

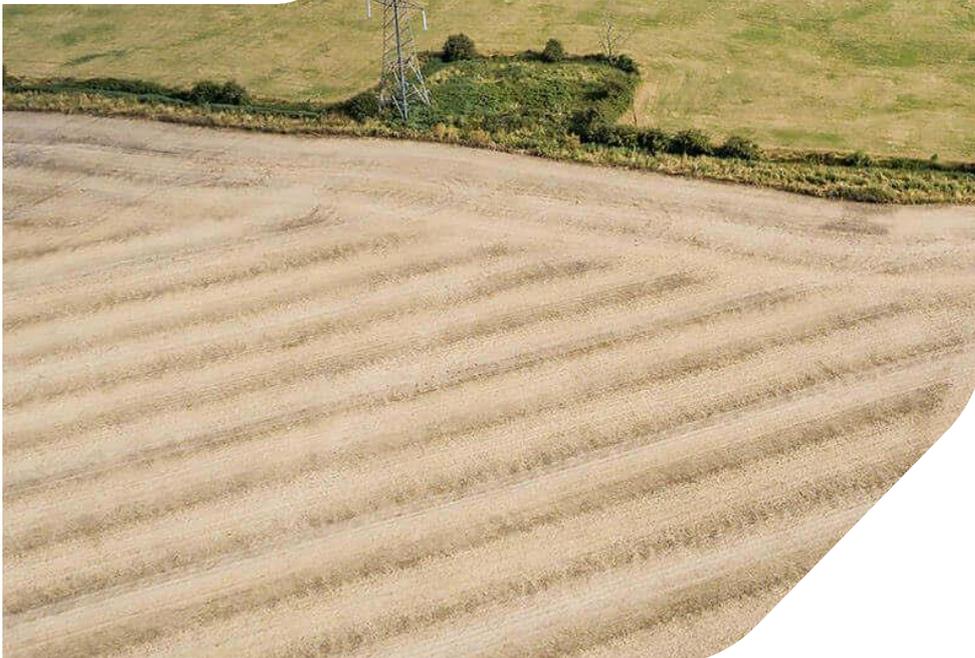
# THURROCK FLEXIBLE GENERATION PLANT

Land south west of Station Road near Tilbury, Essex

## PLANNING STATEMENT OF CASE

Application document A8.3

APFP Regs ref. 5(2)(q)



OXF10872  
A8.3 Statement of Case and  
Green Belt Statement

26 February 2020

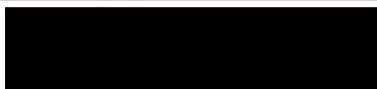
## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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Chris Lecointe



26 February 2020

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Prepared by:

**RPS**

**Christopher Lecointe**  
**Operational Director**

20 Western Avenue  
Milton Park  
Abingdon, Oxfordshire OX14 4SH

T +44 1235 821 888

E [gamages@rpsgroup.com](mailto:gamages@rpsgroup.com)

Prepared for:

**Thurrock Power**

Andrew Troup  
Director

1st Floor  
145 Kensington Church Street  
London W8 7LP

# EXECUTIVE SUMMARY

This planning Statement of Case (SoC) has been prepared by RPS to support Thurrock Power's (the Applicant) application for a Development Consent Order made pursuant to the Planning Act 2008 (as amended).

The Application proposes to build a Flexible Generation Plant comprising gas reciprocating engines with electrical output totalling 600 MW; batteries with electrical output of 150 MW; gas and electricity connections; the creation of access roads and a causeway; and creation of habitat and exchange Common Land.

This mix of energy and other infrastructure, therefore, straddles several of the National Policy Statement's but where relevant, it is compliant and receives the support of Government policy in all material respects (NPS EN-1 and EN-2). In addition, while it is not a renewable energy project in its own right, it is designed to support the delivery of power from renewable sources and provides additional resilience in the National Grid network, as well as additional security of our electrical supply.

Under the National Planning Policy Framework (NPPF) the development is also considered to be low carbon. The definition on page 70 of low carbon technologies is "*those that can help reduce emissions (compared to conventional use of fossil fuels)*". The applicant submits that on the basis that the proposed development is necessary to suppose the greater deployment of intermittent renewable generation and can meet peak power demands in a more efficient, lower-carbon way than conventional gas-fired power stations, it can be considered low carbon.

The application site is positioned within the administrative boundary of Thurrock Council, a unitary authority.

The development plan for the area does not include any adopted 'Site Specific Allocations Document' (or similar), nor does it therefore conclusively determine where the authority intends to make strategic allocations or adjust their current Green Belt boundary to cater for new development although this is likely. These matters will be addressed and defined in the emerging local plan for Thurrock. The emerging local plan has only reached its 'issues and options' stage and so little policy direction is currently available. In policy terms, while the local development plan does not yet specifically allocate land for the energy infrastructure now proposed, there are a number of policy goals and objectives which are capable of being met by allowing this development (discussed later). This plan also contains a number of generic development management type policies which in all material respects are met by the proposed development.

The application site does fall within the existing Metropolitan Green Belt where the Overarching National Policy Statement for Energy (NPS EN-1) sets out that there is a general presumption against inappropriate development. NPS EN-1 places the onus on the Applicant to identify whether the proposed project is inappropriate and whether very special circumstances can be demonstrated to outweigh harm to the Green Belt.

The Green Belt balance requires an assessment of whether the harm by reason of inappropriateness, and any other harm, would be outweighed by other considerations to amount to the very special circumstances required to justify the proposal.

The Applicant has prepared a detailed Green Belt Statement report, and this is attached as Appendix 1 to this Statement of Case. This has identified the level of harm associated with the project's impacts on the Green Belt's openness, including the test against the five purposes set out within Paragraph 134 of the NPPF. The Applicant has then set out the need for this type of flexible energy generation, to support both the growth in renewable energy generation and maintain the security of electricity supply. This need is driven by the increased integration of intermittent renewables, coupled with the decommissioning of both coal and gas fired power stations.

While the need for this type of flexible generation is across the UK, there is a very specific need for additional generation capacity on the 275kV electricity network around London and the south east.

The Applicant has demonstrated that all other suitable, available and viable points of connection into the 275kV network would also require development within the Green Belt.

### **A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT**

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The Applicant has demonstrated that there would be some reduction in the openness of the Green Belt, although limited conflict with the purposes of including land within the Green Belt. While substantial weight must be given to this identified Green Belt harm, in this case there are significant benefits and very specific locational needs that outweigh the identified harm, sufficient to demonstrate that very special circumstances exist and that the proposed development is acceptable in Green Belt terms.

It is considered, therefore, that this green belt assessment, the degree of compliance with other national and local plan policy, when balanced with other material considerations, leads to an overwhelming degree of policy support for the development proposed by Thurrock Power. Accordingly, in accordance with the provisions of the Planning Act 2008 and the NPSs, it is concluded that the proposed development is acceptable in planning terms and there is no reason why the draft Development Consent Order should not be granted.

## Contents

<b>EXECUTIVE SUMMARY</b> .....	<b>2</b>
<b>1 INTRODUCTION</b> .....	<b>1</b>
Purpose of this Report.....	1
<b>2 SITE AND PROJECT DESCRIPTION</b> .....	<b>2</b>
<b>3 PLANNING POLICY CONTEXT</b> .....	<b>5</b>
Introduction.....	5
Relevant Legislation and the Decision Making Framework.....	5
Relevant National Policy.....	7
Development Plan Documents.....	18
Other Material Considerations.....	22
<b>4 STATEMENT OF CASE</b> .....	<b>28</b>
Introduction.....	28
The Principle of Development.....	28
Environmental Acceptability.....	29
The Green Belt.....	42
Green Belt Harm.....	43
Other Material Considerations.....	47
<b>5 BALANCE OF CONSIDERATIONS AND OVERALL CONCLUSIONS</b> .....	<b>51</b>

## Tables

Table 3.1: NPS EN-1.....	8
Table 3.2: NPS EN-2.....	16

## Figures

Figure 2.1: Site Location Plan

## Appendices

Appendix 1: Green Belt Statement

# 1 INTRODUCTION

## Purpose of this Report

- 1.1 This Statement of Case (SoC) has been prepared on behalf of Thurrock Power (the ‘Applicant’) in support of their application seeking a Development Consent Order for the Thurrock Flexible Generation Plant (the Project) which is the construction, operation and maintenance of a flexible electricity generating station comprising gas reciprocating engines with electrical output totalling 600 MW; batteries with electrical output of 150 MW; gas and electricity connections; the creation of access roads and a causeway; and creation of habitat and exchange Common Land
- 1.2 It is intended to provide the Examining Authority (the ‘ExA’) and stakeholders with an understanding of the Applicant’s position in regard to the extent to which the proposed development complies or otherwise with the policy of the relevant National Policy Statements, appropriate marine policy, and other matters that are important and relevant to the Secretary of State’s (the ‘SoS’) decision, including the policy of the statutory development plan.
- 1.3 It is one of a suite of documents which support the application including an Environmental Statement (the ‘ES’, application document A6) and the associated surveys and assessment work, and should be read alongside the documents which comprise the application.
- 1.4 The SoC is informed by those documents and will where appropriate summarise them along with the provisions and requirements of the relevant national planning policy, marine policy and other important and relevant considerations. It is structured as follows:

Section	Purpose
Section 2 – Site & Project Description	Provides an overview of the application site and its surroundings, its recent planning history, and the description of the proposed development and associated development
Section 3 – Planning Policy Context	Identifies the relevant legislation and decision making framework, the relevant national planning policy and local development plan policy
Section 4 – Statement of Case	Identifies the extent to which the proposed development complies or otherwise with relevant national planning policy, marine policy and development policy
Section 5 – Balance of Considerations & Conclusion	Draws together the findings of the planning appraisal and applies the appropriate to weight to the considerations to arrive determine whether development consent should be granted

- 1.5 This SoC also includes at Appendix 1 a Green Belt Statement which has been prepared to explain the detailed case for locating part of the development in the Thurrock Green Belt.

## 2 SITE AND PROJECT DESCRIPTION

### Site Location

- 2.1 The application site is shown on the Location and Order Limits Plans (application document A2.1), reproduced in this report as Figure 2.1. The application site is located wholly within the administrative boundary of Thurrock Council, a unitary authority.
- 2.2 The application site includes all land required to deliver the project. This includes land that would be required temporarily to facilitate the project's construction, and all land proposed to mitigate the environmental impacts of the project.
- 2.3 In this statement the term 'main development site' refers to the circa 20 ha site located immediately north of the existing Tilbury substation, which would accommodate the proposed gas engines, battery storage facility and carbon capture readiness land. The main development site is located on land south west of Station Road near Tilbury in Essex. The British National Grid coordinates are TQ662766 and the nearest existing postcode is RM18 8UL.
- 2.4 This site comprises open fields crossed by three overhead power lines with electricity pylons of a lattice structure, 1 x 400 kV and 2 x 275 kV. It is immediately to the north of the existing 275 kV Tilbury Substation and around 300 m from the edge of the site of the decommissioned Tilbury B coal fired power station which is undergoing demolition. The River Thames is located about 950m to the south. To the north is a section of the London, Tilbury and Southend Railway known as the Tilbury Loop. The rail line is located between 100 m and 200 m from the main development site, at different points.
- 2.5 Also, within the application boundary is land to the south and east of Tilbury Substation and on the Thames foreshore for access, land to the north of the railway for habitat and exchange common land creation, and further agricultural land adjacent to Station Road through which the gas connection would be constructed.
- 2.6 The eastern edge of the settlement of Tilbury is approximately 720m from the edge of the main development site, the village of West Tilbury is approximately 1.05 km to the north and East Tilbury village is approximately 2.09 km to the east. There are a number of individual or small groups of houses within around 800m of the main development site.
- 2.7 The nearest European designated site is the Thames Estuary and Marshes Special Protection Area (SPA) and Ramsar site, approximately 2.4 km east of the main development site. The nearest Scheduled Monuments are Tilbury Fort (970 m to the south west) and 'Earthworks near church, West Tilbury' (730 m to the north).
- 2.8 The proposed Lower Thames Crossing, also a Nationally Significant Infrastructure Project (NSIP), is being promoted nearby to the east, and also lies within the Green Belt. The consented Tilbury2 port expansion, a further NSIP, is presently under construction immediately to the west and south of the main development site.

### Description of Development

- 2.9 The proposed development comprises the construction and operation of:
- reciprocating gas engines with electrical output totalling 600 MW;
  - batteries with electrical output of 150 MW and storage capacity of up to 600 MWh;
  - gas and electricity connections;

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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- creation of temporary and permanent private access routes for construction and access in operation, including a permanent causeway for the delivery of abnormal indivisible loads (AILs) by barge; and
- creation of exchange Common Land and habitat creation or enhancement for protected species translocation and biodiversity gain.

- 2.10 The proposed development's fast-start gas engines will be used intermittently, firing up when energy market signals the operator to do so for some or all of the engines. Compared with conventional baseload electricity generation, which cannot easily increase or decrease output quickly, this plant will help to provide National Grid and the UK energy system with the necessary flexibility it needs to manage the transformations with increasing levels of renewable deployment and other measures required to meet the national target for net zero carbon emissions by 2050.
- 2.11 The total electricity export capacity of 600 MWe will be provided by 33 to 48 individual gas engines of between 12.5 and 18.4 MWe capacity (with appropriate de-rating), each comprising the engine itself, electrical generator, air cooling system and exhaust flue. The gas engines will also include a system to generate electricity from exhaust gases. The gas engines will typically be rated at 52% efficiency overall, depending on the manufacturer and engine model.
- 2.12 The gas engines, exhaust stacks and associated equipment will be buildings or structures collectively occupying a space up to 135 m wide, 265 m long and 20 m high. Illustrative Site Layout Plans are shown in application document A2.7. The engine exhausts may be individual flues for each engine or aggregated into fewer stacks with groups of flues, in either case up to 40 m in height.
- 2.13 The maximum operating time of the gas engines per year could be up to 4,000 hours, subject to agreement with the Environment Agency.
- 2.14 The proposed development is required to be 'Carbon Capture Ready' (CCR) under the Carbon Capture Readiness (Electricity Generating Stations) Regulations 2013, which entails setting aside sufficient land for future carbon capture and storage (CCS) technology to be installed.
- 2.15 Construction of possible future CCS technology on the development site does not form part of the application and current development design.
- 2.16 The battery storage system will comprise battery cells, cooling systems, inverters to convert the direct current to alternating current and electrical transformers.
- 2.17 Battery technology, which can import or export large amounts of electricity with no time lag, helps National Grid with the balancing market (balancing transmission requirements as large generation and consumption sources come on- or off-line), the energy market (storing excess generation until it is needed) and with maintaining the narrow frequency range around 50 Hz required for safe transmission network operation.
- 2.18 Depending on the technology provider, the battery systems may be located within a purpose-built building or buildings, or may be freestanding pre-fabricated units similar in appearance to shipping containers, which could be stacked up to two high. In total, batteries with rated electrical output of 150 MWe and storage capacity of up to 600 MWh will be installed.
- 2.19 The flexible generation plant may operate continuously or at intervals during the day and night, depending on the power generation and storage requirements of National Grid. The main natural resource consumed by the flexible generation plant will be natural gas, estimated at up to around 325,000 tonnes per annum with the maximum 4,000 operating hours for the full 600 MWe gas-fired generation capacity.
- 2.20 The facility will require only a small workforce of four to six full time equivalent (FTE) staff on site during normal operation, as it will be largely controlled remotely. An on-site control room, administrative and staff welfare buildings or prefabricated units will be provided for staff.

### A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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- 2.21 The proposed development will be designed to operate for up to 35 years, after which time ongoing operation and market conditions will be reviewed. If it is not appropriate to continue operating after that time, one or both generating and storage elements of the development (gas engines or batteries) will be decommissioned.
- 2.22 The applicant requires flexibility in the Development Consent Order (DCO) for the design of a number of elements of the development. For example, the number and size of gas engines and batteries to provide the electricity generation and storage capacity specified would vary depending on the technology provider and equipment models selected. Flexibility in options for construction access routes, the gas pipeline route and micro-siting of the gas above-ground installation (AGI) for connection to the National Transmission System (NTS) is also required.
- 2.23 A 'Rochdale envelope' approach to assessment has therefore been taken, whereby maximum design parameters are defined for the application and used for assessment of environmental impacts reported in the Environmental Statement (ES). These maximum parameters would not be exceeded by the proposed development's final design, in terms of its physical dimensions, nature of construction and operational activities, or significance of environmental effects.
- 2.24 For descriptive purposes in the ES, land within the order limits has been divided into works areas, which are referred to in the ES as 'zones'. Further details of the specific development design within each of these zones are given in Volume 2, Chapter 2 of the ES.

## 3 PLANNING POLICY CONTEXT

### Introduction

- 3.1 This section outlines the legislation which provides the decision making framework for determining applications seeking Development Consent, and the planning policy to which the Secretary of State must have regard and the weight that should be apportioned in that framework. To do that it is important to understand how the development is viewed in land use planning terms.
- 3.2 In planning terms, the proposed development can be described as ‘energy infrastructure’. It is a sui generis use. It contains a mix of forms of electricity generation (gas fired and battery storage), plus associated gas and electrical and other infrastructure (roads, and green infrastructure). As such it straddles a number of different NPSs. While the gas and storage component of the project is not in and of itself a renewable energy generation scheme, it nevertheless is a low carbon development and provides a very important role in integrating renewable schemes effectively into the UK energy network and provides important generation capacity in this location.
- 3.3 Gas is recognised as the cleanest and most reliable fossil fuel. It is likely to continue to be a central part of Great Britain’s energy mix during the transition to a low carbon economy. In the power generation sector, gas is a reliable source of flexible power generating capacity, to back-up intermittent renewables, so underpinning security of supply and price stability in the electricity market (EN-1, 3.8.19).
- 3.4 While the benefits of battery storage were not fully recognised at the time of wiring the NPSs (as the market was less mature at that point), it was and is nevertheless recognised that the Government expects that demand side response, storage and interconnection, will play important roles in a low carbon electricity system, but still envisages back up capacity being necessary to ensure security of supply (EN-1, 3.3.31).
- 3.5 The development is required to complement the growing mix of electricity generation and to meet the Government’s objective of maintaining a reliable electricity supply. Once operational, the new flexible and reliable facility would have the ability to respond rapidly to the short-term variations in demand and fluctuations in the output from renewable energy sources.
- 3.6 The proposed development would complement and support the mix of electricity generation and to meet the Government’s objective of “*Achieving clean growth, while ensuring an affordable energy supply for businesses and consumers, [which] is at the heart of the UK’s Industrial Strategy.*” (Clean Growth Strategy, 2017). Once operational, the new flexible and reliable facility would have the ability to respond rapidly to the short-term variations related to demand, particularly around London, and fluctuations in the output from renewable energy sources. The high ramping rate provided by the gas reciprocating engines means that it can operate at full power within five minutes of receiving an instruction to start-up. Furthermore, the battery storage component can provide almost instant response to fluctuations, including balancing the frequency of the grid.
- 3.7 The project is considered to be essential to the ongoing growth and integration of renewable technologies into the energy system.
- 3.8 In this context the following legislation and policies are relevant.

### Relevant Legislation and the Decision Making Framework

- 3.9 The statutory framework for determining applications seeking development consent is provided by the Planning Act 2008 (the ‘Act’). Section 104 (2) of the Act (as Amended) states that:

(2) “*In deciding the application the Secretary of State must have regard to—*”

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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a) *any national policy statement which has effect in relation to development of the description to which the application relates (a “relevant national policy statement”),*

b) *(aa) the appropriate marine policy documents (if any), determined in accordance with section 59 of the Marine and Coastal Access Act*

b) *any local impact report (within the meaning given by section 60(3)) submitted to the Commission before the deadline specified in a notice under section 60(2),*

c) *any matters prescribed in relation to development of the description to which the application relates, and*

d) *other matters which the Secretary of State thinks are both important and relevant to its decision.”*

3.10 In this respect, Section 104 (3) provides that the Secretary of State (referred to as ‘the SoS’) must decide applications for development consent in accordance with any national policy statement except to the extent that the SoS is satisfied that one or more of the following exceptions apply:

- that deciding the application in accordance with any relevant national policy statement would lead to the United Kingdom being in breach of any of its international obligations,
- that deciding the application in accordance with any relevant national policy statement would lead to the Secretary of State being in breach of any duty imposed on the Secretary of State by or under enactment,
- that deciding the application in accordance with any relevant national policy statement would be unlawful by virtue of any enactment,
- that the Secretary of State is satisfied that the adverse impact of the proposed development outweighs its benefits, and
- that the Secretary of State is satisfied that any condition prescribed for deciding an application otherwise than in accordance with a national policy statement is met.

3.11 In deciding the application for development consent for the proposed development, and as the proposed development contains a mixture of energy infrastructure, the relevant National Policy Statements (NPSs) to which the Secretary of State (SoS) must have regard in accordance with Sections 104(2) and 104(3) of the 2008 Act, are considered to be:

- Overarching National Policy Statement for Energy, EN-1 (NPS EN1),
- National Policy Statement for Fossil Fuels, EN-2 (NPS EN2),

3.12 In terms of marine policy documents, the ES accompanying the application has had regard to UK Governments’ Marine Policy Statement 2011. The Marine Plan for the South East, is in draft form only and has yet to take effect.

3.13 Of great significance, NPS EN-1 confirms the importance and status of NPSs in the decision making process and the following key decision principles in light of the national importance of NSIPs:

- NPSs provide the primary basis for determining development consent applications (paragraph 1.1.1),
- that given the level and urgency of need for nationally significant energy infrastructure projects there is a presumption in favour of granting development consent for applications for such development unless more specific and relevant policy within the NPS indicate that consent should be refused (paragraph 4.1.2),
- that in the event of a conflict between development plan documents and an NPS, the NPS prevails (paragraph 4.1.5), and similarly,

- in the event of a conflict between a marine policy document (Marine Policy Statement or relevant Marine Plan) and an NPS, the NPS prevails given the national significance of the infrastructure (paragraph 4.1.6).

3.14 The National Planning Policy Framework confirms that it does not contain specific policies for NSIPs for which particular considerations apply (paragraph 3). The NPPF (paragraph 3) and development plan documents (paragraph 4.1.5 of NPS EN1) may however be matters that are important and relevant to determining development consent applications.

### Relevant National Policy

3.15 Having established the basis upon which decisions are made in respect of DCO applications and the role of the NPSs and other important and relevant consideration in that framework, the key aspects of policy contained in the relevant NPSs and how they apply to the determination of the application for Thurrock Power are summarised as follows.

### National Policy Statements:

#### EN-1

3.16 One of the key roles of the national policy is the establishment of need for new energy NSIPs and in particular for renewable energy projects.

3.17 EN-1 is the Overarching National Policy Statement for Energy (“EN-1”). On 19th July 2011, the Secretary of State for Energy and Climate Change designated EN-1 and the other five energy policy statements under the Act. Section 104 of the Act stipulates that the Secretary of State must have regard to EN-1 and any other relevant National Policy Statements (“NPS”) when making his decision on any energy NSIP application. Applicants should, therefore, ensure that their applications, and any accompanying supporting documents and information, are consistent with the instructions and guidance given to applicants in both EN-1 (discussed below). EN-1 is designed to provide general principles relevant to all energy NSIPS.

3.18 EN-1 covers the following:

- the high level objectives, policy and regulatory framework for new NSIPs that are covered by the suite of energy NPSs and any Associated Development;
- the need and urgency for new energy infrastructure to be consented and built with the objective of contributing to a secure, diverse and affordable energy supply and supporting the Government’s policies on sustainable development, in particular by mitigating and adapting to climate change;
- the need for specific technologies, including gas supply and storage Infrastructure;
- key principles to be followed in the examination and determination of applications;
- the role of the Appraisal of Sustainability (“AoS”) in relation to the energy NPSs;
- policy on good design, climate change adaptation and other matters relevant to more than one technology-specific NPS; and
- the assessment and handling of generic impacts that are not specific to particular technologies.

3.19 Relevant policies and paragraphs from EN-1 are detailed in Table EN-1 below.

3.20 EN-1 also sets out requirements and expectations for the following;

- Environmental Statement (section 4.2)
- Air quality and emissions (section 5.2)

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

- Biodiversity and geological conservation (section 5.3)
- Civil and military aviation and defence interests (section 5.4)
- Dust, odour, artificial light, smoke, steam and insect infestation (section 5.6)
- Flood risk (section 5.7)
- Historic environmental (section 5.8)
- Landscape and visual (section 5.9)
- Land use including open space, green infrastructure and green belt (section 5.10)
- Noise and vibration (section 5.11)
- Socio-economic (section 5.12)
- Traffic and transport (section 5.13)
- Waste management (section 5.14)
- Water quality and resources (section 5.15)
- Habitats and species regulations (section 4.3)
- Alternatives (section 4.4)
- Design (section 4.5)
- Electricity grid connection (section 4.9)
- Pollution control and other environmental regulatory regimes (section 4.10)
- Safety (section 4.11)
- Hazardous substances (section 4.12)
- Health (section 4.13)
- Nuisance (section 4.14)
- Security (section 4.15)

3.21 These sections have been taken into account when producing the documents to accompany the DCO. Notable paragraphs and the applicant's responses have been included in the table below.

**Table 3.1: NPS EN-1**

Paragraph	Details	Comments
3.1.1	[Secretary of State] decision making	
	3.1.1 The UK needs all the types of energy infrastructure covered by this NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions.	This NPS relates to energy infrastructure such as that proposed by Thurrock Power. It is therefore relevant and should, with other relevant NPS's, form the primary basis on which a decision for the DCO being sought should be taken.  There is no upper limit in policy terms for the amount of gas or storage energy infrastructure to be provided.
	3.1.2 It is for industry to propose new energy infrastructure projects within the strategic framework set by Government. The Government does not consider it appropriate for planning policy to set targets for or limits on different technologies.	
	3.1.3 The [Secretary of State] should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the government	

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	<p>has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that is as described for each of them in this part.</p> <p>3.1.4 The [Secretary of State] should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Act.</p>	<p>The need for the proposed infrastructure is proven, and substantial weight should be given to the contribution to the proposed development.</p>
3.2.3	<p>This part of the NPS explains why the Government considers that, without significant amounts of new large-scale energy infrastructure, the objectives of its energy and climate change policy cannot be fulfilled. However, as noted in section 1.7, it will not be possible to develop the necessary amounts of such infrastructure without some significant residual adverse impacts...The [Secretary of State] should therefore give substantial weight to considerations of need. The weight which is attributed to considerations of need in any given case should be proportionate to the anticipated extent of a project's actual contribution to satisfying the need for a particular type of infrastructure.</p>	<p>The energy infrastructure proposed is necessary for the Government to fulfil its energy and climate change policy.</p> <p>The anticipated extent to which need is met is set out in the application documents; the applicant and National Grid (in their Statement of Common Ground) consider the need is great and as such significant beneficial weight should be afforded to the proposal.</p>
3.3.2	<p>The Government needs to ensure sufficient electricity generating capacity is available to meet maximum peak demand, with a safety margin or spare capacity to accommodate unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events. This is why there is currently around 85 GW of total generation capacity in the UK, while the average demand across a year is only for around half of this.</p>	<p>There have been significant reductions in generating capacity in and around London. This proposal will help redress that reduction.</p>
3.3.3	<p>The larger the difference between available capacity and demand (i.e. the larger the safety margin), the more resilient the system will be in dealing with unexpected events, and consequently the lower the risk of a supply interruption. This helps to protect businesses and consumers, including vulnerable households, from rising and volatile prices and, eventually, from physical interruptions to supplies that might impact on essential services.</p>	<p>The proposed development will help avoid the potential of supply interruption.</p>
3.3.4	<p>There are benefits of having a diverse mix of all types of power generation. It means we are not dependent on any one type of generation or one source of fuel or power and so helps to ensure security of supply. In addition, as set out briefly below, the different types of electricity generation have different characteristics which can complement each other:</p> <ul style="list-style-type: none"> <li>• fossil fuel generation can be brought online quickly when there is high demand and shut down when demand is low, thus complementing generation from nuclear and the intermittent generation from renewables. However, until such time as fossil fuel generation can effectively operate with Carbon Capture and Storage (CCS), such power</li> </ul>	<p>The applicant's proposal will contribute to the benefit of having a diverse mix of power generation in the UK.</p> <p>Gas is recognised as the cleanest form of fossil fuel and will continue to be important in the transition to a low carbon economy.</p>

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	<p>stations will not be low carbon (see Section 3.6).</p> <ul style="list-style-type: none"> <li>renewables offer a low carbon and proven (for example, onshore and offshore wind) fuel source, but many renewable technologies provide intermittent generation (see Section 3.4); and</li> <li>nuclear power is a proven technology that is able to provide continuous low carbon generation, which will help to reduce the UK's dependence on imports of fossil fuels (see Section 3.5). While capable of responding to peaks and troughs in demand or supply, it is not as cost efficient to use nuclear power stations in this way when compared to fossil fuel generation.</li> </ul>	
3.3.5	<p>The UK is choosing to largely decarbonise its power sector by adopting low carbon sources quickly. There are likely to be advantages to the UK of maintaining a diverse range of energy sources so that we are not overly reliant on any one technology (avoiding dependency on a particular fuel or technology type). This is why Government would like industry to bring forward many new low carbon developments (renewables, nuclear and fossil fuel generation with CCS) within the next 10 to 15 years to meet the twin challenge of energy security and climate change as we move towards 2050.</p>	<p>The battery storage facility proposed by the applicant is considered to be a low carbon technology and has the advantage of storage and generation functions. This together with the gas engine generating capacity is considered to be an acceptable development that delivers technology which adds resilience to the electricity network and assists in the transition to a low carbon economy.</p>
3.3.6	<p>Within the strategic framework established by the Government it is for industry to propose the specific types of developments that they assess to be viable. This is the nature of a market-based energy system. The IPC should therefore act in accordance with the policy set out at in Section 3.1 when assessing proposals for new energy NSIPs.</p>	<p>The applicant's proposal is one of the first energy infrastructure proposals that includes a nationally significant scale battery storage facility. Thurrock Power is bringing this to market and given its compliance with national energy and climate change goals should, with the diversity the gas generating facility also offers, be given significant beneficial weight in the decision making process.</p>
3.3.7	<p>In the UK at least 22 GW of existing electricity generating capacity will need to be replaced in the coming years, particularly to 2020. This is as a result of tightening environmental regulation and ageing power stations.</p>	<p>The proposed development will provide a very valuable replacement generating facility for the London region.</p>
3.3.11	<p>An increase in renewable electricity is essential to enable the UK to meet its commitments under the EU Renewable Energy Directive. It will also help improve our energy security by reducing our dependence on imported fossil fuels, decrease greenhouse gas emissions and provide economic opportunities. However, some renewable sources (such as wind, solar and tidal) are intermittent and cannot be adjusted to meet demand. As a result, the more renewable generating capacity we have the more generation capacity we will require overall, to provide back-up at times when the availability of intermittent renewable sources is low. If fossil fuel plant remains the most cost-effective means of providing such back-up, particularly at short notice, it is possible that even when the UK's electricity</p>	<p>To the extent the current proposals support the greater deployment and use of renewable generation, it is essential to enable the UK to meet its policy commitments.</p>

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	supply is almost entirely decarbonised we may still need fossil fuel power stations for short periods when renewable output is too low to meet demand, for example when there is little wind.	
3.3.12	There are a number of other technologies which can be used to compensate for the intermittency of renewable generation, such as electricity storage, interconnection and demand-side response, without building additional generation capacity. Although Government believes these technologies will play important roles in a low carbon electricity system, the development and deployment of these technologies at the necessary scale has yet to be achieved. The Government does not therefore consider it prudent to solely rely on these technologies to meet demand without the additional back-up capacity (see further paragraphs 3.3.30-3.3.34 below). It is therefore likely that increasing reliance on renewables will mean that we need more total electricity capacity than we have now, with a larger proportion being built only or mainly to perform back-up functions.	The problem of power intermittency is directly addressed by the applicant's scheme. Battery storage has now matured to the point where it can now play a valuable role in the UK's power network.
3.3.15	In order to secure energy supplies that enable us to meet our obligations for 2050, there is an urgent need for new (and particularly low carbon) energy NSIPs to be brought forward as soon as possible, and certainly in the next 10 to 15 years, given the crucial role of electricity as the UK decarbonises its energy sector	The timing of the applicant's proposal directly addresses the need to bring forward new energy generation.
3.3.16	Energy NSIPs take a long time to move from design conception to operation and they are generally designed to operate for 30 to 60 years. The Government has therefore considered a planning horizon of 2025 for the energy NPSs in general and for EN-6 in particular, as an interim milestone to secure our longer term objectives. A failure to decarbonise and diversify our energy sources now could result in the UK becoming locked into a system of high carbon generation, which would make it very difficult and expensive to meet our 2050 carbon reduction target. We cannot afford for this to happen.	The timing of the applicant's proposal fits with Government expectations. It also assists in the transition to a low carbon economy.
3.3.30	In addition to the above measures aimed at reducing overall demand, the potential also exists for more intelligent interaction between supply and demand. For instance, although there is currently around 85 GW of total generation capacity in the UK, average demand across a year is only for around half of it because a high proportion of the total capacity is used only at times of peak demand (see paragraphs 3.3.2-3 on the resilience of the electricity system). Moving some demand from a peak to an off-peak time or moving demand when the system is under stress allows opportunities to help balance supply and demand. This 'smart demand management' may avoid some power stations being built that only run for a few hours during the year and enable more efficient use of existing stations.	The facility directly addresses the 'smart demand management' needs of the grid.
3.3.31	Reductions in peak demand may lead to a corresponding increase in	The battery storage facility proposed by the applicant is one that now allows a commercially

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	<p>demand at a later time when there is sufficient power available to meet it. In addition, while electrical energy storage allows energy production to be decoupled from its supply, and provides a contribution to meeting peak demand, currently the only commercially viable utility-scale energy storage technology is pumped storage. The UK currently has four pumped storage facilities with a maximum capacity of approximately 3 GW. There is limited further potential in the UK due to a lack of appropriate locations and large capital costs, but high renewable pathways might require more storage beyond 2020, and therefore the commercial climate may change. The Government expects that demand side response, storage and interconnection, will play important roles in a low carbon electricity system, but still envisages back up capacity being necessary to ensure security of supply until other storage technologies reach maturity.</p>	<p>viable unit to be delivered to market and to store then distribute electricity according to demand and supply needs.</p>
3.6.3	<p>Some of the new conventional generating capacity needed is likely to come from new fossil fuel generating capacity in order to maintain security of supply, and to provide flexible back-up for intermittent renewable energy from wind...</p>	<p>The gas reciprocating engines proposed by the applicant provide a relatively clean form of fossil fuel generation facility and will play a valuable role in transitioning towards a low carbon economy.</p>
3.6.6	<p>The Government has placed two conditions on the consenting of fossil fuelled power stations (including gas and coal-fired) to require the development and facilitate the adoption of CCS once it is available. These conditions are:</p> <ul style="list-style-type: none"> <li>all commercial scale (at or over 300 MW) combustion power stations (including gas, coal, oil or biomass) have to be constructed Carbon Capture Ready (CCR)....</li> </ul>	<p>The proposed development is CCR (see application document A7.6).</p>
3.6.8	<p>As set out in paragraph 3.3.8 above, a number of fossil fuel generating stations will have to close by the end of 2015. Although this capacity may be replaced by new nuclear and renewable generating capacity in due course, it is clear that there must be some fossil fuel generating capacity to provide back-up for when generation from intermittent renewable generating capacity is low and to help with the transition to low carbon electricity generation...</p>	<p>The timing, type and scale of the electricity infrastructure proposed by the applicant is consistent with Government expectations.</p>
3.7.3	<p>It is important to note that new electricity network infrastructure projects, which will add to the reliability of the national energy supply, provide crucial national benefits, which are shared by all users of the system.</p>	<p>The applicant's facility will provide additional reliability to national energy supply.</p>
3.7.10	<p>In the light of the above, there is an urgent need for new electricity transmission and distribution infrastructure (and in particular for new lines of 132 kV and above) to be provided. The IPC should consider that the need for any given proposed new connection or reinforcement has been demonstrated if it represents an efficient and economical means of</p>	<p>The timing, type and scale of the electricity infrastructure proposed by the applicant is consistent with Government expectations. It provides an efficient and economical approach to the provision of much needed energy infrastructure in this location.</p>

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	connecting a new generating station to the transmission or distribution network, or reinforcing the network to ensure that it is sufficiently resilient and has sufficient capacity (in the light of any performance standards set by Ofgem) to supply current or anticipated future levels of demand. However, in most cases, there will be more than one technological approach by which it is possible to make such a connection or reinforce the network (for example, by overhead line or underground cable) and the costs and benefits of these alternatives should be properly considered before any overhead line proposal is consented.	
3.8.1	The UK is highly dependent on natural gas, which is used in roughly equal quantities in domestic households (largely for space heating purposes), for electricity generation (generating just over two fifths of electricity in 2010) and across a range of businesses (both as a fuel and as a feedstock). Although our reliance on fossil fuels will fall, the transition will take some time, and gas will continue to play an important part in the UKs' fuel mix for many years to come. The share of natural gas in UK primary energy demand (including electricity generation) is expected to fall from 41% in 2010 to around 33% in 2020, and then could rise again to around 36% by 2025 as the use of coal for electricity generation declines.	The timing, type and scale of the electricity infrastructure proposed by the applicant is consistent with Government expectations.
3.8.19	<p>Gas is the cleanest and most reliable fossil fuel. It is likely to continue to be a central part of Great Britain's energy mix during the transition to a low carbon economy:</p> <ul style="list-style-type: none"> <li>• In the domestic (household) sector, where it remains the fuel of choice for cooking and heating;</li> <li>• In the industrial sector, as a source of energy and as a feedstock;</li> <li>• In the power generation sector, as a reliable source of flexible power generating capacity, to back-up intermittent renewables, so underpinning security of supply and price stability in the electricity market;</li> <li>• Gas demand for power generation could increase substantially due to the greater use of electricity for heat and transport;</li> <li>• If carbon capture and storage technologies, in development for both the power and industrial sectors, prove technically and commercially viable, that could underpin gas demand from these sectors; and</li> <li>• The requirement for gas supply infrastructure is determined by the level of peak demand. Even if annual gas demand reduces, peak gas demand, driven by demand for power generation, could drive a requirement for additional gas supply infrastructure.</li> </ul>	The timing, type and scale of the electricity infrastructure proposed by the applicant is consistent with Government expectations.
4.1.2	Given the level and urgency of need for infrastructure of the types covered by the energy NPSs set out in Part 3 of this NPS, the [Secretary of State] should start with a presumption in favour of granting consent to applications for energy	The applicant's facility is compliant with relevant national policy and as such should benefit from the presumption in favour of granting consent.

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	NSIPs. That presumption applies unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused. The presumption is also subject to the provisions of the Act referred to at paragraph 1.1.2 of this NPS.	
4.1.3	<p>In considering any proposed development, and in particular when weighing its adverse impacts against its benefits, the [Secretary of State] should take into account:</p> <ul style="list-style-type: none"> <li>• Its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and</li> <li>• Its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.</li> </ul>	<p>In national policy terms considerable beneficial weight should be attributed to the applicant's proposed development. It is acknowledged that its location in the Green Belt creates a tension between policies, but the harm caused is considered to be low and in any event offset by very special circumstances as set out in the Green Belt Study at Appendix 1 to this report.</p>
4.1.4	<p>In this context, the [Secretary of State] should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels. These may be identified in this NPS, the relevant technology-specific NPS, in the Application or elsewhere (including in local impact reports).</p>	<p>All relevant matters have been addressed by the applicant.</p>
4.2.8	<p>Where some details are still to be finalised the ES should set out, to the best of the Applicant's knowledge, what the maximum extent of the proposed development may be in terms of site and plant specifications, and assess, on that basis, the effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed.</p>	<p>All relevant matters have been addressed by the applicant.</p>
4.4.1	<p>As in any planning case, the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to the proposed development is in the first instance a matter of law, detailed guidance on which falls outside the scope of this NPS. From a policy perspective this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option.</p>	<p>All relevant matters have been addressed by the applicant, including, in the case of Green Belt, alternatives.</p>
4.5.4	<p>For the [Secretary of State] to consider the proposal for a project, applicants should be able to demonstrate in their application documents how the design process was conducted and how the proposed design evolved. Where a number of different designs were considered, applicants should set out the reasons why the favoured choice has been selected. In considering applications the [Secretary of State] should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy.</p>	<p>The design and layout of the development is set out in the applicant's Design Principles Statement (application document A8.4).</p>
4.10.3	<p>In considering an application for development consent, the Secretary of State should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. The [Secretary of State]</p>	<p>The applicant has addressed where relevant pollution control and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, and these have been</p>

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes, including those on land drainage, water abstraction and biodiversity, will be properly applied and enforced by the relevant regulator. It should act to complement but not seek to duplicate them.	properly applied in the design and layout of the scheme and reported in the accompanying Environmental Statement (application document A6).
4.13.2	As described in the relevant sections of this NPS and in the technology-specific NPSs, where the proposed project has an effect on human beings, the ES should assess these effects for each element of the project, identifying any adverse health impacts, and identifying measures to avoid, reduce or compensate for these impacts as appropriate. The impacts of more than one development may affect people simultaneously, so the Applicant and the [Secretary of State] should consider the cumulative impact on health.	The applicant has considered and reported upon all relevant environmental effects arising from the development.
5.3.13	Sites of regional and local biodiversity and geological interest, which include regionally important geological sites, local nature reserves and local sites, have a fundamental role to play in meeting overall national biodiversity targets; contributing to the quality of life and the well-being of the community... The [Secretary of State] should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.	The applicant has considered and reported upon all relevant environmental effects arising from the development.
5.8.15	Any harmful impact on the significance of a designated asset should be weighed against the public benefit of the development...	The applicant has considered and reported upon all relevant environmental effects arising from the development.
5.9.8	Projects need to be designed carefully, taking account of the potential impact on the landscape...	The applicant has considered and reported upon all relevant environmental effects arising from the development.
5.10.17	When located in the green belt, energy infrastructure projects are likely to comprise 'inappropriate development'. The [Secretary of State] will need to assess whether there are special circumstances to justify inappropriate development. Very special circumstances will not exist unless the harm by reason of inappropriateness... is outweighed by other considerations...	This analysis has been undertaken by the applicant at Appendix 1. It concludes that the harm is low and is any event outweighed by very special circumstances.
5.12.7	The [Secretary of State] may conclude that limited weight is to be given to assertions of socio-economic impacts that are not supported by evidence (particularly in view of the need for energy infrastructure as set out in this NPS).	The applicant has considered and reported upon all relevant environmental effects arising from the development.

### EN-2

3.22 EN-2 covers the following type of nationally significant generating infrastructure:

- Coal-fired, gas-fired, integrated coal gasification combined cycle, and oil-fired.
- the assessment and technology-specific information;
- factors influencing site selection by developers;

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

- Grid connection;
- Government policy criteria for fossil fuel generating stations

3.23 Relevant policies and paragraphs from EN-2 are detailed in Table EN-2 below.

3.24 EN-2 also sets out requirements and expectations for the following;

- Air emissions (section 2.5)
- Landscape and visual (section 2.6)
- Noise and vibration (section 2.7)
- Release of dust (section 2.8)
- Residue management (section 2.9)
- Water quality and resources (section 2.10)

3.25 These sections have been taken into account when producing the relevant applications and documents to accompany the DCO.

**Table 3.2: NPS EN-2**

Paragraph	Details	Comments
1.1.1	Fossil fuel generating stations play a vital role in providing reliable electricity supplies and a secure and diverse energy mix as the UK makes the transition to a low carbon economy.	This NPS applies to the gas fired development component of the applicant's proposals. It reaffirms the policy support in NPs EN-1 when referring to the vital role fossil fuel stations will continue to play as the UK makes its transition to a low carbon economy.
1.8.3	Fossil fuel generating stations can be configured to produce Combined Heat and Power (CHP) and be CCR and/or have CCS technology applied. Details of the Government's policy in these areas are set out in EN-1 with further information in this NPS.	The applicant's proposals are CCR (see application document A7.6).
2.2.1	Part 4 of EN-1 sets out the general principles that should be applied in the assessment of development consent applications across the range of energy technologies. Part 5 sets out policy on the assessment of impacts which are common across a range of these technologies ("generic impacts"). This NPS is concerned with impacts and other matters which are specifically associated with fossil fuel generating stations or where, although the impact is generic and covered in EN-1, there are further specific considerations arising from this technology.	The applicant has considered and reported upon all relevant environmental effects arising from the development.
2.1.2	The policies set out in this NPS are additional to those on generic impacts set out in EN-1 and do not replace them. The IPC should consider this NPS and EN-1 together. In particular, EN-1 sets out the Government's conclusion that there is a significant need for new major energy infrastructure (see summary and conclusion in Part 3 of EN-1). EN-1 Section 3.6 includes assessments of the need for new nationally significant fossil fuel generation	This reaffirms that 'need' for the infrastructure of the type proposed by the applicant has been proven.

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

Paragraph	Details	Comments
	infrastructure. In the light of this, the IPC should act on the basis that the need for the infrastructure covered by this NPS has been demonstrated.	
2.3.2	<p>Combined heat and power.</p> <p>The Government's strategy for CHP is described in Section 4.6 of EN-1, which sets out the requirements on applicants either to include CHP or present evidence in the application that the possibilities for CHP have been fully explored.</p>	The applicant has fully explored the feasibility of incorporating CHP (see application document A7.5)
2.3.4	<p>Carbon Capture Readiness (CCR)</p> <p>The Government's policy and criteria for CCR for new combustion generating stations with a generating capacity at or over 300 MW are set out in Section 4.7 of EN-1. If an application does not demonstrate that CCR has been assessed according to this policy, the IPC should seek further information from the applicant. The IPC should not give development consent unless it is satisfied that the proposed development meets all the criteria for CCR set out in EN-1 and is, therefore, CCR.</p>	The applicant's proposals provide space to incorporate CCS if/when required.
2.3.5	<p>The IPC should impose requirements on any consent, requiring operators to:</p> <ul style="list-style-type: none"> <li>retain control over sufficient additional space (whether on or near the site)</li> <li>for the carbon capture equipment;</li> <li>retain their ability to build carbon capture equipment on this space</li> <li>(whether on or near the site) in the future; and</li> <li>submit update reports on the technical aspects of its CCR status to the Secretary of State for Energy and Climate Change. These reports should be required within three months of the date on which a consented station first begins to supply electricity to the grid and every two years thereafter until the plant moves to retrofit CCS.</li> </ul>	Requirements within the applicant's draft DCO address the provision of CCR.
2.3.16	Applicants should demonstrate good design particularly in respect of landscape and visual amenity as set out in Section 2.6.3 below, and in the design of the project to mitigate impacts such as noise and vibration, transport impacts and air emissions.	The applicant's proposal incorporates a landscaping plan (see application document A2.9) and design measures to mitigate noise, vibration, transport and air emissions as have been set out in the Environmental Statement (application document A6), Code of Construction Practice (application document A8.6) and traffic management plans (application documents A8.8 and A8.9).

## Summary

### Principle of Development

- 3.26 The principle of the type of development being proposed by Thurrock Power attracts clear policy support in the NPSs. In principle the development is acceptable, need does not have to be demonstrated, and substantial positive weight should be given to the proposal (see for example NPS EN-1, paras 3.1.1 to 3.1.4).

### Energy Security and Diversity

- 3.27 There is a need to meet the energy security and carbon reduction objectives. In respect of energy security, NPS policy identifies that there needs to be sufficient electricity generating capacity to meet maximum peak demand while allowing for a safety margin to accommodate unexpectedly high demand or unexpected plant closure or extreme weather events (EN-1, paragraph 3.3.2). This

objective also helps to protect businesses and consumers from rising and volatile prices (paragraph 3.3.3). There are also benefits of having a diverse mix of all types of power generation to reduce dependency and so ensure a security of supply (paragraph 3.3.4).

- 3.28 There are also likely to be advantages in maintaining a diverse range of energy resources to avoid over reliance on any one type of technology, and as such Government policy is to bring forward new low carbon developments within the next 10 to 15 years to meet the challenge of meeting climate change obligations while achieving energy security (paragraph 3.3.5).

### **Replacing Existing Generating Capacity**

- 3.29 Secondly, there is a need to replace closing electricity generating capacity as at least 22GW of existing electricity capacity will need to be replaced (about a quarter of the UK's electricity generating capacity (paragraph 3.3.7). The reduction on current generating capacity will need to be replaced in order to ensure security of supply is maintained.

### **Addressing Future Increases in Electricity Demand**

- 3.30 The UK is identified as needing to diversify and decarbonise electricity generation, and the Government is committed to increasing dramatically the amount of renewable generation capacity.
- 3.31 It is also expected that the demand for electricity is likely to increase for industrial sectors of the economy and for heating and surface transport as there is a move away from fossil fuels to electricity in order to the 2050 legal obligations to reduce carbon emissions (paragraph 3.3.13). This could lead to the potential for total electricity consumption to double by 2050 and therefore the total capacity of electricity generation may need to more than double or perhaps even triple to be robust accounting for all weather condition (paragraph 3.3.14).

### **The Urgency of the Need for New Capacity**

- 3.32 NPS EN-1 therefore concludes that there is an urgent need for new (and particularly low carbon) energy NSIPs to be brought forward as soon as possible and certainly in the next 10-15 years, given the crucial role of electricity in decarbonising the UK's energy sector (paragraph 3.3.15).
- 3.33 Furthermore, it is clear that not meeting the 2050 carbon reduction target cannot be afforded to happen (paragraph 3.3.16). Targets are therefore set for the period leading up to 2025 with at least 113GW of total electricity capacity being required (compared to 85 GW currently), of which, in order to minimise the risks to energy security and resilience, the Government considers it to be prudent plan for a minimum need 59GW of new electricity capacity by 2025, including approximately 33GW needed of new renewable capacity (paragraphs 3.3.22 and 3.3.23).
- 3.34 The Government recognises that battery storage can play an important role in a low carbon electricity system (paragraph 3.3.31).

### **Significance for Decision Making**

- 3.35 All applications seeking development consent for energy NSIPs should be assessed on the basis that the Government has demonstrated a need for those types of infrastructure and that the scale and urgency of that need is as established in NPS EN1 (paragraph 3.1.3). Furthermore, substantial weight should be given to the contribution which projects would make towards satisfying that need (paragraph 3.1.4). The principle of development is therefore accepted, proving the development complies with that policy.

## **Development Plan Documents**

- 3.36 As set out above, in deciding applications for development consent, s104 (b) of the Act also requires the SoS to have regard to any local impact report submitted to the SoS. At the time of writing, as the application has yet to be submitted, there are no such local impact reports. However, the local impact

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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reports will almost certainly contain a section in reference to how the local authority considers the extent to which the proposed development would accord with the provisions of the Development Plan.

- 3.37 Similarly, in deciding applications for development consent, s104 (d) of the Act also requires the SoS to have regard to other matters which the SoS thinks are both important and relevant to the decision. In this regard, NPS EN-1 at paragraph 4.15 states 'other matters that the SoS may consider both important and relevant to its decision-making may include Development Plan Documents or other documents in the Local Development Framework.'
- 3.38 It is however important to recognise that while the provisions of the development plan documents may be matters to which the SoS may have regard, there is no legal requirement to determine this application in accordance with the provisos of the development plan documents, as s38(6) of the Planning and Compulsory Purchase Act 2004 (the 'PCP Act') is not applicable in that way to applications for development consent.
- 3.39 That said, the relevant documents of the statutory development plan in accordance with section s38 (3) of the PCP Act are as follows:
1. Thurrock Borough Local Plan 1997 (September 1997); and
  2. Thurrock Core Strategy 2015 (January 2015)
  3. Thurrock Design Guide: Design Strategy SPD (March 2017)
- 3.40 The policies of the development plan that may be considered relevant to the proposed development are set out below.

### Thurrock Borough Local Plan 1997

- 3.41 The Thurrock Borough Local Plan 1997 was adopted in September 1997. By law, although the end date of the Borough Local Plan has passed, its policies have been saved automatically. The application site lies in an area of countryside and in Green Belt. It does not benefit from any allocation, nor is there any policy in the plan specifically designed to support energy infrastructure. The following policies are considered most relevant to the proposed development.
- 3.42 **Policy BE1** Design of New Development – this policy states all new development must be designed to a high standard where particular attention is given to the mass, form and scale as well as elements of design, the quality and appropriateness of materials used, landscaping and treatment of spaces between and around buildings. Proposals for development should also demonstrate consideration to the immediate surroundings.
- 3.43 **Policy BE4** Landscaping – the council will expect the concurrent submission of details of the landscaping proposed and will seek to ensure that such landscaping is implemented.
- 3.44 **Policy BE11** Energy Efficiency - the Council will take into account the need for energy efficiency in the built form of new developments. This will include matters such as hard and soft landscaping, orientation of buildings, and the layout and design of developments.
- 3.45 **Policy E1** Development within primary industrial and commercial areas – Within these areas, new industrial and commercial development will be permitted, provided the development meets Policy BE9 and other policies protecting the environment. Tilbury South and Tilbury Power Station, North are listed.
- 3.46 **Policy E2** Land for new industrial and commercial development in primary areas – Land is identified within primary industrial and commercial areas for new industrial and commercial development and the expansion of existing firms as listed below and shown on the Proposals Map. Tilbury South and Tilbury Power Station, North are listed.
- 3.47 **Policy E5** Development outside designated industrial and commercial areas – Industrial and commercial development and redevelopment will only be permitted outside the industrial and

commercial area identified in policies E1 and E3, where the development will neither cause material harm to the environment, nor generate unacceptable levels of traffic, and where the development proposed conforms to other policies in the Plan.

### Thurrock Core Strategy 2015

- 3.48 The Thurrock Core Strategy 2015 was originally adopted on 21 December 2011 and subsequently updated on 28 January 2015 following an independent examination of the Core Strategy focused review document on consistency with the then published NPPF. It has not been further reviewed in light of the 2019 version of the NPPF. It is also important to note that after the Council adopted the Core Strategy in 2011, they also intended to produce the 'Site Specific Allocations and Policies Local Plan' and the last version of this badged as the Thurrock Focused Review: Broad Locations and Strategic Sites – Issues and Options', was published for consultation in January 2013. These documents or plans, however, have not been progressed and so precise allocations and other plan adjustments, for example to Green Belt boundaries etc, remain unresolved. The absence of this layer of the development plan is intended to be filled by the emerging Thurrock local Plan (see below), but this has only reached the issues and options stage.
- 3.49 As with the Local Plan above, there are no site specific allocations which accommodate the applicant's proposed development, neither are there any site specific proposals for energy infrastructure although there is a generic policy in support of such (see CSTP26 below). Notwithstanding, the following policies from the Core Strategy are considered most relevant to the proposed development inasmuch as they provide a positive outlook and provide support for new employment infrastructure in the area.
- 3.50 **Policy CSTP6 Strategic Employment Provision** – this policy sets out the intentions to maintain high and stable levels of economic and employment growth with the district through a number of measures including:
- Key strategic economic hubs
  - Primary and Secondary Industrial and Commercial Areas
  - Mixed-Use Employment Locations
  - Use of Redundant and Under-Used Employment Land and Buildings
  - Relocation and Expansion of Existing Businesses
  - Office Development
  - Knowledge and Cultural Based Regeneration
  - Environmental Industries
  - Range of Unit Sizes
  - Skills and Local Employment Opportunities
  - Tourism
- 3.51 Tilbury is recognised as one of the strategic economic hub areas and under this policy and mirrored in the Strategic Spatial Objective (SSO2) on page 35 of the Core Strategy, which states:
- "Increase prosperity and employment growth in Thurrock in the five strategic Economic Hubs of Purfleet, Lakeside/West Thurrock, Grays, Tilbury and London Gateway while seeking a sustainable balance between housing and jobs growth across the Borough supported by integration and phasing with existing and planned transport and community infrastructure.*
- 3.52 **Policy CSSP2 Sustainable Employment Growth** – is a policy which seeks to promote economic development in the Key Strategic Economic Hubs that seeks to expand upon their existing core sectors and/or provide opportunities in the growth sectors. Part ii of the policy indicates there is

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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sufficient previously developed land in the Key Strategic Economic Hubs to accommodate the proposed jobs numbers with the exception of a proposed Green Belt release North of Tilbury to provide expansion land for port related development. It should be noted here that the final site boundaries were intended to be included in the Adopted Site Specific Allocations and Policies DPD and identified on the Proposals Map however this document has been suspended and is not being pursued. Part iii of the policy indicates that the Council will direct inward investment to the Key Strategic Economic Hubs. Part iv says the Council will promote Flagship Developments that will generate and provide a catalyst for securing high quality jobs in the Key Strategic Economic Hubs.

- 3.53 **Policy CSSP5 Sustainable Green Grid** – is policy which seeks to enhance the Boroughs natural assets. The Thurrock Green Grid Strategy is a key priority for the Council, Local Strategic Partnership and other partners. Its principle puts the natural environment at the centre of land use management and development. This is designed to enable multifunctional land use of both public and private space and is supported by a physical network of green links for people and wildlife. In land use terms, the key elements of the Green grid are:
- Open space, such as parks and recreational grounds;
  - Biodiversity, including grasslands, reedbeds, hedgerow, and woodlands; and
  - Green Infrastructure, such as private gardens, street trees, road verges, green roofs, public Right of Way and greenways, cemeteries and churchyards and productive lands.
- 3.54 **Policy CSTP19 Biodiversity** – this policy comes in line with recent initiatives in which new development should aim to contribute to a net gain in biodiversity within the area that it is situated. The policy states that development will be encouraged to include measures to contribute positively to the overall biodiversity of the Borough.
- 3.55 **Policy CSTP22 Thurrock Design** – this policy highlights the fact that the council will promote high quality design of new development in Thurrock. High quality design should be demonstrated through factors such as a positive response to the local context, accessibility to all users, safety and security, high architectural quality, sustainable design and the addressing of any sensitivities in the place where the proposed development is located.
- 3.56 **Policy CSTP25 Addressing Climate Change** – this policy places an impetus on new development to include adaption measures that contributes to climate change mitigation. This can be achieved through measures such as emission reduction, renewable and low carbon technologies, passive design, recycling and waste minimisation. New developments should also aim to not increase vulnerability to climate change impacts.
- 3.57 **Policy CSTP26 Renewable or low carbon energy generation** – as part of the shift to low-carbon future and to tackle climate change, the Council will encourage opportunities to generate energy from non-fossil fuel and low-carbon sources. Centralised renewable and low-carbon energy schemes at appropriate locations and standards will be promoted. The Council will also promote the delivery of district energy networks at appropriate locations in order to increase the proportion of energy delivered from renewable and low-carbon sources in the Borough. The Council will view an application as unacceptable where it produces a significant adverse impact that cannot be mitigated, including cumulative landscape or visual impacts.
- 3.58 **Policy CSTP27 Management and Reduction of Flood Risk** – the council will collaborate with the Environmental Agency to ensure that flood risk management is implemented and supported through effective land use planning. The Council will work with the Environment Agency and other main stakeholders to ensure that fluvial and surface water flood risk is managed within Thurrock. Planning applications received for sites within Flood Zone 3 will be treated in accordance with the NPPF, this policy and Policy PMD15.
- 3.59 **Policy PMD2 Design and Layout** – this policy highlights the ways in which the Council requires all design proposals to respond to the sensitivity of the site and its surroundings, to optimize the

potential of the site to accommodate development, to fully investigate the magnitude of change that would result from the proposals, and to mitigate against negative impacts.

- 3.60 **Policy PMD12 Sustainable Buildings** – this policy seeks to ensure new developments accord with the required BREEAM standards, where appropriate.
- 3.61 **Policy PMD13 Decentralised, Renewable and Low-Carbon Energy Generation** – this policy seeks to ensure that new developments of a certain scale should secure 20% of their predicted energy from decentralised and renewable or low-carbon sources from 2020, unless it is not deemed feasible.
- 3.62 **Policy PMD14 Carbon Neutral Development** - The Council will require developers to demonstrate that all viable energy efficiency measures and renewable or low-carbon technology opportunities have been utilised to minimise emissions, in accordance with PMD12 and PMD13. Developments that lead to a net increase in carbon dioxide emissions, over and above existing emissions for the development site, will be required to make a contribution to the Thurrock Carbon Offset Fund.
- 3.63 **Policy PMD15 Flood Risk Assessment** - Applications relating to sites not covered by the Thurrock Sequential Test will be required to be supported by a site-specific Sequential Test to demonstrate compliance with the NPPF, and associated Planning Practice Guidance. To reflect the nature of Thurrock's defended floodplain, particular reference should be made to the hazard rating for each site where covered by the Thurrock Strategic Flood Risk Assessment. Development proposals subject to the Exception Test in Thurrock must meet a list of criteria, listed in the Core Strategy 2015. Developments will also be expected to incorporate Sustainable Drainage Systems (SuDS).
- 3.64 Both Development Plans present policies relating to development in the Green Belt. From the Local Plan 1997 there is Policy GB1 and Policy GB2. From the Core Strategy 2015 there is Policy CSSP4 and PMD6. These policies are analysed in the applicant's Green Belt Statement in Appendix 1.

### Thurrock Design Guide: Design Strategy SPD, March 2017

- 3.65 The main aim of the Design Guide is to improve the overall design quality standards of development in Thurrock, enhancing perceptions of place and reinforcing a strong sense of civic pride.
- 3.66 The document discusses the principles of good design as expressed in the National Planning Policy Framework (NPPF) then transposes them into the local context. In particular, it discusses in detail the following considerations:
- a. Understanding the place
  - b. Working with site features
  - c. Making connections
  - d. Building in sustainability
- 3.67 In respect of commerce and industry, the design guide requirements expect proposals to demonstrate how issues of grouping and massing have been considered as part of the design process within the context of the wider landscape; how the use of colour might be used to mitigate visual impact; whether key gateway views should be considered; how the development related to surrounding land uses; and that lighting, boundary treatment (hard and soft) and security is treated sensitively.

### Other Material Considerations

- 3.68 Other material considerations include the following:
- National Planning Policy Framework (NPPF), February 2019
  - Draft Thurrock Local Plan
  - Upgrading Our Energy System, Smart Systems and Flexibility Plan, July 2017, Ofgem

- UK Clean Growth Strategy, October 2017 (and amended April 2018), Ofgem
- Future Energy Scenarios, National Grid July 2019 (FES)

3.69 Of these it is the NPPF that is most relevant and therefore attracts most weight in the planning balance. The Draft Thurrock Local plan is only at Issues and Options stage and so no clear policy direction is given to which significant weight can be attached. As indicated above, it is important to note that until this is published, the development plan for the Borough leaves open the precise allocations of land to achieve the goals set out in the adopted Core Strategy – the Site Specific Allocation of Land Document that the council *had* intended to fulfil this function has been suspended indefinitely until it is superseded by the emerging local plan.

### NPPF, February 2019

3.70 The NPPF sets out the Government’s planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. The Thurrock Core Strategy as adopted was reviewed in light of the (then) published NPPF and various policies were amended or added, to ensure consistency with the NPPF. The applicant is not aware that the adopted Core Strategy is inconsistent with the 2019 version of the NPPF.

3.71 As indicated earlier, the Framework does not contain specific policies for nationally significant infrastructure projects. These are determined in accordance with the decision-making framework in the Planning Act 2008 (as amended) and relevant national policy statements for major infrastructure, as well as any other matters that are relevant (which may include the National Planning Policy Framework). National policy statements form part of the overall framework of national planning policy, and may be a material consideration in preparing plans and making decisions on planning applications.

3.72 The purpose of the planning system is to contribute to the achievement of sustainable development. Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives):

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

3.73 Paragraph 11 in the NPPF states that:

*“Plans and decisions should apply a presumption in favour of sustainable development.*

*For **plan-making** this means that:*

- a) *plans should positively seek opportunities to meet the development needs of their area, and be sufficiently flexible to adapt to rapid change.”*

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

---

- 3.74 Paragraph 12 states that the presumption in favour of sustainable development does not change the statutory status of the development plan as the starting point for decision making (for development considered under the Town and Country Planning regime – not The Planning Act 2008 DCO regime). Where a planning application conflicts with an up-to-date development plan (including any neighbourhood plans that form part of the development plan), permission should not usually be granted. Local planning authorities may take decisions that depart from an up-to-date development plan, but only if material considerations in a particular case indicate that the plan should not be followed.
- 3.75 Chapter 13 of the National Planning Policy Framework NPPF 2019 is titled “Protecting Green Belt Land”. This chapter of the NPPF 2019 sets out the criteria that development in the Green Belt must meet.
- 3.76 Paragraph 133 states “The Government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence”.
- 3.77 Paragraph 134 sets out the five purposes of the Green Belt:
1. to check the unrestricted sprawl of large built-up areas;
  2. to prevent neighbouring towns merging into one another;
  3. to assist in safeguarding the countryside from encroachment;
  4. to preserve the setting and special character of historic towns; and
  5. to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.
- 3.78 Paragraphs 135 to 142 are concerned with the designation and review of Green Belt land. Thurrock Council have recently concluded a Green Belt review process. The outcomes of that process, as relevant to the application site, are discussed in this statement at paragraphs 3.45 to 3.61 below.
- 3.79 Paragraphs 143 to 147 set out national policy for the assessment of development proposals which affect the Green Belt. Paragraph 143 confirms that “*Inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.*” Paragraph 144 states that substantial weight should be given to any harm to the Green Belt. It then continues to set out that “*‘Very special circumstances’ will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.*”
- 3.80 Paragraph 145 explains that the construction of new buildings should be regarded as inappropriate development, with a few specific exceptions. Those exceptions are:
- a. buildings for agriculture and forestry;
  - b. the provision of appropriate facilities (in connection with the existing use of land or a change of use) for outdoor sport, outdoor recreation, cemeteries and burial grounds and allotments; as long as the facilities preserve the openness of the Green Belt and do not conflict with the purposes of including land within it;
  - c. the extension or alteration of a building provided that it does not result in disproportionate additions over and above the size of the original building;
  - d. the replacement of a building, provided the new building is in the same use and not materially larger than the one it replaces;
  - e. limited infilling in villages;
  - f. limited affordable housing for local community needs under policies set out in the development plan (including policies for rural exception sites); and

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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- g. limited infilling or the partial or complete redevelopment of previously developed land, whether redundant or in continuing use (excluding temporary buildings), which would:
  - i. not have a greater impact on the openness of the Green Belt than the existing development; or
  - ii. not cause substantial harm to the openness of the Green Belt, where the
  - iii. development would re-use previously developed land and contribute to meeting an identified affordable housing need within the area of the local planning authority.

3.81 The project does not fall into any of these 'exception' categories.

3.82 Paragraph 146 establishes that certain other forms of development are also excluded from constituting inappropriate development in the Green Belt providing that they preserve the openness of the Green Belt and do not conflict with the purposes of including land within it.

3.83 Those forms of development are: mineral extraction; engineering operations; local transport infrastructure which can demonstrate a requirement for a Green Belt location; the re-use of buildings provided that the buildings are of permanent and substantial construction; material changes in the use of land (such as changes of use for outdoor sport or recreation, or for cemeteries and burial grounds); and development brought forward under a Community Right to Build Order or Neighbourhood Development Order.

3.84 The project does benefit from some of these exceptions, in particular 'engineering operations'.

3.85 Paragraph 147 relates to renewable energy projects and confirms that many elements will comprise inappropriate development. However, this does identify that "*very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.*"

3.86 A number of elements of the proposed development fall within the definition of 'engineering operations'. The Applicant's position on what aspects of the project constitute inappropriate development in the Green Belt is set out in Section 5 of the Green Belt statement at Appendix 1.

### **Upgrading Our Energy System, Smart Systems and Flexibility Plan, Ofgem, 2017**

3.87 This plan, produced by Ofgem in July 2017, while not containing planning policy, is important as it tackles the importance of paving the way for a smart and flexible electrical system including supporting the ever increasing role of storage. It is a policy steppingstone with actions to forge the path towards facilitating smart systems of all kinds. For example, on page 10 of the document it states that:

*"One form of flexibility is storage. Until recently, there had been no new storage on the system since the pumped hydro facilities were built prior to privatisation. New storage is now being deployed, with over 550MW of battery capacity contracted in 2016 to come online by 2020. We have found that storage faces a number of specific regulatory and policy barriers that may place it at a disadvantage to other forms of flexibility."*

3.88 One of the initiatives born from this publication was the idea that consenting battery storage may be able to be simplified and in particular Government undertook a consultation exercise (still ongoing) to decide whether there was any merit in altering the thresholds which currently determine whether applications are dealt with by the DCO (Planning Act 2008) as opposed to the Town and Country Planning Act 1990 regime.

### Draft Thurrock Local Plan

- 3.89 The Thurrock Local Plan December 2018 is in draft form and has only reached the 'Issues and Options' stage. The plan contemplates many issues and changes in the normal way. On page 50 the plan contemplates changes to its Green Belt, not least to address new housing needs. On page 23 under comments from landowners, business and developers, it records the desire to '*allocate land for the development of new waste and renewable energy facilities which recognises Thurrock's strategic location and the current availability of sites for new development.*'
- 3.90 There is no clear timetable for moving the plan forward so to that extent, while there may be intent to alter Green Belt and to accommodate new energy infrastructure, both these factors remain largely unresolved at a local level.

### UK Clean Growth Strategy

- 3.91 The recently published 'Leading on Clean Growth' strategy (October 2019) describes how the Government's legally binding commitment to reach net zero greenhouse gas emissions in 2050 will require decarbonisation in the power sector, building on the actions already taken, and the deployment of negative emissions technology to offset emissions from those sectors that cannot be completely decarbonised. It is likely that electricity demand will grow significantly by 2050 as other sectors of the economy such as transport and heat are electrified, potentially nearly doubling (or more) from today's levels.
- 3.92 In order to meet this challenge, the Government's ambition is to grow low carbon sources, enable a smarter, more flexible system, and keep costs down for consumers by reducing wasted energy.
- 3.93 As the cost of renewable technologies continues to fall, it is becoming clear that they are likely to provide most of our low carbon generating capacity in 2050. However, the Government considers that there will still be a crucial role for low-carbon 'firm' (i.e. always available) power in 2050 to meet net zero while maintaining security of supply and keeping costs low.
- 3.94 The Strategy does not rule out gas power production but rather recognises that where appropriate, capturing the carbon produced by the process and to ensure such facilities are CCR is the key driving policy goal.

### Future Energy Scenarios, National Grid (NG), July 2019 (FES)

- 3.95 This publication sets out NG's ongoing vision. While not containing planning policy, it starts by saying that decarbonising energy is fundamental in the transition towards a sustainable future. NG's Future Energy Scenarios aim to stimulate debate to inform the decisions that will help move towards achieving carbon reduction targets and, ultimately, shape the energy system of the future.
- 3.96 The report concludes that reaching net zero carbon emissions by 2050 is achievable. However, this requires immediate action across all key technologies and policy areas.
- 3.97 The former 80 per cent decarbonisation target can be reached through multiple technology pathways, but net zero requires greater action across all solutions. Action on electrification, energy efficiency and carbon capture will all be needed at a significantly greater scale than assumed in any of the core scenarios.
- 3.98 In terms of what this means, the report states that:
- The electricity system will need to operate using only zero carbon generation and the power sector will need to deliver negative emissions (e.g. biomass with carbon capture use and storage (CCUS)).
  - The gas system will need to be transformed to accommodate hydrogen.
  - Gas appliance standards must require boilers to be "hydrogen-ready" in order to leverage replacement cycles.

### A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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- 3.99 While it should be acknowledged that the above report is not policy, it sets out a direction of travel and will be considered by Government in due course in terms of how current policy might change. As far as the applicant's proposals are concerned, again it meets current policy requirements and is ready to adopt CCS at an appropriate point in the future. The applicant's proposal is also being procured with the intent to be able to accept gas with a blend of hydrogen.

## 4 STATEMENT OF CASE

### Introduction

- 4.1 Thurrock Power proposes a bespoke combination of energy infrastructure (along with associated infrastructure) in a specific location and designed to serve a specific purpose. Because of that it straddles a number of NPSs but is compliant with them. The development proposal is not expressly catered for in any local plan allocation, partly due to the relatively recent emergence of battery storage technology becoming more widely acknowledged as a viable way of managing the nation's electricity supply (which was not envisaged in the 1997 Local Plan), and partly because the emerging plan for Thurrock, while supporting the principle of such development (in CSTP26), has not progressed to a stage where site-specific allocations have been made.
- 4.2 The proposed development has evolved following a lengthy period of analysis and consultation and particularly the applicant's first-hand experience of operating flexible battery and gas assets in the energy market.
- 4.3 The facility will be able to displace more costly and more polluting 'spinning reserve', i.e. coal plant (in the short term) and less efficient gas plant that are currently used to meet periods of system stress. The need to maintain gas plant 'spinning reserve' will grow in the absence of deployment of faster starting generators, as more intermittent renewables are deployed on the electricity network. For spinning reserve, National Grid contracts power stations to start up and run at less than full capacity, in order to be in a position to quickly respond to any shortfalls in generation – because it is quicker to ramp up generation from an already operating station than to 'start from cold'.
- 4.4 As well as making sure that there is adequate generation on the system National Grid also manages demand-side response (DSR), essentially paying high energy users to ramp down their usage at times of system stress. DSR plays a relatively small, though not insignificant role in management of the imbalance.
- 4.5 As more renewable energy generation is developed and relied upon by National Grid, much greater flexibility will be required.
- 4.6 This project provides a critical flexible service to this end. The high ramping rate provided by the gas reciprocating engines means that it can operate at full power within five minutes of receiving an instruction to start-up, and can power back down in less than 30 seconds if required to do so. This avoids the need to keep a conventional gas fired power station as spinning reserve with associated fuel consumption and emissions. With the proposed development, the electricity system can better match supply and demand, it does not require the overcommitment of generation and it avoids some of the higher costs and emissions currently associated with balancing the fluctuations in supply and demand.
- 4.7 While the development as a whole is not a renewable energy generating station (as solar or wind would be), it directly supports the increased growth in renewable energy generation, one of the key aims of the NPS EN-1 and the NPPF 2019. Under the NPPF the development is also considered to be low carbon. The definition on page 70 of low carbon technologies is *"those that can help reduce emissions (compared to conventional use of fossil fuels)"*. The applicant submits that on the basis that the proposed development is necessary to suppose the greater deployment of intermittent renewable generation and can meet peak power demands in a more efficient, lower-carbon way than conventional gas-fired power stations, it can be considered low carbon.

### The Principle of Development

- 4.8 Section 3 of this Statement shows clearly that relevant NPSs support the provision of the energy infrastructure being proposed by Thurrock Power (NPS EN-1, e.g. paras 3.1.1 to 3.2.3). There is a continuing role for gas and increased recognition of the vital role storage can play as the UK decarbonises its electricity production and moves towards a low carbon economy. There is no

national policy in the NPS's that discourages or prevent the private sector from bringing forward these technologies to market nor is there any limitation to the amount or quantum of such developments; on the contrary there is clear policy support for the type of infrastructure proposed. They perform an extremely important role in the UK's efforts of addressing climate change. At a local level too, in the most recent expression of planning policy, there is clear intent to allow new energy infrastructure in 'appropriate location' (Policy CSTP 26).

4.9 Having regard to the urgent need for additional energy infrastructure, both need and the presumption in favour of granting the proposed development has been established. The development accords in principle with relevant national policy. A favourable decision should therefore be forthcoming unless there are other specific, relevant policies within the NPSs which indicate that consent should be refused.

4.10 This section of the SoC therefore looks at the following matters.

- It explores the environmental acceptability of the development on a topic by topic basis by appraising the proposed development against relevant national planning policy relating to the generic impacts of energy NSIPs as set out within Section 5 of NPS-EN1.
- It then examines the development in the context of Green Belt.
- And it examines the development against other material considerations, including local plan policy.

### Environmental Acceptability

4.11 The following section advances the case in support of the proposed development in terms of the matters which are the main policy considerations in relation to the determining the proposed development, as follows:

- Ecology and Nature Conservation
- Landscape and Visual Impact
- Heritage Assets
- Hydrology and Flood Risk
- Ground Conditions and Hydrogeology
- Traffic and Transport
- Air Quality
- Noise
- Land Use and Agriculture, and Socio-Economics
- Combined Heat and Power
- Marine environment
- Human Health
- Climate Change

4.12 Although NPS EN-1 provide the primary basis of determining the applications, this section also provides out an appraisal of the proposed development against the relevant Marine and Development Plan policy to establish what regard should be had to these matters in the balance of considerations.

### Ecology and Nature Conservation

- 4.13 Section 5.3 of NPS EN-1 sets out the relevant national planning policy in respect of biodiversity. In particular, it sets out a hierarchical approach that confirms that development should aim to avoid significant harm to biodiversity interests through mitigation and the consideration of reasonable alternatives, but where significant harm cannot be avoided, appropriate compensations measures should be sought (paragraph 5.3.7).
- 4.14 In addition it requires appropriate weight to be attached to designated sites of international, national and local importance; and to protected species and habitats and other species of principal importance (paragraph 5.3.8). In this respect, it also confirms that that most important sites are those identified through international conventions and European Directives; and that the Habitat Regulations provide statutory protection for these sites, and that as a matter of policy this protection is extended to potential Special Protection Areas (pSPAs) and Ramsar Sites (paragraph 5.3.9).
- 4.15 It also requires SSSIs to be given a high degree of protection, especially those not of designated to be of international importance or not covered by such designations, and confirms that all National Nature Reserves are notified as SSSIs (paragraph 5.3.10). As such it sets out that where a proposed development is likely to have an adverse effect on a SSSI it should not normally be granted, and any such exceptions should only be allowed where the benefits of the development clearly outweigh the impacts on the SSSI and the broader impacts of the network of SSSIs (paragraph 5.3.11).
- 4.16 Sites of Regional and Local biodiversity interest should be given due consideration, however, these designations should not in themselves be used to refuse development consent (paragraph 5.3.13).
- 4.17 Development consent should be refused where there would be residual harm to habitats or species unless the benefits of the development outweigh that harm with substantial weight being given to harm to biodiversity features of national or regional importance in this context (paragraph 5.3.17).

### Applicant's Assessment

- 4.18 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 9 'Ecology and Nature Conservation' and the Habitats Regulations Assessment Report (application document A5.2) provide an assessment of the likely significant effects of the proposed development on ecological receptors including international, national, and local nature conservation designations and on protected species and other species identified as being of principal importance.
- 4.19 Information about the existing habitats and species has been gathered from the Essex Wildlife Trust Biological Records Centre, the Kent and Medway Biological Records Centre, and the Essex Field Club and a range of site-specific surveys carried out during 2017, 2018 and 2019.
- 4.20 The most pertinent sites identified nearby were Mucking Flats and Marshes Site of Special Scientific Interest, the Thames Estuary and Marshes Special Protection Area and Ramsar site as well as a number of Local Wildlife Sites.
- 4.21 The ES concludes that there are not likely to be any significant adverse effects on these sites. Accordingly, the proposed development complies with the policy of NPS EN-1 in respect to impacts on local nature conservations designations.
- 4.22 In terms of the protection of habitats and species, ES Chapter 9 assess the likely effects of the proposed development upon habitats, species and assemblages including arable farming land, former grazing marsh, grassland, ditch habitat, reptiles, breeding birds, invertebrates water voles and badgers. The permanent loss of grassland and ditch habitat on the main development site, and consequent impacts on invertebrates, reptiles and water voles, is predicted to have a moderate adverse effect that is considered significant.
- 4.23 However, design measures have been developed to mitigate this impact, including new habitat creation that will lead to net gain in grassland and no net loss to ditches. This will also allow for relocation of species and thus a provision that is considered to be a minor net ecological benefit.

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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- 4.24 The impacts of temporary disturbance to species and temporary habitat loss during construction are not considered to be significant.
- 4.25 ES Chapter 9 also considers the likely effects of the proposed development on habitats from changes to air quality and noise disturbance from its construction and operation. In summary, the ES concludes that noise disturbance during construction or operation of the proposed development and the impacts of air pollutant emissions on designated habitat sites are not predicted to be significant
- 4.26 In summary, the ES Chapter 9 does not identify any likely significant adverse effects on these protected habitats and species and as such, the proposed development complies with the policy of NPS EN-1.

### Landscape and Visual Resources

- 4.27 Section 5.9 of the NPS EN-1 sets out the national policy for Landscape and Visual effects. It sets out that the landscape and visual effects of energy projects will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development (paragraph 5.9.1). In this context it recognises that virtually all nationally significant energy infrastructure projects will have effects on the landscape (paragraph 5.9.8), and is likely to have visual effects (paragraph 5.9.18).
- 4.28 It sets out that national landscape designations, such as AONBs, have the highest status of protection in relation to landscape and scenic beauty, and that the conservation of natural beauty of the landscape and countryside in these areas should be given substantial weight in the determining applications in these areas (paragraph 5.9.9).
- 4.29 Outside of nationally designated areas, effects upon local landscape designations should not be used in themselves to refuse consent (paragraph 5.9.14). A judgement needs to be made as to whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits of the project including need (paragraph 5.9.15) and in reaching a judgment consideration should be given to whether the adverse impact is temporary and reversible within a reasonable timescale (paragraph 5.9.16). Consideration should also be given to minimising harm by including reasonable mitigation (paragraph 5.8.17).
- 4.30 In terms of visual effects, consideration has to be given as to whether visual effects outweigh the benefits of the project (paragraph 5.8.18).

### Applicant's Assessment

- 4.31 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 6 'Landscape and Visual Resources' provides an assessment of the likely significant effects of the proposed development on surrounding receptors with regard to visual intrusion and impact on landscape.
- 4.32 The character of the existing landscape is described in publications from Natural England and Thurrock Council, which divide the area into characteristic zones sharing similar features.
- 4.33 The application site lies mainly in the 'Greater Thames Estuary' National Character Area and the main development site is in the Thurrock character area 'Tilbury Marshes', which provides a similar description to the National Character Area. The application site is not within any designated landscape, the nearest being the Kent Downs AONB approximately 6 km to the south east.
- 4.34 The tallest part of the flexible generation plant (the 40m stacks) was used as a basis to work out the area from which the facility would be theoretically visible. Following consultation with Thurrock Council, Gravesham Borough Council and Essex County Council, locations that included footpaths, roads and residential areas were selected for viewpoints.
- 4.35 Notable locations south west of the proposed development include Tilbury Fort, Fort Rudge Road and the easternmost residential properties at Tilbury. From this direction views are curtailed by the

sewage treatment works and the woodland that surrounds it as well as the many pylons and overhead power lines meaning no significant adverse effect is predicted.

- 4.36 Views from north of the proposed development and north of the railway line are across arable farmland crossed by pylons and overhead powerlines towards Tilbury Substation, Tilbury2 port construction and beyond to higher land in north Kent. Most views of the Flexible Generation Plant will not be significant from this direction but there will be certain views from elevated positions and close views from the access land that will experience moderate adverse effects. However, these effects are not considered to be significant given the existing industrial landscape context.
- 4.37 Views west towards the flexible generation plant from Coalhouse Fort are limited and no significant effect is predicted due to distance and screening vegetation.
- 4.38 Views from the Thames Estuary Path, also known as Two First Way, are limited save for a short section due to higher elevation and lack of vegetation. The context of the view would remain that of the Tilbury Substation and extensive powerlines, therefore the moderate effect on the view from this direction is not considered significant.
- 4.39 From Gravesend and higher land in north Kent the development would be visible in some long views but as seen in the context of infrastructure such as the sewage treatment works and pylons, the adverse effect on views is not considered significant. Views of the causeway construction from the Saxon Shore Way would be moderately adversely affected, which is not significant.
- 4.40 Overall, significant adverse effects on landscape character and visual resources are not predicted to arise.
- 4.41 In summary, the ES Chapter 6 does not identify any likely significant adverse effects on landscape and as such, the proposed development complies with the policy of NPS EN-1.

### Heritage Assets

- 4.42 Section 5.8 of the NPS EN-1 indicates that the construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment.
- 4.43 Paragraph 5.8.11 sets out that the significance of heritage assets including non-designated assets that may be affected by development should be identified and assessed, including the contribution of the setting.
- 4.44 In considering the impact of a proposed development on any heritage assets the particular nature of the significance of the heritage assets should be taken into account (paragraph 5.8.13). The absence of designation for assets with archaeological interest does not indicate that they are of lower significance and they should be considered against the same policy considerations as designated assets.
- 4.45 It sets out that there should also be a presumption in favour of the conservation of designated heritage assets; the more significant the asset, the greater the presumption in favour of the assets should be. It is also clear that the significance of the designated assets can be harmed by development within its setting. Substantial harm to a grade II Listed building or park and gardens should be exceptional, whereas substantial harm to designated assets of the highest significance including Scheduled Monuments, registered battlefields, grade I and II\* listed buildings, grade I and II\* registered parks and gardens, and World Heritage Sites should be wholly exceptional (paragraph 5.8.14).
- 4.46 It is also clear that any harmful impact on the significance of a designated heritage asset should be weighed against the public benefit of the development, recognising that the greater the harm to the significance of the heritage assets the greater the justification will need to be, and where there would be substantial harm to the significance of the asset development consent should be refused unless it can be demonstrated that the substantial harm is necessary in order to deliver the benefits that outweigh the harm (paragraph 5.8.15).

4.47 In this respect, negative effects against the setting of a designated asset should weigh against the wider benefits of the application, with the greater the negative impacts on the significance of the designated assets the greater the benefits that will be needed to justify approval (paragraph 5.8.18).

### **Applicant's Assessment**

4.48 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 7 'Historic Environment', provides an assessment of the likely significant effects of the proposed development on heritage assets.

4.49 A substantial amount of information about the history of the area is available from the Essex Historic Environment Record, records held by Historic England, historical maps and other published sources.

4.50 There are no designated heritage assets within the application site and no World Heritage Sites, Registered Battlefields or Registered Parks and Gardens in the vicinity. There are six Scheduled Monuments at 1–3 km distance, all forts, blockhouses or anti-aircraft batteries, and one Scheduled Monument that is closer, comprising earthworks at the church in West Tilbury. There are designated Conservation Areas in West and East Tilbury and in a number of areas in Gravesend. Within 1 km of the main development site are four Grade II Listed Buildings and the Church of St James, in West Tilbury, which is Grade II\* listed.

4.51 Two avenues of potential impact due to the proposed development on the historic environment have been assessed: potential for construction work to disturb archaeological features and potential for the development to affect the setting of heritage assets.

4.52 A potential moderate to major adverse effect on buried archaeological remains, if present, is predicted prior to mitigation, which would be significant. In order to mitigate this effect, a written scheme of archaeological investigation for works in both the onshore and marine environment has been prepared. With the implementation of this mitigation, the residual effect would be minor adverse, which is not significant.

4.53 At the great majority of designated heritage assets, where the setting would be affected by the proposed development, negligible to minor effects are predicted which are not considered to be significant. Similarly, minor and non-significant effects are predicted for the historic landscape overall.

4.54 A minor to moderate adverse effect on Tilbury Fort is predicted, which is considered significant, at the lowest end of the scale. Considering the industrial landscape in the area, the changes to the setting of the fort due to the limited views of the proposed development are considered to be slight. However, the high sensitivity of the fort and the important contribution that its setting makes to its overall value are acknowledged in the prediction of a significant effect.

4.55 Moderate adverse effects on the setting of the West Tilbury Conservation Area are predicted, which are considered to be significant. Again, given the existing industrialisation of the conservation area's locale, only a slight reduction to the setting's contributions to the assets' importance is predicted. The significance of effect again acknowledges the medium to high sensitivity of this asset.

4.56 While potentially significant effects in EIA terms are predicted, in planning terms it is the opinion of the author of the heritage chapter, that the level of significance predicted does not transpose into 'substantial' harm in the terms of the NPPF 2019 (Paragraph 163 to 169). In the opinion of the heritage consultant all adverse effects on designated heritage assets identified in the ES chapter represent 'less than substantial' harm in terms of the NPPF 2019'. Paragraph 196 states that "*Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use.*"

4.57 In the case of the current proposal, the Applicant submits that the public benefits that arise from delivery of the development are sufficient to offset any harm to heritage assets.

### Flood Risk

- 4.58 Section 5.7 of NPS EN-1 sets out the relevant national policy in respect of Flood Risk. It recognises that although flooding cannot wholly be prevented, its adverse impacts can be avoided or reduced through good planning and management (paragraph 5.7.1). It therefore sets out that the aims of planning policy on development and flood risk are to ensure that flood risk from all sources of flooding is taken into account to avoid inappropriate development in areas at risk of flooding, and to direct development away from, areas at highest risk, but where new energy infrastructure is, exceptionally, necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere, and where possible reducing flood risk overall (paragraph 5.7.3).
- 4.59 In this respect, the SoS should be satisfied, amongst other things, that the application is supported by a Flood Risk Assessment, and that the Sequential Test has been applied as part of site selection (paragraphs 5.7.9). As such, the SoS should not consent development in Flood Zone 2 or Zone 3 unless it is satisfied that the sequential test requirements have been met (paragraph 5.7.12). This requires the demonstration that there are no reasonably available sites in Flood Zone 1, or if relevant Flood Zone 2 (paragraph 5.7.13).
- 4.60 In addition, the site layout and surface water drainage systems should to cope with events that exceed the design capacity of the system, so that water can be safely stored on or conveyed for the site without adverse impacts (paragraph 5.7.20).

### Applicant's Assessment

- 4.61 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 15 'Hydrology and Flood Risk', provides an assessment of the likely significant effects of the proposed development on flood risk and drainage.
- 4.62 The Environment Agency publishes flood risk maps for tidal and river flooding and further detailed information is available from flood modelling for the Thurrock Strategic Flood Risk Assessment and the Environment Agency's TE2100 management plan for the Thames Estuary. Information concerning the baseline status of watercourses has been gathered from the Environment Agency's catchment data, which is produced to meet the requirements of the Water Framework Directive.
- 4.63 The majority of the proposed development is located in EA Flood Zones 2 and 3a, which indicates medium to high risk of flooding. However, The Thames has substantial tidal flooding defences that provide a standard of protection designed to defend flood events with a 1 in 1,000 year return period, therefore, baseline flood risk for the proposed development is considered to be low. Modelling of a worst case scenario in which flood defences fail has been reviewed; subsequently the development has been designed to incorporate flood resilience measures to ensure critical assets are given appropriate protection. No significant adverse effects due to flooding are expected.
- 4.64 Potential increase in flood risk due to increased runoff from the impermeable surfaces of the proposed development has been assessed taking into account a 40% climate change allowance for potential increased rainfall rates in future. Drainage for the development has been designed in a manner that incorporates the necessary runoff attenuation and storage, as recommended by the Flood Risk Assessment, to ensure to increase in flood risk is imposed on off-site receptors. No significant adverse effect on flood risk is therefore predicted.
- 4.65 As the gas pipeline route and construction access roads cross existing watercourses and drains there is potential to affect the flow characteristic or cause sediment release. Watercourse crossings will be designed in accordance with the Environmental Permitting Regulations 2016 and Drainage Board Byelaws and accord with pollution prevention measures outlined in the Code of Construction Practice (application document A8.6). No significant effect on watercourses or Water Framework Directive status (where applicable) is therefore predicted.

- 4.66 During operation, any potentially polluting materials will be stored in accordance with the Environmental Permit and regulatory requirements, including secondary containment to capture and leaks. No significant adverse effects on surface water contamination from runoff are predicted.
- 4.67 In summary, the ES Chapter 15 does not identify any likely significant adverse effects on flood risk and drainage and as such, the proposed development complies with the policy of NPS EN-1.

### **Geology, Hydrogeology and Ground Conditions**

- 4.68 There are currently no environmental references to 'Geology, Hydrogeology and Ground Conditions' in relevant ES policy notes in the NPS. Nevertheless, the applicant's assessment of the effects is set out below.
- 4.69 ES Chapter 16 'Geology, Hydrogeology and Ground Conditions', provides an assessment of the likely significant effects of the proposed development on the condition of the ground and the underlying geology and hydrogeology of the surrounding area.
- 4.70 Baseline information about the condition of the ground and the underlying geology and hydrogeology (groundwater) is available from British Geological Survey mapping, Environment Agency data and pollution records, and the history of land-uses in the local area which give a guide to potential sources of contamination. In addition, a walkover survey to observe any above-ground signs or sources of contamination (such as waste or chemical storage, or signs of contamination in watercourses or the ground surface) was undertaken in 2018.
- 4.71 The main development site has historically been in agricultural use and is not considered likely to be an existing source of any ground contaminants of concern. Aside from fly-tipping of waste on Parsonage Common, no visual evidence of existing contamination was found in the site walkover survey. There are possible sources of contamination in the wider area, including Tilbury Power Station and substation, various historic landfills and a former brickworks in the Low Street area. However, these would not be directly affected by construction work required for the proposed development.
- 4.72 The potential for construction work including excavation and piling to mobilise any existing contamination and impact on human health, groundwater or surface waters is considered to be low and no significant adverse effect is predicted.

### **Traffic and Transport**

- 4.73 The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in Section 2.2 of NPS EN-1 (paragraph 5.13.2).
- 4.74 A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the SoS should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the SoS should consider further requirements to mitigate adverse impacts on transport networks arising from the development. Applicants may also be willing to enter into planning obligations for funding infrastructure and otherwise mitigating adverse impacts (paragraph 5.13.6).
- 4.75 It also confirms that water borne or rail transport is preferred over road transport at all stages of the project where it is cost effective (paragraph 5.13.8).

### **Applicant's Assessment**

- 4.76 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 10 'Traffic and Transport' provides an assessment of the likely significant effects of the proposed development on traffic and transport during construction and operation phases.

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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- 4.77 Information about traffic flows on the public road network, records of accidents, existing sustainable travel options and the status of existing road links (such as weight restrictions and any existing delay or capacity issues) has been gathered from published data and via consultation with Highways England and the local Highways Authority, Thurrock Council.
- 4.78 During construction, the proposed development is estimated to require on average 40 heavy goods vehicles (HGVs) per day (80 two-way trips) or a peak of 160 two-way HGV trips per day. On average 250 construction staff, peaking at 350, are expected to be required. Use of coaches and minibuses is proposed for construction staff. This would equate to around 70 daily car movements 36 minibus and four coach movements for the peak construction workforce.
- 4.79 The applicant has carefully considered and consulted on a number of options for construction traffic access, in particular access to deliver large abnormal indivisible loads. The proposed option makes use of the new access being constructed for Tilbury2 (with a direct connection to the strategic highway network), includes a causeway for delivery by barge of abnormal loads (avoiding disruption and traffic impacts on the road network) and provides for construction traffic management and sustainable workforce travel measures set out in the Construction Traffic Management Plan and Construction Worker Travel Plan (application documents A8.8 and A8.9).
- 4.80 During operation, traffic generation would be very minor as the flexible generation plant would require a workforce of four to six full-time equivalent staff on site in normal operation, or up to 20 additional workers during annual maintenance periods.
- 4.81 The average and peak traffic generated during construction would be below the threshold in transport assessment guidance at which any significant effects are likely for the majority of sections of road assessed. Overall, no significant adverse effects due to construction traffic are predicted.
- 4.82 No significant effect is predicted due to the small and irregular amount of traffic generated during operation, primarily for periodic maintenance visits.
- 4.83 In summary, the ES Chapter 10 does not identify any likely significant adverse effects on traffic and transport and as such, the proposed development complies with the policy of NPS EN-1.

### Air Quality

- 4.84 Section 5.2 of NPS EN-1 recognises that large scale energy infrastructure development can have adverse effects on air quality, and the construction, operation and decommissioning phases can involve emissions to air which could lead, amongst other things, to adverse impacts on health (paragraph 5.2.1); and that emissions from combustion plants are usually released through exhaust stacks the height of which is optimised through negotiations with the EA in relation to the impact on Air Quality (paragraph 5.2.4).
- 4.85 The SoS should generally give air quality considerations substantial weight where a project would lead to a deterioration in air quality in an area, or leads to a new area where air quality breaches any national air quality limits. However, air quality considerations will also be important where substantial changes in air quality levels are expected, even if this does not lead to any breaches of national air quality limits (paragraph 5.2.9).
- 4.86 In all cases the SoS must take account of any relevant statutory air quality limits; where a project is likely to lead to a breach of such limits the developers should work with the relevant authorities to secure appropriate mitigation measures to allow the proposal to proceed. However, in the event that a project will lead to non-compliance with a statutory limit, the SoS should refuse consent (paragraph 5.2.10).

### Applicant's Assessment

- 4.87 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 12 'Air Quality' provides an assessment of the likely significant effects of the proposed development on air quality.

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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- 4.88 Information about current air quality in Thurrock and Gravesham has been gathered from routine monitoring published by the local councils plus additional monitoring from December 2017 to June 2018 at five locations around the development site.
- 4.89 The results of this project-specific monitoring show that background concentrations of nitrogen dioxide in the area around the development site are within the relevant health-based air quality objectives.
- 4.90 Potential dust during construction would be controlled by measures in the Code of Construction Practice (application document A8.6) and no significant adverse effect is predicted.
- 4.91 Air pollutant emissions from construction vehicles on the road network have been modelled and no significant adverse effects on air quality are predicted. The flexible generation plant would have no significant traffic in operation.
- 4.92 The main air pollutant emitted by the flexible generation plant in operation would be nitrogen dioxide from the gas engine exhausts. The gas engines would comply with the emission limit for nitrogen dioxide set by the Industrial Emissions Directive. Dispersion modelling has been used to design a suitable exhaust stack height of 40 metres for dispersion of pollutants to avoid exceeding air quality standards at sensitive receptor locations.
- 4.93 No significant adverse effect is predicted at the majority of sensitive receptor locations that were modelled. For long-term average nitrogen dioxide concentrations, moderate adverse effects were predicted at locations on West Street and at Walnut Tree Farm. For short-term average nitrogen dioxide concentrations, moderate adverse effects were predicted at nine existing receptors. However, the total nitrogen dioxide concentration is predicted to remain within the relevant air quality objectives at all but one modelled receptor. At West Street, the annual-mean nitrogen concentration is predicted to exceed the air quality objective with or without the development in the opening year of 2022.
- 4.94 The primary reason for non-compliance at West St is traffic emissions and as such exceedances of the air quality objective are predicted only close to the façade of properties immediately adjacent to the road at this location. Thurrock Flexible Generation Plant does not delay or prevent compliance with the annual mean objective for nitrogen dioxide, which is predicted to be achieved at West Street between 2025 and 2030.
- 4.95 These predictions are based on the worst-case scenario with up to 48 individual exhaust stacks and emissions at the Industrial Emissions Directive limit. Thurrock Power plans to use selective catalytic reduction to treat the exhaust gas and reduce nitrogen dioxide emissions and resulting concentrations.
- 4.96 The potential for nitrogen deposition, acid deposition and concentration of nitrogen oxides to affect sensitive ecological habitats has also been assessed. No significant air quality effects on designated habitats are expected to arise due to the proposed development.
- 4.97 In summary, the ES Chapter 12 does not identify any likely significant adverse effects on air quality and as such, the proposed development complies with the policy of NPS EN-1.

### Noise and Vibration

- 4.98 Section 5.11 of NPS EN-1 recognises that excessive noise can have wide ranging impacts on the quality of human life, health, and the use and enjoyment of areas of values such a quiet places and areas high quality landscape (paragraph 5.11.1).
- 4.99 NPS EN-1 outlines the factors that will determine the likely noise impact include, *inter alia*, the inherent operational noise from the proposed development and its characteristics and the proximity of the proposed development to noise sensitive receptors (paragraph 5.11.3).
- 4.100 It therefore advocates that projects should demonstrate good design through the selection of the quietest cost-effective plant; containment of noise within buildings wherever possible, optimisation

of plant layout and where possible landscaping, bunds or noise barriers to reduce noise transmission (paragraph 5.11.8).

- 4.101 It sets out that the SoS should not grant development consent, unless proposals avoid significant adverse impacts from noise on health and quality of life noise, mitigate and minimise other adverse impacts from noise, and where possible contribute improvements to, health and quality of life through the effective management and control of noise (paragraphs 5.11.9).

### **Applicant's Assessment**

- 4.102 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 11 'Noise and Vibration' provides an assessment of the likely significant effects of the proposed development on any receptors sensitive to noise and vibration through the operation of the plant or construction traffic
- 4.103 Baseline noise levels were monitored in February 2018 at seven locations that are representative of the nearest noise-sensitive receptors around the proposed development. Noise levels were measured for a week (including weekend days) and in addition, attended surveys were carried out during shorter periods in the day, evening and night-time to describe the types of sound that could be heard.
- 4.104 Noise experienced at sensitive human and ecological receptors from construction, including general construction plant use, piling, horizontal drilling and traffic on access roads would be temporary and are not predicted to cause significant effects. Accordance with the Code of Construction Practice (application document A8.6) will mean best practicable means will be taken to minimise noise. Due to the distance to residences, no effects from vibration during construction are predicted.
- 4.105 During operation the main source of noise from the flexible generation plant would be the gas engines, their cooling fans and their exhausts. Other sources including the batteries' cooling system, metering equipment and substation components have also been assessed. Designed-in mitigation measures for operational plant have been developed to reduce noise levels as far as practicably possible.
- 4.106 A moderate adverse effect at the most-affected residential receptors in the vicinity of Buckland is predicted during operation. Negligible or minor effects are predicted at all other sensitive receptors. Taking both the change in noise levels and the absolute sound levels during the day and night into consideration, it is considered that sound from the facility will not result in any adverse impacts on the quality of life of residents, and the noise effects will not be significant in operation.
- 4.107 The flexible generation plant would have no significant traffic in operation and no significant adverse effect due to traffic-related noise.
- 4.108 In summary, the ES Chapter 11 does not identify any likely significant adverse effects on receptors sensitive to noise and vibrations and as such, the proposed development complies with the policy of NPS EN-1.

### **Land Use, Agriculture, and Socio-Economics**

- 4.109 Section 5.10 of EN-1 identifies that energy infrastructure projects will have direct effects on the existing use of land (paragraph 5.10.1), and in this respect the Government's policy is to ensure that there is adequate provision of high quality open space and sports and recreation facilities to meet the needs of local communities (paragraph 5.10.2).
- 4.110 It also sets out that where existing open space, sports and recreational land would be lost that is not shown to be surplus to requirements, development consent should not be granted unless the benefits of the project outweigh the potential loss (paragraph 5.10.14).
- 4.111 Section 5.12 of the NPS-EN1 outlines that the construction, operation and decommissioning of energy infrastructure may have socio-economic impacts at local and regional levels. Where this is

likely the applicant should undertake and include in their application an assessment of these impacts as part of the Environmental Statement.

- 4.112 Paragraph 5.12.6 sets out that the regard should be had to the potential socio-economic impacts of new energy infrastructure that are considered both relevant and important to the decision.

### **Applicant's Assessment**

- 4.113 In accordance with the requirements of NPS EN-1, ES Volume 3, Chapter 8 'Land use, Agriculture and Socio-Economics' provides an assessment of the likely significant effects of the proposed development on surrounding agricultural, recreational and common land.
- 4.114 The potential impacts of the proposed development on agricultural land use, common land, recreational resources (such as footpaths) and the socio-economic impacts of job creation have been studied. Baseline information has been gathered from published agricultural land and soil data, the Register of Common Land and Village Greens, rights of way maps and labour market statistics. Surveys of soil characteristics, agricultural land and the rights of way have also been undertaken.
- 4.115 The majority of land affected by the proposed development forms part of a single large arable-based family farm holding. The majority of land permanently affected comprises lower quality agricultural land, but around 1.15 ha of higher quality 'best and most versatile' agricultural land would be likely to be permanently affected. The loss of agricultural land and the impact on farm holdings are considered to be negligible to minor adverse effects, which are not significant.
- 4.116 No existing Public Rights of Way cross the main development site. 'Footpath 200' crosses the gas pipeline route, therefore temporary diversion of this footpath during construction may be required on a route agreed by Thurrock Council. The Thames Estuary path and cycle path would be crossed by vehicles during construction and use of the causeway. This would be intermittent, for short durations and managed by a banksman. No significant effects on public rights of way are predicted.
- 4.117 During construction approximately 10.1 ha of common land (Walton Common) would be permanently lost. The application includes the provision of circa 11.5 ha of replacement common land, which will be contiguous with and more easily accessible from the existing Parsonage Common, without having to cross the railway (as at present for access into Walton Common). A minor beneficial effect on common and access land is therefore predicted.
- 4.118 During construction the employment generated and additional 'multiplier effect' to the local economy is considered to have a minor beneficial local socio-economic effect. Considering the mobility of the construction workforce in the region, it is not predicted that there would be any significant adverse impact on the resident population of the study area. During operation, only a very small workforce would be required, therefore no significant socio-economic effect is predicted.
- 4.119 In summary, the ES Chapter 8 does not identify any likely significant adverse effects on land use, agriculture or socio-economics and as such, the proposed development complies with the policy of NPS EN-1.

### **Combined Heat and Power**

- 4.120 NPS EN-1 explains that the utilisation of useful heat that displaces conventional from fossil fuels sources is to be encouraged where, as will often be the case, it is more efficient than alternative electricity/heat generation, and as such, to encourage proper consideration of CHP substantial additional positive weight should be given to proposals, such as that proposed, that incorporate CHP.
- 4.121 The applicant has studied the potential technological and financial feasibility of CHP as described in the CHP Report (application document A7.5). Due to the nature of the proposed development's gas engines as a peaking generation facility with intermittent operation (which may be for short periods and with little notice) it is inherently unsuited to providing reliable heat to heat customers. In

addition, unlike a conventional combined cycle gas turbine power station, the proposed development would not generate steam and does not therefore have a 'high grade' waste steam heat stream.

- 4.122 In addition, although there are potential heat loads within a viable district heating network distance (such as Tilbury, and potentially businesses on and around Tilbury Port), the presence of intervening infrastructure such as the railway line and new Tilbury2 aggregates terminal would make construction of a heat network logistically difficult and have high costs.
- 4.123 CHP is therefore not proposed for the facility as both the technology is inherently unsuited and location factors also mitigate against district heating. However, the development is proposed to include an exhaust gas energy recovery system for additional electricity generation, maximising its generation efficiency and making good use of available low-grade exhaust heat.

### Marine Environment

- 4.124 Section 104 of the Planning Act 2008 provides that the SoS must have regard to (any relevant) marine policy documents in determining applications for development consent.

### Applicant's Assessment

- 4.125 The ES Volume 3, Chapter 17 'Marine Environment' provides an assessment of the likely significant effects of the proposed development on the Thames Estuary. This chapter has had regard to UK Government's Marine Policy Statement 2011. The Marine Plan for the South East is in draft form only and has yet to take effect.
- 4.126 Due to the proximity of the proposed development's causeway to the Tilbury2 project and the formerly proposed Tilbury Energy Centre, substantial baseline data concerning the marine ecological and hydrological environment is available from these projects and has been drawn from in the assessment, together with published information from the Port of London Authority, Cefas and the Thames Marine Mammal Sighting Survey.
- 4.127 A further intertidal survey has been undertaken in 2019 at the causeway location, which included surveying habitats, benthic ecology (organisms living on the estuary bed) and sampling of sediment for physical and chemical analysis.
- 4.128 The area to be dredged for the vessel berthing pocket is very small in the context of the intertidal mudflat habitats present across the marine ecology study area, and the loss of inter-tidal habitat will be temporary and reversible, so no significant effect is predicted.
- 4.129 This dredging as well as dredging for causeway construction will result in sediment mobilisation. Assessment of sediment plume modelling has been used to conclude that a small volume of sediment will be mobilised. The generally low levels of contaminants present in sediments and the high dilution potential of the Thames Estuary mean no significant effects are predicted.
- 4.130 The Thames Estuary is already a busy working river, with nearby ports and heavy vessel traffic; in this context the short-term impacts of causeway construction and barge traffic on fish or marine mammal species will be negligible and have no significant effect.
- 4.131 Use of hydrodynamic modelling to assess effects of the causeway and barges on flow conditions and estuary bed sediment concluded that noticeable changes to flow conditions would be limited to close proximity of the causeway itself, thus no significant effect is predicted.
- 4.132 Overall, it is considered that the effects of the causeway on the marine environment during construction and operation will be insignificant and most likely unmeasurable within the natural variability of the Thames Estuary. The only exception is the loss of saltmarsh and intertidal mudflat habitats beneath the footprint of the causeway. This would result in irreversible effects that are considered significant at local level. However, it is predicted that accretion of muddy sediments in the lee of the causeway has the potential to result in the expansion of saltmarsh habitats beyond the current extent. This accretion, coupled with enhancement measures such as deposition of

dredged sediment in the lee of the causeway means that in the long term, losses will be offset through creation of new saltmarsh habitat, with a neutral or long-term minor beneficial effect predicted.

- 4.133 In summary, the ES Chapter 17 does not identify any likely significant long-term adverse effects on and as such, the proposed development complies with the policy of NPS EN-1.

### Human Health

- 4.134 There are currently no environmental references to 'Human Health' in relevant ES policy notes in the NPS. Nevertheless, the applicant's assessment of the effects is set out below.
- 4.135 The ES Chapter 13 'Human Health' provides an assessment of the likely significant effects of the proposed development on people's physical, mental and social wellbeing.
- 4.136 Baseline information on existing health and the socio-economic factors influencing it for communities in the area of the proposed development has been gathered from NHS statistics, health profiles published by Public Health England and the Joint Strategic Needs Assessment developed by local public health teams.
- 4.137 The health assessment has considered environmental and social pathways through which the proposed development has the potential to influence health. These include air pollution and noise, traffic levels which can affect road safety, impact on footpaths, common land and landscape amenity which affect recreation and exercise and the impact of generated employment.
- 4.138 Change in exposure to air pollution at sensitive locations including residential areas, schools and healthcare facilities would be minor and not of a level to result in measurable changes in health outcomes, therefore no significant adverse effect on health are predicted. With appropriate mitigation, noise during construction and operation is not predicted to lead to annoyance or sleep disturbance that could cause a significant adverse health effect.
- 4.139 Construction traffic flows would not be significant compared to existing road traffic and access routes have been designed for use of the trunk road network where possible. No significant adverse effect on health due to road safety or creation of barriers to pedestrians or cyclists is predicted.
- 4.140 Construction employment generation is estimated to average 250 full-time equivalent jobs. This has the potential for a beneficial effect on health on an individual level.
- 4.141 The exchange Common Land provided would maintain this resource for public access, with a slight improvement to accessibility as crossing the railway is no longer required. Therefore, no adverse effect on health and wellbeing due to changes in green space available for exercise and recreation is predicted.

### Climate Change

- 4.142 There are currently no environmental references to 'Climate Change' in relevant ES policy notes in the NPS. Nevertheless, the applicant's assessment of the effects is set out below.
- 4.143 The ES Volume 3, Chapter 14 'Climate Change' provides an assessment of the likely significant effects of the proposed development in relation to climate change, including the effects the development will have on the climate through greenhouse gas emissions as well as the potential risks that climate change may pose to the development.
- 4.144 Climate change risks were evaluated at the EIA scoping stage and the main risk was considered to be flooding, which is described in the hydrology and flood risk summary. Other risks are not considered to be significant to the proposed development.
- 4.145 The emission of greenhouse gases due to burning natural gas fuel in the gas engines has been calculated based on their maximum annual running hours. The estimated greenhouse gas emissions due to the supply chain for extracting and delivering the gas have also been taken into account.

- 4.146 Total emissions over the flexible generation plant's 35 year design operating lifetime are predicted to be approximately 46 million tonnes of carbon dioxide equivalent. However, building and operating the flexible generation plant would avoid the need for an equivalent amount of peaking electricity generation capacity to be provided by different existing or new power generators. The battery storage aspect of the development can also play a role in enabling greater use of low-carbon renewable generation.
- 4.147 Considering avoided emissions, the net predicted effect of the flexible generation plant is a reduction in greenhouse gas emissions of between -13 and -17 million tonnes of carbon dioxide equivalent. This is a beneficial effect in comparison to the business-as-usual future baseline scenario, absent the development.
- 4.148 Greenhouse gas emissions from construction and materials used are estimated to be very minor compared to the operational impacts, at less than 1% of the total, and are not considered to be significant.

### The Green Belt

- 4.149 Attached to this Statement at Appendix 1 is a detailed report on the impact of the development upon Green Belt policy. The site is located in the Green Belt and the development being proposed is by definition inappropriate in the context of established policy. The test must therefore be that if it is to be allowed, is the harm caused by inappropriateness offset to a sufficient degree by very special circumstances to allow an exception to be made in this case.
- 4.150 Paragraph 143 of the NPPF 2019 confirms that inappropriate development is by definition harmful to the Green Belt and should only be approved in very special circumstances.
- 4.151 In accordance with paragraph 144 of the NPPF 2019, substantial weight will be given to any harm to the Green Belt in the determination of planning applications. It is also agreed that, in accordance with paragraph 144 of the NPPF 2019: *"Very Special Circumstances will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations"*.
- 4.152 Paragraph 145 of the NPPF 2019 confirms that local planning authorities should regard the construction of new buildings as inappropriate in the Green Belt, subject to seven specific exceptions.
- 4.153 The proposals do not sit within any of those seven exceptions. Therefore, all buildings proposed by the Applicant constitute inappropriate development.
- 4.154 Paragraph 146 of the NPPF 2019 goes on to confirm six forms of development that are also not inappropriate in the Green Belt, provided they preserve its openness and do not conflict with the purposes of including land within it (as set out by paragraph 134 of the NPPF 2019).
- 4.155 Of those six forms of development, there are parts of the project that would constitute *'b: engineering operations' and 'e: material changes in the use of land (such as changes of use for outdoor sport or recreation, or for cemeteries and burial grounds)'*. These would not be inappropriate development.
- 4.156 Paragraph 5.10.12 of NPS EN-1 confirms that applicants *"may be able to demonstrate that a particular type of energy infrastructure, such as an underground pipeline, which, in Green Belt policy terms, may be considered as an "engineering operation" rather than a building is not in the circumstances of the application inappropriate development. It may also be possible for an applicant to show that the physical characteristics of a proposed overhead line development or wind farm are such that it has no adverse effects which conflict with the fundamental purposes of Green Belt designation"*.
- 4.157 Paragraph 5.10.17 of NPS EN-1 goes on to confirm that the IPC [sic] *"will attach substantial weight to the harm to the Green Belt when considering any application for such development while taking into account, in relation to renewable energy and linear infrastructure, of the extent to which its*

*physical characteristics are such that it has limited or no impact on the fundamental purposes of Green Belt designation”.*

### Green Belt Harm

- 4.158 The NPPF 2019 sets out the Government’s position with regard to Green Belt, Green Belt policy, and proposals affecting the Green belt. Paragraph 133 of the NPPF 2019 states that: “*The Government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open: the essential characteristics of Green Belts are their openness and their permanence*”.

### Openness

- 4.159 There is no definition of ‘openness’ in the NPPF 2019, nor anywhere else in statute or policy relevant to this application. For the purposes of this statement RPS relies on a common definition for ‘Green Belt openness’, that it relates to the freedom from, or absence of, development. This relates to the effect of the proposed development on the Green Belt as a whole, and each of the five Green Belt purposes seeks to preserve its openness.
- 4.160 It is important to consider the contribution the site has at present to the openness of the Green Belt. It is proposed that only the above ground elements of the project would be considered to be inappropriate development in the Green Belt. These elements are very limited and set out in detail in Appendix 1.
- 4.161 Although the amount of Green Belt land affected as a proportion of the Borough’s total amount of Green Belt land is not in itself a measure of acceptability, it is useful to consider the context of this in terms of the removal of a relatively small amount of Green Belt land, at the periphery of current Green Belt boundaries.
- 4.162 The main development site is positioned immediately adjacent to the existing Tilbury Substation, which sits outside the Green Belt. The substation comprises 9ha of land containing the many electrical components of the substation, including overhead lines and towers. In this context it is maintained that the perceived level of contribution to the openness of Green Belt made by the application site is limited in this location.
- 4.163 In examining the impact of the proposed development in Green Belt terms, it is also necessary to assess the role that the site performs in terms of Green Belt functions. The five purposes of the Green Belt are set out in paragraph 134 of the NPPF 2019. This again is set out in detail in Appendix 1 of this report.
- 4.164 The project would lead to an encroachment of development onto a site within the Green Belt, and would conflict with 1 of the 5 Green Belt purposes, and substantial weight will be given to any harm caused. Very special circumstances would need to be demonstrated, that clearly outweigh the harm caused.
- 4.165 The project would not conflict with the other 4 Green Belt purposes.

### Any Other Harm

- 4.166 The ES contains a full assessment of effects associated with the project and Chapter 33 of the ES identifies the significant residual effects. These are as follows.
- A long-term significant beneficial effect on grassland habitat due to the provision of habitat creation exceeding that lost.
  - A temporary significant adverse effect on saltmarsh habitat, but minor beneficial (not significant) in the long term as replacement habitat establishes.

- A significant beneficial effect on climate change due to a reduction in net greenhouse gas emissions compared to electricity generation without the proposed development.
- Long-term significant adverse effects on the settings of heritage assets Tilbury Fort and the West Tilbury Conservation Area, albeit in the opinion of the heritage consultant all adverse effects on designated heritage assets identified in the ES chapter represent 'less than substantial' harm in terms of the NPPF 2019.

4.167 With implementation of the mitigation measures embedded in the project design or secured via the submitted management plans and requirements in Schedule 2 of the draft DCO, no other significant residual environmental effects have been predicted.

### Very Special Circumstances

4.168 Chapter 13 of the NPPF 2019 is titled "Protecting Green Belt Land". This chapter sets out the criteria that development in the Green Belt must meet. Paragraph 147 states that:

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

4.169 Paragraph 144 of the NPPF 2019 states that:

*"When considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations".*

4.170 Neither the NPPF 2019, NPS EN-1 nor the adopted Thurrock Core Strategy provide guidance on what can comprise 'very special circumstances'. The demonstration of very special circumstances inevitably requires the use of professional judgement to conclude whether very special circumstances exist, and the weight that should be attached to them, and whether that weight is sufficient to outweigh the accepted harm to the Green Belt.

4.171 Some interpretation has been provided through the Courts. The rarity or uniqueness of a factor can make it very special, but it has also been held that the aggregation of commonplace factors could also combine to create very special circumstances.

4.172 The Applicant considers there to be five sets of very special circumstances that are unique to the project. These are:

- Very special circumstance 1 – supporting the growth of renewable energy;
- Very special circumstance 2 – addressing a critical and urgent need for on-demand power generation, contributing to energy security and network resilience;
- Very special circumstance 3 – the role of the application site in the Green Belt;
- Very special circumstance 4 – proximity to high pressure gas and 275kV electricity network connections, site suitability and alternatives; and,
- Very special circumstance 5 – improvement of access to common land.

4.173 The demonstration of very special circumstances will involve a specific judgement being made that the development is necessary with no other options available, in light of the unique circumstances and the individual case. Essentially the process to identify whether the project is acceptable in Green Belt terms is to firstly weigh the overall harm on the Green Belt caused by the proposals (in a number of ways but including the consideration of the impact of the development on the openness and purposes and objectives of the Green Belt). Following that analysis it is then necessary to balance

the harm against the other countervailing considerations and to judge whether these clearly outweigh the harm to the Green Belt (and any other harm) so as to represent the very special circumstances necessary to enable the presumption against inappropriate development to be set aside.

- 4.174 The Green Belt balance requires an assessment of whether the acknowledged substantial weight attached to Green Belt harm by reason of inappropriateness and any other harm would be clearly outweighed by other considerations to amount to the very special circumstances required to justify the proposal.
- 4.175 The Applicant has weighed up the level of harm associated with the project's impacts on the Green Belt. This is formed around a test against the five purposes set out within Paragraph 134 of the NPPF 2019. The project would not conflict with four of the five Green Belt purposes. It would however lead to new development in the countryside, so would conflict with Green Belt purpose: 'e) *to assist in the safeguarding of the countryside from encroachment*'. The proposals would affect the essential characteristics of the Green Belt, its openness and permanence.
- 4.176 In accordance with paragraph 144 of the NPPF 2019 substantial weight is given to that harm, and very special circumstances will need to be demonstrated.
- 4.177 Paragraph 5.10.12 of NPS-EN1 clarifies that applicants may be able to demonstrate that some elements of energy infrastructure may be considered as engineering operations, and not buildings, and in turn, those elements are not inappropriate development in the Green Belt. This is applicable in this case.
- 4.178 The above ground development proposed in Work No. 1 (the main development site), Work No. 8 (an area for temporary construction laydown), Work No. 5 (the above ground installation for the gas connection) and Work No. 13 (the footbridge) would constitute inappropriate development in the Green Belt. They are tantamount to the construction of new buildings in the Green Belt, and the development proposed in these locations does not fall within any of the exceptions listed under paragraphs 145 and 146 of the NPPF 2019. Harm would therefore be caused to the Green Belt. Again, in accordance with paragraph 144 of the NPPF 2019, substantial weight is given to that harm, and very special circumstances will need to be demonstrated.
- 4.179 The rest of the proposal includes a causeway, new access roads and improvements to existing roads, buried electricity cables, and buried gas pipeline, some of which are partly or wholly within the Green Belt. These elements fall within the definition of 'engineering operations' and, therefore, in accordance with paragraph 146 of the NPPF 2019, are capable of not being inappropriate development in the Green Belt, provided that "*they preserve its openness and do not conflict with the purposes of including land within it*". These elements will all be either completely buried, in the case of electricity cables and gas pipelines, or low lying, in the case of the causeway and access roads. They would have no impact on the openness of the Green Belt. There would be no conflict with the remaining relevant Green Belt purpose because there would be no visual encroachment onto the countryside.

### **Conclusion on harm and very special circumstances**

- 4.180 NPS EN-1 and the NPPF 2019 state that inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.
- 4.181 This assessment confirms that while the proposals would impact on the Green Belts openness, the site's position in an industrialised landscape on the edge of the Green Belt means that harm would be slight/negligible. The harm is not so severe as to preclude the identification of very special circumstances, and it is concluded that the very special circumstances that have been presented are sufficient to outweigh the Green Belt harm that would be caused.
- 4.182 The Applicant has set out the critical need for this type of flexible energy generation, to support both the growth in renewable energy generation (very special circumstance 1) and maintain the security

### A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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of electricity supply. This need is driven by the increased integration of intermittent renewables, coupled with the decommissioning of both coal and gas fired power stations.

- 4.183 While the need for this type of flexible generation is present across the UK, there is a very specific and compelling need for additional generation capacity on the 275 kV electricity network around London (very special circumstance 2). This is a point agreed with National Grid in the Statement of Common Ground (application document A8.12) paragraph 3.3, which states '*The Tilbury 275kV substation on the orbital network is critical in the supply of electricity to the Capital so generators connecting at this 275 kV substation (and at 400 kV) will therefore benefit the UK customer and specifically London.*'
- 4.184 Keeping the site open is not necessary to check the restricted urban sprawl of large built up areas, to prevent neighbouring towns from merging into one another, to preserve the setting and special character of historic towns and the development of the site could not assist in urban regeneration. Therefore, the application site does not conflict with four of the five Green Belt objectives set out at paragraph 134 of the NPPF 2019.
- 4.185 The development of the application site would lead to new development on a currently undeveloped site outside any settlement boundaries and would not safeguard the countryside from encroachment.
- 4.186 However, the main application site is on land that is on the periphery of the Green Belt, adjacent to employment and utility uses, sits underneath power lines, and in countryside that is degraded in value due to the influences of adjacent land uses. The role and value that the site performs is very limited in landuse planning terms. The function of the site in Green Belt terms is limited too; it does not make a positive contribution to this part of the Metropolitan Green Belt and does not serve to promote the Green Belt objectives of the NPPF 2019. Should consent be granted for the proposals the ongoing function of the Green Belt in this part of Thurrock will not be compromised. (very special circumstance 3).
- 4.187 Generating stations must ultimately connect into the electricity network at existing substations and therefore new generating stations must be sited at points on the network where connection is technically, economically and environmentally viable. The Applicant has demonstrated that all other suitable points of connection into the 275 kV network would also require development within the Green Belt. There is therefore a demonstrable need for the development, and it is clear that any development to meet that need must be positioned within the Green Belt.
- 4.188 Having assessed all other reasonable options, the Applicant has demonstrated that the application site presents the most suitable location for the project resulting in the least possible amount of harm. Significant weight is attached to this locational need (very special circumstance 4).
- 4.189 Further, as a result of the proposed development, an opportunity is created to replace the existing common land at Walton Common, which is rarely used and difficult to access, with a larger, much more accessible area of replacement common land to the north. While the replacement of common land is required by statute in order to make the deregistration of Walton Common as common land acceptable, the benefit of replacing it with a larger and more functional area of common land also weighs significantly in favour of the project (very special circumstance 5).
- 4.190 The Applicant has demonstrated that there would be some reduction in the openness and permanence of the Green Belt as a result of the proposals, but there would be limited conflict with the purposes of including land within it. While substantial weight must be given to the identified Green Belt harm, the harm is slight/negligible in this case, and it is outweighed by the significant benefits of the project, and the clear justification that has been presented for why the proposed development must be delivered in this location. It is demonstrated that very special circumstances exist and, in the absence of other harm, the development is acceptable in Green Belt terms.

### Other Material Considerations

- 4.191 Section 104 of the Act provides that the SoS may have regard development plan policy if it is considered both important and relevant to determining applications for development consent. However, in the event of conflict the policy of the NPSs would prevail for decision making given the urgent need for renewable and low carbon energy.
- 4.192 The following development plan policies may be regarded by the SoS to be both important and relevant to the determination of the application.

### Thurrock Borough Local Plan 1997

- 4.193 The Thurrock Borough Local Plan 1997 was adopted in September 1997. By law, although the end date of the Borough Local Plan has passed, its policies have been saved automatically. The application site lies in an area of countryside and in Green Belt. It does not benefit from any allocation, nor is there any policy in the plan specifically designed to cater for the type of energy infrastructure now proposed. To that extent, other than general development management policies, the application should be considered on its merits and against relevant Green Belt policy.
- 4.194 In terms of general development management policies **Policy BE1** Design of New Development requires all new development must be designed to a high standard where particular attention is given to the mass, form and scale as well as elements of design, the quality and appropriateness of materials used, landscaping and treatment of spaces between and around buildings. Proposals for development should also demonstrate consideration to the immediate surroundings.
- 4.195 The applicant considers this policy has been met. Careful attention was given to firstly site selection, then the design, layout and materials for the development. The relationship with surrounding development is appropriate for its context and causes no harm to interests of acknowledged importance.
- 4.196 **Policy BE4** on landscaping has also been addressed by the applicant and **Policy BE11** on energy efficiency has been satisfactorily addressed by the applicant in so far as is relevant for the type of infrastructure proposed.
- 4.197 **Policy E5** refers to development outside designated industrial and commercial areas – Industrial and commercial development and redevelopment will only be permitted outside the industrial and commercial area identified in policies E1 and E3, where the development will neither cause material harm to the environment, nor generate unacceptable levels of traffic, and where the development proposed conforms to other policies in the Plan. In this case the application does not fall within an existing or proposed allocation – it is a sui generis use covering a large area and was not envisaged when the adopted plan was being prepared. To that extent it needs to be considered on its merits. In that context it is a development that is supported in national policy terms, its location optimal in technical terms, and there are very special circumstances which offset harm in terms of the Green Belt. It is also a development that is capable of being supported locally when or if the emerging planning policy which will deal with any changes to Green Belt and identification of land for new development is progressed.

### Thurrock Core Strategy 2015

- 4.198 The Thurrock Core Strategy 2015 was originally adopted on 21 December 2011 and subsequently updated on 28 January 2015 following an independent examination of the Core Strategy focused review document on consistency with the then published NPPF. It has not been further reviewed in light of the 2019 version of the NPPF. It is also important to note that after the Council adopted the Core Strategy in 2011, they also intended to produce the 'Site Specific Allocations and Policies Local Plan' and the last version of this badged as the Thurrock Focused Review: Broad Locations and Strategic Sites – Issues and Options', was published for consultation in January 2013. These documents or plans, however, have not been progressed and so precise allocations and other plan

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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adjustments, for example to Green Belt boundaries etc, remain unresolved. The absence of this layer of the development plan is intended to be filled by the emerging Thurrock local Plan (see below), but this has only reached the issues and options stage.

- 4.199 As with the Local Plan above, there are no site specific allocations which accommodate the applicant's proposed development, neither are there any site specific proposals for energy infrastructure and so to that extent, again it can be considered on its merit. There is, however, a generic policy in support of such energy infrastructure (see CSTP26 below). Notwithstanding, the following policies from the Core Strategy are considered most relevant to the proposed development inasmuch as they provide a positive outlook and provide support for new employment infrastructure in the area.
- 4.200 Policy CSTP6 on employment provision sets out the intentions to maintain high and stable levels of economic and employment growth with the district through a number of measures including:
- Key strategic economic hubs
  - Primary and Secondary Industrial and Commercial Areas
  - Mixed-Use Employment Locations
  - Use of Redundant and Under-Used Employment Land and Buildings
  - Relocation and Expansion of Existing Businesses
  - Office Development
  - Knowledge and Cultural Based Regeneration
  - Environmental Industries
  - Range of Unit Sizes
  - Skills and Local Employment Opportunities
  - Tourism
- 4.201 Tilbury, adjacent to the application site, is recognised as one of the strategic economic hub areas and under this policy and mirrored in the Strategic Spatial Objective (SSO2) on page 35 of the Core Strategy, which states:
- "Increase prosperity and employment growth in Thurrock in the five strategic Economic Hubs of Purfleet, Lakeside/West Thurrock, Grays, Tilbury and London Gateway while seeking a sustainable balance between housing and jobs growth across the Borough supported by integration and phasing with existing and planned transport and community infrastructure.*
- 4.202 **Policy C SSP2 Sustainable Employment Growth** – is a policy which seeks to promote economic development in the Key Strategic Economic Hubs that seeks to expand upon their existing core sectors and/or provide opportunities in the growth sectors. Part ii of the policy indicates there is sufficient previously developed land in the Key Strategic Economic Hubs to accommodate the proposed jobs numbers with the exception of a proposed Green Belt release North of Tilbury to provide expansion land for port related development.
- 4.203 It should be noted here that the final site boundaries confirming new land use allocations were intended to be included in the Adopted Site Specific Allocations and Policies DPD and identified on the Proposals Map however this document has been suspended and is not being pursued. Part iii of the policy indicates that the Council will direct inward investment to the Key Strategic Economic Hubs. Part iv says the Council will promote Flagship Developments that will generate and provide a catalyst for securing high quality jobs in the Key Strategic Economic Hubs.
- 4.204 **Policy C SSP5 Sustainable Green Grid** – is policy which seeks to enhance the Boroughs natural assets. The Thurrock Green Grid Strategy is a key priority for the Council, Local Strategic

## A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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Partnership and other partners. Its principle puts the natural environment at the centre of land use management and development. This is designed to enable multifunctional land use of both public and private space and is supported by a physical network of green links for people and wildlife. In land use terms, the key elements of the Green grid are:

- Open space, such as parks and recreational grounds;
- Biodiversity, including grasslands, reedbeds, hedgerow, and woodlands; and
- Green Infrastructure, such as private gardens, street trees, road verges, green roofs, public Right of Way and greenways, cemeteries and churchyards and productive lands.

- 4.205 The applicant's proposal, particularly the exchange common land and improved access is considered complaint with this policy.
- 4.206 **Policy CSTP19** Biodiversity – this policy comes in line with recent initiatives in which new development should aim to contribute to a net gain in biodiversity within the area that it is situated. The policy states that development will be encouraged to include measures to contribute positively to the overall biodiversity of the Borough.
- 4.207 The proposal by the applicant to replace common land and enhance its biodiversity is consistent with the above policy aims.
- 4.208 **Policy CSTP25** Addressing Climate Change – this policy places an impetus on new development to include adaption measures that contributes to climate change mitigation. New developments should also aim to not increase vulnerability to climate change impacts.
- 4.209 Climate change lies behind the Governments national policy statements. The applicant's proposals will assist in the transition to a low carbon economy and thus addresses climate change objectives.
- 4.210 **Policy CSTP26** on renewable or low carbon energy generation seeks to enable the shift to low-carbon future and to tackle climate change. The Council state that they will encourage centralised renewable and low-carbon energy schemes at appropriate locations and standards will be promoted. The Council will also promote the delivery of district energy networks at appropriate locations in order to increase the proportion of energy delivered from renewable and low-carbon sources in the Borough. The Council will view an application as unacceptable where it produces a significant adverse impact that cannot be mitigated, including cumulative landscape or visual impacts.
- 4.211 It is the view of the applicant that its low carbon development are compliant with this policy and consider, in particular, that despite its Green Belt location, any harm caused is more than offset by the very special circumstances set out earlier in this report and in detail at Appendix 1.
- 4.212 It is the applicant's view therefore that in this emerging policy framework, it would be entirely logical and consistent to accommodate the applicant's proposal and not undermine the overall policy goals being pursued at a local level.
- 4.213 The applicant also considers that they comply with **Policy CSTP27** Management and Reduction of Flood Risk, and **Policy PMD2** Design and Layout. In addition, by allowing the applicant's development, will also help achieve the Councils' aspirations in **Policy PMD13** Decentralised, Renewable and Low-Carbon Energy Generation which seeks to ensure that new developments of a certain scale should secure 20% of their predicted energy from decentralised and renewable or low-carbon sources from 2020.
- 4.214 **Policy PMD14** Carbon Neutral Development - The Council will require developers to demonstrate that all viable energy efficiency measures and renewable or low-carbon technology opportunities have been utilised to minimise emissions, in accordance with PMD12 and PMD13. Developments that lead to a net increase in carbon dioxide emissions, over and above existing emissions for the development site, will be required to make a contribution to the Thurrock Carbon Offset Fund. The Applicant submits that this policy is not applicable: although there will be an increase in carbon dioxide emissions *on this development site* (compared to its undeveloped state as Common Land),

the Applicant has demonstrated that the proposed development will cause a net reduction in carbon dioxide emissions at a national level relative to the baseline of electricity generation without the development (see ES Volume 3, Chapter 14). In the context of a nationally significant infrastructure project, which is linked to the national electricity market, this is the appropriate scale at which to consider net emissions rather than the locally site-specific context of development emissions to which Policy PMD14 would apply.

- 4.215 Both Development Plans present policies relating to development in the Green Belt. From the Local Plan 1997 there is Policy GB1 and Policy GB2. From the Core Strategy 2015 there is Policy CSSP4 and PMD6. These policies are analysed in the applicant's Green Belt Statement in Appendix 1.

### **Thurrock Design Guide: Design Strategy SPD, March 2017**

- 4.216 The main aim of the Design Guide is to improve the overall design quality standards of development in Thurrock, enhancing perceptions of place and reinforcing a strong sense of civic pride.
- 4.217 The document discusses the principles of good design as expressed in the National Planning Policy Framework (NPPF) then transposes them into the local context. In particular, it discusses in detail the following considerations:
- a. Understanding the place
  - b. Working with site features
  - c. Making connections
  - d. Building in sustainability
- 4.218 In respect of commerce and industry, the design guide requirements expect proposals to demonstrate how issues of grouping and massing have been considered as part of the design process within the context of the wider landscape; how the use of colour might be used to mitigate visual impact; whether key gateway views should be considered; how the development related to surrounding land uses; and that lighting, boundary treatment (hard and soft) and security is treated sensitively.
- 4.219 The applicant considers that the proposed development complies with this guide.

## 5 BALANCE OF CONSIDERATIONS AND OVERALL CONCLUSIONS

- 5.1 Section 104 (3) of the Planning Act 2008 (as amended) provides that the Secretary of State must decide applications for development consent in accordance with any national policy statement except to the extent that the SoS is satisfied that one or more of the following exceptions apply:
- that deciding the application in accordance with any relevant national policy statement would lead to the United Kingdom being in breach of any of its international obligations,
  - that deciding the application in accordance with any relevant national policy statement would lead to the Secretary of State being in breach of any duty imposed on the Secretary of State by or under enactment,
  - that deciding the application in accordance with any relevant national policy statement would be unlawful by virtue of any enactment,
  - that the Secretary of State is satisfied that the adverse impact of the proposed development outweighs its benefits, or
  - that the Secretary of State is satisfied that any condition prescribed for deciding an application otherwise than in accordance with a national policy statement is met.
- 5.2 In doing so, the Section 104(2) provides that the SoS must have regard to:
- any national policy statement which has effect in relation to development of the description to which the application relates (a “relevant national policy statement”),
  - the appropriate marine policy documents (if any), determined in accordance with section 59 of the Marine and Coastal Access Act 2009,
  - any local impact report (within the meaning given by section 60(3)) submitted to the Commission before the deadline specified in a notice under section 60(2),
  - any matters prescribed in relation to development of the description to which the application relates, and,
  - other matters which the Secretary of State thinks are both important and relevant to its decision.
- 5.3 Of key importance in this decision making framework, Section 104(3) confirms that the SoS should decide applications in accordance with relevant NPSs except to the extent that one or more of the matters set out in section 104 (4) to (8) applies. The ‘key test’ in this respect is therefore to assess whether the application is in accordance with the relevant NPSs.
- 5.4 In determining this application, the wider benefits of the proposal must be reviewed against local issues and concerns. This balancing exercise must also consider the context of national, UK and European policies and obligations that seek to tackle climate change, deliver security of the UK’s energy supply and promote a shift to renewable energy.
- 5.5 The relevant NPSs (EN-1 and EN-2) establish a presumption in favour of NSIPs, such as the applicant’s current proposal, in light of the urgent need for energy infrastructure including renewable and low carbon energy infrastructure. This presumption prevails unless, taking into account issues identified by the NPSs, the adverse effects outweigh the benefits. In this respect, the proposed development will provide a much needed additional capacity, resilience and security of supply with that part of the National Grid network that is under pressure. In all material respects therefore, it will meet these key national policy objectives.
- 5.6 In terms of the Green Belt, a detailed report has been undertaken to address this constraint. While the development proposed is regarded as ‘inappropriate development’, there are no suitable or

### A8.3 STATEMENT OF CASE AND GREEN BELT STATEMENT

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better alternatives. The harm caused (which is limited) is more than outweighed by the lack of better alternatives and the other special circumstances that have been demonstrated.

5.7 The submission documents include an Environmental Statement which addresses all the likely significant environmental effects associated with the development and appropriate mitigation measures.

5.8 The NPSs recognise that projects of the scale and nature of energy Nationally Significant Infrastructure Projects will have some adverse effects as well as the considerable benefits. The decision making framework and NPS EN-1 require the SoS to weigh the potential adverse effects against the benefits. The following benefits are associated with the proposed development:

- It would deliver a combined total of 750 MWe of highly flexible, fast-starting electricity generation and storage capacity to the grid. This will make a significant contribution to the need for additional generation capacity at this location on the London 275 kV network, and to the urgent national need for flexible generation and storage to support energy security, grid resilience and greater deployment of intermittent renewable generators.
- It will meet these urgent needs more fuel-efficiently and with lower greenhouse gas emissions than existing technologies. The gas reciprocating engine technology proposed will also be suited to accept hydrogen as part of the fuel mix in the future, offering lower greenhouse gas emissions supported by pre-combustion carbon capture and storage.
- It will provide common land with improved public access and habitat creation that achieves net biodiversity gain
- It will create employment both during the construction phase (approximately 250 jobs directly and 75 indirectly) and the operational phase (approximately four to six full-time equivalent jobs).

5.9 In accordance with the provisions of the NPSs, the above benefits are of substantial weight in the balance of considerations, and there are no reasons alone or collectively that would indicate that the presumption in favour of the development should not prevail, as the benefits clearly outweigh any limited harm identified. Accordingly, in accordance with the provisions of the Planning Act 2008 and the NPSs, it is concluded that the proposed development is acceptable in planning terms and there is no reason why the draft Development Consent Order should not be granted.

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# APPENDICES

**Appendix 1**

**Green Belt Statement**

# THURROCK FLEXIBLE GENERATION PLANT

Land south west of Station Road near Tilbury, Essex

## GREEN BELT STATEMENT

Appendix 1 to the Planning Statement of Case

Application document A8.3  
APFP Regs ref. 5(2)(q)



OXF10872

Green Belt Statement

25 February 2020

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

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### Approval for issue

Chris Lecointe



26 February 2020

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Prepared by:

Prepared for:

**RPS**

**Thurrock Power**

**Simon Gamage, Planning Director &  
Christopher Lecointe, Operational Director**

Andrew Troup  
Director

20 Western Avenue  
Milton Park  
Abingdon, Oxfordshire OX14 4SH

1st Floor  
145 Kensington Church Street  
London W8 7LP

T +44 1235 821 888

E [gamages@rpsgroup.com](mailto:gamages@rpsgroup.com)

## EXECUTIVE SUMMARY

This Green Belt Statement has been prepared by RPS to accompany the application by Thurrock Power (the Applicant) for a Development Consent Order made pursuant to the Planning Act 2008 (as amended). It is included as Appendix 1 to the Planning Statement of Case report (application document A8.3).

The Applicant proposes to build a Flexible Generation Plant comprising temporary construction laydown, gas reciprocating engines with electrical output totalling 600 MW; batteries with electrical output of 150 MW; gas and electricity connections; and the creation of access roads, causeway, exchange Common Land and habitat creation.

The application site has been chosen following a site search exercise concentrating primarily on technical requirements (both electricity and gas connection points), then by availability and suitability of land in close proximity to the optimum connection point to build the facility. The selected site was therefore chosen because it is located within an area that requires additional backup capabilities to meet peak demand and has land available and suitable to build the facility. Through discussions with National Grid a firm offer for capacity on the 275kV circuit has been received for this facility. The Statement of Common Ground (SOCG) with National Grid (application document A8.12) confirms that replacing lost generation on this 275kV circuit with 1.5-2GW of much more efficient, lower cost and flexible generation is becoming increasingly important to reduce the need for long-distance flows across from the 400kV network.

The application site is positioned within the Metropolitan Green Belt where the Overarching National Policy Statement for Energy (NPS EN-1) sets out that there is a general presumption against inappropriate development. The Green Belt balance requires an assessment of whether the harm by reason of inappropriateness and any other harm would be outweighed by other considerations to amount to the very special circumstances required to justify the proposal. NPS EN-1 requires applicants whose proposals are within Green Belt to consider whether the proposed project is inappropriate and, if so, what very special circumstances they submit outweigh the harm to the Green Belt.

The Applicant has identified the level of harm associated with the project's impacts on the Green Belt, including against the five purposes set out within Paragraph 134 of the National Planning Policy Framework.

The Applicant has also set out the compelling need for this type of flexible energy generation, to support both the growth in renewable energy generation and maintain the security of electricity supply. This need is driven by the increased penetration of intermittent renewables, coupled with the decommissioning of both coal and gas fired power stations in the UK electricity market.

While there is a need for this type of flexible generation across the UK, there is a very specific and compelling need for additional generation capacity on the 275kV electricity network around London and the south east.

The Applicant has demonstrated that all other suitable, available and viable points of connection into the 275kV network around London would also require development within the Green Belt.

The Applicant has demonstrated that while there would be some reduction in the openness of the Green Belt, causing slight/negligible harm, there would be limited conflict with the purposes of including land within the

### **A8.3 APPENDIX 1 GREEN BELT STATEMENT**

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Green Belt. While substantial weight must be given to this slight/negligible Green Belt harm, there are significant benefits and very specific locational needs that outweigh the identified harm. These benefits and the locational need are sufficient to demonstrate that very special circumstances exist in this case and that the proposed development is acceptable in Green Belt terms.

## Contents

<b>EXECUTIVE SUMMARY</b> .....	<b>2</b>
<b>1 INTRODUCTION</b> .....	<b>1</b>
Purpose of this Report.....	1
<b>2 SITE AND PROJECT DESCRIPTION</b> .....	<b>2</b>
Site Location.....	2
Description of Development .....	2
<b>3 GREEN BELT POLICY</b> .....	<b>7</b>
Introduction.....	7
Overarching National Policy Statement for Energy (NPS EN-1).....	7
National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (NPS EN-2).....	8
National Planning Policy Framework (2019) .....	9
Thurrock Development Plan.....	10
<b>4 THE NEED FOR THE DEVELOPMENT</b> .....	<b>15</b>
Type of Development .....	15
Strategic Need.....	19
Summary of the Need .....	19
<b>5 ASSESSMENT OF HARM</b> .....	<b>21</b>
Whether the Development is ‘Inappropriate’ .....	21
Green Belt Harm.....	27
Summary Conclusion .....	32
Any Other Harm.....	35
<b>6 VERY SPECIAL CIRCUMSTANCES</b> .....	<b>36</b>
What Constitutes Very Special Circumstances.....	36
Considerations amounting to very special circumstances .....	36
<b>7 THE GREEN BELT BALANCE</b> .....	<b>49</b>
The Balance Exercise .....	49

## Tables

Table 5.1: Summary of Appropriate/Inappropriate assessment for each Work Area.....	22
Table 5.2: Summary Assessment of Green Belt Harm Against Purposes .....	33
Table 6.1: Connection point criteria .....	40
Table 6.2: Summary Assessment of Alternative Substation Connection Points .....	41

## Figures

Figure 2.1: Site Location Plan
Figure 2.2: Development Zones
Figure 4.1: 275kV Network and Gas National Transmission System around London
Figure 5.1: CPRE Tranquillity Mapping
Figure 5.2: Context Plan
Figure 6.1: Network of Substations and the Metropolitan Green Belt

## Annexes

Annex A National Grid Statement of Common Ground
Annex B Detailed Site Assessments for Alternative Substations
Annex C Discussion of Proposed Permissive Path from Fort Road
Annex D The Applicant’s Analysis of the Need Case

# 1 INTRODUCTION

## Purpose of this Report

- 1.1 This Green Belt Statement has been prepared by RPS to accompany Thurrock Power's (the Applicant) application (the Application) for a Development Consent Order (DCO) made pursuant to the Planning Act 2008 (as amended). It is written as an appendix to the Planning Statement of Case (application document A8.3) in support of the application.
- 1.2 The Application is for the Thurrock Flexible Generation Plant (the Project) which comprises the construction, operation and maintenance of a flexible electricity generating station consisting of gas reciprocating engines with electrical output totalling 600 MW and battery storage with rated electrical output of 150 MW and storage capacity of up to 600 MWh.
- 1.3 This Green Belt Statement considers in detail the justification for the siting of the Project within the Metropolitan Green Belt, having regard to the Project requirements and consideration of all suitable alternative sites, and presents the Applicant's case that very special circumstances apply in this case. This will draw on technical information contained within the Application documentation where relevant. The Green Belt Statement is structured as follows:
- Section 1 – introduces the Green Belt Statement in the context of the wider project;
  - Section 2 – provides a description of the application site and the Project;
  - Section 3 – identifies the relevant Green Belt Policy applicable to the Project;
  - Section 4 – sets out the need for the development both in terms of the supporting the wider electricity network and more specifically within this location;
  - Section 5 – identifies the level of Green Belt harm and any other harm associated with the Project;
  - Section 6 – sets out the very special circumstances in this case;
  - Section 7 – considers the Green Belt balancing exercise weighing the identified harm against the very special circumstances.
- 1.4 This Green Belt Statement should be read alongside the other information submitted with the Application, in accordance with the statutory requirements set out in the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended).

## 2 SITE AND PROJECT DESCRIPTION

### Site Location

- 2.1 The application site is shown on the Location and Order Limits Plans (application document A2.1), reproduced in this report as Figure 2.1. The application site is located wholly within the administrative boundary of Thurrock Council, a unitary authority.
- 2.2 The application site includes all land required to deliver the project. This includes land that would be required temporarily to facilitate the project's construction, and all land proposed to mitigate the environmental impacts of the project.
- 2.3 In this statement the term 'main development site' refers to the circa 20 ha site located immediately north of the existing Tilbury Substation, which would accommodate the proposed gas engines, battery storage facility and carbon capture readiness land. The main development site is located on land south west of Station Road near Tilbury in Essex. The British National Grid coordinates are TQ662766 and the nearest existing postcode is RM18 8UL.
- 2.4 This site comprises open fields crossed by three overhead power lines with electricity pylons of a lattice structure, 1 x 400 kV and 2 x 275 kV. It is immediately to the north of the existing 275 kV Tilbury Substation and around 300 m from the edge of the site of the decommissioned Tilbury B coal fired power station which is undergoing demolition. The River Thames is located about 950m to the south. To the north is a section of the London, Tilbury and Southend Railway known as the Tilbury Loop. The rail line is located between 100 m and 200 m from the main development site, at different points.
- 2.5 Also within the application boundary is land to the south and east of Tilbury Substation and on the Thames foreshore for access, land to the north of the railway for habitat and exchange common land creation, and further agricultural land adjacent to Station Road through which the gas connection would be constructed.
- 2.6 The eastern edge of the settlement of Tilbury is approximately 720m from the edge of the main development site, the village of West Tilbury is approximately 1.05 km to the north and East Tilbury village is approximately 2.09 km to the east. There are a number of individual or small groups of houses within around 800m of the main development site.
- 2.7 The nearest European designated site is the Thames Estuary and Marshes Special Protection Area (SPA) and Ramsar site, approximately 2.4 km east of the main development site. The nearest Scheduled Monuments are Tilbury Fort (970 m to the south west) and 'Earthworks near church, West Tilbury' (730 m to the north).
- 2.8 The majority of the boundary of the DCO lies within the Green Belt (see Figure 2.1)
- 2.9 In terms of site context, the main development site lies in an area of great change. In particular there is the proposed Lower Thames Crossing, also a Nationally Significant Infrastructure project, being promoted nearby to the east, which also lies within the Green Belt. The consented Tilbury2 port expansion, a further NSIP, is presently under construction immediately to the west and south of the main development site.
- 2.10 Employment designations also are prevalent immediately to the west of the main application site and the main site itself lies beneath existing power lines and has several large steel lattice pylons constructed within it. The characteristics and context of the site therefore diminish the extent to which the site can be considered *open*, notwithstanding the fact that the site is vacant (i.e. unoccupied by buildings or other structures).

### Description of Development

- 2.11 The proposed development comprises the construction and operation of:

- reciprocating gas engines with electrical output totalling 600 MW;
- batteries with electrical output of 150 MW and storage capacity of up to 600 MWh;
- gas and electricity connections;  
creation of temporary and permanent private access routes for construction and access in operation, including a permanent causeway for delivery of abnormal indivisible loads by barge; and
- creation of exchange Common Land and habitat creation or enhancement for protected species translocation and biodiversity gain.

- 2.12 The proposed development is designed to operate for at least 35 years, after which ongoing operation and market conditions would be reviewed. If it is not appropriate to continue operating after that time, one or both elements of the development (gas engines or batteries) would be decommissioned. Once decommissioned, all above ground elements would be removed. At that point, any Green Belt harm would be removed. However, the Applicant is not seeking a time limited development consent. For the purposes of the Green Belt assessment, therefore, impacts are considered to be permanent. Exceptions to this are works required for the construction phase only.
- 2.13 The Applicant requires flexibility in the Development Consent Order (DCO) for the design of a number of elements of the development. For example, the number and size of gas engines and batteries to provide the electricity generation and storage capacity specified would vary depending on the technology provider and equipment models selected before the project is built. Flexibility in options for construction access and haul routes and the gas pipeline route and micro-siting of the above-ground installation (AGI) for connection to the gas National Transmission System (NTS) is also required.
- 2.14 A 'Rochdale envelope' approach to assessment has therefore been taken, whereby maximum design parameters are defined for assessment. These maximum parameters would not be exceeded by the proposed development's final design, in terms of its physical dimensions, nature of construction and operational activities, or significance of environmental effects.
- 2.15 For descriptive purposes within the Environmental Statement (ES, application document A6), land within the order limits has been divided into areas for specified Works and uses. Details of the specific Works within each of these zones is given in Volume 2, Chapter 2 of the ES.
- 2.16 A description of the Work areas in the context of matters affecting Green Belt are provided below (see also Figure 5.2).

### **Work No. 1**

- 2.17 The 'main development site' immediately north of Tilbury Substation, within which the principal buildings or structures of the proposed development would be constructed. The proposed development is an electricity generating station and battery storage facility with a net electrical output of up to 750 MW comprising:
- 2.18 1A – A gas fired electricity generating station with a net rated electrical output of up to 600 MW consisting of –
- a. engine house building(s);
  - b. up to 48 gas reciprocating engines;
  - c. up to 48 exhaust stacks;
  - d. up to 48 gas engine exhaust energy recovery systems;
  - e. cooling system;
  - f. air pollutant control system;

- g. lubricating oil and air pollutant control system reagent storage;
  - h. a gas pre-heat, metering and pressure reduction compound; and
- 2.19 1B – Battery storage facility with a net rated electrical output of up to 150 MW for four hours consisting of –
- i. storage battery houses or containers;
  - j. storage inverter containers;
  - k. cooling system; and
- 2.20 1C – Facilities to serve both 1A and 1B consisting of –
- l. electrical equipment comprising 132 kV and 275 kV substations, switch houses and switch rooms, and auxiliary transformers;
  - m. fire suppression system and firewater tank;
  - n. an operations, maintenance and storage building;
  - o. control room(s);
  - p. septic tank or packaged foul treatment plant;
  - q. internal roads and parking;
  - r. surface water drainage;
  - s. surface water runoff attenuation pond(s); and
  - t. landscaping.

### Work No. 2

- 2.21 Work No. comprises the creation and enhancement of onshore wildlife habitat including topsoil strip, planting, construction of ditches, mounds and banks, and enhancement of retained ditches for ecological benefit; and connection of retained ditches to Work No. 1C(r) surface water drainage. There are four separate areas: two are adjacent to Parsonage Common and are currently agricultural land. Another forms a strip of land north of the railway line and is currently agricultural land. The fourth is between the existing Tilbury Substation and the proposed main development site.

### Work No. 3

- 2.22 This is the existing National Grid Tilbury Substation and the proposed connection thereto. The proposed development would connect to the 275 kV electrical bay at this substation via underground cables crossing from Work No. 1 into Work No. 3. The connection equipment in Tilbury Substation consists of:
- a. civil works – equipment bases, cable trenching, fencing;
  - b. electrical equipment installation – current transformers, voltage transformers, high accuracy metering equipment, circuit breakers, disconnectors and emergency shutoff;
  - c. cable sealing end (where underground high voltage transmission cables join to existing overhead transmission cable) including, base, structure and terminations;
  - d. blockhouse (switch room); and
  - e. control and protection modifications for the re-equipped bay and integration to the site wide systems, including busbar protection.

## Work No. 4

- 2.23 Work No. 4 is an underground high-pressure gas pipeline between Work No. 1 and Work No. 5A and gas pipeline(s) within Work No.1. It includes a corridor of land south of the railway line in which part of the underground gas pipeline would be constructed (with the final route of the gas pipeline within this corridor would be defined following detailed design), two crossings of Station Road, and a further corridor in agricultural land to Work No. 5.

## Work No. 5

- 2.24 This is a connection point to the gas National Transmission System comprising —
- 2.25 5A – A gas connection compound with landscaping consisting of:
- a. a National Grid Minimum Offtake Connection facility containing remotely operable valve, control and instrumentation kiosk, and electrical supply kiosk;
  - b. a Pipeline Inspection Gauge Trap Facility containing pipeline inspection gauge launching facility, emergency control valve, isolation valve, control and instrumentation kiosk, and electrical supply kiosk; and
- 2.26 5B – If required by the siting of Work 5A, a high-pressure underground gas pipeline between Work 5A(a) and the gas National Transmission System; and
- 2.27 5C – An access track and junction from Station Road with drainage and landscaping.

## Work No. 6

- 2.28 This Work No. is a permanent access road and junction from Station Road with drainage and landscaping within the corridor of the proposed gas pipeline. The final route of the access road would be defined following detailed design.

## Work No. 7

- 2.29 This Work No. is a water supply connection to the water main at Station Road within the corridor of the proposed gas pipeline and access road.

## Work No. 8

- 2.30 This Work No. comprises construction compound(s) and laydown area(s) south of Tilbury Loop railway.

## Work No. 9

- 2.31 This Work No. is the creation of saltmarsh habitat immediately downstream of the causeway (Work No. 10) using material dredged for its construction.

## Work No. 10

- 2.32 This Work No. is part of the infrastructure required for delivery of large abnormal indivisible loads (AILs) via roll-on roll-off barge. It is a causeway with crane platforms, extending from above mean high water springs to the foreshore, and a berthing pocket for barges at the north bank of the Thames.

## Work No. 11

- 2.33 This Work No. comprises part of the infrastructure required for delivery of AILs. It involves the modification to the sea wall at the north bank of the Thames to allow passage for AIL vehicles to access the causeway.

## Work No. 12

- 2.34 This Work No. is an access road from the A1089 St Andrew's Road comprising—
- a. repairs to carriageway defects and carriageway widening or realignment for use of existing private roads;
- 2.35 and connecting to 12(a)—
- b. engineering works and construction of new road section with drainage;
  - c. engineering works and construction of new road sections with drainage and landscaping;
  - d. engineering works and construction of new road sections with drainage and landscaping.

## Work No. 13

- 2.36 This Work No., north of the railway, includes a footbridge, ground works and fencing for a permissive path between Fort Road and the area of new common land that comprises Work No. 14.

## Work No. 14

- 2.37 Work No. 14 is the area of new common land, north of the railway, proposed in exchange for the loss of the majority of Walton Common. It is currently agricultural land. There would be no specific habitat creation in this location, in order to prevent conflict with use as common land, but there would be incidental biodiversity benefits. Landscape planting is also proposed along the southern edge.

## 3 GREEN BELT POLICY

### Introduction

- 3.1 The Planning Act 2008 provides that Nationally Significant Infrastructure Projects (NSIPs) must be decided in accordance with relevant National Policy Statements (NPS) where these have effect. The Applicant considers that the Overarching National Policy Statement for Energy (NPS EN-1), National Policy Statement for Fossil Fuel Electricity Generating Infrastructure National Policy Statement for Fossil Fuel Electricity Generating Infrastructure, and National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (NPS EN-2) have effect for the proposed development. This section considers the Green Belt policy contained in NPS, which will be the primary Green Belt consideration for the Secretary of State (SoS) in making their decision regarding the Application.
- 3.2 NPS EN-1 provides policy and guidance relevant to the assessment of Green Belt matters for the project. Paragraph 4.1.5 of NPS EN-1 sets out the other matters that the SoS may consider both important and relevant. It confirms that these may include development plan documents or other documents in the local development framework. The Applicant submits that the local development plan, the emerging local plan, Thurrock Council's review of the strategic green belt and the Tilbury Development Framework are relevant considerations in terms of section 104 of the Planning Act 2008. A review of other relevant Green Belt policy at both national and local levels is therefore included in this section of the statement.
- 3.3 NPS EN-2 is also relevant to the project. NPS EN-2 does not contain any specific policy or guidance related to development in the Green Belt, however it does confirm some of the site selection requirements that influence where sites might come forward. The requirements that can influence site selection for new fossil fuel generation projects are relevant to the Green Belt assessment for the gas engines and are therefore set out in this section of the statement.

### Overarching National Policy Statement for Energy (NPS EN-1)

- 3.4 NPS EN-1 sets out how the energy sector can help to deliver the Government's climate change objectives and contribute to a diverse and affordable energy supply for the UK. It covers Government policy on energy and energy infrastructure development, the assessment principles for deciding applications and how impacts from new energy infrastructure should be considered in applications. NPS EN-1 identifies an urgent 'need' for energy infrastructure development (Paragraph 4.1.2).
- 3.5 Matters relating to Green Belt are set out in Section 5.10 of NPS EN-1.
- 3.6 Paragraph 5.10.4 of NPS EN-1 provides that:

*"Green Belts, defined in a local authority's development plan, are situated around certain cities and large built-up areas. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the most important attribute of Green Belts is their openness. Green Belt land can play a positive role in providing access to sport and recreation facilities or access to the open countryside. For further information on the purposes of Green Belt policy see PPG 2 or any successor to it".*

- 3.7 Paragraph 5.10.10 of NPS EN-1 establishes a general presumption against inappropriate development in the Green Belt. This continues to set out that 'Such development should not be approved except in very special circumstances.' Paragraph 5.10.17 states that: "When located in the Green Belt, energy infrastructure projects are likely to comprise 'inappropriate development'.
- 3.8 Paragraph 5.10.12 of NPS EN-1 confirms that applicants "may be able to demonstrate that a particular type of energy infrastructure, such as an underground pipeline, which, in Green Belt policy terms, may be considered as an "engineering operation" rather than a building is not in the

*circumstances of the application inappropriate development. It may also be possible for an applicant to show that the physical characteristics of a proposed overhead line development or wind farm are such that it has no adverse effects which conflict with the fundamental purposes of Green Belt designation”.*

- 3.9 Paragraph 5.10.17 goes on to set out the weight that will be placed on Green belt harm in the decision-making process:

*“Inappropriate development is by definition harmful to the Green belt and the general planning policy presumption against it applies with equal force in relation to major energy infrastructure projects. The IPC will need to assess whether there are very special circumstances to justify inappropriate development. Very special circumstances will not exist unless the harm by reason of inappropriateness, and any other harm, is outweighed by other considerations. In view of the presumption against inappropriate development, the IPC will attach substantial weight to the harm to the Green Belt when considering any application for such development while taking into account, in relation to renewable energy and linear infrastructure, of the extent to which its physical characteristics are such that it has limited or no impact on the fundamental purposes of Green Belt designation”.*

- 3.10 The Applicant notes in relation to paragraph 5.10.17 that whilst the gas and storage component of the project is not in and of itself a renewable energy generation scheme, it nevertheless is a low carbon development and provides a very important role in integrating renewable schemes effectively into the UK energy network and provides important generation capacity in this location. As such, the applicant considers that the extent to which the physical characteristics of the proposed development have limited or no impact of the fundamental purposes of the Green Belt can and should be a factor considered by the Secretary of State.

### **National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (NPS EN-2)**

- 3.11 NPS EN-2 covers a range of different electricity generating infrastructure, including gas fired technology. NPS EN-2 is relevant to the project as a whole, because it includes 600MW of high efficiency gas engines. NPS EN-2 does not make any reference to development in the Green Belt, however at section 2.2 NPS EN-2 provides policy and guidance with regard to factors that will influence site selection by developers, which is relevant to the Applicant’s justification for development in the Green Belt.

- 3.12 Paragraph 2.2.1 gives an overview of the site selection process, before specific guidance on the types of matters that influence site selection are presented:

*“Factors influencing site selection by applicants for fossil fuel NSIPs are set out below. [...]. The specific criteria considered by applicants, and the weight they give to them, will vary from project to project. [...] it is for energy companies to decide what applications to bring forward and the Government does not seek to direct applicants to particular sites for fossil fuel generating stations”.*

- 3.13 The Applicant has selected the project site following an extensive site search process, based around confirmed criteria relating to site characteristics, environmental criteria and sensitivity, and relationship with gas and electricity network connections. This is described in more detail in paragraphs 6.32 to 6.64 of this statement.

- 3.14 Paragraph 2.2.2 states that: *“Fossil fuel generating stations have large land footprints and will therefore only be possible where the applicant is able to acquire a suitably-sized site. The site will also need to be big enough to conform to Government policy on CCR and CCS, set out in Section 4.7 of EN-1”.*

- 3.15 The need for CCR and CCS to be incorporated on site also increases the amount of land that is required. The project triggers the need to provide CCS under the Energy Act 2008, in turn implementing the EU Directive on Geological Storage of Carbon Dioxide (Directive 2009/31/EC). The application site accordingly includes an appropriate quantum of land set aside for CCS as detailed in the Carbon Capture Readiness Report (application document A7.6).
- 3.16 EN-2 paragraphs 2.2.5 and 2.2.6 consider the influence of transport infrastructure on site selection. Paragraph 2.2.5 confirms the need for new developments to be “accessible for the delivery and removal of construction materials, fuel, waste and equipment, and for employees”. Paragraph 2.2.6 encourages applicants to locate new generating stations “*in the vicinity of existing transport routes wherever possible. Although there may in some instances be environmental advantages to rail or water transport, whether or not such methods are viable is likely to be determined by the economics of the scheme*”. Where new transport infrastructure, or adjustments to existing transport infrastructure, is required, as is the case with the application site, paragraph 2.2.6 concludes that: “*If the existing access is inadequate and the applicant has proposed new infrastructure, the IPC should satisfy itself that the impacts of the new infrastructure are acceptable as set out in Section 5.13 of EN- 1*”.
- 3.17 Paragraphs 2.2.7 to 2.2.9 consider water resources. Specifically, the demand for water created by new generating stations. The project does not have the high water demand as it does not use once-through water cooling or have a steam generating element requiring a water supply, and this has not been a factor in site selection.
- 3.18 Paragraphs 2.2.10 and 2.2.11 discuss the influence of grid connection on the siting of new projects. Paragraph 2.2.10 states that: “*Fossil fuel generating stations connect into a transmission network. The technical feasibility of export of electricity from a generating station is dependent on the capacity of the grid network to accept the likely electricity output together with the voltage and distance of the connection*”.
- 3.19 Paragraph 2.2.11 requires applicants to submit details of grid connections as part of applications for development consent, and to consider the potential environmental effects of those connections.
- 3.20 The application site has been chosen following an extensive site search, in which the capacity of the existing grid to accommodate new generation capacity was a key factor. The connection point at Tilbury was selected in consultation with National Grid, and the principles of that site selection decision, the network capacity, and the urgent need for the new generation on the 275kV circuit around London, are matters that have been agreed and documented in a statement of common ground between the Applicant and National Grid (application document A8.12).

### **National Planning Policy Framework (2019)**

- 3.21 Chapter 13 of the National Planning Policy Framework NPPF 2019 is titled “Protecting Green Belt Land”. This chapter of the NPPF 2019 sets out the criteria that development in the Green Belt must meet.
- 3.22 Paragraph 133 states “The Government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open; the essential characteristics of Green Belts are their openness and their permanence”.
- 3.23 Paragraph 134 sets out the five purposes of the Green Belt:
- a. to check the unrestricted sprawl of large built-up areas;
  - b. to prevent neighbouring towns merging into one another;
  - c. to assist in safeguarding the countryside from encroachment;
  - d. to preserve the setting and special character of historic towns; and
  - e. to assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

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- 3.24 Paragraphs 135 to 142 are concerned with the designation and review of Green Belt land. Thurrock Council have recently concluded a Green Belt review process. The outcomes of that process, as relevant to the application site, are discussed in this statement at paragraphs 3.45 to 3.61 below.
- 3.25 Paragraphs 143 to 147 set out national policy for the assessment of development proposals which affect the Green Belt.
- 3.26 Paragraph 143 confirms that “*Inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.*”
- 3.27 Paragraph 144 states that substantial weight should be given to any harm to the Green Belt. It then continues to set out that “*‘Very special circumstances’ will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations.*”
- 3.28 Paragraph 145 explains that the construction of new buildings should be regarded as inappropriate development, with a few specific exceptions. The project does not fall into any of the ‘exception’ categories. Paragraph 146 establishes that certain other forms of development are also excluded from constituting inappropriate development in the Green Belt providing that they preserve the openness of the Green Belt and do not conflict with the purposes of including land within it. Those forms of development include engineering operations and material changes in the use of land. A number of elements of the proposed development fall within the definition of ‘engineering operations’ and the Applicant sets out in Section 5 why those elements are not inappropriate development.
- 3.29 Paragraph 147 relates to renewable energy projects and confirms that many elements will comprise inappropriate development. While the proposed development is not a renewable energy project, this paragraph notes that “*very special circumstances may include the wider environmental benefits associated with increased production of energy from renewable sources.*” As the Applicant sets out in the Statement of Case (application document A8.3) the proposed development is necessary to support increases in renewable production and the environmental benefits of the proposed development therefore part of the very special circumstances case.
- 3.30 The Applicant’s position on what aspects of the project constitute inappropriate development in the Green Belt is set out in Section 5 of this statement.

## Thurrock Development Plan

### Thurrock Core Strategy 2015

- 3.31 In total the Green Belt accounts for approximately 60% of the Borough’s total land area, with the remaining 40% comprising major settlements and land within the proposed London Gateway Port and the existing oil refinery at Coryton. Paragraph 4.22 of the Core Strategy (CS) sets out “*The Green Belt has had a profound effect on settlement development pattern within Thurrock and ensured that Thurrock has not coalesced with London.*”
- 3.32 Policy CSSP4: Sustainable Green Belt acknowledges that there is a need to balance the competing demands on the Thurrock Green Belt. “*The Council’s policy is to maintain the purpose, function and open character of the Green Belt in Thurrock in accordance with the provisions of PPG2 for the plan period.*” The Council seeks to;
- I. Maintain the permanence of the boundaries of the Green Belt, excepting the proposed Urban Extension Broad Locations Identified in this policy, Policy CSSP 1 and as shown on the Proposals Map.*
- II. Resist development where there would be any danger of coalescence.*
- III. Maximise opportunities for increased public access, leisure and biodiversity.”*

- 3.33 Policy CSSP4 also sets out Green Belt Alterations to the Proposals Maps; none of these cover the application site.
- 3.34 CS Policy PMD6: Development in the Green Belt seeks to “...maintain, protect and enhance the open character of the Green Belt in Thurrock in accordance with the provisions of the NPPF. The Council will plan positively to enhance the beneficial use of the Green Belt by looking for opportunities to provide access to the countryside, provide opportunities for outdoor sport and recreation, to retain and enhance landscapes, visual amenity and biodiversity, and to improve damaged and derelict land. Planning permission will only be granted for new development in the Green Belt provided it meets as appropriate the requirements of the NPPF, other policies in this DPD

### Emerging Thurrock Local Plan (ELP)

- 3.35 The Council commenced work on the ELP in 2015 publishing an Issues and Options (Stage 1) in February 2016. The Council had intended to publish the Thurrock Local Plan Issues and Options (Stage 2) document for consultation in Summer 2018, however following publication of the revised NPPF in July 2018, this was delayed to allow for a review and potential revisions. The Local Plan Issues and Options (Stage 2) consultation ran from December 2018 to March 2019.
- 3.36 Although this was not published the draft version shows on page 27 that “In order to meet Government policy objectives, the Council will have to consider releasing land from the Green Belt to accommodate the number of homes and supporting community facilities required to meet Thurrock’s development needs over the period to 2037/38.”

### Thurrock Strategic Green Belt Assessment Stages 1a and 1b – Final Report

- 3.37 The Council published its final Strategic Green Belt Assessment (SGBA) Stages 1a and 1b in January 2019. The report was undertaken by Peter Brett Associates and Enderby Associates on behalf of Thurrock Council. The review will assist in the preparation, explanation and justification of the emerging Thurrock Local Plan. The SGBA, when complete, will be a two-stage process. The Stages 1a and 1b was report published in January 2019. The Stage 2 report may be undertaken in late 2020 – according to the Council there is no set programme for this.
- 3.38 Paragraphs 1.22 and 1.23 of the SGBA confirm the report’s purpose:

*“Stages 1A and B relate to the identification of strategic Green Belt parcels and the assessment of those parcels against the purposes of the Green Belt.*

*Stage 1B relates to implications for the strategic Green Belt assessment of the preferred route announced by Government on the route and location of the proposed Lower Thames Crossing. This report does not provide a full reassessment of all the Green Belt parcels, which the Council may wish to undertake at a later date”.*

- 3.39 It is confirmed in paragraph 1.2.4 of the SGBA that Stage 2 “will proceed only in the event that there is a clearly demonstrated exceptional circumstances to amend the boundaries of the Metropolitan Green Belt in order to meet future development needs”.
- 3.40 As part of Stage 1A, the SGBA divides all Green Belt land in Thurrock Council’s administrative area into separate parcels “based on features on the ground which could provide meaningful boundaries (and consistent with Green Belt requirements for the identification of clear physical features to create recognisable and enduring boundaries), as identified from site work and from the use of mapping information”.

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

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- 3.41 The SGBA carries out an assessment of those parcels concluding how important they are to the Green Belt purposes set out in paragraph 134 of the NPPF 2019. The identified parcels were considered against the first three of the five Green Belt purposes only:
- a. to check the unrestricted sprawl of large built-up areas;
  - b. to prevent neighbouring towns merging into one another and,
  - c. to assist in safeguarding the countryside from encroachment.
- 3.42 The fourth and fifth purposes were not considered as part of the study:
- “The fourth purpose of Green Belts is to “preserve the setting and special character of historic towns.” There are no towns in the Borough which may be regarded as having a particularly ‘special’ historic character or where such character is particularly derived from or complemented by to its landscape setting”.*
- “The [fifth] purpose “to assist in urban regeneration, by encouraging the recycling of derelict land”, is not used at all in the assessment. If there is any effect at all in this respect, it is the overall restrictive nature of having Green Belt policy that encourages regeneration and the re-use of previously used land by stifling the supply of other land”.*
- 3.43 The assessments go on to identify the ‘parcel characteristics’ for each parcel in turn, considering perception of openness, nature of views, nature of parcel edges, relationship to principal settlements, landscape character and environmental constraints.
- 3.44 The above-ground elements of the Project (the main development site and AGI [gas connection compound]) are predominantly in ‘Green Belt Parcel 34’ and partially in ‘Green Belt Parcel 30’ (see Figure 5.2). The analysis of this parcel is presented in Appendix D of the SGBA. For each Green Belt parcel, an assessment of its importance to the three Green Belt purposes that have been considered is presented on a five-point scale: Fundamental; Major; Moderate; Slight/Negligible; and None.
- 3.45 For the first purpose, to check unrestricted sprawl of large built up area, it is concluded by the Council that Parcel 34 *“has no relevance to that purpose being remote from large built up areas”*. The SGBA concludes the importance of the Parcel to this purpose is ‘None’. For Parcel 30, the importance to the first Green Belt purpose is ‘Slight/Negligible to None’. The Slight/Negligible purpose relates to the northern part of the parcel, which *“makes a contribution to constraining the expansion of the built-up area in this direction towards the small settlement of West Tilbury”*. The application site in this parcel is within the southern area, which is *“unrelated to the built-up area”*, and therefore its importance to ‘checking unrestricted sprawl of large built up areas’ is ‘None’.
- 3.46 For the second purpose, to prevent neighbouring towns from merging into one another, it is again concluded that Parcel 34 *‘has no relevance to that purpose being remote from large built up areas’*. Parcel 30 *“does not lie between towns and therefore makes no contribution to this purpose”*. The SGBA again concludes the importance of the parcels to this purpose is ‘None’.
- 3.47 For the third purpose, to assist in safeguarding the countryside from encroachment, it is concluded the parcels have ‘Major’ importance to this Green Belt purpose. For Parcel 34, the assessment narrative confirms the reasons for the SGBAs’s conclusion:
- “The designation provides very important protection to the countryside of the open West and East Tilbury Marshes lying within LCA F2, Tilbury Marshes. Area forms the first significant area of open land alongside the estuary east of the Thurrock urban area and the area is perceived as open countryside, despite intrusion of the adjacent power station (outside Green Belt), related infrastructure, and an extensive area disturbed by landfilling to the east of the power station and Green Belt designation provides important protection of the countryside and its openness”.*
- 3.48 For Parcel 30, the SGBA concludes:

*“Green Belt designation provides a strong constraint to further encroachment within this parcel, parts of which seem vulnerable to piecemeal encroachment and intensification of existing uses that are evident along parts of the internal lanes”.*

3.49 The application site is not specifically identified as part of the SGBA work, and the particular contribution it makes, or otherwise, is not specifically identified, although the reference to infrastructure related to the power station will include the Tilbury Substation, the application site, and associated overhead lines that cross the application site.

3.50 The assessment of ‘Relevant Parcel Characteristics’ considers the ‘Perception of Openness’. It concludes that Parcel 34 has a:

*“Strong sense of openness due to open character and absence of development. Power station adjoining western part of parcel, and associated transmission infrastructure, has significant effect on perception of the area”.*

3.51 For ‘Perception of Openness’ the SGBA considers Parcel 30 to have a:

*“General sense of openness throughout parcel although there is evidence of some encroachment from urban fringe uses”.*

3.52 The assessment of ‘Landscape Character’ concludes that Parcel 34 has an:

*“Open landscape within south eastern part of LCA F2, Tilbury Marshes with some significant areas of landfill. The character of the area is adversely affected by the very significant visual encroachment of the power station located beyond the western boundary of the parcel and associated transmission infrastructure. Considerable parts of the parcel have been affected by landfill operations with some works still in progress. Land north of the power station is identified for employment development in the LDF; this will further extend the visual effects of development into this flat open landscape. Area forms part of important undeveloped area that provides a connection between the estuary and undeveloped countryside to the north east and east of the Thurrock urban area”.*

3.53 The assessment of ‘Landscape Character’ also concludes that Parcel 30:

*“forms the southern part of LCA H1, East and West Tilbury Open Undulating Farmland, which comprises farmland principally, located immediately above the estuary floodplain, the edge of which is marked by a significant change in level (steep at West Tilbury). A network of lanes runs through the area adjacent to which are small clusters of dwellings (such as West Tilbury and Low Street) and farms. Encroachment from urban fringe uses is evident, such as metal recycling, small workshops, smallholdings with many outbuildings, storage yards, gypsy and traveller development, and horse paddocks; network of electricity transmission lines and pylons, running north/south through central part of parcel. Away from these uses, which are located primarily along the lanes, there is productive open countryside extending up to the edge of East Tilbury, where the Bata factory is a prominent feature and development forms a stark interface with the countryside, and the estuary. West Tilbury church a prominent landmark located on the ridge above the marshes”.*

3.54 From the council’s own assessment of the Green Belt in the area of the above ground elements they conclude that, in terms of Green Belt purposes, Parcels 30 and 34 either do not contribute anything or very little to the importance of the first two purposes of the Green Belt. Only in relation to safeguarding the countryside from encroachment are the parcels considered to be of ‘major’ importance. Overall, both parcels are considered to be of ‘major’ importance.

3.55 Overall, of the 42 Green Belt Parcels identified by Thurrock council, just over 50% are considered to be of ‘fundamental’ importance and only one parcel is considered entirely less than of ‘major’ importance. This is Parcel 20, a narrow strip of land between the A13 and A1306 containing a mobile home park in the western section, a Harvester restaurant in the centre and two agricultural fields to the east with an overhead line crossing the fields in an east west direction. This site has no allocations

and not been recognised in Thurrock Council's most recent Employment Land Availability Assessment.

- 3.56 By this assessment it could be suggested that to avoid 'fundamentally' important Green Belt land, any new development has to be placed in a parcel that is still of 'major' importance. For a development of the scale of this Project, that is the case. As there is little differentiation in overall importance of parcels as defined by Thurrock Council, one must look to the assessments of the Green Belt purposes individually to ascertain the most suitable sites. As the locations of the above ground elements of the Project within Parcels 30 and 34 are of no importance with regard to the first two purposes of the Green Belt and of 'major' importance with regard to the third purpose (as are 81% of identified land parcels), they can be deemed as relatively low importance in comparison to other land parcels.
- 3.57 The vast majority of the above ground elements of the Project lie within Parcel 34, at the western edge. In this position, it is situated amongst existing industrial infrastructure and therefore impacts on encroachment into the countryside will be minimal.

## 4 THE NEED FOR THE DEVELOPMENT

### Type of Development

- 4.1 In planning terms, the proposed development is ‘energy infrastructure’ and is a *sui generis* use. It contains a mix of forms of electricity generation (gas fired and battery storage), plus associated gas and electrical and other infrastructure (roads, and green infrastructure). The development is required to complement the changing mix of electricity generation, including intermittent renewable energy, and to meet the Government’s objective of maintaining a reliable electricity supply. Once operational, the Flexible Generation Plant would have the ability to respond rapidly (within a few minutes for the gas engines and immediately for the battery storage) and reliably to the short-term variations in demand and fluctuations in the output from renewable energy sources.
- 4.2 In terms of the nature and type of development proposed, it complies with national planning policy in the NPSs (as has been set out in the Statement of Case, application document A8.3). In that context there is no requirement in national policy terms to demonstrate *need* for the development. Nevertheless, given that the majority of the Project boundary occupies land within the Green Belt, need for the development is addressed below as this forms a significant consideration and a very special circumstance which is necessary to consider when balancing the acceptability of the development in this location

### Context

- 4.3 The UK generates electricity in several ways, including through the use of coal, gas, nuclear, and renewable resources. The electricity system is balanced in real-time, with supply and demand kept in balance on a second by second basis, to ensure a stable grid frequency and reliable supply.
- 4.4 In order to meet the government’s targets under the Climate Change Act 2008 of reducing greenhouse gas emissions to net zero levels by 2050 the energy balance is becoming increasingly reliant on renewable energy sources such as wind and solar. By their nature, these sources of energy are intermittent and can contribute to fluctuations in grid load and frequency.
- 4.5 Gas power generation is recognised as an important component of the transition to a low carbon economy. Coal power stations are being phased out and unlikely to operate after 2025.
- 4.6 There is a growing need for technologies that can respond quickly to balance generation and load in the system. This is to ensure grid stability and security of supply, ultimately avoiding the need for extreme demand-reduction measures, which can include blackouts. Both the higher efficiency gas engines and battery storage offer an efficient and responsive solution to actively manage the grid demands.
- 4.7 The important role of energy storage has been stressed within the Smart System and Flexibility Plan, published by the Government and Ofgem in 2017, which notes that: *“By harnessing the potential of energy storage, demand-side response and smarter business models, we have an opportunity to upgrade to one of the most efficient, productive energy systems in the world. This is central to how we deliver secure, affordable and clean energy now and in the future.”*
- 4.8 The Plan continues to stress that smart and flexible energy facilities, such as storage and flexible generation plant, are an integral part of the Industrial Strategy and the Clean Growth Plan; *“More widely, we recognise that smart energy is central to many other changes in our energy system and the wider economy. It is an important part of the Industrial Strategy, given its potential to reduce energy costs, increase productivity, and put UK businesses in a leading position to export smart energy technology and services to the rest of the world. It is a central part of how we decarbonise our power sector, as will be set out in the Government’s forthcoming Clean Growth Plan.”*
- 4.9 The Clean Growth Strategy was published 12 October 2017 and further embeds in government policy the importance of flexible generation within a diversified electricity system *“We want a diverse*

*electricity system that supplies our homes and businesses with secure, affordable and clean power. That means developing low carbon sources of electricity that are both cheap and clean, taking into account wider system impacts for all sources of generation. It also means upgrading our electricity system, so it is smarter (using data to provide greater control), more flexible (providing energy when it is needed) and takes advantage of rapidly developing technologies such as energy storage.”*

4.10 A report commissioned by the National Infrastructure Commission in February 2016 to support the report on ‘Smart Power’ states:

*“There is significant evidence that operational flexibility will be a key driver for the efficient integration of low-carbon technologies. Flexibility can be provided by different sources. One such source is flexible generation; plants that have low minimum stable generation levels, high ramping rates and increased capability for ancillary service provision.”*

4.11 The Department of Energy and Climate Change (DECC) Policy Paper titled “2010 to 2015 government policy: UK energy security” sets out the Government’s strategy for Electricity Market Reform (EMR). It states that the reformed energy market will deliver:

- low carbon energy;
- reliable energy supplies; and
- minimised costs to consumers

4.12 Paragraph 2.2.20 of NPS EN-1 states; *“It is critical that the UK continues to have secure and reliable supplies of electricity as we make the transition to a low carbon economy. To manage the risks in achieving security of supply we need sufficient electricity capacity (including a greater proportion of low carbon generation) to meet demand at all times... This requires a safety margin of spare capacity to accommodate unforeseen fluctuations in supply or demand.”*

4.13 NPS EN-1 recognises that the increasing reliance on renewable energy sources with Paragraph 3.3.12 stating that *‘There are a number of other technologies which can be used to compensate for the intermittency of renewable generation, such as electricity storage, interconnection and demand side response, without building additional generation capacity. Although Government believes these technologies will play important roles in a low carbon electricity system, the development and deployment of these technologies at the necessary scale has yet to be achieved. The Government does not therefore consider it prudent to solely rely on these technologies to meet demand without the additional back-up capacity (see further paragraphs 3.3.30-3.3.34 below). It is therefore likely that increasing reliance on renewables will mean that we need more total electricity capacity than we have now, with a larger proportion being built only or mainly to perform back-up functions’.*

4.14 The ability to run over short periods has been driving the interest in the flexible asset class, principally as larger plants face increased challenges due to the changeable nature of renewables in the market.

4.15 Paragraph 3.3.29 of NPS EN-1 supports the development of decentralised electricity generation facilities: *“The Government would like to see decentralised and community energy systems such as micro-generation make a much greater contribution to our targets on reducing carbon emissions and increasing energy security from current levels of these systems. These technologies could lead to some reduction in demand on the main generation and transmission system.”*

4.16 Paragraphs 3.3.30 and 3.3.31 of NPS EN-1 (‘More intelligent use of electricity’) consider this further. Paragraph 3.3.30 considers the relationship between electricity supply and demand: *‘In addition to the above measures aimed at reducing overall demand, the potential also exists for more intelligent interaction between supply and demand. For instance, although there is currently around 85 GW of total generation capacity in the UK, average demand across a year is only for around half of it because a high proportion of the total capacity is used only at times of peak demand (see paragraphs 3.3.2-3 on the resilience of the electricity system). Moving some demand from a peak to an off-peak time or moving demand when the system is under stress allows opportunities to help balance supply*

*and demand. This ‘smart demand management’ may avoid some power stations being built that only run for a few hours during the year and enable more efficient use of existing stations’.*

- 4.17 Paragraph 3.3.31 considers the important role that storage will play, alongside demand side response and interconnection, in delivering a low carbon economy: *‘Reductions in peak demand may lead to a corresponding increase in demand at a later time when there is sufficient power available to meet it. In addition, while electrical energy storage allows energy production to be decoupled from its supply, and provides a contribution to meeting peak demand, currently the only commercially viable utility-scale energy storage technology is pumped storage<sup>39</sup>. The UK currently has four pumped storage facilities with a maximum capacity of approximately 3 GW. There is limited further potential in the UK due to a lack of appropriate locations and large capital costs, but high renewable pathways might require more storage beyond 2020, and therefore the commercial climate may change. The Government expects that demand side response, storage and interconnection, will play important roles in a low carbon electricity system, but still envisages back up capacity being necessary to ensure security of supply until other storage technologies reach maturity’.*
- 4.18 National Grid published the Future Energy Scenarios in July 2019 (FES). This is published on an annual basis by National Grid and is intended to identify a range of credible scenarios across gas and electricity on a GB-wide basis for the next thirty years. The scenarios consider how much energy we might need and where it could come from and the 2019 plan does so in the context of the UK Government goal of zero net carbon by 2050.
- 4.19 On page 1 of the document it states that *“the UK government has responded to growing public focus on climate change by committing to a shift from the 2050 target of an 80 per cent reduction in CO<sub>2</sub> from 1990 levels to a net zero target. Policy changes combine with rapid technological progress and market forces to create a swiftly changing landscape, where it is impossible to accurately forecast a single energy future out to 2050. Instead, our Future Energy Scenarios (FES) creates a range of credible futures which allow us to continue supporting the development of the energy system that is robust against different outcomes”.*
- 4.20 On page 2 it states *“The 80 per cent decarbonisation target can be reached through multiple technology pathways, but Net Zero requires greater action across all solutions. Action on electrification, energy efficiency and carbon capture will all be needed at a significantly greater scale than assumed in any of our core scenarios”.*
- 4.21 The document looks to the future and advocates a whole system view across electricity, gas, heat and transport in order to underpin a sustainable energy transformation. Existing interactions between gas and electricity networks will increase as gas generation provides more flexibility, and new technologies such as electrolysis and hybrid heat systems create new interfaces between electricity and gas systems (FES page 5). The complexity of the whole system is increasing, but so is the ability of data and technology to understand and manage this complexity.
- 4.22 In terms of gas demand, the document states that gas-fired power stations continue to play an important part in the GB electricity generation mix, both in terms of larger plants like transmission-connected combined cycle gas turbine power stations (CCGTs), as well as distribution-connected or on-site small gas reciprocating engines. With the recent and continuing growth in renewable, intermittent forms of electricity generation, thermal plant offers flexibility services as they are able to provide extra generation at very short notice (FES page 93).
- 4.23 Operation of the electricity and gas systems has become more complex, not only because of the increased intermittency of generation requiring flexibility across the whole energy system, but also due to the growing diversity of supply. This diversity plays out in terms of both technology and location. In the FES scenarios, more and more small-scale suppliers feed gas and electricity directly into the distribution networks and, in some cases, meet localised demand without any network connection. There is a wide range of new technologies entering the supply chain, such as residential batteries and production of green gas. There will be increasing diversity in the type and specification of gas in the networks going forward. With biomethane, shale gas and even hydrogen being blended

into the network, there will be new challenges to face in managing the resulting profile of supply (FES page 111).

- 4.24 There are also complexities associated with the growing inter-dependency between fuels. Significant levels of electricity will continue to be generated from gas across all scenarios, and hydrogen is produced from both electricity and gas. Supplies must be responsive to changing patterns of both demand and supply across all fuels.
- 4.25 The FES states that there remain several challenges to be resolved. To manage these challenges, a suitable range of supply capabilities need to be in place to ensure efficient operation under all conditions.
- 4.26 In terms of storage, from an electricity perspective, generation will continue to decentralise as government targets phase out coal generation by 2025 and the majority of nuclear plants reach end-of-life and close by 2030. There has been huge growth in solar generation in recent years and government support for the offshore wind sector through the recently signed Sector Deal. Investments are being made in technologies such as carbon capture, usage and storage (CCUS) to decarbonise generation, and numerous projects are being commissioned to extend the range of storage solutions within the system. These technologies will continue to mature and deploy at greater scale, and this wide variety of generation sources will collectively offer the range of capabilities needed to meet changing demand (FES page 110).
- 4.27 On 4 October 2018 The Parliamentary Office of Science and Technology published a briefing note titled 'Flexible Electricity Systems'. This makes particular reference to flexible generation highlighting that "*New designs are being developed that can provide greater flexibility while maintaining efficiency.*"
- 4.28 The Project is therefore required to complement the mix of electricity generation and to meet the Government's objective of maintaining a reliable electricity supply. Once operational, the new flexible facility will have the ability to respond rapidly and reliably to the short-term variations in demand and fluctuations in the output from renewable energy sources.
- 4.29 The facility would be able to displace more costly and more polluting 'spinning reserve' comprising older combined cycle gas turbines and coal fired power stations that National Grid currently uses to meet the periods of system stress.
- 4.30 The need to maintain spinning reserve is bolstered by the intermittency of renewables on the electricity network. To establish spinning reserve, National Grid contracts power stations to start up and run at less than full capacity, in order to be in a position to quickly respond to any shortfalls in generation – because it is quicker to ramp up generation from an already operating station than to 'start from cold'. This is an inherently wasteful process, requiring fossil fuelled power stations to operate inefficiently typically at a 40% load factor and then to ramp up to full power, often in anticipation of a reduced supply. The process is unresponsive and slow, taking several hours to reach full power.
- 4.31 National Grid also establishes spinning reserve by contracting high energy users to ramp down their usage at times of system stress. Broadly, 70% of spinning reserve is made up of contracts held with power stations, and 30% of spinning reserve is made up of contracts with high energy users.
- 4.32 As more renewable energy generation is developed and relied upon by National Grid, greater amounts of spinning reserve will be required.
- 4.33 The project provides an alternative to maintaining spinning reserve. The high ramping rate provided by the gas reciprocating engines means that from cold they can operate at full power within five minutes of receiving an instruction to start-up, and power-down in less than 30 seconds if required to do so. This would provide resilience to National Grid that is much more responsive than spinning reserve, without the cost, use of fuel and associated air pollutant and greenhouse gas emissions of operating that spinning reserve incurs. As the engines can reach full power within five minutes from

cold, there are no emissions when the power is not required and significant carbon savings as a result.

### Strategic Need

- 4.34 The electricity network is under particular strain in the South East of England and is experiencing greater periods of system risk. This is primarily as a result of the large population and major areas of industry in this part of the country. Due to this, the demand for flexible generation facilities such as that being proposed is particularly high in the south east and London, with National Grid and UK Power Networks (UKPN) having to more frequently call on standby facilities here than elsewhere across the country.
- 4.35 It is anticipated that such demand will only increase as the growth plans for the region put additional demand on the system. The latest evidence on housing need indicates an objectively assessed need for between 3,750 and 4,000 dwellings per annum across the Thames Gateway and South Essex Housing Market over the next 10 years. The proposed development presents an important opportunity to bolster local infrastructure network to support this required new growth.
- 4.36 Thurrock Power has set out its opinion of need and the emerging energy market at Annex D.
- 4.37 The application site has been chosen because it is located within an area that requires additional backup capabilities to meet peak demand and has land that is suitable and available to build the facility. Through discussions with National Grid a firm offer for capacity on the London 275kV circuit has been received for this facility. The Statement of Common Ground (SOCG) with National Grid (application document A8.12) confirms that replacing lost generation on this 275kV circuit with 1.5-2GW of much more efficient, lower cost and flexible generation is becoming increasingly important to reduce the need for longer-distance flows across from the 400kV network.
- 4.38 A total of 4.5-5GW of generation on the local transmission system in the London metropolitan area has been disconnected since the 1970s, over 2.4 GW of which has been decommissioned since 2017 (Littlebrook and Barking Reach power stations).
- 4.39 National Grid also confirms in the SOCG that there are periods of time when the transmission network around London can experience constraints, particularly during maintenance periods when circuits are switched out for scheduled maintenance. Replacing the disconnected generation on the 275kV circuit with efficient, flexible generation will provide the ability to reduce the risk and impacts of system constraints. New generation will contribute to the resilience and security of supply to the London conurbation and reduces the risk that substantial infrastructure investment will be required in the future.
- 4.40 There is therefore a specific and established need for additional capacity within the 275kV network around London.

### Summary of the Need

- 4.41 In terms of the nature and type of development proposed, it complies with national planning policy in the NPSs (as has been set out in the Statement of Case). In that context there is no requirement in national policy terms to demonstrate *need* for the development. Nevertheless, given that the majority of the Project boundary occupies land within the Green Belt, need for the development has been considered as this forms a significant consideration and a very special circumstance which is necessary to consider when balancing the acceptability of the development in this location
- 4.42 The evolution of the UK's energy system and how energy is generated has changed significantly, with a greater reliance on clean but intermittent renewable technologies. This has led to an identified need across the UK to provide flexible back up generation and storage capacity to meet the periods of peak demand, which National Grid has identified will continue to increase significantly. There is

### A8.3 APPENDIX 1 GREEN BELT STATEMENT

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therefore an established and accepted need for the deployment of technology such as this flexible energy generating facility.

- 4.43 While the need is generally across the UK as a whole, National Grid has confirmed within the SOCG (application document A8.12) that there is a very specific area of system stress on the 275kV circuit around London (See Figure 4.1 for an illustration of the network) and that there is a current and agreed need for 1.5-2GW specifically within this network. The Project can make a very significant contribution (30%-50%) to this need.
- 4.44 There is therefore a very specific need for the Project to be connected into the London 275kV circuit.
- 4.45 This identified strategic need underpins the importance of the Project and provides the rationale for it being proposed in the first place. Section 6 of this Statement discusses the sequential site search exercise that was undertaken across this area of the network and why the application site was concluded to be the most suitable option having looked at all reasonable alternatives.

## 5 ASSESSMENT OF HARM

### Whether the Development is ‘Inappropriate’

- 5.1 Not all of the proposed development is situated within the Green Belt: Work Nos. 3B, 9, 10, and 11 lie outside it. Of the parts which are within the Green Belt, it is necessary to consider which elements would be inappropriate development within the meaning of NPS EN-1.
- 5.2 NPS EN-1 at paragraph 5.10.10 of establishes ‘a general presumption against inappropriate development’ in the Green Belt. The NPS does not define inappropriate development but provides that it should be considered “within the meaning of Green Belt policy”. That policy is currently set out in NPPF 2019.
- 5.3 Paragraph 143 of the NPPF 2019 states that inappropriate development is by definition harmful to the Green Belt and should only be approved in very special circumstances.
- 5.4 In accordance with paragraph 144 of the NPPF 2019, substantial weight will be given to any harm to the Green Belt in the determination of applications. In accordance with paragraph 144 of the NPPF 2019: “*Very Special Circumstances will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm resulting from the proposal, is clearly outweighed by other considerations*”.
- 5.5 Paragraph 145 of the NPPF 2019 confirms that local planning authorities should regard the construction of new buildings as inappropriate in the Green Belt, subject to seven specific exceptions. The proposals do not sit within any of those seven exceptions. Therefore, all buildings proposed by the Applicant constitute inappropriate development.
- 5.6 Paragraph 146 of the NPPF 2019 sets out six forms of development that are not inappropriate in the Green Belt, provided they preserve its openness and do not conflict with the purposes of including land within it (as set out by paragraph 134 of the NPPF 2019).
- 5.7 Of those six forms of development, there are parts of the Project that would constitute “*b: engineering operations*” and “*e: material changes in the use of land (such as changes of use for outdoor sport or recreation, or for cemeteries and burial grounds)*”. These would not be inappropriate development.
- 5.8 Paragraph 5.10.12 of NPS EN-1 confirms that applicants “*may be able to demonstrate that a particular type of energy infrastructure, such as an underground pipeline, which, in Green Belt policy terms, may be considered as an “engineering operation” rather than a building is not in the circumstances of the application inappropriate development. It may also be possible for an applicant to show that the physical characteristics of a proposed overhead line development or wind farm are such that it has no adverse effects which conflict with the fundamental purposes of Green Belt designation*”.
- 5.9 Paragraph 5.10.17 of NPS EN-1 goes on to confirm that the determining authority “*will attach substantial weight to the harm to the Green Belt when considering any application for such development while taking into account, in relation to renewable energy and linear infrastructure, of the extent to which its physical characteristics are such that it has limited or no impact on the fundamental purposes of Green Belt designation*”.
- 5.10 Table 5.1 summaries which of the individual development components as defined in the work area are within or outside the Green Belt, and if within, whether the Applicant considers them to be appropriate or inappropriate. Discussion and justification for the conclusion on appropriate or inappropriateness is then given in each case in the following paragraphs.

**Table 5.1: Summary of Appropriate/Inappropriate assessment for each Work Area**

Work No.	Description	Green Belt?	Inappropriate?
1A	Gas fired electricity generating station with a net rated electrical output of up to 600 MW consisting of:		
	(a) engine house building(s);	Yes	Yes
	(b) up to 48 gas reciprocating engines;	Yes	Yes
	(c) up to 48 exhaust stacks;	Yes	Yes
	(d) up to 48 gas engine exhaust energy recovery systems;	Yes	Yes
	(e) cooling system;	Yes	Yes
	(f) air pollutant control system;	Yes	Yes
	(g) lubricating oil and air pollutant control system reagent storage;	Yes	Yes
	(h) a gas pre-heat, metering and pressure reduction compound	Yes	Yes
1B	Battery storage facility with a net rated electrical output of up to 150 MW for four hours consisting of:		
	(i) storage battery houses or containers;	Yes	Yes
	(j) storage inverter containers;	Yes	Yes
	(k) cooling system	Yes	Yes
1C	Facilities to serve both 1A and 1B consisting of:		
	(l) electrical equipment comprising 132 kV and 275 kV substations, switch houses and switch rooms, and auxiliary transformers;	Yes	Yes
	(m) fire suppression system and firewater tank;	Yes	Yes
	(n) an operations, maintenance and storage building;	Yes	Yes
	(o) control room(s);	Yes	Yes
	(p) septic tank or packaged foul treatment plant;	Yes	Yes
	(q) internal roads and parking;	Yes	No
	(r) surface water drainage;	Yes	No
	(s) surface water runoff attenuation pond(s); and	Yes	No
	(t) landscaping.	Yes	No
2	Creation and enhancement of onshore wildlife habitat including topsoil strip, planting, construction of ditches, mounds and banks, and enhancement of retained ditches for ecological benefit; and connection of retained ditches to Work 1C(r) surface water drainage.	Yes	No
3A	275 kV high-voltage underground cables for electricity export and lower voltage underground cables for auxiliary power supply	Yes	No
3B	Connection equipment in Tilbury Substation consisting of:		
	(a) civil works – equipment bases, cable trenching, fencing;	No	n/a
	(b) electrical equipment installation – current transformers, voltage transformers, high accuracy metering equipment, circuit breakers, disconnectors and emergency shutoff;	No	n/a
	(c) cable sealing end (where underground high voltage transmission cables join to existing overhead transmission cable) including, base, structure and terminations;	No	n/a
	(d) blockhouse (switch room)	No	n/a

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

Work No.	Description	Green Belt?	Inappropriate?
	(e) control and protection modifications for the re-equipped bay and integration to the site wide systems, including busbar protection.	No	n/a
4	An underground high-pressure gas pipeline between Work 1 and Work 5A and gas pipeline(s) within Work 1.	Yes	No
	A connection point to the gas National Transmission System comprising—		
	5A – A gas connection compound with landscaping consisting of:	Yes	Yes
5A	(a) a National Grid Minimum Offtake Connection facility containing remotely operable valve, control and instrumentation kiosk, and electrical supply kiosk;	Yes	Yes
	(b) a Pipeline Inspection Gauge Trap Facility containing pipeline inspection gauge launching facility, emergency control valve, isolation valve, control and instrumentation kiosk, and electrical supply kiosk	Yes	Yes
5B	If required by the siting of Work 5A, a high-pressure underground gas pipeline between Work 5A(a) and the gas National Transmission System	Yes	No
5C	An access track and junction from Station Road with drainage and landscaping	Yes	No
6	An access road and junction from Station Road with drainage and landscaping	Yes	No
7	A water supply connection to the water main at Station Road	Yes	No
8	Construction compound(s) and laydown area(s) south of Tilbury Loop railway	Yes	Yes
9	Creation of saltmarsh habitat	No	n/a
10	A causeway with crane platforms, extending from above mean high water springs to the foreshore, and a berthing pocket for barges	No	n/a
11	Alteration to sea wall	No	n/a
	An access road from the A1089 St Andrew's Road comprising—		
	(a) repairs to carriageway defects and carriageway widening or realignment for use of existing private roads;	Yes	No
	and connecting to 12(a)—	Yes	No
12	(b) engineering works and construction of new road section with drainage;	Yes	No
	(c) engineering works and construction of new road sections with drainage and landscaping;	Yes	No
	(d) engineering works and construction of new road sections with drainage and landscaping	Yes	No

Work No.	Description	Green Belt?	Inappropriate?
13	A footbridge, ground works and fencing for a permissive path between Fort Road and Work 14	Yes	Yes
14	Creation of common land with topsoil strip, planting and landscaping	Partly	No

n/a is used where the Work lies outside the Green Belt

### Work No. 1 (including Work nos. 1A, 1B, 1C ((l) to (p)):

- 5.11 This Work area includes the main development site i.e. the flexible generation plant. On the eastern side of the main development site would be up to 48 gas engines, each of which would be a self-contained unit with the engine, electrical generator, cooling system and exhaust stack.
- 5.12 The battery storage system would be located on the western side of the site. The battery systems may be housed in a building or may be in units that look similar to shipping containers stacked two high, in either case up to 10 metres tall.
- 5.13 In the southern part of the site there would be electrical switchgear used to step-up the voltage of electricity from the batteries and gas engines to match that of the grid connection and relay it to Tilbury Substation. This electrical equipment would look similar to the existing substation that is immediately to the south but at a smaller scale. The short connection between them would use underground cables.
- 5.14 All above ground development in Work No. 1 would be deemed to be inappropriate development in the Green Belt.

### Work No. 1 (Work Nos. 1C ((q)to (t)):

- 5.15 The internal access road, car parking, and a drainage system with ponds to hold runoff during heavy rain are engineering operations. These elements would not be inappropriate development in the Green Belt under paragraph 146 of the NPPF 2019, provided they preserve its openness and do not conflict with the purposes of including land within it.
- 5.16 The access, roads and drainage system would not lead to a loss of openness and would not lead to conflict with any of the five Green Belt purposes. These elements are therefore not inappropriate development.

### Work No. 2: Habitat Creation and Enhancement

- 5.17 Creation and enhancement of onshore wildlife habitat including topsoil strip, planting, construction of ditches, mounds and banks, and enhancement of retained ditches for ecological benefit; and connection of retained ditches to Work 1C(r) surface water drainage.
- 5.18 Work No. 2 does not involve any built development or engineering works other than habitat creation and as such the applicant considers that this would not constitute inappropriate development within the Green Belt (paragraph 5.10.12 NPS EN-1 and para 146 NPPF).

### Work No. 3A and 3B ((a) to (e)): Connection to Tilbury Substation

- 5.19 Work No.3A comprises 275 kV high-voltage underground cables for electricity export and lower voltage underground cables for auxiliary power supply. These works are within the Green Belt but are not considered to be inappropriate as they are engineering works below ground, consistent with the interpretation of paragraph 5.10.12 in NPS EN-1 and para 146 NPPF.
- 5.20 Work No. 3B relates to National Grid’s existing 275/400 kV Tilbury Substation, to which an electrical connection will be made. It lies to the north of Tilbury Power Station and adjoins Work No.3A. It is an area that contains many electrical components of the substation, including overhead lines and

towers. This area is not within the Green Belt and as such development here does not need to satisfy Green Belt policy tests.

### **Work Area No. 4: Gas Pipeline**

- 5.21 Work No. 4 comprises the corridor for the gas pipeline route. The works proposed would comprise the installation of the high-pressure gas pipeline below ground, between Work No. 1 and Work No. 5A and gas pipelines within Work No. 1. These elements comprise an engineering operation as opposed to a building.
- 5.22 It would not be inappropriate development in the Green Belt under NPPF paragraph 146 and paragraph 5.10.12 in NPS EN-1, provided it preserves its openness and does not conflict with the purposes of including land within it.
- 5.23 The access roads and underground gas pipeline would not lead to a loss of openness and would not lead to conflict with any of the five Green Belt purposes. These elements are therefore not inappropriate development.

### **Work No. 5A, 5B and 5C: Gas Connection Compound**

- 5.24 For the gas connection to the existing high-pressure main, a fenced compound approximately 50 metres by 50 metres would be built with access for vehicles off Station Road.
- 5.25 Work No. 5A comprises a gas connection compound with landscaping. This compound would have a National Grid Minimum Offtake Connection facility containing remotely operable valve, control and instrumentation kiosk, and electrical supply kiosk.
- 5.26 The compound would also have a Pipeline Inspection Gauge Trap Facility containing pipeline inspection gauge launching facility, emergency control valve, isolation valve, control and instrumentation kiosk, and electrical supply kiosk.
- 5.27 The development proposed above ground for Work No. 5A is inappropriate in Green Belt terms.
- 5.28 Work No. 5B comprises a potential high-pressure underground gas pipeline between the National Grid Minimum Offtake Connection facility and the gas National Transmission System.
- 5.29 Work No. 5B would not be inappropriate in the Green Belt in accordance with NPPF paragraph 146 and paragraph 5.10.12 in NPS EN-1
- 5.30 Work No. 5C is an access track and junction from Station Road with drainage and landscaping.
- 5.31 Work No. 5C is not deemed inappropriate in Green Belt terms as the access road would not lead to a loss of openness and would not lead to conflict with any of the five Green Belt purposes

### **Work No. 6: Permanent Access Road**

- 5.32 Work No. 6 consists of a permanent access road with an at grade / low-level access from Station Road as well as drainage and landscaping.
- 5.33 The access roads would not lead to a loss of openness and would not lead to conflict with any of the five Green Belt purposes. These elements are therefore not inappropriate development.

### **Work No. 7: Water Supply Connection**

- 5.34 This Work No. comprises a water supply connection to the water main at Station Road.
- 5.35 The underground water supply pipe would not lead to a loss of openness and would not lead to conflict with any of the five Green Belt purposes. It also accords with paragraph 146 of the NPPF as well as paragraph 5.10.12 in the NPS EN-1. This element is therefore not inappropriate development.

### **Work No. 8: Construction Compound and Laydown Area**

- 5.36 This Work No. consists of construction compound(s) and temporary laydown area(s) on land south of Tilbury Loop Railway.
- 5.37 This Work No. is temporary structural development within the Green Belt and as such, comprises development that is deemed inappropriate.

### **Work No. 9: Creation of Saltmarsh Habitat**

- 5.38 The accretion of muddy sediments in the lee of the proposed causeway has the potential to result in the expansion of saltmarsh habitats beyond the current extent. In addition, there are proposed further measures proposed to encourage and enhance this process by deposition of dredged sediment in the lee of the causeway.
- 5.39 This Work No. is outside the Green Belt and as such, does not need to satisfy Green Belt policy tests.

### **No. 10: Causeway**

- 5.40 This Work No. comprises the construction and operation of a permanent causeway with crane platforms, extending from above mean high water springs to the foreshore, and a berthing pocket for barges. It will be part of the infrastructure required for delivery of AILs via roll-on roll-off barge and transport to the main development site.
- 5.41 This Work No. is not within the Green Belt and as such development here does not need to satisfy Green Belt policy tests.

### **Work No. 11: Alteration to Sea Wall**

- 5.42 This Work No. comprises part of the infrastructure required for delivery of AILs. It involves the modification to the sea wall at the north bank of the Thames.
- 5.43 This Work No. is not within the Green Belt and as such development here does not need to satisfy Green Belt policy tests.

### **Work No. 12(a) to (d): Use of Existing Private Road for Access**

- 5.44 The proposed road that constitutes this Work No. will comprise part of the existing private road infrastructure on RWE's former Tilbury B Power Station site and a new section of purpose-built road to connect to the main development site. For part of the new road route, two options are being considered: flexibility to determine the preferred option prior to construction is required due to recent ground disturbance in this area.
- 5.45 The work will involve an access road from the A1089 St. Andrew's Road, comprising Work No. 12(a) – repairs to carriageway defects and carriageway widening or realignment for use of private existing roads; and connecting to 12(a) –
- 12(b) engineering works and construction of new road section with drainage;
  - 12(c) engineering works and construction of new road section with drainage and landscaping;
  - 12(d) engineering works and construction of new road section with drainage and landscaping.
- 5.46 The access roads and associated landscaping are within the Green Belt but would not lead to a loss of openness and would not lead to conflict with any of the five Green Belt purposes. These elements are therefore not inappropriate development.

### Work No. 13: Footbridge

- 5.47 This Work No., north of the railway, includes a footbridge, ground works and fencing for a permissive path between Fort Road and the area of new common land that comprises Work No. 14.
- 5.48 This Work No. is structural development within the Green Belt and as such, comprises development that is deemed inappropriate.

### Work No. 14: Exchange Common Land

- 5.49 Work No. 14 is c. 11.6 ha in size and lies to the north of, and adjacent to, the railway line, and on the east side of Fort Road as it passes Tilbury. This area is currently in agricultural use and transferring this to Common Land would not constitute a building operation. It would constitute a material change in the use of the land for recreation and is therefore would not be inappropriate development in the Green Belt under paragraph 146 of the NPPF 2019, provided it preserves its openness and does not conflict with the purposes of including land within it.
- 5.50 The creation of new common land would preserve the openness of the Green Belt and would not conflict with any of the Green Belt purposes. It is therefore appropriate development.

## Green Belt Harm

- 5.51 The NPPF 2019 sets out the Government's position with regard to Green Belt policy and proposals affecting the Green belt. Paragraph 133 of the NPPF 2019 states that: "*The Government attaches great importance to Green Belts. The fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open: the essential characteristics of Green Belts are their openness and their permanence*".

## The Effect on Openness of the Green Belt

- 5.52 It is important to consider the contribution the site has at present to the openness of the Green Belt. This relates to the effect of the proposed development on the Green Belt as a whole, and each of the five Green Belt purposes that seek to preserve its openness.
- 5.53 There is no definition of 'openness' in the NPPF 2019, nor anywhere else in statute or policy relevant to this application. For the purposes of this statement the definition for 'Green Belt openness', that it relates to the freedom from, or absence of, built development, is as used by the Court of Appeal.
- 5.54 It is submitted that only the above-ground elements of the Project, excluding roads, would be considered to be inappropriate development in the Green Belt. These above-ground elements are confined to the main development site (Work No. 1), the Above Ground Installation (the AGI, Work No. 5A), the temporary construction compound (Work No. 8) and the footbridge (Work No. 13). The main development site is c. 20 ha and the AGI compound would no more than 0.25 ha. The Applicant seeks flexibility in the final design and layout of buildings within the main development site (see the Works Plans, application document A2.3) but substantial parts of the site will be used for CCR, drainage and landscaping. Above-ground buildings are conservatively estimated to occupy no more than half of the main development site, i.e. c. 10 ha (see Illustrative Site Layout Plans, application document A2.7).
- 5.55 The main development site currently comprises open, flat fields crossed by drainage ditches and three overhead power lines with steel lattice electricity pylons, which are approximately 46m high. It is immediately to the north of the existing Tilbury Substation and site of the former Tilbury B coal fired power station, with the River Thames further to the south. As shown in Figure 5.2, it is situated on the edge of the Green Belt where this adjoins existing industrial (energy generation and port facilities) development and to the south of the railway line.
- 5.56 The part of the Metropolitan Green Belt that lies in the administrative area of Thurrock Council totals around 11,000 ha. The built/above ground elements of the project would occupy <0.1% of the Green

Belt footprint. Although the amount of Green Belt land affected as a proportion of the total amount of Green Belt land in the Borough is not in itself a measure of acceptability, it is useful to consider the context of this in terms of the removal of a relatively small amount of Green Belt land, at the periphery of current Green Belt boundaries.

- 5.57 The site is positioned immediately adjacent to the existing Tilbury Substation, which sits outside the Green Belt. The substation comprises c. 9 ha of land containing the many electrical components of the substation, including the associated overhead lines and towers, which cross the site. It also has two large buildings on the eastern side. In this context it is maintained that the perceived level of contribution to the openness of Green Belt made by the application site is limited.
- 5.58 While the Project would occupy a previously undeveloped site, this is traversed by power lines and pylons, it is located on the edge of an area of past development, on the fringes of the Metropolitan Green Belt, that is characterised by existing commercial and infrastructure development, and would be seen as a continuation of that form of development, and the character it has created.
- 5.59 The effect of the proposed development on the openness of the Green Belt would be adverse but limited. The main site built elements of the proposal would be situated on the edge of the Green Belt in close proximity to existing large-scale built development including extensive electrical infrastructure.
- 5.60 Tilbury Power Station, under demolition during 2019, is located to the south of Tilbury Substation. Further west is Tilbury Docks, associated warehouses, its substantial expansion site (Tilbury2, under construction at the time of writing) and the London International Cruise Terminal. The large cranes and wind turbines adjacent to the River Thames are visible from the surrounding landscape. The effect of the proposed development would be to extend the built from slightly into the Green Belt from an existing developed edge. While this reduces openness along the particular edge, the openness of the considerable majority of the Green Belt is unaffected.
- 5.61 The main site of the proposed development would reduce views towards the estuary and therefore the perception of openness from the west. From the north the proposed development would be seen against the substation, the RWE site (former Tilbury Power Station) and the Port of Tilbury. It would therefore sit in the context of the heavily developed area on the river and would act to bring the built edge forward rather than introduce a new element of built form into the flat marshland landscape.
- 5.62 The Applicant accordingly considers that as an adverse impact on openness would be experienced locally on the edge of Green Belt, there is harm to openness. However, that harm is limited in extent by the sympathetic siting of the proposed development on the edge of the Green Belt in close proximity to existing large scale-built form. It should also be noted that the construction compound and laydown area is temporary and therefore so are its impacts on openness. The proposed footbridge and associated works only occupy a very small part of the Green Belt, limiting its impact on openness. In any event it is deemed highly desirable as a means to access the new common land, which is considered to be a benefit in Green Belt terms.
- 5.63 The Applicant has designed an efficiently scaled project with the minimum land take required to deliver the project, including necessary mitigation measures, as has been described in the Design Principles Statement (application document A8.4). Although visual effects are not usually considered in the assessment of impacts on openness, it is also worth noting the Applicant has committed to the delivery of replacement common land, habitat creation, landscape mitigation and agreement on the final design of the project, which would include options for different façade treatments which can reduce the visual effects of the Project.

### **Effect on the Purposes and Objectives of the Green Belt**

- 5.64 In examining the impact of the proposed development in Green Belt terms, it is also necessary to assess the role that the site performs in terms of Green Belt functions. The five purposes of the Green Belt are set out in paragraph 134 of the NPPF 2019. As discussed in Section 3 of this report,

Thurrock Council has concluded that the fourth and fifth Green Belt purposes are not relevant to the consideration of Green Belt effects in this part of the Metropolitan Green Belt, and accordingly has excluded them from the SGBA.

- 5.65 Although Thurrock Council has concluded that the Metropolitan Green Belt does not contribute to the fourth and fifth purpose, the Applicant has included them in this consideration at a local level in order to ensure that this report is comprehensive for the proposed development. An assessment in relation to how the proposed development contributes to the delivery of each of the five purposes is set out in the following paragraphs and in Table 5.2.

### **a) To check the unrestricted sprawl of large built up areas**

- 5.66 The proposed development would not have any material impact upon the ability of Green Belt to check the unrestricted sprawl of Tilbury, the nearest built up area, or the other nearest settlements, Chadwell St Mary, West Tilbury, Linford or East Tilbury. The application site is separated from the nearest settlement, Tilbury, by Fort Road and the London, Southern and Tilbury Rail Line, themselves forming defensible boundaries preventing unnecessary sprawl of these areas. The proposed energy infrastructure is also a bespoke form of development, unique in its form and necessary in this location and both circumstances and characteristics of which are unlikely to be repeated and used to justify other developments elsewhere. If allowed it will have necessarily been justified by very special circumstances including meeting an important national need and would not set an undesirable precedent. The Applicant submits therefore that this purpose of Green Belt would still be able to function effectively and check the unrestricted urban sprawl of large built up areas.
- 5.67 The development of the Project in this location would not affect Thurrock Council's ability to restrict development pressure that may occur in the future on the edge of existing urban areas.
- 5.68 The Project does not impact on the first Green Belt purpose.

### **b) To prevent neighbouring towns from merging**

- 5.69 The application site is situated between Tilbury (to the west), West Tilbury (to the north), and East Tilbury and Linford (to the east). As the nearest towns to the application site, these are the 'neighbouring towns' that this purpose of the Green Belt is seeking to prevent from merging. The development would not affect the ability of the Green Belt to prevent merging of these settlements.
- 5.70 The site is detached from the settlements of Tilbury, West Tilbury, East Tilbury and Linford. Fort Road and the railway line to the north sever the application site from Tilbury. The Project would not be viewed as an extension to the established settlements and would not result in the merging of any of these towns.
- 5.71 The Project would not contribute to or facilitate the future merging of these neighbouring towns, and therefore does not impact on the second Green Belt purpose.

### **c) To assist in safeguarding the countryside from encroachment**

- 5.72 The Project would result in an increase in built, above ground, development at Work Nos. 1, 5, 8 and 13 where none currently exists. The project would lead to some encroachment into this part of the countryside and would therefore impact on this Green Belt purpose. In accordance with Paragraph 143 of the NPPF 2019 inappropriate development that is harmful to the Green Belt should not be approved except in very special circumstances. In terms of level of harm caused, however, the applicant submits that it is limited in extent and effect for the following reasons.
- 5.73 The Applicant has designed the Project to provide the necessary flexibility in technology, but utilising the smallest amount of land possible. The Project is efficiently designed and encroachment to the countryside would be limited to the smallest practicable amount. Whilst it is accepted that, in itself, does not mean substantial weight should not be given to harm arising as a result of the proposals, it does provide some context for the degree of harm that would be caused, when considered

alongside the location of the site, at the fringe of the Green Belt, and in the vicinity of a range of existing and planned commercial and industrial sites.

- 5.74 In addition to minimising the scale of the project with the minimum land take required to deliver the project, mitigation measures are also proposed. Although visual effects are not usually considered in the assessment of impacts on openness, it is also worth noting the Applicant has committed to the delivery of replacement common land, habitat creation, landscape mitigation and agreement on the final design of the project, which would include options for different façade treatments which can reduce the visual effects of the Project. The Applicant is taking a number of proactive and proportionate steps to ensure the site does not extend any further than it needs to physically, including space to construct and operate the Project and to provide all proposed environmental mitigation
- 5.75 The location of the main works is also both on the periphery of the existing Green Belt and in countryside that is of poor quality and already heavily influenced by neighbouring landuses. If any part the countryside in Green Belt is to be developed at all, this area occupies one of the least sensitive location in terms of quality of countryside and impact of this purpose of the Green Belt.
- 5.76 Work No. 1 is heavily influenced in character and appearance by the substation immediately adjacent to the south of the site, associated overhead transmission infrastructure (power lines and towers), and is seen in the context of nearby industrial development. The application site is located on the very edge of the Green Belt in this location and nearby development, including the adjacent Tilbury Substation, sit just outside of it. Although encroachment would occur, and harm would therefore be caused, the extent of that harm to the character of this peripheral part of the Green Belt would be limited.
- 5.77 Although the site is outside any settlement boundary, areas to the south and west of Work No. 1 are not characteristic of 'countryside'.
- 5.78 The application site is identified on Page 9 Tilbury Development Framework 2017 (TDF) as being within an 'Industrial Landscape' situated to the south of the railway. The Council's Landscape Capacity Study (2005) discusses the sensitivity of the Tilbury Marshes Landscape Character Area to 'substantial-scale urban developments' and states *"The character area is strongly influenced by urban areas and utilities infrastructure. The addition of development of this scale, if sited appropriately would not degrade the overall character of the LCA"*.
- 5.79 The landscape is host to electricity transmission infrastructure (Tilbury Substation, pylons and overhead lines) and commercial development. To the north of Work No. 1 is the Tilbury loop of the London-Southend railway line. To the south west is the Anglian Water Tilbury Water Recycling Centre (where a smaller peaking power generator has recently been consented). The southern part of that site is used for sewage treatment, and the northern part is operated by Stobarts Biomass Products Limited for waste wood storage and as a fuel processing plant to manufacture and supply the nearby Tilbury Green Power (TGP) Power Station located within the Main Port.
- 5.80 There is also large-scale work ongoing immediately to the south-east of the main development site to mine pulverised fuel ash (from the former Tilbury Power Station ash fields) and deposit inert waste in a major land-raising operation.
- 5.81 Tilbury Power Station, under demolition during 2019, is located to the south of Tilbury Substation. Further west is Tilbury Docks, associated warehouses, its substantial expansion (Tilbury2, under construction at the time of writing) and the London International Cruise Terminal. The large cranes and wind turbines adjacent to the River Thames are visible from the surrounding landscape.
- 5.82 More open countryside exists to the north of the railway line. Similarly, more open countryside exists to the north east and east towards East Tilbury. The development at Work No. 1 would not physically encroach into either of those adjoining countryside areas, where the Lower Thames Crossing is proposed. While the Project would occupy a previously undeveloped site, this is traversed by power lines and pylons, it is located on the edge of an area of past development, on the fringes of the

Metropolitan Green Belt, that is characterised by existing commercial and infrastructure development, and would be seen as a continuation of that form of development and the character it has created.

- 5.83 This is demonstrated in the tranquillity mapping provided by CPRE (see Figure 5.3) and discussed in Volume 3, Chapter 6 of the ES. It is concluded that the location of the main development site close to the eastern edge of Tilbury and next to Tilbury Substation, along with Tilbury Port and other large industrial buildings, precludes any sense of tranquillity. Visual intrusion, lighting, construction and decommissioning activities, as well as noise associated with these facilities, provide a discordant influence in the vicinity of the rural landscape of the Tilbury Marshes.
- 5.84 Work No. 5 includes a 50m x 50m AGI compound close to the solar farm on the west of East Tilbury, with structures no more than 5m in height. There is a functional need for the gas connection to be sited here, although there would be some encroachment into the countryside as result of this part of the Project.
- 5.85 In light of the above, therefore, whilst there would be some impact on this purpose of safeguarding the countryside and therefore associated Green Belt this harm is limited in extent and effect and must then be weighed against the Very Special Circumstances in this case.
- 5.86 The Applicant believes that in this case Very Special Circumstances can be demonstrated, sufficient to outweigh the harm caused to the Green Belt. These are set out in Section 6 below and the balancing exercise is undertaken in Section 7.

### **d) To preserve the setting and special characteristics of historic towns**

- 5.87 There is no definition as to what constitutes an historic town in Green Belt terms. In some locations in the United Kingdom, for example Oxford and Cambridge, Green Belts provide a safeguard against inappropriate development in the Green belt that might otherwise affect the setting of the historic towns they surround. In the case of the Metropolitan Green Belt, the Green Belt serves to protect the setting of London, and the setting of any historic towns that fall within it. Again, the term 'historic town' is not defined for the purposes of Green Belt policy.
- 5.88 For present purposes it has been considered whether there would be any effects on the setting of the nearest heritage assets, located within the nearest towns. The closest town to the application site is Tilbury. Tilbury does not have a Conservation Area nor a cluster of historic buildings creating an historic core or town. Tilbury Fort is located on low lying ground on the north bank of the River Thames, south east of the modern outskirts of Tilbury itself and some 1km south west of the main development site at its nearest point.
- 5.89 There are Conservation Areas at West Tilbury positioned over 1km to the north of the application site; Gravesend over 1km to the south, and Linford to the north-west. There are five listed buildings located within 1 km of the main development site. Of these the Church of St James (list entry number 1111541) is listed at Grade II\* and the remainder at Grade II.
- 5.90 The assessment of effects on heritage assets is provided in Volume 3, Chapter 7 of the ES. While potentially significant effects in EIA terms are predicted, in planning terms it is the opinion of the author of the heritage chapter, that the level of significance predicted does not transpose into 'substantial' harm in the terms of the NPPF 2019 (Paragraph 163 to 169). In the opinion of the heritage consultant all adverse effects on designated heritage assets identified in the ES chapter represent 'less than substantial' harm in terms of the NPPF 2019'.
- 5.91 Paragraph 196 of the NPPF states that "Where a development proposal will lead to less than substantial harm to the significance of a designated heritage asset, this harm should be weighed against the public benefits of the proposal including, where appropriate, securing its optimum viable use." In the case of the current proposal, the Applicant submits that for the purposes of assessing effects on this Green Belt purpose, the NPPF planning decision making test is the relevant test to

apply here. That judgement is that there is 'less than substantial harm' caused to any heritage asset (the lowest category of effect) and when weighed against the public benefits that arise from delivery of the development, these are sufficient to offset any harm to these assets. It is concluded, therefore, that the Project would not conflict with Green Belt purpose four.

### **e) To assist in urban regeneration, by encouraging the recycling of derelict and other urban land**

- 5.92 This Green Belt purpose seeks to direct new development 'inwards' to land within existing settlements, promoting urban regeneration and the re-use of urban land in preference to developing outside settlements in the countryside. The application site is not located in an urban area, although it is directly to the north of the existing Tilbury Substation. Land to the immediate west is identified within the Thurrock Core Strategy as a Strategic Employment site. While the Council has not progressed with the Site Allocations document in 2013, the Issues and Options version of this document identified the 13 ha parcel of land as land for '*Primary Industrial and Commercial Employment.*' In land-use planning terms whilst the application site falls just outside that allocation, there is no material harm caused.
- 5.93 A DCO for the expansion of the Port of Tilbury was made on 20th February 2019. The site is located to the west of the application site. RWE was previously promoting a 2.5MW Combined Cycle Gas Turbine project, known as the Tilbury Energy Centre (TEC), on land at Tilbury Power Station, which was also a Nationally Significant Infrastructure Project. On 19th November 2018 RWE confirmed to the Planning Inspectorate that decision had been taken to freeze the project and the DCO application is not being progressed. Following a recent discussion with RWE, they have confirmed that this land is not available to third parties for development purposes for the foreseeable future.
- 5.94 It is submitted that the proposed development would not conflict with this Green Belt purpose. This land-use is better located on land away from other sensitive land-uses. The proposed development would be unlikely to be compatible with an urban location. Even if a site large enough were available, it would be complex and potentially disruptive to construct, leading to likely adverse environmental effects during construction and potentially adverse effects during operation. The site selected is in planning terms acceptable: it is situated adjacent to compatible land-uses (existing and proposed), and located under existing electricity pylons which would be unsuitable for many other land-uses. The development of the site selected is appropriate and would not materially undermine any urban regeneration potential in the vicinity.
- 5.95 In conclusion, the Project would not conflict with Green Belt purpose five.

### **Summary Conclusion**

- 5.96 The main development site and AGI elements of the proposed development would harm the openness of the Green Belt and result in encroachment of development onto a site within the Green Belt, in conflict with one of the five Green Belt purposes. They therefore constitute inappropriate development within the meaning of NPS EN-1.
- 5.97 The harm which would be caused is limited in extent and effect. However, the NPS does not set a threshold on harm and the Secretary of State is allowed to make a judgement on acceptability of if harm is caused. Nevertheless, Very Special Circumstances need to be demonstrated, that clearly outweigh the harm caused. The Very Special Circumstances that apply in this case are set out at Section 6.
- 5.98 Table 5.2 below summarises the assessment of the Project against the five purposes of the Green Belt, set out at paragraph 134 of the NPPF 2019. The terminology for scale of effects is based upon that adopted by Thurrock Council in its Green Belt Review.

**Table 5.2: Summary Assessment of Green Belt Harm Against Purposes**

Green Belt Purpose	Assessment	Importance to Green Belt Purpose
Purpose a): To check the unrestricted sprawl of large built up areas	<p>The main development site immediately abuts the existing Tilbury Substation and is directly associated with the adjoining energy and infrastructure as opposed to the built-up urban edge of Tilbury. The Project therefore would not conflict with this overriding aim of the Green Belt which seeks to check the outward growth of large built-up areas.</p> <p>While the industrialised area itself could be viewed as a 'large built up area', the railway to the north acts as a defensible boundary which prevents the expansion of this area into the urban fringe to the north.</p> <p>There would be slight to no conflict with this Green Belt purpose.</p> <p>This is the same conclusion as the assessment of importance to the Green Belt purposes carried out in the SGBA.</p>	<p>Fundamental</p> <hr/> <p>Major</p> <hr/> <p>Moderate</p> <hr/> <p>Slight/Negligible</p> <hr/> <p>None</p>
Purpose b): To prevent neighbouring towns from merging	<p>The application site is situated between Tilbury (to the west), West Tilbury (to the north), East Tilbury and Linford (to the east). As the nearest towns to the application site, these are the 'neighbouring towns' this purpose of the Green Belt is seeking to protect from coalescence. The development would not affect the ability of the Green Belt to prevent coalescence of these settlements. There is already clear definition in terms of the built-up areas of these settlements. The Project would not be viewed as an extension to the established settlements and would not result in the merging of any of these towns.</p> <p>There would be no conflict with this Green Belt purpose.</p> <p>This is the same conclusion as the assessment of importance to the Green Belt purposes carried out in the SGBA.</p>	<p>Fundamental</p> <hr/> <p>Major</p> <hr/> <p>Moderate</p> <hr/> <p>Slight/Negligible</p> <hr/> <p>None</p>
Purpose c): To assist in safeguarding the countryside from encroachment	<p>The Project would result in an increase in built development within Work No.'s. 1, 5, 8 and 13, where none currently exists. The Project would lead to encroachment into the countryside and would therefore conflict with this Green Belt purpose.</p> <p>While the Project would occupy a previously undeveloped site, it is located on the edge of an area that is characterised by existing commercial and infrastructure development, crossed by overhead transmission lines and would be seen as a continuation of that established character.</p> <p>The Council's Landscape Capacity Study (2005) discusses the sensitivity of the Tilbury Marshes Landscape Character Area to 'substantial-scale urban developments' and states "<i>The character area is strongly influenced by urban areas and utilities infrastructure. The addition of development of this scale, if sited appropriately would not degrade the overall character of the LCA</i>".</p> <p>Retention of the site within the Green Belt is of slight/negligible importance to the ongoing function of the Green Belt. Notwithstanding this, the Project would conflict with this Green Belt purpose leading to slight/negligible Green Belt harm. Very special circumstances would need to be demonstrated to overcome this harm.</p>	<p>Fundamental</p> <hr/> <p>Major</p> <hr/> <p>Moderate</p> <hr/> <p>Slight/Negligible</p> <hr/> <p>None</p>

### A8.3 APPENDIX 1 GREEN BELT STATEMENT

Green Belt Purpose	Assessment	Importance to Green Belt Purpose
<p>Purpose d): To preserve the setting and special characteristics of historic towns</p>	<p>In the SGBA, Thurrock Council chose not to review the role of sites in delivering this Green Belt purpose. Thurrock Council recognised that there were some conservation areas, mostly within smaller towns. It was concluded however that those areas were not relevant to the strategic nature of this Green Belt purpose (SGBA, paragraph 3.6.8).</p> <p>The closest town to the application site is Tilbury. Tilbury does not have a Conservation Area nor a cluster of historic buildings creating an historic core or town. Tilbury Fort is located on low lying ground on the north bank of the River Thames, south east of the modern outskirts of Tilbury itself and some 1km south west of Work No. 1 at its nearest point. It is considered that the physical separation and intervening development between these heritage assets, prevents the Project from having substantial harm in NPPF terms on their setting.</p>	<p><del>Fundamental</del></p> <hr/> <p><del>Major</del></p> <hr/> <p><del>Moderate</del></p> <hr/> <p><del>Slight/Negligible</del></p> <hr/> <p><b>None</b></p>
<p>Purpose e): To assist in urban regeneration, by encouraging the recycling of derelict and other urban land</p>	<p>In the SGBA, Thurrock Council chose not to review the role of sites in delivering this Green Belt purpose. Thurrock Council recognised that it is the overall restrictive nature of the Green Belt that encourages urban regeneration, by restricting new development in the Green Belt/the countryside and encouraging new development 'inwards' toward existing built up areas. On that basis Thurrock Council concluded it was "<i>generally not possible to judge how any given parcel of land would contribute to the fulfilment of this purpose, or to distinguish between different parcels on this basis</i>" (SGBA, paragraph 3.6.9).</p> <p>Notwithstanding, it is still relevant to consider the role that the application site might specifically serve in delivering this Green Belt objective. The development of the proposed energy facility on this Green Belt site would have no impact on any known regeneration plans of the nearest urban areas. The proposals would not be suited to an urban location and would not contribute to the sort of urban regeneration envisaged by this Green Belt purpose if it were possible to take place on an urban site.</p>	<p><del>Fundamental</del></p> <hr/> <p><del>Major</del></p> <hr/> <p><del>Moderate</del></p> <hr/> <p><del>Slight/Negligible</del></p> <hr/> <p><b>None</b></p>

## Any Other Harm

- 5.99 The ES contains a full assessment of effects associated with the project and Chapter 33 of the ES identifies the significant residual effects. These are as follows.
- A long-term significant beneficial effect on grassland habitat due to the provision of habitat creation exceeding that lost.
  - A temporary significant adverse effect on saltmarsh habitat, but minor beneficial (not significant) in the long term as replacement habitat establishes.
  - A significant beneficial effect on climate change due to a reduction in net greenhouse gas emissions compared to electricity generation without the proposed development.
  - Long-term significant adverse effects on the settings of heritage assets Tilbury Fort and the West Tilbury Conservation Area, albeit in the opinion of the heritage consultant all adverse effects on designated heritage assets identified in the ES chapter represent 'less than substantial' harm in terms of the NPPF 2019.
- 5.100 With implementation of the mitigation measures embedded in the project design or secured via the submitted management plans and requirements in Schedule 2 of the draft DCO, no other significant residual environmental effects have been predicted.

## 6 VERY SPECIAL CIRCUMSTANCES

### What Constitutes Very Special Circumstances

- 6.1 There is no legal definition of very special circumstances and each project must be considered on its own facts. NPS-EN1 provides only that “*Very special circumstances will not exist unless the harm by reason of inappropriateness, and any other harm, is outweighed by other considerations.*”.
- 6.2 Neither the NPPF 2019 nor the adopted Thurrock Core Strategy provide guidance on what can comprise ‘very special circumstances’. The demonstration of very special circumstances inevitably requires the use of professional judgement to conclude whether very special circumstances exist, and the weight that should be attached to them, and whether that weight is sufficient to outweigh the accepted harm to the Green Belt.
- 6.3 Some interpretation has been provided through the Courts. The rarity or uniqueness of a factor can make it very special, but it has also been held that the aggregation of commonplace factors could combine to create very special circumstances.
- 6.4 The Applicant considers there to be five sets of considerations that collectively outweigh the Green Belt harm and therefore constitute very special circumstances for the project. These are:
- 1 – supporting the growth of renewable energy;
  - 2 – addressing a compelling and urgent need for on-demand power generation, contributing to energy security and network resilience;
  - 3 – the role of the application site in the Green Belt;
  - 4 – proximity to high pressure gas and 275kV electricity network connections, site suitability and alternatives; and
  - 5 – improvement of access to common land.

### Considerations amounting to very special circumstances

- 6.5 It is considered that there are several significant considerations that comprise the very special circumstances required to outweigh the identified harm to the Green Belt caused by the Project, which are discussed in detail below. While not all of these are needed to tip the balance in favour of the Project, taken together the Applicant considers that they present a compelling case of very special circumstances.

#### 1: Supporting the Growth in Renewable Energy Generation and Lowering Carbon Emissions

- 6.6 Paragraph 147 of the NPPF 2019, the environmental benefits associated with increased production of energy from renewable sources can present very special circumstances.
- 6.7 The Project is required to complement the growing mix of renewable electricity generation and to meet the Government’s objective of maintaining a reliable electricity supply. Once operational, the new flexible and reliable facility would have the ability to respond rapidly to the short-term variations in demand and fluctuations in the output from renewable energy sources.
- 6.8 The proposed development would be able to displace more costly and more polluting ‘spinning reserve’ that National Grid currently uses to meet the periods of system stress. The

- need to maintain spinning reserve is increased by the intermittency of renewables on the electricity network. To establish spinning reserve, National Grid contracts power stations to start up and run at less than full capacity, in order to be in a position to quickly respond to any shortfalls in generation – because it is quicker to ramp up generation from an already operating station than to ‘start from cold’.
- 6.9 National Grid also establishes spinning reserve by contracting high energy users to ramp down their usage at times of system stress. Broadly, 70% of spinning reserve is made up of contracts held with power stations, and 30% of spinning reserve is made up of contracts with high energy users.
- 6.10 As more renewable energy generation is developed and relied upon by National Grid, greater amounts of spinning reserve will be required.
- 6.11 The project provides an alternative to maintaining spinning reserve. The high ramping rate provided by the gas reciprocating engines means that it can operate at full power within five minutes of receiving an instruction to start-up, and power-down in less than 30 seconds if required to do so. Battery storage can provide power immediately on demand. This would provide resilience to National Grid that is more responsive than spinning reserve, without the cost of operating that spinning reserve. When the gas engines are not required, there are zero emissions and significant carbon savings as a result.
- 6.12 While the development itself is not a renewable energy generating station, it is low carbon and directly supports the increased growth in renewable energy generation, one of the key aims of the NPS EN-1 and the NPPF 2019.
- 6.13 The Project would complement and support the mix of electricity generation and help to meet the Government’s objective of “*Achieving clean growth, while ensuring an affordable energy supply for businesses and consumers, [which] is at the heart of the UK’s Industrial Strategy.*” (Clean Growth Strategy, 2017). Once operational, the new flexible and reliable facility would have the ability to respond rapidly to the short-term variations related to demand, particularly around London, and fluctuations in the output from renewable energy sources.
- 6.14 In order to meet the government’s targets under the Climate Change Act 2008 of reducing greenhouse gas emissions to net zero by 2050 the energy balance is becoming increasingly reliant on renewable energy sources. This is expected to grow as the capital cost of renewable energy projects such as solar and wind continue to reduce. However, to facilitate the growth in renewable energy infrastructure it is essential that backup energy generating facilities are provided to maintain the security of supply.
- 6.15 The Project is essential to the ongoing growth and integration of renewable technologies into the energy system.

## **2: Addressing a critical and urgent need for on-demand power generation, contributing to energy security and network resilience**

- 6.16 The Government places significant emphasis on the need to achieve security in energy supply with sufficient electricity capacity. Under all scenarios considered by National Grid in the Future Energy Scenarios 2019 publication, there is predicted to be a continuing need for gas-fired generation and electricity storage.
- 6.17 Paragraph 2.2.20 of NPS EN-1 emphasises that the need to maintain a security of supply is critical to the UK: “*It is critical that the UK continues to have secure and reliable supplies of electricity as we make the transition to a low carbon economy. To manage the risks in achieving security of supply we need sufficient electricity capacity (including a greater*

- proportion of low carbon generation) to meet demand at all times... This requires a safety margin of spare capacity to accommodate unforeseen fluctuations in supply or demand."*
- 6.18 The Clean Growth Strategy (2017) sets out that energy security "... is about ensuring secure, reliable, uninterrupted supplies to consumers, and having a system that can effectively and efficiently respond and adapt to changes and shocks. It is made up of three characteristics: flexibility, adequacy and resilience. The Government is committed to ensuring there are secure supplies for consumers whatever the energy mix."
- 6.19 Coupled with the increasing electricity capacity required under all future energy scenarios, is the added complication of established generating capacity being decommissioned.
- 6.20 This scenario is particularly acute in the south east of England. A total of 4.5-5GW of generation on the local transmission system in the London metropolitan area has been disconnected since the 1970s, around half of which has been lost since 2017. There are periods of time when the Transmission Network around London can experience constraints, particularly during maintenance periods when circuits are switched out for scheduled maintenance.
- 6.21 Replacing the disconnected generation on the London 275kV circuit with efficient, flexible generation, would provide the ability to reduce the risk and impacts of system constraints, thereby contributing to the resilience and security of supply to the London conurbation, a specific point agreed with National Grid and a key component of the Industrial and Clean Growth Strategies. Facilitating the connection of flexible generation to the system close to the point of demand can realise potential benefits to the electricity customer in terms of resilience, security and lower costs, and reduces the power losses associated with transmitting electricity over longer distances.
- 6.22 National Grid has a license obligation both to connect customers and to do so in an economic and efficient manner. While a range of factors come into the latter point, reference can be made to National Grid Electricity Transmission's current uncertainty mechanism that provides an allowance for connecting generation. This mechanism is based upon the average cost (described as a cost per MW) of connected generation from the previous regulatory period. This average cost that will be applied is £27,000 (based in 2009/10 pricing). However, in reality, the cost per MW of Thurrock Flexible Generation Plant would be less than 10% of this figure, demonstrating the advantage of a connection directly into the available headroom on the 275 kV circuit at Tilbury Substation from a site adjacent to it.
- 6.23 The site location is also supported by other locational signals provided by National Grid (known as 'TNUoS' charges, which provide a financial incentive to encourage generation to connect in areas of higher demand). This geographical area has one of the lowest charging zones, reflecting its proximity to high demand areas.

### **3: The role of the application site in the Green Belt**

- 6.24 The main application site is on land that is on the periphery of the Green Belt, adjacent to employment and utility uses, sits underneath power lines, and in countryside that is degraded in value due to the influences of adjacent land uses. The role and value that the site performs is very limited in landuse planning terms. The harm caused by the proposed development in this location is also limited in extent and effect due to the careful siting and minimisation of the footprint of the facility.
- 6.25 The applicant submits that in Green Belt terms the site conflicts with only one of the five Green Belt purposes, since it fails to prevent encroachment of development into the open countryside. However, the application site, as a result of its location in close proximity to industrial and commercial development, including the adjacent Tilbury Substation and land

- allocated for employment generating development in the Thurrock Core Strategy (Policy CSTP6) on the adjacent site to the west is not typical of open countryside.
- 6.26 The Applicant considers that significant weight should be attached to the particular circumstances of the location of this site and its limited impact within the Green Belt. This site is located on the very periphery of the Green Belt, serves a limited function and its loss would cause a minor degree of harm to only one of the five purposes of Green Belt.
- 6.27 Where harm does occur as a result of encroachment to the countryside, this is mitigated by the acknowledged disturbed character of this Green Belt site, the influence of the adjacent uses, and further mitigated by the replacement common land, which would facilitate increased usage of another part of the countryside, which is currently not publicly accessible, and which is better related to existing adjoining access land.
- 6.28 Of all sites considered in the site selection exercise (see consideration 4, below), twelve are located in the Green Belt. Of these, the development of the application site would cause the least harm to the Green Belt.
- 6.29 In local plan policy terms, whilst not (yet) expressly allocated the application site does comply with the aim of the Council to support energy generation facilities. **Policy CSTP26** on renewable or low carbon energy generation seeks to enable the shift to low-carbon future and to tackle climate change. The Council state that they will encourage centralised renewable and low-carbon energy schemes at appropriate locations. It is also the case that the Council are currently reviewing the extent of their Green belt and the applicant submits that it is entirely possible that as with the employment allocations to the west of the application site, this land may also be allocated and/or taken out of the Green Belt.

### **4: Proximity to high pressure gas and 275kV electricity network connections, site suitability and alternatives**

- 6.30 The Applicant has conducted a logical, staged decision-making process to arrive at the proposed development location and design (see Annex B). The first stage of this process established the project requirements to identify areas which could fulfil the technical connection requirements. Having selected a site that best met the technical requirements, the second stage then looked at areas in close proximity that were suitable and available to build the facility.
- 6.31 In terms of the technical electrical requirements, the proposed development needs to satisfy a number of project imperatives, as follows.
- Electrical engineering criteria – to manage / meet the demand for electrical power at peak periods and times of system stress in a sustainable way by providing:
    - at least 600 MW gas fired electricity generation;
    - at least 150 MW battery storage;
    - potential to capture and store carbon;
    - requiring a minimum site area of 15 ha, and
    - fast response generation in 5-7 minutes (less for batteries).
  - Economic criteria – to export sufficient power to the grid at a commercially attractive rate to justify the investment by delivering a development that can:
    - export at least 1,800 GWhrs of electricity per annum, excluding battery storage;
    - have timely implementation (be available without substantial delays for, e.g., gas or grid connection capacity);
    - minimise electricity transmission losses and gas connection costs; and

- have hours of operation towards 3,000-4,000 hours per year.
  - Regulatory criteria – complying with all regulatory constraints / targets such as:
    - Grid code compliance, Generating Licence, Balancing and Settlement Code, Connection and Use of System Charges;
    - Part A Environmental Permit, allowing mid-merit hours of operation;
    - DCO requirements; and
    - Greenhouse Gas Emissions Permit (or equivalent following Brexit transition period).
- 6.32 Any generating station must connect to the electricity grid at a suitable location. The suitability is determined by the generation scale and the available capacity to accept the new power both at the substation and along the transmission/distribution network. The suitable connection point therefore must have sufficient headroom to accommodate a minimum of 750 MW of capacity.
- 6.33 A high-level grid connection options study was completed in conjunction with National Grid and regional Distribution Network Operators (DNOs) that identified a number of regional networks where demand was highest and capacity was available. A regional study was conducted on the area operated by DNO UK Power Networks and a refinement of that study focused on the area to the east of Greater London.
- 6.34 Proximity to the gas grid was also important and this together with the electricity grid was the principal driver for this project’s location. Therefore, the gas supply requirements were overlain on the possible electricity grid connection options, i.e. around existing main Grid Supply Point (GSP) or Bulk Supply Point (BSP) substations.
- 6.35 Connection options were tested against the following criteria:
- Grid capacity (both substation and network);
  - Proximity to the high-pressure national transmission system (NTS) for gas;
  - Proximity to electricity demand (as determined by the network operator); and,
  - Land availability and cost.

**Table 6.1: Connection point criteria**

Subject	Criteria
Grid capacity	At least 750 MW
Available connection date	2021-22
Proximity to NTS	Max 3 km
Feasible NTS route incl. Consultation Zone	Land use
Minimum annual export from gas engines	1,800 GWhrs

- 6.36 Figure 4.1 shows the 275 kV network and the gas National Transmission System (NTS).
- 6.37 Of the twenty potential substations shown within Figure 6.1, twelve are located within the Metropolitan Green Belt. The eight sites that are located outside the Green Belt are located within densely populated urban areas which would not be compatible with the construction and operation of the Project.
- 6.38 The Applicant assessed in detail each of the 20 potential substations located on the 275 kV network around London and assessed each one’s suitability against the project imperatives, having regard to planning constraints, grid capacity, ability to connect into the gas network, and site acquisition and land availability. Attached at Annex B are the detailed assessment sheets for each search area, and these are summarised in Table 6.2 below.

**Table 6.2: Summary Assessment of Alternative Substation Connection Points**

Search Area	Green Belt	Gas connection	Electricity Connection	Land Availability	Planning and Land Use	Conclusion
Barking	No	11km to nearest NTS gas.	Sufficient generation headroom	Constrained	Positioned within an urban context with residential receptors to the north and west. Former industrial area to the east currently being developed with a School and planning permission for major residential development nearby.	Not suitable
Beddington	No	13km to nearest NTS gas.	Sufficient generation headroom	No viable land.	Substation is positioned within an urban context adjacent to residential development to the south and east, with industrial development to the north and east, with the sewerage treatment works to the north west. If suitable land is available within the existing industrial area this could offer some suitable areas, however this is likely to result in the loss of employment land. Heritage Assets limit opportunities for suitable sites to the north west.	Not suitable
Brimsgate	Yes (partial)	7km to nearest NTS gas.	200MW generation headroom - large network reinforcement required	Very constrained. Green belt. Close to housing. No space to build site.	Located within an industrial area adjacent to the existing Enfield Power Station. The substation itself is not located within the Green Belt, however land to the north east is within the Green Belt. Much of the potential search area is covered by King George's Reservoir which is also a SSSI.	Not suitable
Chessington	Yes	23km to nearest NTS gas.	0MW generation headroom - large network reinforcement required	Green belt.	Search area is washed over by the Green Belt with a large part of the western area covered by Ancient Woodland. Main development is the Chessington World of Adventures theme park to the north and scattered rural residential development along the A243. May be some potential for agricultural land, however this is a rural part of the Green Belt which provides a green buffer between the built-up areas of Chessington, Oxshott, Claygate, Epsom and Leatherhead, serving a key purpose of the Green Belt.	Not suitable
Ealing	No	28km to nearest NTS gas	200MW generation headroom - large network	Highly constrained by housing.	Search area is focussed on a densely populated urban area with the only undeveloped areas being the Registered Park and Garden to the south at Gunnersbury Park. There are also large areas of the Conservation Area to the north and south as well as public open space and a number of schools within the	Not suitable

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

Search Area	Green Belt	Gas connection	Electricity Connection	Land Availability	Planning and Land Use	Conclusion
			reinforcement required		locality. Generally, a highly constrained location from a land use perspective.	
Elstree	Yes	26km to nearest NTS gas	Sufficient generation headroom	500m to housing.	The search area is focussed within a rural setting washed over by the Green Belt. The area provides an important buffer between Bushey, Watford and Borehamwood. To the north are a number of villages with extensive Conservation Areas and listed buildings and public rights of way crossing the land to the east of the M1. Some undeveloped agricultural land is positioned to the east however this is an eminently rural character, which is likely to be eroded by a large-scale energy generating facility. The generation headroom and distance to housing led this site to be shortlisted.	<b>Shortlisted</b>
Hackney	No	10.5km to nearest NTS gas	50MW generation headroom - large network reinforcement required	Very constrained by housing	Densely populated urban area primarily comprising residential areas to the south and west. Much of the land within the search area to the east comprises of Hackney Marsh which consists of public open space and sports facilities.  Leighton Marshes SSSI is positioned to the north of the search area. Generally, a very constrained search area from a sensitive receptor perspective. There is a large previously developed site on Lea Bridge Road currently used as open storage, this may offer some potential for a suitable site from a planning perspective, although connections would require crossing two rivers and a nature reserve.	Not suitable
Hurst	Yes	8km to nearest NTS gas	50MW generation headroom - large network reinforcement required	200m to housing. Insufficient viable land for site.	Search area is covered by the Green Belt, with a large area of Ancient Woodland dominating the southern part of the search area. Some open agricultural land immediately adjacent to the substation, before the sensitive residential areas may contain sufficient land, however this appears to serve an important Green Belt purpose in maintaining the gaps between Coldblow, Bexley, North Cray and Joydens Wood.	Not suitable
Iver	Yes	17km nearest NTS gas	Sufficient generation headroom	400m to housing	Entire search area is covered by the Green Belt, with majority of the land also within the Conservation Area. To the east of the substation is residential and some industrial land.	Not suitable

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

Search Area	Green Belt	Gas connection	Electricity Connection	Land Availability	Planning and Land Use	Conclusion
Laleham	Yes	15km nearest NTS gas	0MW generation headroom - large network reinforcement required	No viable land.	All land outside the Green Belt is residential development within the town of Alsford. The open land to the north east is Ashford Manor Golf Club with the majority of the remaining land to the south comprising of a large water body, the Queen Mary Reservoir. There is a small area of land currently being used for minerals extraction. Some remediated or discussed area of this could offer some potential, however such areas of land appear very limited in size.	Not suitable
Mill Hill	Yes	18km to nearest NTS gas	100MW generation headroom - large network reinforcement required	Access constraints.	Majority of the land is within the Green Belt with the land to south at Inglis Barracks being redeveloped for residential. Immediately to the north is Camden sports ground with extensive open fields beyond. These agricultural fields appear to serve a key Green belt purpose in limiting outward growth of established urban areas of Edgware, Barnet and East Barnet. Generally speaking there appears to be minimal suitable land opportunities from a planning perspective.	Not suitable
New Cross	No	16km to nearest NTS gas	Sufficient generation headroom	No viable land.	The search area is focussed within a highly urban context close to central London. The vast majority of the search area comprises of built development a mixture of residential and industrial. The industrial areas may offer some suitable opportunities; however, a site of sufficient size is unlikely to be available.	Not suitable
Redbridge	Yes	3km to nearest NTS gas	0MW generation headroom - large network reinforcement required	Close proximity to housing. No viable land.	Undeveloped parts of the search area are positioned within the Green Belt which is inset from surrounding residential development. There are a number of sensitive receptors including a hospital and six schools. Industrial area to the immediate north does not contain any undeveloped areas.	Not suitable
St Johns Wood	No	18km to nearest NTS gas.	200MW generation headroom - large network reinforcement required	No viable land. Close proximity to housing.	Positioned within central London the search area is almost entirely residential. The only area which is not is Regent's Park which is a Conservation Area and Registered Park and Garden. This area does not contain any land that would be suitable from a planning perspective.	Not suitable

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

Search Area	Green Belt	Gas connection	Electricity Connection	Land Availability	Planning and Land Use	Conclusion
<b>Tilbury</b>	Yes	2km to nearest NTS gas.	Sufficient generation headroom	Multiple options for land available.	Search area is primarily focussed around the industrial area to the east of Tilbury which is dominated by infrastructure developments. The majority of the search area is within the Green Belt and Flood Zone 3. Land to the south west is positioned outside the Green Belt and contains some previously developed land. However, these areas are understood to currently have alternative uses proposed. The search area is generally removed from sensitive receptors, and land close to the edge of the established industrial area serves limited Green belt purposes.	<b>Shortlisted</b>
Tottenham	No	7km to nearest NTS gas.	100MW generation headroom - large network reinforcement required	No viable land. Close proximity to housing.	Densely populated urban area with some Green Belt to the south and east. Undeveloped land to the south and east is positioned within the Green Belt as well as two reservoirs which include a Ramsar and SSSI. Industrial area within the north of the search area is closely positioned to residential dwellings. Undeveloped land to the south of the substation comprises of public open space at Tottenham Marshes.	Not suitable
<b>Warley</b>	Yes	1km to nearest NTS gas	150MW generation headroom - large network reinforcement required	Landscape and visual concerns. More visible to housing.	Extensive rural area washed over by the Green Belt and positioned to the east of the M25. Majority of the search area is open, undeveloped, agricultural land with scattered residential properties. Any development within this search area is likely to have an impact on the landscape character of this rural location. There are some previously developed industrial/storage sites to the north which could present opportunities for improvements within the Green Belt, however these appear to be in active employment use. The search area is likely to have limitations in terms of landscape impacts and separation from sensitive residential receptors. Warley Substation was shortlisted primarily because of its proximity to the gas NTS and because the Applicant was exploring the cost of electrical connection capacity upgrade.	<b>Shortlisted</b>
Watford South	Yes	23km to nearest NTS gas.	200MW generation headroom - large network	Available land constraint. Close to housing. Listed	Urban area on the south of Watford's urban fringe. Majority of the search area is residential with open land to the south positioned within the Green Belt. This area of the Green Belt serves the purpose of maintaining the	Not suitable

## A8.3 APPENDIX 1 GREEN BELT STATEMENT

Search Area	Green Belt	Gas connection	Electricity Connection	Land Availability	Planning and Land Use	Conclusion
			reinforcement required	building on only potential site.	openness of this green gap. Any development within the undeveloped area is likely to be highly visible from sensitive receptors and the heritage assets within the southern area. Overall this area does not present any suitable land from a planning perspective.	
Willesden	No	25km to nearest NTS gas	360MW generation headroom - large network reinforcement required	No viable land.	Majority of the land to the north is residential with land to the south of the railway an extensive industrial area. From a planning perspective the industrial area may offer a suitable context, however any re-use of sites within this area is likely to result in the loss of employment land set aside for small scale industrial uses and higher density employment uses.	Not suitable
Wimbledon	No	21km to nearest NTS gas.	0MW generation headroom - large network reinforcement required	No viable land	The search area is positioned within an urban context almost entirely residential development. There is an industrial area within the central part of the search area, however the disused greyhound track is in the process of being redeveloped for new residential and a football stadium.	Not suitable

- 6.39 Based on grid-related factors, cost analysis, planning and environmental constraints review and other considerations, the study narrowed down the choice to three existing substations on the 275 kV network around Greater London that met the criteria set out in Table 6.1, and met the overall suitability criteria set out within Table 6.2. These substations were:
- Tilbury;
  - Elstree; and
  - Warley.
- 6.40 Further discussions with National Grid confirmed that while Elstree has spare capacity on the 400 kV and 275 kV circuits, it is not located on a part of the network that can provide the same value to National Grid as at Tilbury. Elstree is also further from the national transmission system for gas than the other two substations and was discounted on that basis.
- 6.41 Tilbury and Warley were progressed to a final selection stage and were tested against the following environmental and technical criteria at a high level to identify potentially available development areas in the vicinity of each substation. The criteria were:
- access;
  - environmental designations;
  - receptors;
  - land use and policy; and,
  - other development proposals.
- 6.42 A significant disadvantage at Warley is the need to extend the substation to enable a connection at 275 kV for export capacity of more than 150 MW.
- 6.43 A study area of 1 km around the substations was defined as the initial basis for a search of developable areas.
- 6.44 The site assessment sheet and accompanying constraints plan at Annex B show the constraints around Warley Substation. Warley Substation has a number of residential properties within 300 m of the substation. Little space is available adjacent (to the north) due to the buffer around property and ancient woodland. The NTS passes very close to the substation.
- 6.45 Warley Substation is located within Havering and the Havering Borough Green Belt Assessment (2016) was prepared to form the evidence base for the emerging Local Plan.
- 6.46 That identifies the entire area around Warley substation as falling within Strategic Parcel 10. The study identifies the parcel as being 'paramount' to the purpose of safeguarding the countryside from encroachment stating "*A broad expansive fenland landscape with a strong sense of openness and long-distance views with development limited primarily to farmsteads and small areas of development along roads on north, west and east sides; greater incidence of scattered development at North Ockendon creating some sense of encroachment. Designation provides high level of protection against piecemeal encroachment of inappropriate development, particularly adjoining existing development.*"
- 6.47 The sensitivity of this landscape is further expanded with the identification that the parcel has a 'high' sensitivity to development concluding that the "*majority of parcel lies within Thurrock Reclaimed Fens LCA, and open level fenland landscape rising up to south west. Geometric largely open arable and pasture fields with low level of vegetation cover, more fragmented/smaller scale through North Ockendon area where suburban development and varied land uses evident. Utility features (sewage works, substation and associated overhead infrastructure) present. Northern part of extensive area of open fenland landscape which*

*extends south through parcels 8 and 9 towards the Thurrock built up area; as such the landscape is highly sensitive to intrusion from development.”*

- 6.48 This detailed assessment identifies that this particular landscape and area of the Metropolitan Green Belt would be particularly sensitive to development associated with the Project.
- 6.49 Annex B also provides the site assessment around Tilbury Substation. Tilbury Substation is further from residential properties in comparison to Warley, with the closest residential properties over 600m from Work No. 1. An undeveloped corridor from the NTS to the substation is also available. The Flood Zone as mapped is the undefended scenario when in fact the substation site benefits from flood protection at a standard of 1:1,000 years.
- 6.50 Both Warley and Tilbury development site options are within the Green Belt. Tilbury is on the periphery of the Green Belt directly adjacent to an industrialised landscape and Warley is located in the heart of the Green Belt. On balance it was concluded that sites around Warley Substation served more of the Green Belt purposes than sites around Tilbury Substation.
- 6.51 Warley was found to be more heavily constrained by proximity to sensitive receptors and in a more sensitive landscape setting but was closer to the gas network. Possible development sites at Warley were more limited in size and availability.
- 6.52 Tilbury does not share the same constraints. Feasible site opportunities were identified on the periphery of the Green Belt and next to the existing substation. Further, Tilbury is an acceptable distance at c. 2 km from the gas transmission network. Tilbury was selected as the preferred connection point and was tested in more detail to confirm deliverability.
- 6.53 Identification of potential development sites in the vicinity of Tilbury Substation considered the following deliverability issues in addition to the planning and environmental constraints.
- Typical site arrangement / plot size – the approx. minimum site area was set at 15-20 ha.
  - Site acquisition issues – the landowners were canvassed for their willingness to sign a lease, with a preference to avoid compulsory purchase.
  - Engineering issues – high level land preparation and access considerations were examined.
- 6.54 Land to the south and west of the substation is constrained by existing land uses and both proposed and consented developments: these include Tilbury2 and, prior to its being ‘frozen’ as an application, the Tilbury Energy Centre. There are other considerations such as the proposed Lower Thames Crossing nearby to the east.
- 6.55 A single land holding was identified that satisfied the search criteria and was capable of providing all development land and access that wasn’t affected by the above development proposals. That land holding is the main development site.
- 6.56 The Applicant has carried out an extensive analysis of potential connection points and sites, and based on that analysis it is concluded that the application site is the most appropriate, and deliverable, option for the Project.

### **5: Improvement of access to common land**

- 6.57 The main development site would occupy circa 10 ha of Walton Common. To mitigate the permanent loss of that common land, the Applicant has committed to provide circa 11.6 ha of replacement common land, located to the north of the railway.
- 6.58 Currently, Walton Common is rarely accessed by the public. It is remote from the nearest settlements and is located adjacent to a range of commercial and industrial type uses, including the Tilbury Substation immediately adjacent to the south, and the rail line slightly further to the north. There is only one point of public access to Walton Common, which is

- through Parsonage Common and then across the railway line at an unprotected crossing that shows no signs of active use. From Walton Common there is no connection onwards to other Common Land, access land or public right of way.
- 6.59 The exchange common land, to the north of the rail line (Work No. 14) is located 100m from the urban edge of Tilbury at its nearest point (see Figure 6.2). It is contiguous to the east with Parsonage Common where previously Parsonage Common and Walton Common were separated by the rail line. The Applicant proposes to deliver a permissive path link from the replacement common land to Tilbury to the west (see Annex C to this document for details). That footpath would meet Fort Road directly opposite a small area of common on the west side of the road immediately adjacent to the residential area. That link would therefore provide safer and considerably more convenient access to the replacement common than exists for the current Walton Common. It would also provide a natural link from existing common land on the west side of Fort Road to the replacement common and through to Parsonage Common.
- 6.60 The exchange common land would not only provide a slightly greater than like for like replacement for Walton Common in terms of area, it would also significantly enhance the public opportunity to access and enjoy the land, for recreational and cultural purposes. The improvement in access and ability for residents to access Parsonage Common from the replacement common land rather than walking along the highway to reach the access to the north will increase the utility and amenity of the common land. The adjacent habitat and ecological receptor land would provide further visual amenity to the replacement common and Parsonage Common through green infrastructure provision, landscaping and visual screening of elements such the public highway and railway as well as biodiversity improvements.
- 6.61 The proposal complies with and furthers the objectives of the local development plan, particularly Core strategy Policy PMD6, by providing an enhancement of the beneficial use of the Green Belt by improving access to the countryside, enhancing the landscape through landscaping and planting thereby improving visual amenity for users of the Common Land.
- 6.62 If the Project did not facilitate the change in the provision of common land in this location, this would not take place, and Walton Common would continue to be underused and poorly connected to the nearest communities and potential user groups. With provision of the exchange common land (which would be before development commences on Walton Common), access to common land for residents of Tilbury will be significantly improved, in terms of accessibility, quality and user experience.

## 7 THE GREEN BELT BALANCE

### The Balance Exercise

- 7.1 The Green Belt balance requires an assessment of whether the acknowledged substantial weight attached to Green Belt harm, by reason of inappropriateness and any other harm, would be outweighed by other considerations that amount to the very special circumstances required to justify the proposal.
- 7.2 The Applicant has weighed up the level of harm associated with the impact of the Project on the Green Belt. The Project would cause harm to the openness of the Green Belt contrary to the fundamental aim of Green Belts as set out in NPS EN-1. The Project would not conflict with four of the five Green Belt purposes. It would however lead to new development in the countryside, so would conflict with Green Belt purpose: 'e) to assist in the safeguarding of the countryside from encroachment'. The proposals would affect the essential characteristics of the Green Belt, its openness and permanence, thereby causing slight/negligible harm.
- 7.3 In accordance with paragraph 5.10.17 of NPS-EN -1 that harm creates a presumption against development, and very special circumstances sufficient to justify the proposed development need to be demonstrated.

### Whether the proposals are appropriate or inappropriate development

- 7.4 Paragraph 5.10.12 of NPS-EN1 clarifies that applicants may be able to demonstrate that some elements of energy infrastructure may be considered as engineering operations, and not buildings, and in turn, those elements are not inappropriate development in the Green Belt. This is applicable in this case.
- 7.5 The proposal includes a causeway, new access roads and improvements to existing roads, buried electricity cables, and buried gas pipeline, some of which are partly or wholly within the Green Belt. These elements fall clearly within the definition of 'engineering operations' and, therefore, in accordance with paragraph 146 of the NPPF 2019, are capable of not being inappropriate development in the Green Belt, provided that *"they preserve its openness and do not conflict with the purposes of including land within it"*. These elements will all be either completely buried, in the case of electricity cables and gas pipelines, or low lying, in the case of the causeway and access roads. They would have no material impact on the openness of the Green Belt. There would be no conflict with the remaining relevant Green Belt purpose because there would be no visual encroachment onto the countryside.
- 7.6 The above ground development proposed in Work No. 1 (the main development site), and Work No. 5 (the above ground installation for the gas connection) are inappropriate development which would cause slight/negligible harm to the Green Belt. In accordance with paragraph 144 of the NPPF 2019, substantial weight is given to that harm, and very special circumstances need to be demonstrated.

### Conclusion on harm and very special circumstances

- 7.7 NPS EN-1 and the NPPF 2019 state that inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances.
- 7.8 This assessment confirms that while the proposals would impact on the openness of the Green Belt, the site's position in an industrialised landscape on the edge of the Green Belt means that the harm would be slight/negligible. The Applicant submits that the other considerations that weigh in favour of the Project amount to very special circumstances, which substantially outweigh the slight/negligible Green Belt harm that would be caused.

- 7.9 The Applicant has set out the compelling need for this type of flexible energy generation, to support both the growth in renewable energy generation and maintain the security of electricity supply. This need is driven by the increased penetration of intermittent renewables, coupled with the decommissioning of both coal and gas fired power stations in the UK.
- 7.10 While the need for this type of flexible generation is present across the UK, there is a very specific and compelling need for additional generation capacity on the 275 kV electricity network around London. This is a point agreed with National Grid in the Statement of Common Ground (application document A8.12) at paragraph 3.3, which states “*The Tilbury 275kV substation on the orbital network is critical in the supply of electricity to the Capital so generators connecting at this 275 kV will therefore benefit the UK customer and specifically London.*”
- 7.11 Keeping the site open is not necessary to check the restricted urban sprawl of large built up areas, to prevent neighbouring towns from merging into one another, or to preserve the setting and special character of historic towns; and the development of the site could not assist in urban regeneration. Therefore, the application site does not conflict with four of the five Green Belt objectives set out at paragraph 134 of the NPPF 2019.
- 7.12 The development of the application site would lead to new development on a currently undeveloped site outside any settlement boundaries and would not safeguard the countryside from encroachment.
- 7.13 However, the application site is located at the edge of the Green Belt, adjacent to existing and planned industrial and commercial developments, and is not characteristic of open countryside. The site does not make a positive contribution to this part of the Metropolitan Green Belt and does not serve to promote the Green Belt objectives of the NPPF 2019. Significant weight should be attached to the role the application site plays in the Green Belt. In this case, the ongoing function of the Green Belt in this part of Thurrock will not be compromised should consent for the Project be granted.
- 7.14 Generating stations must ultimately connect into the electricity network at existing substations and therefore new generating stations must be sited at points on the network where connection is technically, economically and environmentally viable. The Applicant has demonstrated that all other suitable points of connection into the 275 kV network around London would also require development within the Green Belt. On this basis, there is a demonstrable need for the development, and it is clear that any development to meet that need must be positioned within the Green Belt.
- 7.15 Having assessed all other reasonable options, the Applicant has demonstrated that considering the purposes of the Green Belt, the application site is situated on an area of land which least well fulfils these purposes. In terms of overall Green Belt harm, the application site presents the most suitable location for the Project resulting in the least possible amount of harm. Significant weight should be attached to this locational need.
- 7.16 Further, as a result of the proposed development, an opportunity is created to replace the existing common land at Walton Common, which is rarely used and difficult to access, with a larger, much more accessible area of replacement common land to the north. While the replacement of common land is required by statute in order to make the deregistration of Walton Common acceptable, the benefit of replacing it with a larger and more functional area of common land also weighs significantly in favour of the Project.
- 7.17 The Applicant has demonstrated that while there would be some reduction in the openness and permanence of the Green Belt as a result of the proposals, but there would be limited conflict with the purposes of including land within it. While substantial weight must be given to the identified Green Belt harm, this harm is slight/negligible in this case, and it is substantially outweighed by the very significant benefits of the Project, and the clear justification that has been presented as to why the proposed development must be delivered

### A8.3 APPENDIX 1 GREEN BELT STATEMENT

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in this location. It is thus demonstrated that very special circumstances exist that substantially outweigh the slight/negligible harm caused and the development is acceptable in Green Belt terms.

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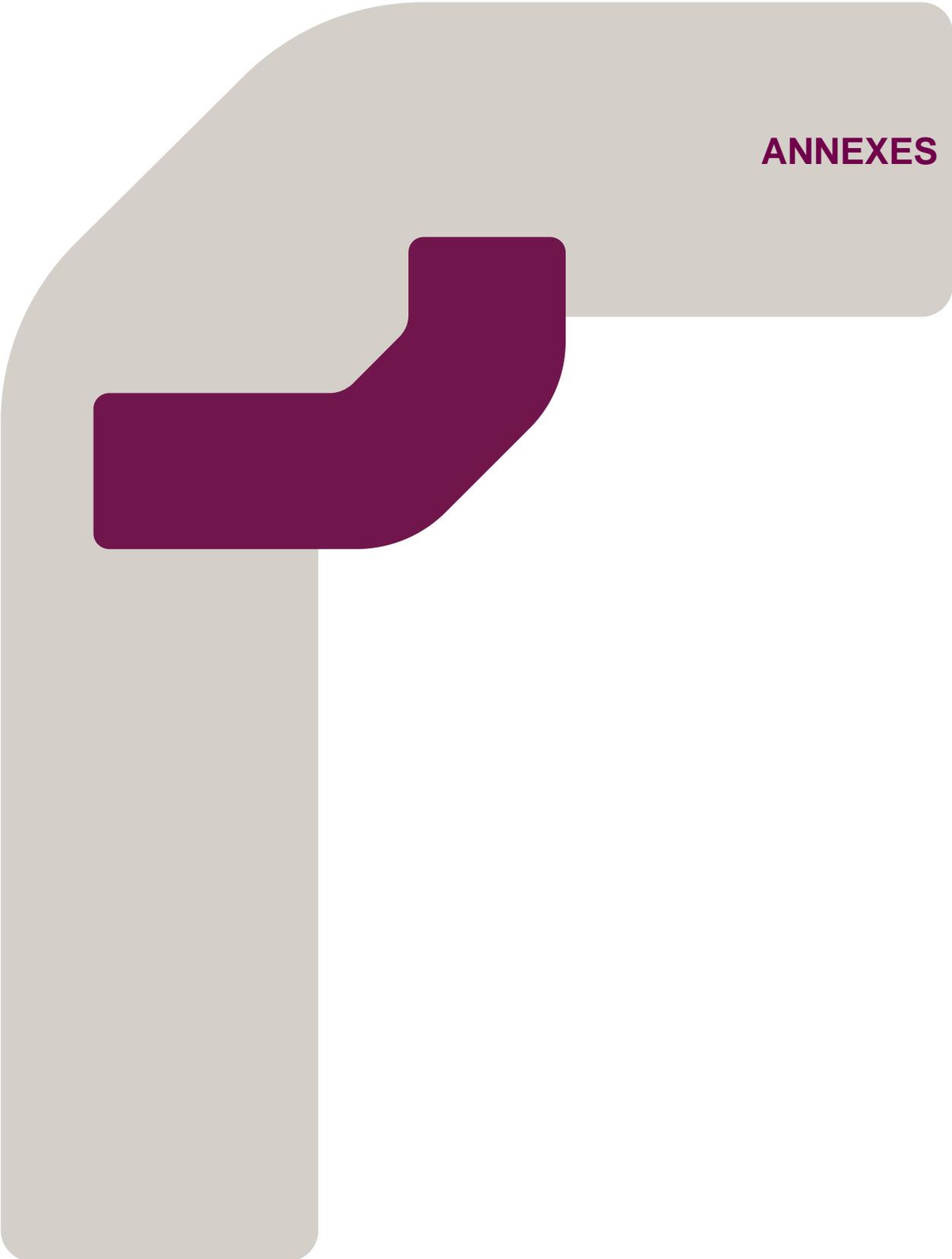
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### A8.3 APPENDIX 1 GREEN BELT STATEMENT

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**ANNEXES**

**Annex A**

**National Grid Statement of Common Ground**



Mr. A Troup  
Statera Energy Limited  
1st Floor  
145 Kensington Church Street  
London W8 7LP  
United Kingdom

Mark Beasley  
Sector Head: Onshore & Storage  
[Redacted]  
Main Tel +44 (0)1926 653000  
[Redacted]  
[www.nationalgrid.com](http://www.nationalgrid.com)

26th July 2019

Re: Thurrock Power Limited

Dear Andrew,

Further to recent discussions I attach an addendum to the Statement of Common Ground for Thurrock Power, the detail of this is set out below.

Thurrock Power is a 750MW project comprising a 600MW high-efficiency gas reciprocating engine plant & 150MW battery storage targeting a 2023/4 connection date to the National Grid Electricity Transmission system. The project will support both renewable generation currently on the system and further deployment of renewables in the future providing backup to the intermittency of wind and solar. Alongside emerging battery storage, demand side response, interconnectors, pumped hydro and other technologies, all other things being equal it will help reduce the cost of operating the system and lower emissions, as National Grid System Operator manages this imbalance of supply and demand. National Grid Electricity Transmission (NGET) supports measures to assist the UK in its transition to a low-carbon economy in this way and always looks to economically and efficiently connect customers' assets to the GB transmission network.

The energy system is undergoing a rapid transition to accommodate significant volumes of renewable generation, particularly off-shore wind. The wind resource, on-shore or off-shore is typically found far from the large centres of demand often at the end of radial transmission links. Increased connection of generation at the current extremities of the network may accelerate as traditional forms of generation coal and gas located more centrally close down. NGET recognises that the intermittent nature of renewable generation places additional requirements on the network, increased reliability on highly flexible forms of generation and careful management and design of the network as a whole. Thurrock Power is an example of a flexible generation asset being developed to meet this requirement.

Whilst the transmission network is highly resilient and able to transmit large volumes of energy from North to South, there are advantages in siting projects providing security of supply and flexibility as close to centres of demand as possible. Doing so reduces electrical losses which occur over long distances and reduces exposure to any constraints or problems on the transmission network which might occur. Thurrock Power's proximity to London is beneficial, situated [20] miles East of London. Generation at this location will reduce losses and investment costs because it re-uses the 275kV substation which NGET would otherwise have closed and provides valuable security of supply to the country and London, in the critical pathway to lowering carbon emissions.

Kindest Regards

[Redacted]  
Mark Beasley  
Sector Head: Onshore & Storage  
National Grid Electricity Transmission

# **Thurrock Power Limited**

**The Thurrock Power Order (DCO)**

**Land to the north of Tilbury substation, Walton Common, Thurrock, RM18 8UL**

**Applicant's Statement of Common Ground with National Grid Electricity  
Transmission Plc**

The Planning Act 2008

Applicant: Thurrock Power Limited

Date: October 2018

## CONTENTS

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1	INTRODUCTION.....	3
2	AGREED MATTERS.....	6
3	MATTERS TO BE AGREED.....	8

# 1 Introduction

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## Overview

- 1.1 This Statement of Common Ground has been prepared by Statera Energy Limited on behalf of Thurrock Power Limited. It forms part of the documentation submitted in support of the examination of the application for the Development Consent Order (DCO), that will be submitted to the Secretary of State for Business, Energy and Industrial Strategy, under section 37 of 'The Planning Act 2008'.
- 1.2 Thurrock Power Limited is seeking development consent for the construction, operation and maintenance of a new Gas Fired Electricity Generating Station and Battery Storage Facility with a combined output capacity of 750 MW including electrical and water connections, a new gas supply pipeline and other associated works on land to the north of existing Tilbury substation, Thurrock.
- 1.3 The purpose of this Statement of Common Ground is to set out the level of agreement that has been reached between Thurrock Power and both National Grid Electricity Transmission (NGET) Plc and National Grid Gas Plc (NGG) in respect of the following matters:
- Grid Connection;
  - Justification;
  - Gas connection; and
  - Land matters and relationship with assets owned by NGET and NGG;
- 1.4 Section 2 sets out the areas of agreement in relation to the above matters.

## The Site

- 1.5 The Proposed Development Site is located on common land and farmland directly north of the existing Tilbury substation, approximately 900m to the south east of Tilbury, 1.2km south of West Tilbury, 2.2 km west of East Tilbury and 2.3 km to Chadwell St Mary.
- 1.6 The entire Site lies within the administrative boundary of Thurrock Council.
- 1.7 The site itself extends to approximately 35 acres and is comprised of poor quality grass land, some farmland and corridors of land outside this area for the access route and gas supply line.
- 1.8 The land required for the Project will be leased.
- 1.9 The area surrounding the Site is predominantly flat and for the most part comprises agricultural land interspersed with small settlements to the north of the railway. The area is however separated by transport infrastructure, notably the railway line, (Essex Thameside) and the new proposed route for the Lower Thames Crossing lies approximately 1km to the east of the proposed site. The area is dominated by overhead electricity lines associated with the existing substation.

## Project Justification

- 1.10 The 275kV circuit around London is an important part of the electricity infrastructure as it delivers power to the capital and the population within the M25. Further, the demand for electricity is likely to go up within the London metropolitan area despite the deployment of smart metering, higher efficiency from users and the further deployment of roof solar on local authority or private housing. Generally electricity demand is also more likely to increase with Government policy supporting substantial further housing provision within the M25, the general growth of the economy and electrification of road transport.
- 1.11 Against this rising demand and need for flexibility 1.145GW of generating capacity has been decommissioned from the 275kV transmission system since the 1970's. As a result at Tilbury 275kV substation there is 897MW of spare capacity which means that Thurrock Power has been able to secure a grid contract without the need to trigger significant transmission reinforcement on the wider system. There is also significant spare capacity in the 400kV area of the substation.
- 1.12 In the same time period at least 2.6GW of generating capacity has been decommissioned from the 132kV and 66kV circuits. The decommissioned power plants at Watford, Acton Lane, Croydon B, Fulham and West Ham were also connected at lower voltage and so represent a further 1GW of capacity that has been lost from the local transmission network. The decommissioned stations are listed below.

Site	Technology	MW	Decommissioned
Watford	Gas	100	1990
Acton Lane	Coal	150	1983
Tilbury A	Coal	150	1983
Bankside	Coal & Oil	89 & 300	1981
Barking A	Coal	600	1976
Barking B	Coal	144	1976
Barking C	Coal	220	1981
Barking Reach	CCGT	1000	Dormant 2016
Battersea A	Coal	243	1975
Battersea B	Coal	503	1983
Belvedere	Oil	480	1980s (LV)
Blackwall Point	Coal	100.5	1981
Brimsgate	Coal		1974 (LV)
Brunswick Wharf	Coal & Oil	340	1984
Littlebrook	Gas & Oil	1475	2015
Deptford East	Coal	156	1984
Deptford West	Coal	209	1974
Bulls Bridge	OCGT	280	1993 (LV)
Croydon	Coal	338	1984
Fulham	Coal	310	1978
West Ham	Coal	114	1983

- 1.13 A total of 4.5-5GW of generation on the local transmission system in the London metropolitan area has therefore been disconnected. Following disconnection of this generation, the electricity demand is met by other capacity connected on the wider 400 kV transmission system in the south-east and elsewhere in the country (there are substantial flows from north to south) with interconnectors e.g. between the UK and France, Belgium and The Netherlands playing an increasingly important role.
- 1.14 There are periods of time when the Transmission Network around London can experience constraints, particularly during maintenance periods when circuits are switched out for scheduled maintenance. Replacing the disconnected generation on the 275kV circuit with efficient, flexible generation therefore, will provide the ability to reduce the risk and impacts of system constraints. New generation will contribute to the resilience and security of supply to the London conurbation and reduces the risk that substantial infrastructure investment will be required in the future. Deferring and potentially avoiding the need for National Grid to make investment in transmission system improvement and reinforcement, by facilitating the connection of flexible generation to the system close to demand, can enable the realisation of potential benefits to the electricity customer both in terms of resilience, security and lower cost

### **The Proposed Development**

- 1.15 The main components of the Proposed Development are summarised below:
- The GFEGS will comprise a number of large (up to 18MW) reciprocating gas engine units in a broadly linear configuration. Each gas engine is housed within a concrete case. Air cooling fans will be positioned on the side of the concrete cases. Exhaust stacks will protrude above the concrete casement, the height of each exhaust stack will be up to 45m from ground level.
  - The BSF will comprise steel cabins enclosures, known as E-Houses which are likely to be 15 m long, 6m wide and 5m high (7m high if the air conditioning units are roof mounted), which house banks of lithium-ion batteries. These E-Houses may be double stacked increasing the height to 14m. There will also be a number of Medium Voltage units which house the transformers and inverters. These may be 8m long 3m wide and 3.5m high.
  - The Compounds will be protected with a 2.5 m high steel mesh fence and landscaping and planting around the sites will also be undertaken to minimise visual intrusion.
  - Each facility will include a customer substation and the 275kV substation will be shared. The electrical equipment within the substations will be up to 12m high.
  - An underground gas supply pipeline will connect the GFEGS to the National Transmission System.
- 1.16 The Proposed Development also includes a temporary construction laydown area for the accommodation of plant and materials and contractors' compounds and facilities during the construction phase, which would last up to for approximately 2 years. This would be provided on land outside the operational area of the site.

## 2 AGREED MATTERS

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2.1 The parties are agree on the following matters:

### Grid Connection

- 2.2 Meetings between Thurrock Power and NGET have been taking place since September 2016.
- 2.3 Thurrock Power has secured a connection agreement and construction agreement with National Grid for a grid connection to the 275kV network at Tilbury (Ref: A/THUR/17/2608-EN(O)). A Mod-App is being submitted to increase the connection from 600 to 750MW.
- 2.4 National Grid has conducted power system analysis and development & costing work examining a range of options in conjunction with Thurrock Power Ltd and has provided the most economic, coordinated and efficient design to connect the project at Tilbury 275 kV substation.

### Justification

- 2.5 Replacing lost generation on the 275kV circuit and the loss of 4.5-5GW of generation on the local transmission system with 1.5-2GW of much more efficient, lower cost and flexible generation is becoming increasingly important to reduce the need for flows across from the 400KV and provide power to cover the imbalance from renewables. Following disconnection of the old generation electricity demand is met by other capacity connected on the wider 400 kV transmission system in the south- east and elsewhere in the country (there are substantial flows from north to south) with interconnectors e.g. between the UK and France, Belgium and the Netherlands playing an increasingly important role.
- 2.6 There are periods of time when the Transmission Network around London can experience constraints, particularly during maintenance periods when circuits are switched out for scheduled maintenance. Replacing the disconnected generation on the 275kV circuit wit efficient and flexible generation therefore will provide the ability to reduce the risk and impacts of system constraints. New generation will contribute to the resilience and security of supply to the London conurbation and reduces the risk that substantial infrastructure investment will be required in the future. Deferring and potentially avoiding the need for National Grid to make investment in transmission system improvement and reinforcement, by facilitating the connection of flexible generation to the system close to demand, can enable the realisation of potential benefits to the electricity customer both in terms of resilience, security and lower cost.
- 2.7 In recent years NG has seen a shift towards decentralised smaller scale generation; a point recognised by NG's Electrical System Operator in its 'Future Energy Scenarios' document which looks at future trends and requirements. In all of those scenarios, decentralisation is predicted and connections to ten 275kV network are likely to be the preferred economic option for medium scale generating stations.

### **3 Conclusion**

- 3.1 The 275kV orbit electrical network around Greater London supplies power to many of the highly populated areas in the Capital.
- 3.2 Much generation has been lost from the network over the last 40-50 years.
- 3.3 The Tilbury 275kV substation on the orbital network is critical in the supply of electricity to the Capital so generators connecting at this 275kV substation (and at 400kV) will therefore benefit the UK customer and specifically London.

**4 MATTERS TO BE AGREED**

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- 4.1 The form of the protected provisions to be granted to Statera Energy Limited is not yet agreed. Negotiations between the parties are ongoing and it is expected that agreement on the form of the protective provisions will be reached shortly.
- 4.2 This includes impact assessment of Final design, layout and construction methodology of the planned works by Statera Energy Limited in proximity of National Grid Gas Plc and National Grid Electricity Transmission Plc assets.

Signature.....

Mark Beasley - NGET

Date..... 29 October 2018

Signature.....

Andrew Troup - Statera Energy Limited

Date..... 29<sup>th</sup> October 2018 .