor Options 1 & 2

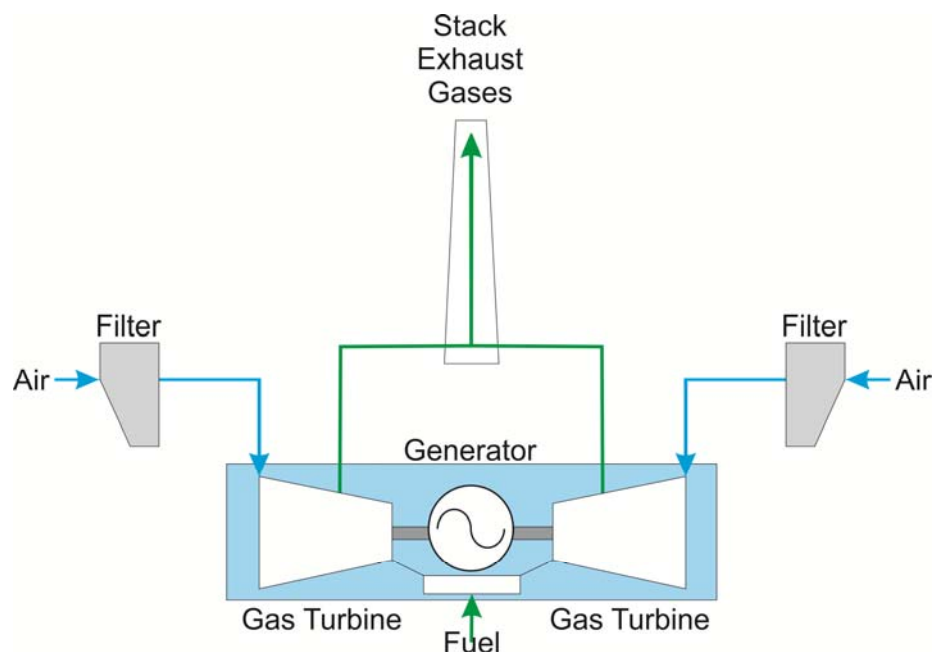
2.2 Power Generation Plant and Generating Technology

2.2.1 PPL has determined that an SCGT plant is the preferred and most appropriate technology choice for the Power Generation Plant (refer to Section 3.3). There are, however, several options of SCGT plant available to generate up to 299 MW. These different options mainly relate to the number and type of gas turbine generator (GTGs) used.

2.2.2 SCGT plant usually use aero-derivative GTGs (i.e. turbines derived from the aeronautical industry), primarily because of their suitability to frequent start-ups, flexibility, high efficiency and high-availability maintenance options. However, ‘industrial’ type units can also be used. These are typically larger and often more suited to longer operational hours. For the Power Generation Plant, PPL envisages using 3, 4 or 5 individual aero-derivative GTGs or, alternatively 1 or 2 individual industrial GTGs to generate up to 299 MW. To allow for a precautionary approach, the assessments in the PEIR have been based on the Power Generation Plant using 5 individual aero-derivative GTGs unless otherwise stated. This is because 5 GTGs would generally have greater impacts on the environment than fewer units and is therefore considered to be the realist worst case scenario.

2.2.3 Figure 2.2 shows a simple schematic of SCGT operation. In the gas turbines air is compressed and natural gas is injected. The fuel is then burned in the combustion chamber producing hot, high pressure gases. This gas expands across the blades of the gas turbine, which drives the electrical generators to produce electricity. The waste gases and heat produced from this process are released to the atmosphere via stacks.

Figure 2.2: A simple schematic of SCGT operation



2.2.4 PPL envisages that the Power Generation Plant would have up to 5 stacks, each up to 30m in height, depending on the number and type of GTGs used (so in the realistic worst case scenario of 5 GTGs, there would be 5 stacks each a maximum height of 30m). Each stack would

be equipped with emissions control technologies, which would reduce emissions released to the atmosphere.

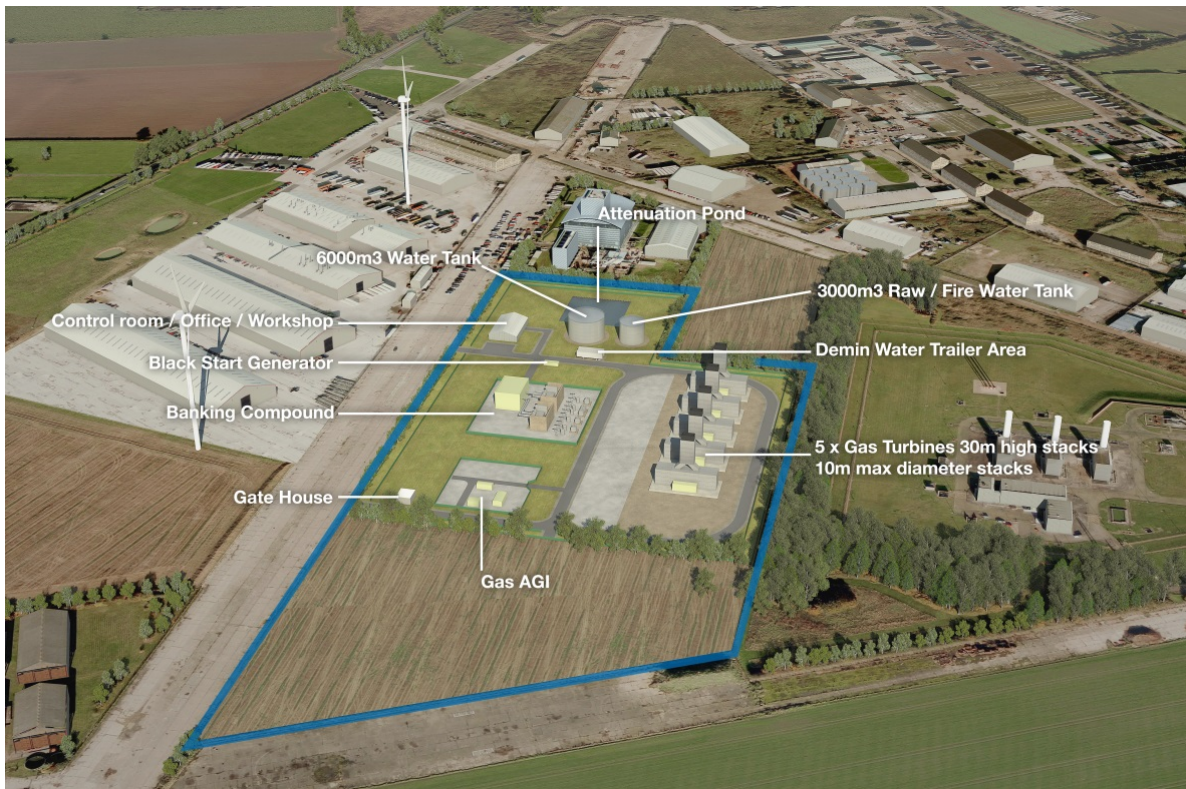
2.2.5 In addition to the main GTG units at the Power Generation Plant site, the following would also be present:

- **Process Water Tank:** to supply make up water to the plant.
- **Fire Water Tank:** designed to comply with the relevant fire regulations and would be installed together with fire pumps, hose reels, fire hydrants and portable extinguishers.
- **Control Building:** to monitor the plant operation and house plant controls.
- **Workshop and Stores Building:** to store certain strategic and routine maintenance spares and to provide a facility for carrying out minor maintenance of the plant. .
- **A Gatehouse:** needed to provide security and maintain a log of site attendance, deliveries etc.
- **A Switchyard:** to connect the electrical infrastructure from the Power Generation Plant to transformers before export to the National Grid; and
- **A Gas Receiving Installation:** to process gas coming from the NTS to feed into the Power Generation Plant site at the right flow and pressure conditions.

2.2.6 An illustrative visual of the Power Generation Plant site is provided in Figure 2.3. The final layout proposal for the Power Generation Plant site would incorporate a degree of flexibility with respect to the actual sizing and siting of the structures and buildings shown.

2.2.7 Subject to public consultation, planning and financing, the Power Generation Plant could enter commercial operation in 2018.

Figure 2.3: Illustrative Visual of the Power Generation Plant Site



2.3 Gas Connection

- 2.3.1 A new underground gas pipeline would be required to connect the Power Generation Plant to the NTS in order to provide a reliable supply of fuel.
- 2.3.2 Two route corridor options are currently being assessed for their suitability, as illustrated by Figure 2.1. Gas Connection Route Corridor Option 1 is approximately 0.1 km in length and runs west into the National Grid Gas Compressor Station located adjacent to the Power Generation Plant site. Gas Connection Route Corridor Option 2 is approximately 1.5 km in length and runs in a southerly direction terminating in a field to the north of Castleton Way where a new Above Ground Installation (AGI) would be situated.
- 2.3.3 The route choices for the Gas Connection will be refined as the proposed Project progresses and after public consultation. It is PPL's intention to choose a single preferred route corridor option prior to submission of the proposed DCO Application. This preferred option will then be assessed in the ES and applied for in the proposed DCO Application.

2.4 Electrical Connection and Electrical Connection Compound

- 2.4.1 A new underground Electrical Connection together with a new Electrical Connection Compound would be required to connect the Power Generation Plant to the existing nearby overhead power line, which is part of the National Electricity Transmission System. The existing line runs in a north-south direction, a little over 1 km west of the Power Generation Plant site at its closest point.
- 2.4.2 The Electrical Connection Compound (illustrated in Figure 2.4) would consist of a substation with maximum dimensions 150 m x 150 m, up to 12.5 m in height, and a SEC with dimensions approximately 45 m x 22 m, up to 10 m in height.

Figure 2.4: Illustrative Visual of the Electrical Connection Compound



Note this visual shows the Electrical Connection Compound on either side of an existing pylon for the existing line; the proposed Project does not involve any overhead lines rather an underground electrical cable

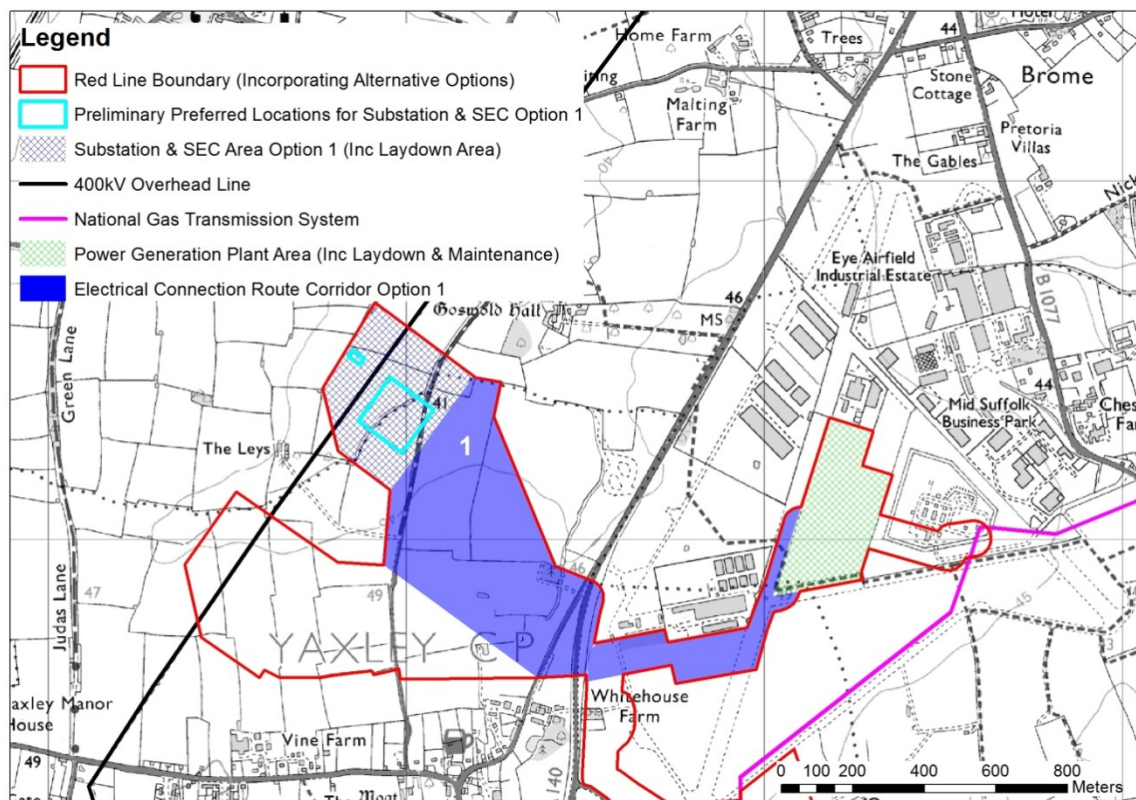
- 2.4.3 The location and layout of the Electrical Connection Compound have yet to be finalised. As illustrated by Figure 2.1, two possible areas of approximately 12 ha have been identified, along with preliminary preferred locations for the Electrical Connection Compound within each 12 ha site. These options are:
- Electrical Connection Compound Option 1: located to the south of the The Leys, within agricultural land to the north of Mellis Road.

- Electrical Connection Compound Option 2: located to the north of the The Leys, within agricultural land off Leys Lane between The Leys and Goswold Hall.

2.4.4 The Electrical Connection route corridor for the proposed Project will be dependent upon which of the two Electrical Connection Compound options is preferred. At this stage, two potential route corridor options have been identified, as illustrated by Figures 2.5 and 2.6.

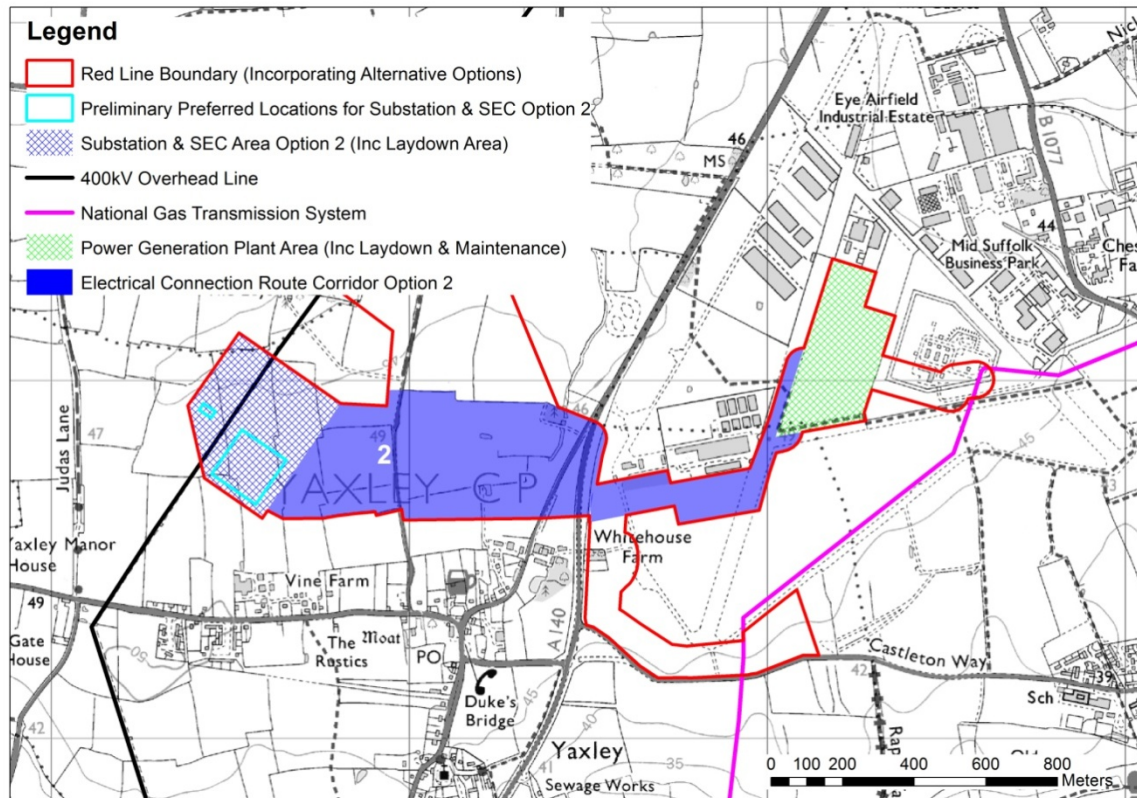
2.4.5 The location and layout of the Electrical Connection Compound and the route of the Electrical Connection will be refined as the Project progresses and after public consultation. It is PPL's intention to choose a single preferred option prior to submission of the proposed DCO Application. The preferred option will then be assessed in the ES and applied for in the proposed DCO Application.

Figure 2.5: Electrical Connection Compound Option 1 and Electrical Connection Route Option 1



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Figure 2.6: Electrical Connection Compound Option 2 and Electrical Connection Route Option 2



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3 SITE SELECTION, ALTERNATIVES AND DESIGN EVOLUTION

3.1 Introduction

3.1.1 An overview of the alternatives that have been considered for the proposed Project as part of the design evolution process is provided below.

3.2 Alternative Development Sites

3.2.1 As part of a detailed feasibility assessment for the Project, WPL looked at a range of sites around the UK to support power generation plants of this nature. The key factors which WPL considered necessary in a site were broadly four fold: technical (e.g. the size of the site and the proximity to appropriate gas and electrical connection points), environmental, economic and whether the proposals would be in line with local planning policy.

3.2.2 Based on these factors, the site at the former Eye Airfield was considered suitable as it is within close proximity (<1 km) to the gas

NTS and (<1.5 km) to a high voltage electrical transmission infrastructure. The site is within an existing industrial estate and surrounded by similar industrial developments and the area is identified in the emerging Eye Airfield Development Framework as an area that MSDC has aspirations to develop as an energy park. In addition, there is more than adequate space on the former Eye Airfield site to develop the Power Generation Plant and integral infrastructure.

3.3 Power Generation Plant

3.3.1 Three potential technology options were originally considered for the 299 MW Power Generation Plant at Eye: SCGT plant, Combined Cycle Gas Turbine (CCGT) plant and Reciprocating Gas Engines (RGE) plant. The potential for utilising Combined Heat and Power (CHP) opportunities at the site using these technologies was also considered.

3.3.2 PPL has undertaken a number of studies to refine the technology choice and it has been concluded that an SCGT peaking plant is the most suitable technology choice. This has been determined based on the following environmental, technical and feasibility considerations:

- Visual impact: the use of a SCGT plant over a CCGT plant limits the height of the stack(s) required and therefore the visual impacts associated with the Power Generation Plant.
- Water resources: the water requirement of a SCGT plant is significantly lower than for a CCGT and CHP plant.
- Financial: based on the current electricity market, it is essential that the plant of the size proposed at Eye will be particularly cost effective, as it would be called upon to operate flexibly to balance out the National Grid and meet changing demands of customers. Currently SCGT plants are more cost effective than CCGT plants and better suited to this type of operational regime.
- Start up times: SCGT plants are able to start up and shut down much quicker than similar sized CCGT plants and are, therefore, better suited to meeting flexible demands.

3.4 Gas Connection

3.4.1 Seven potential Gas Connection route corridor options were originally identified to connect the Power Generation Plant to the NTS. Further analysis has determined that five of these route corridor options are no longer feasible due to a combination of factors, including the proximity to the recently consented wind turbines, the potential to render large areas of fields unusable and the potential to cause significant disruption to a currently busy and operational part of the former Eye Airfield Industrial Estate. The remaining two route corridor options (as

identified in Section 2.3) are still under consideration for the proposed Project and have been assessed as part of the PEIR.

- 3.4.2 Continued consultation and environmental assessment on the Gas Connection options is required before each can be confirmed.

3.5 Electrical Connection and Electrical Connection Compound

- 3.5.1 A large Electrical Connection 'opportunity area' was originally identified to the west of the A140, where studies into possible Electrical Connection route corridor options were to be concentrated. A number of ecological surveys have now been undertaken, which has enabled further refinement of this area. As such, it is now likely that the connection point would be located in the area between Vine Farm and Goswold Hall, as illustrated in Figure 2.1.

- 3.5.2 As discussed in Section 2.4, two areas are currently being investigated to site the Electrical Connection Compound. These areas have both been subject to environmental studies, some of which are ongoing. The exact configuration and route of the Electrical Connection will be dependent upon the outcome of the preferred Electrical Connection Compound location, but two route corridor options are currently being considered as illustrated in Figures 2.5 and 2.6.

- 3.5.3 Continued consultation and environmental assessment on the Electrical Connection and Electrical Connection Compound options is required before each can be confirmed.

4 PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT

4.1 Environmental Impact Assessment Methodology

- 4.1.1 In accordance with relevant regulations, the EIA process for the proposed Project incorporates the following steps:
- Establishing, through consultation, the Scope of the EIA including obtaining a Scoping Opinion from the SoS;
 - Consideration of any potential technical and environmental alternatives;
 - Establishing a comprehensive understanding of the existing baseline environmental conditions for the site and the relevant study areas for each topic;
 - Identifying the potential environmental impacts resulting from the proposed Project;

- Determining how the potential environmental impacts can be avoided, reduced or off-set through informed design and / or further mitigation and how its benefits may be enhanced;
- Assessing the significance of the potential environmental impacts in conjunction with other impacts arising from the proposed Project and those from other neighbouring developments and / or sources (in-combination and cumulative impacts); and
- Proposing options as to how any significant residual impacts will be mitigated, managed and monitored.

4.1.2 The PEIR is an intermediate step of the EIA process required by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, reporting on information currently available and some likely approaches to mitigation measures which might be used to avoid, reduce and if possible remedy any significant adverse impacts and thus minimise residual impacts.

4.1.3 Before commencing the EIA for the proposed Project, PPL requested a Scoping Opinion from the SoS in May 2013. The views given in the formal Scoping Opinion, received in June 2013, were taken into account when preparing the PEIR.

4.2 Air Quality

4.2.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon air quality. To date, a desk based assessment together with preliminary air dispersion modelling has been undertaken to assess any potential impacts upon air quality from the proposed Project. A summary of the results from this preliminary assessment is provided below.

BASELINE

4.2.2 The study area for the preliminary air quality assessment is based on a 20 km by 20 km grid. Receptors within this area which may be sensitive to changes in air quality include the residential settlements nearest to the Power Generation Plant (namely Brome, Eye and Yaxley), sensitive ecological receptors within 10 km of the Project Site (including the statutory designated sites referred to in Section 4.4), business / industrial occupiers nearest to the Power Generation Plant (Eye Airfield Industrial Estate and Mid Suffolk Business Park) and local agricultural holdings. In April 2011 MSDC undertook an Updating and Screening Assessment of ambient air quality within its jurisdiction. The Assessment report states: "The Air Quality Objectives have not been exceeded in the Mid Suffolk district in 2010" and "There are no other areas that are of concern within the area of MSDC".

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.2.3 During the construction and subsequent decommissioning of the Power Generation Plant, the main potential impacts on air quality would be from dust emissions generated from on-site construction/decommissioning activities and exhaust emissions from construction/decommissioning traffic movements. It is, however, considered unlikely that the levels of atmospheric dust which would be generated would constitute a health hazard or nuisance to local people or industry. Impacts would be minimised through successful implementation of an agreed Construction Environmental Management Plan (CEMP).
- 4.2.4 During operation of the Power Generation Plant, the main potential impacts on air quality are associated with the stack emissions arising as a result of the combustion of natural gas and include the release of Nitrous Oxides (NO_x) and Carbon Monoxide (CO). Modern gas fired power plants are, however, inherently clean and produce far fewer emissions than other fossil fuel power plants when compared on an energy output basis. For the purposes of assessing operational impacts, the preliminary air quality impact assessment for the Power Generation Plant has examined two different project scenarios:
- Operation of five aero-derivative GTGs (each of around 60 MW);
 - Operation of two industrial GTGs (each of around 150 MW).
- 4.2.5 The impact of the emissions from the stacks has been quantitatively assessed using air dispersion modelling techniques. This has concluded that the realistic worst case project scenario for air quality impacts is a Power Generation Plant operating with 5 aero-derivative GTGs. The modelling has also indicated that a minimum stack height of 20 m would provide adequate dispersion of the flue gases. Taking into consideration potential differences in technology and the requirement to fit constant emissions monitoring systems and silencers into the stack(s), it is envisaged that the maximum height of the stack(s) at the Power Generation Plant would be 30 m (irrespective of the type and number of GTGs / stacks).
- 4.2.6 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, the Power Generation Plant is not predicted to have any likely significant effects on air quality.

Gas Connection

- 4.2.7 Impacts upon air quality from the construction and subsequent decommissioning of the Gas Connection are not anticipated to be significant due to the small scale of the works proposed. Any impacts would be minimised through successful implementation of an agreed CEMP. It is currently anticipated that when the proposed Project is decommissioned, the Gas Connection would remain in-situ, as removing the pipeline would likely be more environmentally damaging.
- 4.2.8 Significant effects on air quality are also not predicted during operation of the Gas Connection, although there may be infrequent emissions due to the venting of gas from the AGI under non-normal, maintenance or emergency conditions. There are not considered to be significant differences in the potential impacts between the two Gas Connection route corridor options currently under consideration.

Electrical Connection and Electrical Connection Compound

- 4.2.9 Impacts upon air quality from the construction and subsequent decommissioning of the Electrical Connection and Electrical Connection Compound are not anticipated to be significant due to the small scale of the works proposed. Any impacts would be minimised through successful implementation of an agreed CEMP. During operation there is a very limited scope for potential impacts on air quality. There are not considered to be significant differences in the potential impacts between the Electrical Connection and Electrical Connection Compound options currently under consideration.

NEXT STEPS

- 4.2.10 A detailed air quality impact assessment will be undertaken to determine the likely environmental impacts of operation of the proposed Power Generation Plant, both in isolation and in conjunction with other significant emissions sources identified through consultation with the relevant authorities. The impact of emissions from traffic during the construction and decommissioning phases of the proposed Project will also be assessed. The results of this assessment work will be presented within the ES.

4.3 Noise and Vibration

- 4.3.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon local ambient noise levels and generate vibration, which may impact on sensitive receptors. To date, a desk based assessment, noise survey and preliminary noise

modelling have been undertaken to assess any potential impacts. A summary of the preliminary assessment results is provided below.

BASELINE

- 4.3.2 The baseline noise climate in the area surrounding the Power Generation Plant site is largely dominated by road traffic during the daytime. During the night time when road traffic levels reduce, a continuous low level noise is audible from the existing power plant. An attended noise survey has been undertaken to determine the spread of noise in the area. The survey was conducted over a 24 hour period between 21st and 22nd July 2013 at six noise sensitive receptor (NSR) locations: Haygate, Hammond Farm (Old Norwich Road), Goswold Hall, Junction near The Maltings, Four Oaks Park and Mullberrybush Nursery. The study area, noise survey methodology and NSR locations were defined in consultation with MSDC, Suffolk County Council (SCC) and the Environment Agency (EA).

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.3.3 Preliminary noise predictions associated with the construction and subsequent decommissioning of the Power Generation Plant indicate that there would be no significant effects on the six NSR locations. Any potential impacts would be minimised through the successful implementation of an agreed CEMP and proper communication with local residents. Core site working hours would also be agreed with MSDC and SCC in advance of works commencing.
- 4.3.4 During operation of the Power Generation Plant, preliminary noise modelling (which has taken the intermittent operating nature of a peaking plant into consideration) has indicated that significant effects before mitigation cannot yet be ruled out at three of the NSR locations; namely Haygate, Goswold Hall and the Junction near The Maltings. These results are, however, subject to change once a more detailed operational noise modelling assessment has been undertaken. In addition, mitigation measures would be put in place to minimise any impact, including the fitting of high performance silencers, the acoustic cladding of all GTGs and the use of inherently quiet plant items, wherever practicable. A programme of noise monitoring, including a noise survey shortly following the commissioning of the new plant, shall be agreed with MSDC and implemented at regular intervals.
- 4.3.5 No significant effects are predicted from operational vibration impacts, given the distances involved between the Power Generation Plant site and the NSR locations.

Gas Connection

- 4.3.6 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, significant effects on NSRs cannot yet be ruled out from noise impacts associated with the construction and decommissioning of Gas Connection route corridor option 2 (although these impacts will be temporary in nature) and from the operation of both Gas Connection options. The noise impact at sensitive receptors from the identified construction and decommissioning activities associated with Gas Connection route corridor option 2 and from operation of both Gas Connection options is anticipated to be moderate adverse. During operation, detailed noise mitigation would be required to control the noise from pressure release valves at the AGI.

Electrical Connection and Electrical Connection Compound

- 4.3.7 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, significant effects on NSRs cannot yet be ruled out from noise impacts associated with the construction and decommissioning of the Electrical Connection and Electrical Connection Compound options, with the noise impact at sensitive receptors anticipated to be moderate adverse. During operation of the Electrical Connection Compound, substation cooling systems have the potential to create minor annoyance at NSRs and detailed noise mitigation would be required to minimise any impact. There are, however, not considered to be significant differences in the potential impacts between the Electrical Connection and Electrical Connection Compound options currently under consideration.

NEXT STEPS

- 4.3.8 Detailed noise modelling will be undertaken to determine the significance of the potential impacts from the operation of the Power Generation Plant, Gas Connection the Electrical Connection and the Electrical Connection Compound. In addition, a detailed construction noise and vibration assessment will be undertaken for the Electrical Connection Compound and the Gas Connection once the preferred option is chosen and a traffic noise impact assessment will be completed. The results of this additional assessment work will be presented within the ES.

4.4 Ecology

- 4.4.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon the local ecology and disturb various sensitive species. The Power Generation Plant also has the

potential to provide ecological value, for example, by reinforcing existing habitats or through the introduction of screen planting, which could provide additional habitat for some species.

BASELINE

- 4.4.2 In order to establish the ecological baseline of the proposed Project Site a desk based assessment along with two extended Phase 1 habitat surveys have been undertaken. One survey, completed in May 2013, covered the area of the former Eye Airfield and encompassed the Power Generation Plant site and the Gas Connection route corridor options. The survey area comprises an arable landscape, with hedgerows, dense scrub, scattered trees and hardstanding along the respective arable boundaries. Industrial areas are located on the far side of these features to the north, east and west.
- 4.4.3 The second Phase 1 habitat survey covered the Electrical Connection 'opportunity area' (refer to Section 3.5) and was first undertaken on 3rd May 2013, with the remainder of the site surveyed on 12th and 13th June 2013 due to access restrictions. The survey area comprises a largely arable landscape. Smaller areas of buildings and hardstanding, and semi-improved grassland occur in the northern, eastern and western areas of the site.
- 4.4.4 The desk based assessment identified the presence of 36 statutory designated sites (including ancient woodland) within 10 km of the proposed Project Site, although only two of these are of international importance (Redgrave and South Lopham Fens Ramsar site and Waveney and Little Ouse Valley Fens Special Area of Conservation) and eight of national importance.
- 4.4.5 Based on the results of the Phase 1 habitat surveys, the following Phase 2 protected species surveys were commissioned (some of which are still ongoing): badger, bat (tree inspection and activity survey), breeding bird, great crested newt (GCN) and reptile. All surveys have been conducted in accordance with applicable best practice and followed standard methodologies.
- 4.4.6 A summary of the preliminary Phase 2 survey results obtained to date is provided below:
- **Badger:** No signs of badger were noted within the proposed Project Site, although the discovery of a nearby roadkill confirms presence within the wider surrounds.
 - **Bats (tree inspection):** 65 trees were inspected from the ground for signs of bats / bat roosting potential, 55 of which were

considered to have varying levels of potential to support roosting bats. There are no trees with any bat roosting potential within the Power Generation Plant site or Gas Connection route corridor options. Twelve trees with varying degrees of bat potential have been identified within the Electrical Connection Compound options and Electrical Connection route corridor options.

- **Bats (activity survey):** Three monthly surveys (May, June and July) have been carried out, the last of which incorporated a dusk and dawn survey effort. Low levels of bat activity have so far been recorded across the proposed Project Site with only three common bat species recorded (common pipistrelle, noctule and soprano pipistrelle). No bat roosts have been identified during the activity surveys.
- **Breeding Birds:** Three surveys have been completed between the beginning of June and end of July 2013. A potential hobby nest was identified near to the Power Generation Plant site. A potential barn owl nesting site was also identified in the original Electrical Connection 'opportunity area' within a mature tree.
- **GCN:** Presence / absence surveys have been completed. The results of the surveys indicate GCN are present, albeit in low numbers, in one water body approximately 500m north-west of the footprint of the Electrical Connection Compound option 1. Surveys of a number of ponds both on-site and within 250m of the Project Site were not possible due to lack of access permissions and/or health and safety concerns. A precautionary approach has therefore been adopted whereby it is considered that GCN may also be distributed elsewhere across the Project Site.
- **Reptiles:** All reptile surveys have been completed and no reptiles have been discovered during these targeted reptile surveys.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.4.7 During the construction, operation and decommissioning of the Power Generation Plant no significant direct impacts on internationally designated sites or sites of national, regional or local importance are envisaged, although indirect impacts cannot yet be ruled out.
- 4.4.8 Based on the preliminary results of the Phase 2 protected species surveys, impacts on GCN can also not be ruled out. One pond (pond 4) was found situated approximately 150m to the north of the Power Generation Plant site. The presence of GCN in this pond could not be discounted due to survey access constraints and, therefore, a precautionary approach has been taken which assumes GCN are

present. Further ponds were present in the wider landscape, however; the presence of roads is considered to provide effective barriers for dispersal of GCN in to the Power Generation Plant site from these locations. With appropriate mitigation, including the exclusion of GCN from the construction footprint and the enhancement of habitat surrounding pond 4, significant impacts are not envisaged.

- 4.4.9 Impacts on badgers, roosting bats, Schedule 1 bird species and reptiles are not currently envisaged. In addition, impacts to breeding birds are not currently envisaged provided mitigation measures are implemented, such as careful design and avoidance of key areas and timing of the works.

Gas Connection

- 4.4.10 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out entirely while ecological surveys are still ongoing and the Gas Connection route corridor options are still under consideration. However, impacts on internationally designated sites resulting from the construction, operation and decommissioning of the Gas Connection (regardless of which option is chosen) are currently considered negligible and no impacts on sites of national, regional or local importance are envisaged. In addition impacts on badgers and Schedule 1 bird species are not currently envisaged. Impacts to breeding birds are also not envisaged provided mitigation measures are implemented, such as careful design and avoidance of key areas and timing of the works. Impacts on roosting bats are considered to be negligible and impacts on GCN are not considered likely. Impacts to grass snake are considered to be very low to negligible.

Electrical Connection and Electrical Connection Compound

- 4.4.11 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out entirely while ecological surveys are still ongoing and the location of the Electrical Connection Compound and Electrical Connection route corridor is still under consideration. However, impacts on internationally designated sites resulting from the construction, operation and decommissioning of the Electrical Connection and Electrical Connection Compound (regardless of which option is chosen) are currently considered negligible and no direct impacts on sites of national, regional or local importance are envisaged. In addition impacts on badgers and Schedule 1 bird species are not currently envisaged and impacts to breeding birds are also not envisaged provided mitigation measures are implemented, such as careful design and avoidance of key areas and timing of the

works. Impacts to grass snake in the area are considered to be very low.

4.4.12 Impacts to roosting bats are not envisaged within the area for either of the Electrical Connection and Electrical Connection Compound options unless the trees noted with potential for bat roosts cannot be purposefully avoided.

4.4.13 Impacts on GCN cannot be ruled out until the preferred location of the Electrical Connection Compound and the route of the Electrical Connection have been determined. Although GCN were found likely to be absent from ponds surveyed within the footprint of the Electrical Connection and Electrical Connection Compound options during the presence/absence surveys carried out in May and June 2013, a number of ditches and ponds within 250m of the footprint for either option could not be surveyed due to access constraints and/or health and safety concerns. Further consideration of these waterbodies through survey would be necessary should it not be possible to avoid an area of 250m surrounding these waterbodies. Note: 250m is considered an appropriate distance for consideration in this assessment due to the localised and temporary nature of works during construction and operation.

NEXT STEPS

4.4.14 Following the completion of all of the Phase 2 species surveys, a detailed assessment of the potential impacts of the proposed Project on ecology will be undertaken, the results of which will be presented within the ES. This will include a Habitat Regulations Assessment Screening to identify any potential impacts on internationally designated sites. When a greater understanding of the ecological baseline is understood, it will also be possible to consider opportunities of ecological enhancement.

4.5 Water Resources

4.5.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon local water quality and water resources. Although it is assumed that the Power Generation Plant would utilise air cooling, substantially reducing the need for water during operation, small quantities of water would still be required during all life cycle phases of the proposed Project. Consequently, any water use at the Project Site has the potential to impact upon the water resources in the area, including potential pollution to ground and surface water bodies, changes in the surface water drainage regime and potential to increase flood risk.

BASELINE

- 4.5.2 Based on an initial high level desk based assessment, the main water bodies within the vicinity of the proposed Power Generation Plant site are considered to be:
- Three ponds located next to Parke's Farm approximately 1.5 km north east of the Power Generation Plant site boundary;
 - Two ponds located north at approximately 2.5 km north of the Power Generation Plant site boundary;
 - One reservoir located at approximately 770 m east of the Power Generation Plant site boundary;
 - One pond located at approximately 525 m west of the Power Generation Plant site boundary; and
 - One small drain or watercourse approximately 750 m south west of the Power Generation Plant site boundary.

The proposed Gas Connection route corridor options do not cross any water bodies. The Electrical Connection Compound options and the Electrical Connection route corridor options contain a number of surface watercourses, although there are no material differences between the two options.

- 4.5.3 The bedrock of the Project Site is classified as a Principal Aquifer. The aquifer has a very low vulnerability to pollutants given the low permeability / leaching potential of the superficial deposits and soils overlying the site.
- 4.5.4 The River Dove runs to the south of the Power Generation Plant site. The channel and banks of this river are classified as a Flood Zone 3 (i.e. without defences this area has a 1% (1 in 100) or greater chance of flooding each year). The Project Site is, however, located with Flood Zone 1 and thus is not considered to be at risk from fluvial flooding. Flood risk will be assessed further in a standalone Flood Risk Assessment (FRA), which will be appended to (and referred to in) the ES.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

- 4.5.5 A conceptual site model has been used to assess the potential effects of the proposed Project on water quality and water resources. This examines both the cause of the impact and the water resource that could be affected. A summary of the preliminary assessment results is provided below.

Power Generation Plant

- 4.5.6 The main potential impact that may result from construction and subsequent decommissioning of the Power Generation Plant would be from the risk of contaminated material entering a surface water body. There are, however, not anticipated to be any impacts on the water bodies listed above as the majority are a significant distance from the Power Generation Plant site. Best practice would also be employed during construction and decommissioning to protect the water environment, in accordance with guidelines published by the EA.
- 4.5.7 During operation, the Power Generation Plant site would be equipped with a surface water drainage system and a sewerage system. The surface water drainage system would remove any potentially polluted runoff, prior to reaching the main sewerage network. It is currently anticipated that the on-site sewerage system would connect to a new onsite septic tank, which would be maintained and emptied by suitable contractors. It is also predicted that the proposed Project would lead to a slight increase in the amount of runoff from within the Power Generation Plant site due to the increase in hardstanding. However, this additional runoff would be captured by the surface water drainage system so that existing greenfield runoff rates are not exceeded. An assessment of the potential for the application of sustainable drainage systems (SUDS) will be undertaken as the proposed Project design is refined.
- 4.5.8 Due to the intermittent water demand of the Power Generation Plant, it is likely that water would be tankered to site and stored in water storage tanks. No surface water or groundwater abstraction would be required. An alternative option of using potable water from the town supply will be assessed in the ES.
- 4.5.9 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects on local water quality and water resources from the construction, operation and decommissioning of the Power Generation Plant are not predicted.

Gas Connection

- 4.5.10 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects on local water quality and water resources from the construction, operation and decommissioning of the Gas Connection are not predicted. There are not considered to be significant differences in the potential impacts between the two Gas Connection route corridor options currently under consideration.

Electrical Connection and Electrical Connection Compound

- 4.5.11 Both the Electrical Connection Compound options are located in areas that contain several unnamed surface water features. As such, it is likely that these features may need to be crossed to facilitate the construction of the Electrical Connection Compound. Such works, if required, would be carried out to industry best practices to ensure that the potential impacts are minimised as much as possible.
- 4.5.12 In addition, it is likely at a number of small watercourses may need to be crossed during the construction of the Electrical Connection. Based on the preliminary assessment to date, it is anticipated that the impacts of Electrical Connection route corridor option 2 and Electrical Connection Compound option 2 would be similar to those for Electrical Connection route corridor option 1 and Electrical Connection Compound option 1, albeit to a lesser extent due to a reduced number of water bodies.
- 4.5.13 During operation, the Electrical Connection itself would be buried and would therefore have no impact on water resources, while water usage at the Electrical Connection Compound is expected to be minimal. Construction of a permanent access route along the Electrical Connection route would, however, result in the generating of additional surface water runoff, although this is likely to be minimal and would be controlled with an appropriately designed drainage system.
- 4.5.14 In summary, the preliminary environmental assessment has identified that impacts on local water quality and water resources from the construction of the Electrical Connection and Electrical Connection Compound cannot yet be ruled out, albeit the significance is likely to be negligible.

NEXT STEPS

- 4.5.15 Once the Electrical Connection route corridor options have been refined the magnitude of impact on individual water bodies will be re-assessed. A Water Framework Directive Assessment will be undertaken on any waterbodies likely to require modification. The results of this additional assessment work will be presented within the ES.

4.6 Geology, Ground Conditions and Agriculture

- 4.6.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon geology, ground conditions and agriculture by, for example, the removal of good quality agricultural land. The proposed Project also has the potential to result in impacts

on human health and sensitive ecological receptors from contamination (existing or created).

BASELINE

- 4.6.2 An initial desk based assessment has been carried out to assess the baseline geology and ground conditions underlying the Project Site. The assessment studied information regarding previous land uses of the site and the surrounding area, the soils and geology present at the site and any potential contamination issues resulting from former site uses. Much of the Project Site is covered by agricultural land, which is classified as being of 'good to moderate quality'. The soils in the area are classified as being slowly permeable, seasonally wet, slightly acid, but base-rich loamy and clayey soils. The bedrock of the Project Site is classified as a Principal Aquifer. The aquifer has a very low vulnerability to pollutants given the low leaching potential of the soils overlying the site. Potential sources of contamination include the former Eye Airfield runways and fuel storage facilities and the existing Eye Chicken Litter Power Station. Due to the proposed Project being sited on a the former Eye Airfield, the presence of unknown unexploded ordnances / munitions cannot be ruled out.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

- 4.6.3 A conceptual site model approach has been used to assess the risk posed by contaminants on human health and sensitive ecological receptors. This examines the potential sources of contamination (e.g. historical sources), the potential receptors that could be affected (e.g. soil and construction workers) and the pathways to these receptors (e.g. leaching in surface water and inhalation of airborne contaminants).

Power Generation Plant

- 4.6.4 Construction of the Power Generation Plant would result in the sterilisation of up to 10 ha of good / moderate quality agricultural land, although at this stage this is not considered to be a significant impact.
- 4.6.5 Existing soil conditions are not anticipated to negatively impact upon construction workers. Potential impacts to health would be appropriately mitigated by working in accordance with best practices and the use of correct and appropriate Personal Protective Equipment. These mitigation measures would be detailed within the CEMP.
- 4.6.6 The construction of deep foundations (e.g. piled foundations on to bedrock) could offer a preferential pathway for contaminants to impact upon groundwater bodies beneath the proposed Power Generation Plant site. The depth of the bedrock which is classified as a Principal

Aquifer is, however, well below the depth of any foundations that would be required for the construction of the Power Generation Plant and thus the potential to create a pathway to the underlying Aquifer is considered negligible.

- 4.6.7 During operation of the Power Generation Plant, no further impacts on geology, soils and agriculture are anticipated as there would be no further ground disturbance.
- 4.6.8 The impacts during decommissioning would be temporary and in line with those described above for construction.
- 4.6.9 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects on geology, ground conditions and agriculture from the construction, operation and decommissioning of the Power Generation Plant are not predicted.

Gas Connection

- 4.6.10 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, significant effects on geology, ground conditions and agriculture from the construction, operation and decommissioning of the Gas Connection are not predicted. The main difference between the Gas Connection route corridor options is that some agricultural land would be sterilised along Gas Connection route corridor option 2, whereas Gas Connection route corridor option 2 crosses developed land. Once installed, there would be a permanent easement around the pipeline expected to be approximately 10 m wide, resulting in the permanent sterilisation of a narrow corridor of land. This land is likely to be reinstated when the pipeline is decommissioned.

Electrical Connection and Electrical Connection Compound

- 4.6.11 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, significant effects on geology, ground conditions and agriculture from the construction, operation and decommissioning of the Electrical Connection and Electrical Connection Compound are not predicted. There are not considered to be significant differences in the potential impacts between the Electrical Connection and Electrical Connection Compound options currently under consideration.

NEXT STEPS

- 4.6.12 As the proposed Project is refined a detailed desk based assessment will be carried out, along with further assessments including, but not limited to, a site walkover. The potential for unknown unexploded

ordnances / munitions to be present at the site of the former Eye Airfield will also be explored further. The results of this assessment work will be presented within the ES.

4.7 Landscape and Visual Impact

- 4.7.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon the landscape character and visual amenity of the area.

BASELINE

- 4.7.2 A preliminary landscape and visual impact assessment has been prepared after an initial site visit in June 2013. This has identified that there are no nationally designated landscapes, English Heritage Registered Parks and Gardens or land designated by Natural England for its outstanding scenic, historic and scientific interest within 15 km of the Project Site. The area in the immediate vicinity of the Project Site comprises medium to large scale industrial development within the former World War 2 airfield and is surrounded by semi-rural landscape, the A140 major transport route, prominent pylons and an overhead transmission line and small villages / farmsteads. The Project Site and wider industrial estate are relatively flat. Much of the southern part of the area is in agricultural use. The overall sensitivity of this landscape is considered to be low due to a lack of local distinctiveness and the presence of out of keeping landscape elements.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.7.3 During construction of the Power Generation Plant impacts would arise from the presence of large scale construction equipment and movement of construction related traffic.
- 4.7.4 During operation the introduction of the buildings and hard-surfaced areas associated with the Power Generation Plant site, would add man-made elements to the landscape. It is currently predicted that the Power Generation Plant would be visible from the wider landscape to the south, south-east and south-west of the Power Generation Plant site. In general, the upper portions of the stack(s) (up to 30m high) would be visible, although these would be seen in the context of other tall industrial structures within Eye Airfield industrial estate.
- 4.7.5 As the proposed Project progresses a landscape strategy will be developed to help mitigate the adverse impacts. This will consider, for example, the design, layout, selection of materials and colours for the

proposed Project structures and associated infrastructure and the extent of screen planting required.

- 4.7.6 During decommissioning, similar impacts to those predicted during construction would be experienced.
- 4.7.7 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out on landscape and visual amenity, although effects would be localised due to the industrial character of the area surrounding the Power Generation Plant site, and by the extensive network of hedgerows and woodland within the vicinity of the area. Localised effects arising from the Power Generation Plant would be of moderate significance and would reduce gradually as the perimeter landscape screen planting matures.

Gas Connection

- 4.7.8 During construction, similar potential impacts to those identified for the Power Generation Plant may be experienced, although construction of the Gas Connection would be a smaller undertaking.
- 4.7.9 During operation, landscape and visual impacts would be substantially mitigated as the pipeline is buried underground, although the introduction of the AGI enclosed by security fencing 2m high, required for Gas Connection route corridor option 2, has the potential to cause adverse impacts. Gas Connection route corridor option 2 would add man-made elements to an area of rural landscape, given that the route is situated within agricultural land. In contrast, Gas Connection route corridor option 1 would add man-made elements to a landscape where similar structures already exist as it would connect directly into the adjacent National Grid Gas Compressor Station. This option would, however, require the removal of mature tree planting on the western and/or southern boundary of the National Grid Gas Compressor Station.
- 4.7.10 During decommissioning, similar impacts to those predicted during construction may be experienced.
- 4.7.11 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out on landscape and visual amenity from the construction, operation and decommissioning of the Gas Connection. Impacts on landscape and landscape character arising as a result of Gas Connection route corridor option 1 would have a slight to moderate significance, whereas impacts on visual amenity would have a slight significance, depending on the extent of screen planting

removed from the southern boundary of the National Grid Gas Compressor Station. In contrast, impacts on landscape and landscape character and visual amenity arising as a result of Gas Connection route corridor option 2 would have a slight significance.

Electrical Connection and Electrical Connection Compound

- 4.7.12 During construction, similar potential impacts to those identified for the Power Generation Plant may be experienced, although construction of the Electrical Connection and Electrical Connection Compound would be a smaller undertaking.
- 4.7.13 During operation, landscape and visual impacts from the Electrical Connection would be substantially mitigated by burying the cable underground. The route would also be designed to avoid loss of hedgerows and disruption to agriculture, where possible. Once constructed, the Electrical Connection Compound would add man-made elements to the landscape, which are not in keeping with the surrounding areas. The compound would be of a significant scale and would be visible over a wide area, particularly during the winter months following leaf fall. Effects would be reduced by screen planting using native species. There are not considered to be significant differences in the potential impacts between the Electrical Connection and Electrical Connection Compound options currently under consideration.
- 4.7.14 During decommissioning, similar impacts to those predicted during construction would be experienced.
- 4.7.15 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out on landscape and visual amenity from the construction, operation and decommissioning of the Electrical Connection and Electrical Connection Compound.

NEXT STEPS

- 4.7.16 A detailed landscape and visual impact assessment is currently being undertaken, the methodology for which is based on current best practice and guidance. It will include a visual survey during the winter to assess potential views of the Project when screening from vegetation is at its least effective. Further consultation will be undertaken with MSDC, SCC, Babergh District Council, and South Norfolk Council in order to select appropriate viewpoints for the assessment. Consultation will also be undertaken with MSDC and SCC with respect to the landscape strategy for the Project.

4.8 Waste Management and Health

- 4.8.1 The construction, operation and decommissioning of the proposed Project has the potential to generate a variety of waste material that would need to be handled and disposed of with care. In addition, the proposed Project has the potential to impact upon public health.

BASELINE

- 4.8.2 In this section, potential receptor groups refer only to human receptors that could potentially come into contact with contaminants resulting from the Project. Receptors in the vicinity of the Project Site include surrounding towns and villages, namely Eye (1.7 km south east of the Power Generation Plant), Langton Green (1.3 km east of the Power Generation Plant), Yaxley (1.5 km South West of the Power Generation Plant) and Diss (4.75 km north of the Power Generation Plant) and adjacent commercial users include other businesses within the Eye Airfield Industrial Estate.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.8.3 It is anticipated that the majority of waste would be generated during the construction and decommissioning phases of the Power Generation Plant, when significant quantities of wastes such as concrete, spoil and scrap metal would be produced. During operation, the production of waste is likely to be significantly reduced, although minimal quantities of both non-hazardous and hazardous waste would be likely to be produced, including used air filters, scrap metal, used insulation material, general office waste, and other miscellaneous wastes, as well as small quantities of waste water.
- 4.8.4 All of these types of waste can have a detrimental impact on the environment if not appropriately managed and controlled, including the potential to pollute adjacent land or water bodies. PPL would, therefore, ensure that all waste would be dealt with in a manner that complies with the relevant regulations and (upon leaving the site) waste would be treated and disposed of by suitably licensed contractors. As such, taking into account potential mitigation measures, the preliminary environmental assessment has identified that the proposed Power Generation Plant is not predicted to have any likely significant effects on waste management.
- 4.8.5 At present, it is anticipated that the main potential impacts to public health arising from the proposed Power Generation Plant would result from changes to local air quality, although potential impacts may also arise from contaminated land, site run-off and noise impacts. A

Conceptual Site Model approach has been used to assess the risks posed by contaminants to public health. This examines the cause of the impact (e.g. stack emissions may result in a change in air quality), the potential human receptors that could be affected and the pathways to these receptors. Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, the proposed Power Generation Plant is not predicted to have any likely significant effects on public health.

Gas Connection

- 4.8.6 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, there are not predicted to be likely significant effects on waste management and public health as a result of the construction, operation and decommissioning of the Gas Connection (regardless of which option is chosen).

Electrical Connection and Electrical Connection Compound

- 4.8.7 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, there are not predicted to be likely significant effects on waste management and public health as a result of the construction, operation and decommissioning of the Electrical Connection and Electrical Connection Compound (regardless of which option is chosen).

NEXT STEPS

- 4.8.8 Further assessment work will be undertaken to fully characterise any impacts on human health from noise and air quality from all aspects of the Project. Further details on the likely quantities and composition of waste will also be provided in the ES, once more is known about the construction programme.

4.9 Traffic, Transport and Access

- 4.9.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon the local transport network, through the generation of additional traffic movements.

BASELINE

- 4.9.2 The Power Generation Plant site can be accessed from the existing road network via Castleton Way (an unrestricted country road) via an existing junction to the former main runway. Castleton Way provides access to the B1077 to the east and the A140 to the west. The A140,

which runs north-south linking Ipswich and Norwich, is a major transport route from which the national road network is easily reached. For all life cycle phases of the proposed Project, it is proposed that access to / from Castleton Way would be mainly via the A140. In terms of public transport, Diss is the nearest railway station to the Power Generation Plant site, and is an important local transport hub approximately 5 km north of the Airfield. An hourly bus service exists from Ipswich to Diss via Eye. Castleton Way forms part of National Cycle Route 30 (Rivers Lowestoft to Kings Lynn via Diss). A number of public rights of way are located within the proposed Project Site, although these are poorly connected.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.9.3 During construction there is likely to be an increase of traffic on the A140 as construction workers travel to and from the Power Generation Plant site and Heavy Goods Vehicles (HGVs) access the site. Abnormal load routing would be agreed with SCC officers in advance, which would ensure planned routes are agreed and adhered to and any street furniture is removed prior to arrival.
- 4.9.4 During operation there would be minimal impacts as operational staff numbers would be low and the delivery and removal of goods to the Power Generation Plant site are also expected to be low during the day. Decommissioning impacts are likely to be similar to those from the construction phase.
- 4.9.5 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects on traffic and transport cannot yet be ruled out from the construction, operation and decommissioning of the Power Generation Plant. Potential effects are likely to be most significant for receptors within the local community and employees at the former Eye Airfield, although any user of the A140, B1077 and of the local public rights of way around the airfield could also be impacted. During construction and decommissioning, impacts of a moderate significance are predicted on the A140 and Castleton Way junction and there would be a minor disruption to the road network during off peak times. During operation, at this stage in the Project, the impacts on the surrounding road network are considered to be negligible. This assessment may be refined in the ES.

Gas Connection

- 4.9.6 The number of construction workers required to construct the Gas Connection would be low in relation to the Power Generation Plant. As such, there is likely to be limited impacts associated with additional trips on the network. During operation, maintenance vehicles are expected to be infrequent and are not anticipated to cause any detriment to the local transport network. Access to both Gas Connection route corridor options would be via Castleton Way and Potash Lane. Decommissioning impacts are likely to be similar to those from the construction phase.
- 4.9.7 The main difference between the Gas Connection options is that there would be a requirement to undertake temporary road works across Potash Lane when constructing Gas Connection route corridor option 2. Any impacts from this would be controlled through temporary traffic management arrangements.
- 4.9.8 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects on traffic and transport from the construction, operation and decommissioning of the Gas Connection (regardless of which option is chosen) are not anticipated. During construction and decommissioning, there is predicted to be a low / minor increase of traffic levels on the A140 and Castleton Way and there would be minor planned disruption to the road network during off peak times. During operation, at this stage in the Project, the impacts on the surrounding road network are considered to be negligible. This assessment may be refined in the ES.

Electrical Connection and Electrical Connection Compound

- 4.9.9 The number of construction workers required to construct the Electrical Connection and Electrical Connection Compound would be low in relation to the Power Generation Plant. There would, however, be some additional traffic caused by the arrival and departure of construction workers and HGVs delivering and removing goods from the construction corridor. The roads which could be impacted include the A140, Eye Road, The Street and Old Norwich Road.
- 4.9.10 During construction, temporary traffic management would be required as both Electrical Connection route corridor options run across the A140, Old Norwich Road and Leys lane. Consideration will be given to off peak traffic working over the A140 to limit adverse impacts on traffic.
- 4.9.11 For both Electrical Connection Compound options, the preferred option for access is for construction of a new access road that would allow

access from Old Norwich Road. This would cater for all vehicle types including abnormal loads, although maintenance vehicles are expected to be infrequent and are not anticipated to cause any adverse impact on the local transport network. Alternative access road options will be discussed in the ES.

4.9.12 Decommissioning impacts are likely to be similar to those from the construction phase.

4.9.13 Based on the results of the preliminary environmental assessment, taking into account potential mitigation measures, likely significant effects on traffic and transport cannot yet be ruled out from the construction, operation and decommissioning of the Electrical Connection and Electrical Connection Compound (regardless of which option is chosen). During construction, there is predicted to be a minor / moderate increase of traffic levels on the A140, Eye Road, The Street and Old Norwich Road and there would be minor planned disruption to the road network during off peak times. In addition, road works over the A140, Old Norwich Road and Leys Lane during trenching works would result in a minor impact on the A140 and negligible impacts on Old Norwich Road and Leys Lane. During operation, at this stage in the Project, the impacts on the surrounding road network are considered to be negligible. During decommissioning there would be a limited impact on the A140 and Castleton Way junction, as well as minor planned disruption to the road network during off peak times. This assessment may be refined in the ES.

NEXT STEPS

4.9.14 A detailed Transport Assessment (TA) is currently being prepared, the scope of which has been defined in consultation with SCC. As the TA progresses, transport related environmental effects will be assessed for the following factors: traffic flows, delay (time spent in traffic queues), road safety, intimidation and fear, severance (the perceived division that can occur within a community when it becomes separated by a major traffic artery) and pedestrian amenity (relative pleasantness of a journey). The results of this assessment will be presented within the ES.

4.10 Cultural Heritage and Archaeology

4.10.1 The construction, operation and decommissioning of the proposed Project has the potential to impact upon both surface and buried archaeological assets, as well as having an impact upon the setting and appreciation of assets of Cultural Heritage importance, including surrounding Listed Buildings, Scheduled Monuments and Conservation Areas.

BASELINE

- 4.10.2 An archaeological desk based assessment has been undertaken which has investigated all historical records within the Scoping Report proposed redline boundary (referred to as the desk based assessment Study Area) and the surrounding 1 km (referred to as the 1 km study area). A site visit was also carried out in June 2013. The desk based assessment has identified 47 heritage assets within the 1 km study area. Of these, 11 heritage assets have been recorded within the desk based assessment Study Area, three of which are Grade II listed buildings. A total of 43 findspots reported to the Portable Antiquities Scheme have also been recovered within the 1 km study area. Two non-designated heritage assets are located within the boundary of the Power Generation Plant site: HA30 - field boundary, and HA31/EYE072 – former Eye Airfield. One non-designated heritage asset is located within Gas Connection route corridor option 2: MSF 27050 - artefact scatter. Five non-designated heritage assets are present within Electrical Connection route corridor option 1: 12/YAX006 - findspot/pottery, 18/YAX007 - findspot/flint, MSF27002 - findspot/bow brooch, MSF047 - findspot/artefact and MSF030 - findspot/metalwork. In addition, six non-designated assets are located within Electrical Connection route corridor option 2: 9/YAX005 - findspot/lead seal, MSF27032 - findspot/key, MSF27041 - findspot/flint, MSF225 - findspot/metalwork, MSF237 - findspot/metalwork and MSF242 - findspot/metalwork. There is also the potential for previously unknown heritage assets (buried archaeological remains) to be present within the desk based assessment Study Area.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.10.3 During construction of the Power Generation Plant, there would be a direct impact on the two identified non-designated heritage assets from construction related ground disturbance. There is also potential for a direct impact on previously unknown buried archaeological assets. Although no listed buildings lie within the Power Generation Plant site, due to the low-lying nature of the local topography there could be an indirect impact on the setting of quite a number of listed buildings.
- 4.10.4 During operation of the Power Generation Plant, following a suitable programme of archaeological mitigation, there would be no direct impacts on either known or potential heritage assets. It is anticipated, however that the indirect adverse impact on the setting of the listed buildings (as discussed above) would continue.

- 4.10.5 During decommissioning there would be no direct impacts on either known or potential heritage assets, but there would be an indirect positive impact on the setting of the listed buildings.
- 4.10.6 Based on the results of the preliminary assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out as a result of indirect visual impact on listed buildings within 1 km of the Power Generation Plant site.

Gas Connection

- 4.10.7 During the construction of Gas Connection there is the potential for a direct impact on previously unknown buried archaeological assets. In addition, although no listed buildings lie within either of the Gas Connection route corridor options it is likely that due to the low-lying nature of the local topography that there would be an indirect impact on the setting of a number of this asset type, although due to the nature of the works the significance of the effect would be very low and temporary. For Gas Connection route corridor option 2, construction works would also potentially impact on the site of the artefact scatter, however, the artefacts (finds) have been removed from site and so the importance of the findspot relates to the potential for unknown associated heritage assets to be present rather than the artefacts.
- 4.10.8 During operation of the Gas Connection, following a suitable programme of archaeological mitigation, there would be no direct impacts on either known or potential heritage assets and no indirect impacts on the setting of the listed buildings.
- 4.10.9 During decommissioning of the Gas Connection there would be no direct impacts on either known or potential heritage assets, although there could be a temporary indirect adverse impact on the setting of the listed buildings if infrastructure is removed. The effect would be of very low significance and temporary.
- 4.10.10 Based on the results of the preliminary assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out on cultural and heritage and archaeology as a result of the construction, operation and decommissioning of the Gas Connection.

Electrical Connection and Electrical Connection Compound

- 4.10.11 Construction of the Electrical Connection and Electrical Connection Compound could potentially impact on the site of findspots, however, the artefacts (finds) have been removed from site and so the importance of the findspot relates to the potential for unknown

associated heritage assets to be present rather than the artefacts. There is also the potential for a direct impact on previously unknown buried archaeological assets. In addition, as with the Gas Connection, there could be an indirect impact on the setting of a number of listed buildings, although due to the nature of the works the significance of the effect would be very low and temporary.

4.10.12 During operation, following a suitable programme of archaeological mitigation, there would be no direct impacts on either known or potential heritage assets, although there would be an indirect impact on listed buildings throughout the operation of the Electrical Connection Compound.

4.10.13 During decommissioning of the Electrical Connection and Electrical Connection Compound there would be no direct impacts on either known or potential heritage assets, although there could be a temporary indirect adverse impact on the setting of the listed buildings if infrastructure is removed. The degree of indirect impact would be very low significance and temporary.

4.10.14 Based on the results of the preliminary assessment, taking into account potential mitigation measures, likely significant effects cannot yet be ruled out on cultural and heritage and archaeology as a result of the construction, operation and decommissioning of the Electrical Connection and Electrical Connection Compound.

NEXT STEPS

4.10.15 A written scheme of investigation detailing the archaeological mitigation and comprising a method statement will be compiled and submitted to the Suffolk County Archaeologist for comment. The mitigation will include a programme of geophysical survey (magnetometer) to be undertaken within the proposed Project Site. This will inform intrusive site investigations (trial trenching), which will target areas of known archaeology and potential archaeology. It is likely that an archaeological watching brief will also be undertaken in specific areas. The results of this assessment work will be presented within the ES.

4.11 Socio-economics

4.11.1 The construction, operation and decommissioning of the proposed Project has the potential to significantly impact upon the local economy and community through for example, job creation and increased use of local services. Recreation and tourism in the area may also be impacted.

BASELINE

- 4.11.2 The local area surrounding the proposed Project is characterised by relatively low levels of unemployment, with a relatively high proportion of people employed in skilled manual labour. Retail occupations are the main employment category in the local area, but manufacturing, construction and agriculture type employment is also higher than the national average. The population in the area is predicted to increase between 2012 and 2021, although there is a weakening population structure with a high and enlarging retirement age population.
- 4.11.3 Within 5 km of the Project Site there are a range of community services such as schools, libraries, care homes, hospitals, dentists, community centres and parks. Tourism related businesses are present, but not at a large scale and Mid Suffolk has a below national average proportion of tourism related jobs.

PRELIMINARY ASSESSMENT OF POTENTIAL IMPACTS

Power Generation Plant

- 4.11.4 The construction, operation and decommissioning of the Power Generation Plant would have minor positive impacts on the socio-economic status of the area through both employment creation and capital expenditure and worker spending in the local economy. It is anticipated that up to 250 workers would be required at the site during peak periods during the construction phase. These workers would not only benefit the economy directly, but would also have knock on effects on other businesses (e.g. guest houses and bakeries). During operation, up to 15 skilled workers would be directly employed at the Power Generation Plant site, but additional related employment opportunities may arise in the local and wider economy.
- 4.11.5 Impacts on tourism and community infrastructure during the construction, operation and decommissioning of the Power Generation Plant may occur as result of visual, noise, traffic / accessibility and air quality impacts, however, these impacts are not predicted to be significant.

Gas Connection

- 4.11.6 During construction of the Gas Connection there are likely to be minor positive socio-economic impacts due to employment creation and capital expenditure and worker spending in the local economy. Minor negative impacts would be felt on tourism and community infrastructure in the local area as a result of visual, noise, traffic and accessibility, and air quality impacts.

- 4.11.7 During operation the Gas Connection would be buried underground, although minor negative impacts could be felt on tourism and community infrastructure in the local area as a result of visual, noise and traffic / accessibility impacts related to the AGI.
- 4.11.8 During decommissioning, similar impacts to those predicted during construction may be experienced.
- 4.11.9 There are not considered to be significant differences in the potential impacts between the two Gas Connection route corridor options currently under consideration.

Electrical Connection and Electrical Connection Compound

- 4.11.10 During construction of the Electrical Connection and Electrical Connection Compound there are likely to be minor positive socio-economic impacts due to employment creation and capital expenditure and worker spending in the local economy. Minor negative impacts would be felt on tourism and community infrastructure in the local area as a result of visual, noise and traffic / accessibility impacts.
- 4.11.11 During operation the Electrical Connection would be buried underground, although minor negative impacts could be felt on tourism and community infrastructure in the local area as a result of visual, noise, traffic and accessibility and air quality impacts from the Electrical Connection Compound.
- 4.11.12 During decommissioning, similar impacts to those predicted during construction may be experienced.
- 4.11.13 There are not considered to be significant differences in the potential impacts between the two Electrical Connection and Electrical Connection Compound options currently under consideration.

NEXT STEPS

- 4.11.14 A detailed assessment of the economic impact of the proposed Project will be undertaken. This will be informed in part by a Business Survey, which will ask local tourism-related businesses in the area what impact the proposed Project would have on their business and on tourism in the wider area. The results of this assessment work will be presented within the ES.

4.12 Cumulative Impacts

- 4.12.1 Cumulative impacts can be either:

- **Type 1 Cumulative Impacts:** These are combined effects of different types of impact on a single receptor. For example: dust, noise and visual impacts resulting from construction and operation of the proposed Project and other reasonably foreseeable future developments; or
 - **Type 2 Cumulative Impacts:** These are the same type of impact from the proposed project and current or reasonably foreseeable future developments which may individually be insignificant, but could be cumulatively significant. For example: cumulative traffic impacts during construction.
- 4.12.2 As part of the preliminary cumulative impact assessment a number of (current or reasonably foreseeable future) developments have been considered as part of the cumulative impacts, including:
- Diss National Grid Gas Compressor Station (operational);
 - Eye Chicken Litter Power Station (operational);
 - Eye Airfield Wind Turbines (operational);
 - Eye Wind Power Ltd (consented)
 - Industrial development within the former Eye Airfield (operational);
 - National Grid Electrical Transmission System (operational).
- 4.12.3 Based on the assessment work done to date, potential for significant cumulative impacts to arise from the majority of these developments will likely be ruled out as the EIA progresses. The primary development that, at this stage, may have a cumulative impact is the consented, but not yet built, Eye Wind Power Ltd wind turbine development.
- 4.12.4 There are also other possible cumulative impacts with existing developments such as the Eye Chicken Litter Power Station and the existing Eye Airfield Wind Turbines. These developments in association with the proposed Project could cause cumulative landscape and visual impacts, due to 'Landscape Saturation'. This is the phenomenon where slow, piecemeal developments are introduced to the landscape over an extended period of time, which could result in small incremental impacts, but the cumulative impact of all the developments when considered together could be greater.
- 4.12.5 A similar situation can occur where numerous, relatively low noise sources can, result in a significant increase in background noise over a period of time.
- 4.12.6 Both of these processes will be considered, and reported upon in greater detail in the ES when all relevant studies have been completed.