PLANNING STATEMENT

Gas powered generators for the provision of flexible energy generation

Land at Redbrook Industrial Estate
Barugh, Barnsley
S75 1HS
(Site 1)

Prepared with Reliance Energy's agent, GP Planning, Mill House, Long Lane, East Haddon, Northamptonshire, NN6 8DU

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CONTENTS

LIST OF FIGURES

APPENDICES

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1 INTRODUCTION

1.1 THE PLANNING APPLICATION

1.1.1 This Planning Statement is submitted to Barnsley Metropolitan Borough Council, on behalf of Reliance Energy Limited in respect of a planning application for gas powered generators for the provision of flexible energy at land at Redbrook Industrial Estate, Barugh, Barnsley, S75 1HS.

1.1.2 Two Planning Applications are being submitted concurrently relating to two 19MW installations on adjoining sites on land at Redbrook Industrial Estate. The Proposed Development has been split in order to provide greater commercial and operational flexibility. This includes;

- The two sites may ultimately have different corporate ownership and structures with different shareholders involved;
- There is the possibility of the sites having different funding structures; and
- The two sites allow for their operation by smaller companies that benefit from falling outside of the EU Emissions Trading System (EU ETS) by virtue of the UK Small Emitter and Hospital Opt-Out Scheme. Without the opt-out scheme, generation operations become substantially more expensive and commercially unviable.

1.1.3 The Planning Applications are accompanied by relevant plans and separate Planning Statements. Each Statement addresses the sites individually and collectively. For clarity, this Planning Statement relates to 'Site 1'.

1.1.4 The proposed layout of the adjoining developments is shown on GPP/M/REL0036/17/01 Site Location Plan.

1.1.5 The submission includes the following information, documents and drawings:

Documents

- Planning Application Form

Drawings

- GPP/RE/B/17/01 (Rev 1) – Site Location Plan

- GPP/M/REL0036/17/02 – Site Plan Site One
- GPP/M/REL0036/17/03 – Site Layout Site One (Rev 1)
- GPP/M/REL0036/17/04 – Elevations (Rev 1)
- GPP/M/REL0036/17/05 – Elevation Details (Rev 1)

1.2 THE APPLICANT

1.2.1 The Applicant for the proposed Flexible Generation ('Flexgen') scheme is Reliance Energy, a UK based professional services company that helps organisations develop and construct facilities that provide back-up power and balancing services to the National Grid ('NG').

1.2.2 Reliance Energy contracts with NG in the FlexGen market and with the Government through the Capacity Mechanism ('CM') auction. These arrangements, developed by the National Grid and the Department for Energy and Climate Change ('DECC') ensure that there is always sufficient power provided to meet the UK's energy needs.

1.2.3 Reliance Energy install fast response generators on its partners' sites, designed with the capabilities to reliably provide FlexGen services to feed the UK electricity network.

2 INDUSTRY CONTEXT

2.1 INDUSTRY CONTEXT

2.1.1 Electricity generation in the UK has undergone major and permanent changes over the last decade. While the increase in the proportion of power generation through renewable technologies plays an essential role in reducing carbon emissions, it also poses challenges to security of the electricity supply in the UK.

2.1.2 More specifically, the intermittent nature of renewables - especially wind and solar - makes balancing electricity supply and demand more difficult. While most are aware of the risk of 'the lights going out' if demand outweighs supply, a lesser-known risk is how greater fluctuations in supply levels can damage local electricity distribution network equipment, impacting the availability of supply at a local level.

2.1.3 As such, the UK's electricity supply can be characterised as facing two important issues:

- Capacity Provision – ensuring that there is **sufficient** power generated nationally to meet the needs of UK consumers, especially during the peak demand times; and
- Quality of Supply – ensuring generation levels are **stable** enough to avoid damage to the local electricity distribution network equipment, to avoid supply issues at local levels.

2.2 CAPACITY PROVISION

2.2.1 It is the job of the National Grid ('NG') to ensure electricity generation supply meets consumer demand at all times. This happens on a minute-by-minute basis and any failure to maintain the equilibrium would result in power cuts to homes, industry and essential infrastructure throughout the country.

2.2.2 To ensure that demand never outstrips supply, NG typically looks to maintain a 20% margin of supply over the current level of demand – known as the 'Operating Margin'. It is this margin that enables NG to balance the system, avoiding power shortages and blackouts when there is an unexpected change in demand or a sudden loss of supply.

2.2.3 NG maintains the Operating Margin by either increasing power generation or reducing demand from users. The effect on the grid is the same; Operating Margin is increased.

2.2.4 To help manage this, NG have several tools at their disposal:

- incentivise heavy industrial users to reduce power usage at times of system stress;
- instruct the older generation facilities to generate more power for limited periods or better still;
- draw upon additional, cleaner, rapid-response Flexible Generation ('FlexGen') facilities, embedded within local networks.

2.2.5 For more details on the Capacity Provision issue please see NG's dedicated webpage on the subject: http://www2.nationalgrid.com/uk/services/balancing-services/system-security/

2.3 QUALITY OF SUPPLY

2.3.1 The electricity distribution system in the UK was designed to distribute electricity generated in large power stations, located far away from the point of use. This resulted in an electricity supply with a predictable, stable frequency.

2.3.2 Recently this stability has suffered due, in part, to a conscious shift to renewable power generation. One inherent drawback of renewables is that supply is now more likely to stop at short notice and, as such, have an unpredictable frequency.

2.3.3 The electricity distribution networks were not designed to cope with variations in frequency and a significant drop in frequency can damage equipment at a local distribution level, which could result in a regional black out.

2.3.4 To manage this NG can source contracts with FlexGen facilities to generate power close to the point of consumption – buffering the local system when generation stops suddenly and correcting the frequency of supply when it moves outside what the system can handle.

2.3.5 For more details on the Quality of Supply issue please see NG's 2016 report on the subject: http://www2.nationalgrid.com/UK/Industry-information/Future-of-Energy/System-Operability-Framework/

2.4 FLEXIBLE GENERATION

2.4.1 As described in sections 2.2 and 2.3, NG use FlexGen facilities as solutions to the issues that they face. What distinguishes FlexGen facilities from other solutions is that they allow the NG

to manage both Capacity Provision *and* Quality of Supply.

2.4.2 A FlexGen facility can be defined as sets of engines connected to the grid that lie dormant until called upon to deliver electricity quickly and efficiently to the UK's electricity network.

2.4.3 They are typically smaller than central generating plants and are situated locally – spread throughout the UK.

2.4.4 This serves to remove the over reliance on one facility providing power to a large area, as well as to reduce power transmission losses by embedding the generation closer to the point of use.

2.5 BENEFITS OF FLEXIBLE GENERATION

2.5.1 The benefits of FlexGen facilities are widespread and can be realised at both local and national levels.

Local Benefits of FlexGen

i. Sourcing electricity locally allows for a focused management of the network, benefitting local residents and businesses:

- Having a generation facility embedded in the local network means the area is less likely to experience power shortages and blackouts caused by the loss of a major generator.
- FlexGen facilities reduce demand on the national network as a whole, which in turn makes the local network less volatile.
- Provision of locally produced power during times of stress, reduces the risk of power outages to the immediate locality.

ii. Deficits in national electricity generation can be avoided or tempered by instead providing power locally:

- Local generation avoids the use of the wider power network, resulting in savings on usage charges. These savings may be reflected in customer savings.
- Excess frequency variations in the area can be instantly corrected, protecting vital local infrastructure from damage.

- Generation of power near to the point of use reduces power line transmission losses that are experienced when power is generated centrally. This helps to reduce CO_2 emissions further.

2.5.2 While FlexGen is embedded at a local level, it also benefits the UK nationally in the following ways.

National Benefits of FlexGen

iii. Supporting the UK in achieving its CO_2 emission reduction targets:

- FlexGen facilities smooth the effect of the more volatile power supply that are the result of an increase in solar and wind power generation.
- FlexGen therefore supports the UK's transition away from fossil fuels to reliable renewable power generation, thus supporting CO_2 emissions reduction targets.
- FlexGen units use relatively clean and efficient gas turbines - the alternative is far less environmentally friendly 'semi-retired' coal or even oil-fired power stations.
- Reducing the distances that electricity travels, reduces losses as it travels through the cables. This minimises electricity wastage, further helping to reduce CO_2 emissions.

iv. Commercial benefits to consumers and businesses:

- Security of electricity supply is an essential requirement for any stable economy. FlexGen supports this by being able to respond quickly when more generation is required.
- At times of national system imbalance, the alternative to increasing supply is for large businesses to radically reduce usage at short notice. FlexGen's quick response to increasing supply enables businesses to continue production through periods when the electricity network is under stress.

v. Enabling NG to meet its regulatory obligations:

- During the peak times of national electricity demand - generally between 16:00 and 18:00 in the winter months - FlexGen facilities will turn on to alleviate stress on the network.

- NG is mandated by the UK Government to provide what is known as a 'balancing service' whereby they must ensure that the network has the ability to deal with any fluctuations in the electricity demand.

- NG awards Capacity Mechanism ('CM') contracts to FlexGen facilities that puts an obligation on them to turn on and supply electricity when required. NG uses this to help it deal with managing short-term fluctuations in demand and helping avoid blackouts. More information about the CM can be found on NG's website at: https://www.emrdeliverybody.com/cm/home.aspx

- Firm Frequency Response ('FFR') requires an instantaneous response to increase supply, to keep the electricity supply at a consistent standard and to prevent harmful fluctuations in power frequency. For more information: http://www2.nationalgrid.com/uk/services/balancing-services/frequency-response/firm-frequency-response/

2.6 ATTRIBUTES OF A FLEXGEN SITE

2.6.1 When seeking to secure a potential site for a FlexGen facility, a number of factors need to be considered. Broadly, these can be divided into a) the technical attributes of the site – whether it holds the ability to generate electricity – and b) the quality of the land itself - both its intrinsic and contextual ability to host a FlexGen facility.

Technical Attributes

2.6.2 Location is important when selecting a site that may provide services to the local and national grid. Specifically:

- **Proximity to an electricity grid connection:** Any FlexGen facility needs to be physically close to an electrical substation. More importantly, it needs to be close to a substation that has spare export capacity. This means space on the connection for power to be exported onto the distribution network. The electricity grid system is a valuable resource and it makes complete sense to use it efficiently, making this the more sustainable approach when selecting a site.

- **Proximity to a viable gas supply:** A gas powered FlexGen facility requires a consistent gas supply at pressures higher than domestic levels. This can be obtained from a number of different sources though most frequently it is directly via the gas network operator for the area, supplied directly from a gas point of

connection.

Attributes of the Land

2.6.3 The attributes of the land itself often impacts the viability of a FlexGen project and dictates whether the owners can operate the facility in the way that the national and local networks require. More specifically:

- **Legal covenants governing land use:** Land must be free of legal covenants that would prohibit its use as a FlexGen facility. For example, covenants that relate to the specific 'Use Class' of the land or protecting site infrastructure would render the site unsuitable.

- **Planning considerations:** FlexGen facilities are generally discrete, compact installations. When sited sensitively the effects of noise and emissions on the environment is negligible. Permanent lighting is not required, and traffic volumes are low.

2.6.4 Nonetheless, proposals should comply with local and national planning policy as well as meeting a number of planning related criteria;

A. They should not be located in close proximity to residential premises;

B. The effect of noise and emissions should be considered and mitigated;

C. The access to the site should be suitable;

D. Visual impact should be appropriate for the location proposed; and

E. Other site specific factors should be considered (e.g. ecology, landscape & flood risk).

- **Commercial arrangements:** Even where land is identified as being well suited for FlexGen, sometimes landowners will have other aspirations for their site, restrictive covenants may exist or the site is simply not available.

3 SITE INFORMATION

3.1 SITE IDENTIFICATION EXERCISES

Strategic Search

3.1.1 As explained in sections 2.2 and 2.3, the UK as a whole needs standby flexible generation. As such generation is embedded at a local distribution level, it is important to identify areas where the National Grid ('NG') needs additional capacity the most.

3.1.2 The Site is located at Redbrook Industrial Estate in Barugh. This is an economic hub for business and light industry with a focus on economic generation and growth.

3.1.3 There is also nearby access to the high voltage power network.

3.1.4 Barugh has therefore been identified as an area which would benefit from the protection of a flexible standby power facility.

Local Search

3.1.5 Two possible sites were considered as potential locations to use the existing grid connection.

3.1.6 A number of industrial units located adjacent to the Site were considered. However, after further investigation, they were deemed too small to accommodate the Proposed Development.

3.1.7 The current Site was chosen as it is considered to be sufficiently distanced from residential receptors whilst being large enough to accommodate the Proposed Development.

3.2 SITE

3.2.1 The site sits between a railway line and Whaley Road on the eastern side of Redbrook Industrial Estate, Barugh, Barnsley. The precise location of the site is shown on Drawing GPP/RE/B/17/01- Site Location Plan.

3.2.2 The site is roughly rectangular in shape, covering an area of approximately 0.71ha

3.2.3 The site is currently vacant, although it has been previously developed and therefore is considered brownfield land.

3.2.4 Access to the site is gained off Whaley Road as shown on Drawing GPP/M/REL0036/17/02-

Site Plan One.

3.2.5 Immediately to the east of the site is the Barnsley to Wakefield railway line, beyond which is open countryside.

3.2.6 To the south of the site is a concrete product manufacturing business and vacant industrial land to the south west.

3.2.7 A further 200m to the south west of the site are a number of car distributors.

3.2.8 The nearest residential properties are located off Coppice Avenue, Wilthorpe at over 325m to the south east of the site. The concrete product manufacturing business and other industrial units at Zenith Park however lie in between.

3.2.9 There is also a concrete crushing operation adjacent to the Site.

3.2.10 An extract of aerial imagery is included below, showing the Site in local context.

Figure 1: Extract from Google Earth

3.2.11 The following photographs show views of the Site.

Figure 2: View from south east.

Figure 3: View from south west.

Figure 4: View from north east.

Figure 5: View from north west

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LOCAL AREA DESIGNATIONS

3.2.12 The site is not located within 5km of any Sites of Special Scientific Interest (SSSI's).

3.2.13 There are, however, Local Nature Reserves (LNR) located approximately 3.2km to the south east and 3.3km north east of the site.

3.2.14 The site is located within Flood Zone 1, which has a low risk of flooding. This categorization means that there is a less than 1 in 1000 annual probability of river or sea flooding (<0.1%).

3.2.15 There are no Public Rights of Way across the site.

PLANNING HISTORY

3.2.16 On site: The site currently benefits from planning permission for "Use of land for the crushing and screening of inert waste in the open and associated ancillary activities" permitted on 6 December 2011 (Ref: 2011/0604). This development originally commenced in 2006.

3.2.17 On adjacent sites: The site immediately to the south is occupied by a concrete manufacturing firm. The most recent permission recorded for the site is for the "erection of new offices and workshop for manufacture of concrete products" granted on 14 August 2007 (Ref: 2007/0815).

3.2.18 There is limited information on the Council's web-site for the use of the land to the west and north. The most recent permission recorded is for "Renewal of B/00/0662/DT for offices and workshop", granted in July 2000.

3.2.19 To the west of Whaley Road an application has recently been submitted to Barnsley MBC for the "Installation of a Short-Term Operating Reserve" (STOR) (ref 2106/1180). This site lies approximately 200m to the west of the application site.

Technical Assessment of the Site (reference section 2.6.2)

Site attribute	Status	Notes
Proximity to an electricity grid connection	Secured	Reliance Energy has managed to secure a sufficiently large connection of electricity capacity from the District Network Operator (DNO), in this case Northern Power Grid. The site at Barugh is positioned in close proximity to the substation. Due to DNO regulations regarding movement of the electrical point of supply, there is little opportunity to move the development to an alternative, available site while maintaining ownership of this connection.
Proximity to viable gas supply	Secured	Reliance Energy has secured a sufficiently large connection to import gas from the local operator, in this case the National Grid, which is also commercially acceptable.
Legal covenants around land use	No material issues	The required legal searches have been undertaken for the land at Redbrook Industrial Estate. These have confirmed that the land is free from any covenants (or equivalent) that would prevent its use as a FlexGen facility.
Planning considerations	No material issues	A planning risk appraisal has been undertaken for this site to identify relevant planning considerations. This has included a review of site history, land use context, proximity to sensitive receptor and an appraisal of planning policies. This exercise concluded the following: The Site is distant from residential properties and is not located within Flood Zones 2 or 3. Given its location and neighbouring uses, it was concluded that a FlexGen facility in this location could be accommodated with minimal environmental impacts.
Commercial arrangements	No material issues	Reliance Energy has entered into a purchase agreement for the land conditional on being granted satisfactory planning permission.

4 PROPOSED DEVELOPMENT

4.1 OVERVIEW

4.1.1 In light of the UK's current and projected energy needs, this Planning Application seeks to permit the construction and operation of a Flexible Generation ('FlexGen') facility to provide support services to the National Grid ('NG') during hours where the electricity network is under unusual stress.

4.1.2 This application is submitted alongside a second planning application for a similar development on an adjacent site. The reasons for separate submissions are outlined in section 1.1.2. It should be noted that all the noise and emissions modelling and outcomes are based on both sites operating simultaneously.

4.1.3 The proposed FlexGen scheme is designed to be capable of generating around 19MW of electricity into the network when required. In order to meet that capability, a number of gas fuelled engines are required along with the appropriate infrastructure that will feed into the nearest point of grid connection.

4.1.4 The Proposed Development can therefore be defined as:

"The installation of natural gas powered generators along with the necessary associated infrastructure to allow for the operation of a Flexible Generation Facility which will service the National Grid. The plant will do this by providing capacity when it is needed and by acting to improve the quality of local supply".

4.1.5 The proposed layout of the development is shown below (alongside the second proposed site):

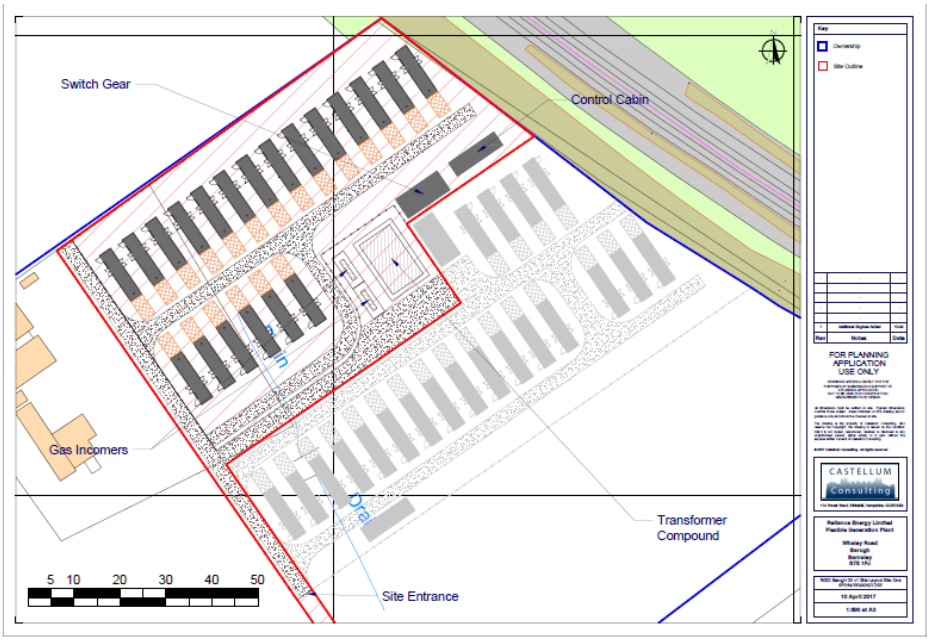

Figure 6: Proposed Site Layout

4.1.6 The gas- powered generators are organised into a linear formation across two rows within the site boundary. The site is designed to allow ample room between the rows and individual generators to facilitate inspections and maintenance. The control cabin, switchgear, transformer compound and gas incomers are concentrated at the south-eastern portion of the site.

4.1.7 The Proposed Development will be capable of generating up to 19MW of electricity to feed to the Grid when called upon. This is enough to meet the needs of 38,000 average homes per hour when operating at full output. More information can be found at: https://www.ofgem.gov.uk/ofgem-publications/76160/13537-elecgenfactsfs.pdf

4.1.8 The Proposed Development will comprise of 19 x 1.0MW containerised gas powered generators, transformers, a switchroom, substation and PIR unit, standby generator and gas incomers.

4.1.9 Operationally, each of the Proposed Developments must meet a number of requirements when instructed by the National Grid. Amongst other things, the facility is required;

- Deliver full output after being instructed to start up by the National Grid within a very short period of time (<30 seconds);

- To provide full output for at least 2 hours;
- Average operating hours of 5-8 hours to be expected between the hours of 07:00 to 23:00 hours;
- To have a minimum capacity of 3MW; and
- To have the ability to provide the service at least three times per week.

4.1.10 In reality, the nature of FlexGen facilities means that the generators operate at varying times of the day depending on demand. The Proposed Development will operate for approximately 2,000-3000 hours per year at an average of 5-8 hours per day to be expected between the hours of 07:00 to 23:00 hours, representing approximately 25-35% of the total hours per annum.

4.2 CONSTRUCTION

4.2.1 The construction of the facility will take approximately 6-8 months, and will involve the formation of a series of concrete plant bases, service trenches, an access road, fencing, CCTV and gates.

4.2.2 Most of the work above ground will involve the installation of plant made offsite and craned into position.

4.2.3 Local labour will be used to construct the facility and, where possible, materials will be sourced locally.

4.2.4 Construction will take place during the following hours:

- Monday – Friday 07:00-18:00; and
- Saturday – 07:00-13:00.

4.2.5 No construction work will take place on Sundays or Bank Holidays.

4.3 OPERATIONS

4.3.1 The only vehicles required to attend the site when the facility is operational will be those associated with security and maintenance.

4.3.2 There are no HGV movements associated with the operational activities at the site.

4.3.3 The whole facility will be maintained 24/7 by an off-site security team through their installed CCTV.

4.3.4 During normal operation, there will be no permanent staff as the plant is operated remotely by the National Grid and operators from their offices. However, engineers will visit the Site on a daily basis to check and undertake general maintenance.

4.3.5 There would be direct and indirect employment when the plant is operational. Employment opportunities will be afforded to:

- Mechanical Engineers;
- Electrical Engineers;
- Accounts Staff;
- Fuel Processing Engineers;
- Gas Fitters;
- Health and Safety Officers.
- Fuel Buyers;
- Sales Staff;
- Workshop Staff;
- Senior Management;
- Landscape Maintenance Staff; and

4.4 DESIGN LIFE

4.4.1 The plant would be expected to operate for the next 25 years at the end of which period it would be decommissioned safely. The hardstanding could be broken up and recycled, used again in future developments of the Site or could be restored to its pre-existing use.

5 PLANNING POLICY CONTEXT

5.1 INTRODUCTION

5.1.1 Section 38(6) of the Planning and Compulsory Purchase Act 2004 states that the determination of a Planning Application must be made in accordance with the Development Plan unless material considerations indicate otherwise. In this case, the Development Plan consists of the following documents;

- Local Development Framework Core Strategy (Adopted September 2011); and
- Unitary Development Plan (Adopted December 2000).

5.1.2 Other material considerations include the National Planning Policy Framework (2012), National Planning Practice Guidance (2016) and the Overarching National Policy Statement for Energy (2011).

5.1.3 Relevant policies of the Development Plan are identified below along with the main documents that are likely to be considered material to the application.

5.2 THE DEVELOPMENT PLAN

LOCAL DEVELOPMENT FRAMEWORK CORE STRATEGY (ADOPTED SEPTEMBER 2011)

5.2.1 This document provides a spatial strategy for the future development of Barnsley up to the year 2026.

5.2.2 The Core Strategy outlines the key elements of the planning framework for Barnsley.

5.2.3 Paragraph 4.12 explains that promoting sustainable development and reducing the Borough's impact on climate change are considered to be the overarching principles of the Core Strategy. It then goes on to state that the use and development of land will be assessed against the objective of securing sustainable development within Barnsley and to meet its environmental, economic and social needs. Proposals will be supported where they deliver (inter alia);

- *Efficient use of land and infrastructure, particularly by utilising previously developed 'brownfield land';*
- *Protection or enhancement of the quality of natural assets including water, air, soil,*

minerals and biodiversity; and

- *Renewable energy generation to reduce the cause of climate change.*

5.2.4 CSP1: Climate Change states that;

Development will be expected to;

- *Reduce and mitigate the impact of growth on the environment and carbon emissions;*
- *Ensure existing and new communities are resilient to climate change; and*
- *Harness the opportunities that growth, and its associated energy demands brings to increase the efficient use of resources through sustainable construction techniques and the use of renewable energy.*

We will take action to adapt to climate change by (inter alia);

- *Giving preference to development of previously developed land in sustainable locations; and*
- *Locating and designing development to reduce the risk of flooding.*

5.2.5 Paragraph 9.30 states that a proportion of the energy supply for new development should be secured from decentralised and renewable or low carbon energy sources.

5.2.6 CSP6: Development that Produces Renewable Energy states that;

We will allow development that produces renewable energy as long as there are no significantly harmful effects on;

- *The character of the landscape and appearance of the area;*
- *Living conditions; biodiversity, geodiversity and water quality;*
- *Heritage assets, their setting and cultural features and areas;*
- *Highways safety; and*
- *Infrastructure including radar.*

5.2.7 Policy CS19: Protecting Existing Employment Land states that;

Existing employment land, or land last used for employment purposes will be retained in order to safeguard existing or potential jobs. The redevelopment of employment land and buildings for non-employment uses will only take place if;

- *Redevelopment would not result in a loss of existing jobs or employment potential; and*
- *There will be an adequate supply of employment land in the locality.*

If the above criteria can be satisfied, then redevelopment will be allowed where it can be demonstrated that the buildings or land cannot satisfactorily support continued employment use.

5.2.8 CSP40: Pollution Control and Protection states that;

Development will demonstrate that it is not likely to result, directly or indirectly, in an increase in air, surface water and ground water, noise, smell, dust, vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people.

Development will be expected to minimise the effects of any possible pollution and provide mitigation measures where appropriate.

UNITARY DEVELOPMENT PLAN (ADOPTED DECEMBER 2000)

5.2.9 The Unitary Development Plan (UDP) covers the period between 1986 and 2001 and, as such, is significantly outdated. The UDP is set to be replaced by new Local Plan however the saved policies of the UDP will remain in force until the new Local Plan is adopted.

5.2.10 The UDP is made up of two parts:

- Volume 1: Strategy, Policy and Justification - this contains borough wide development strategies and policies; and
- Volume 2: Community Areas - this contains details of allocations for housing, employment, and other land uses and specific policies for 12 community areas and is accompanied by proposals maps.

5.2.11 The Site is identified by the adopted UDP as being designated for existing employment use in accordance with Policy BA5.

5.2.12 Policy BA5 states that 'in accordance with Policy ED7, the following areas shown on the proposals map will remain in employment use'.

5.2.13 The Proposed Development is identified in BA5/3 which states that Claycliffe Industrial Estate

'is a well-established industrial estate, previously allocated industrial area within Barnsley Urban Area Local Plan. It is approximately 2 miles from Barnsley Town Centre. It will benefit from further improvements to communications on completion of current programmed highway schemes between Claycliffe and Hough.

5.2.14 The Policy then goes on to highlight that the uncommitted land to the south east of existing use on the estate is separately identified.

5.2.15 Policy ED7: Existing Employment Areas states that;

Areas defined on the proposals map as Employment Policy Areas will remain in employment use. Unless otherwise stated in Community Area Volumes, development will normally be permitted for business, industry and storage and distribution. Other employment generating uses may also be permitted if they are compatible with adjoining uses. Class A1 (Shops) and Class A2 (Financial and Professional Services will not be permitted).

5.2.16 The Council has also consulted on a new Local Plan, which ran from 24 June to 19 August 2016. The Local Plan Publication Consultation (June 2016) document was produced to guide the future development of the borough up to the year 2033. The document follows on from the Consultation Draft Local Plan 2014 and the Additional Consultation 2015. The Council is now satisfied that it has a sound Local Plan and intends to submit this version to the Secretary of State for Communities and Local Government for examination.

5.3 OTHER MATERIAL CONSIDERATIONS

NATIONAL PLANNING POLICY FRAMEWORK

5.3.1 The National Planning Policy Framework (NPPF) was adopted at the end of March 2012 and is designed to consolidate policy statements, circulars and guidance documents into a single concise document.

5.3.2 At the heart of the National Planning Policy Framework is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan making and decision taking. For plan making it means that;

- *Local Planning Authorities should positively seek opportunities to meet the development needs of their area; and*
- *Local Plans should meet objectively assessed needs, with sufficient flexibility to adapt to rapid changes, unless;*

- *Any adverse impacts of doing so would significantly and demonstrably outweigh the benefits when assessed against the policies in this Framework taken as a whole; or*

- *Specific policies in this Framework indicate that development should be restricted.*

For decision-taking, this means;

- *Approving development proposals that accord with the Development Plan without delay; and*

- *Where the development plan is absent, silent or relevant policies are out of date, granting permission unless;*

  - *Any adverse impacts of doing so would significantly and demonstrably outweigh the benefits when assessed against the policies in this Framework taken as a whole; or*

  - *Specific policies in this Framework indicate development should be restricted.*

5.3.3 Paragraph 18 of the NPPF states that the Government is committed to meeting the twin challenges of global competition and a low carbon future.

5.3.4 In order to facilitate this, the NPPF states that;

The Government is committed to ensuring that the planning system does everything it can to support sustainable economic growth. Planning should operate to encourage and not act as an impediment to sustainable growth. Therefore, significant weight should be placed on the need to support economic growth through the planning system.

5.3.5 Paragraph 93 of the NPPF emphasises that;

Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change and support the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.

5.3.6 The NPPF recognises the need to help to increase both the supply and use of renewable and low carbon energy. As such, Paragraph 97 states that Local Planning Authorities should identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon sources. It then goes on to state that Local Planning Authorities

should;

- *Have a positive strategy to promote energy from renewable and low carbon sources;*
- *Design their policies to maximise renewable and low carbon energy development whilst ensuring that adverse impacts are addressed satisfactorily including cumulative landscape and visual impacts;*
- *Consider identifying suitable areas for renewable energy sources and supporting infrastructure, where this would help secure the development of such sources; and*
- *Identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy sources and supporting infrastructure, where this would help secure the development of such sources.*

5.3.7 The NPPF also supports the conservation and enhancement of the natural environment through the planning system. It states that the planning system should contribute to and enhance the natural and local environment by;

- *Protecting and enhancing valued landscapes, geological conservation interests and soils;*
- *Recognising the wider benefits of ecosystem services;*
- *Minimising impacts on biodiversity and providing net gains in biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; and*
- *Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability.*

5.3.8 It then goes on to state that;

In preparing to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Plans should allocate land with the least environmental or amenity value, where consistent with other policies in this Framework.

5.3.9 This is then supported with a statement that reads;

To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that the new development is appropriate for its location. The effects (including cumulative effects) of pollution or health, the natural environment or general amenity, and the potential sensitivity of the area of proposed development to adverse effects from pollution, should be taken into account.

5.3.10 Furthermore, paragraph 111 states that planning policies should encourage the effective use of land by reusing land that has been previously developed provided that it is not of high environmental value.

NATIONAL PLANNING PRACTICE GUIDANCE

5.3.11 National Planning Practice Guidance supplements the NPPF, offering further guidance in regard to renewable and low carbon energy.

5.3.12 The Guidance recognises the need to increase the amount of energy from renewable and lo carbon technologies will help to ensure that the UK has a secure energy supply and that the planning system has an important role to play in the delivery of appropriate infrastructure to support this in locations where the local environmental impact is acceptable.

5.3.13 With regard to developments which have the potential to generate noise, the NPPG offer the following guidance;

Local Planning Authorities' plan making and decision taking should take account of the acoustic environment and in doing so consider;

- *Whether or not a significant adverse effect is occurring or likely to occur;*
- *Whether or not an adverse effect is occurring or likely to occur; or*
- *Whether a good standard of amenity can be achieved.*

5.3.14 In line with the explanatory role of the Noise Policy Statement for England, this would include identifying whether the overall effect of the noise exposure (including the impact during the construction phase wherever applicable) is or would be, above or below the significant observed adverse effect level for the given situation. As noise is a complex technical issue, it may be appropriate to seek specialist assistance when applying this Policy.

OVERARCHING NATIONAL POLICY STATEMENT FOR ENERGY (EN-1)

5.3.15 The Overarching National Policy Statement for Energy (EN-1) is part of a suite of national

policy statements issued by the Secretary of State for Energy and Climate Change. It sets out the Government's policy for delivery of major energy infrastructure. EN-1 provides useful guidance on both large and small scale energy developments. Paragraph 2.2.4 of EN-1 states that the role of the planning system is to provide a framework which allow for the construction of the types of infrastructure in areas of need and that are acceptable in planning terms.

5.3.16 In England and Wales, National Policy Statements are likely to be a material consideration in decision making for applications that fall under the Town and Country Planning Act 1990 (as amended).

5.3.17 The UK has a legally binding commitment to cut greenhouse gas emissions by at least 80% by 2050, compared to 1990 levels. In order to achieve this, the Government requires significant investment in new technology, the electrification of heating, industry and transport alongside the prioritisation of sustainable bioenergy and cleaner power generation.

5.3.18 It is forecast that the demand for electricity will increase significantly over the coming decades. Factors contributing to such growth include the development of new housing and business premises and the increased use of electricity in domestic and industrial heat and transport.

5.3.19 The Statement warns that a lack of sufficiently robust electricity networks can cause, or at least contribute to, large scale interruptions and new electricity infrastructure projects have the potential to increase the reliability of the national energy supply.

5.3.20 It is critical that the UK continues to have secure, reliable supplied of electricity as we make the transition to a low carbon economy. To manage the risks to achieving security of supply, there needs to be;

- *Sufficient electricity capacity (including a greater proportion of low carbon generation) to meet demand at all times. Electricity cannot be stored and therefore demand for it must be simultaneously and continuously met by its supply. This requires a safety margin of spare capacity to accommodate any unforeseen fluctuations in supply or demand; and*

- *A diverse mix of technologies and fuels so that we do not rely on any one technology or fuel. Diversity can be achieved through the use of different technologies and multiple supply routes.*

5.3.21 EN-1 recognises that a flexible approach to energy generation is required to provide back-up supply for intermittent renewable energy. Paragraph 3.3.12 states 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.

5.3.22 Paragraph 3.3.29 states that;

The Government would like to see decentralised and community energy systems such as microgeneration make a much greater contribution to our targets of 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 transition system.

5.3.23 However, the supplementary commentary highlights that the Government does not believe that such systems are ever likely to be seen as replacements of the larger scale infrastructure, but suggests that its role in a supportive and complimentary capacity is invaluable in moving forward.

5.3.24 EN-1 recognises the role of gas in meeting the increasing demands of the UK energy market. It states that gas is the cleanest and most reliable fossil fuel and, as such, is likely to continue to be a central part of Great Britain's energy mix during the transition to a low carbon economy.

NATIONAL POLICY STATEMENT FOR FOSSIL FUEL ELECTRICITY GENERATING INFRASTRUCTURE (EN-2)

5.3.25 The National Policy Statement for Fossil Fuels (EN-2) must be read in conjunction with EN-1. It provides specific policies in relation to energy infrastructure proposals such as gas and oil fuelled electricity generation.

5.3.26 Paragraph 3.6.8 of EN-1 covers the reduction of fossil fuel generation station, and although this capacity is likely to be replaced by new nuclear and renewable generating capacity in due course, the policy provides clear indication that there must be some form of fossil fuel generating capacity in order to provide back up for when generation from intermittent renewable energy capacity is low and aide in the transition to low carbon energy generation.

5.3.27 It goes on to state that fossil fuel power can;

Play a vital role in providing reliable electricity supplies; they can be operated flexibly in response to changes in supply and demand and provide diversity in our energy mix. They will continue to play an important role in our energy mix as the UK makes its transition to a low carbon economy.

5.4 ENVIRONMENTAL IMPACT ASSESSMENT

5.4.1 Consideration has been given as to whether the Proposed Development constitutes a development that would require an EIA in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended).

5.4.2 The Proposed Development does not fall within Schedule 1 of the Regulations.

5.4.3 In terms of Schedule 2 of the Environmental Impact Assessment Regulations 2011 (as amended), the Proposed Development is captured within 3a as 'industrial installations for the production of electricity, steam and hot water' which states that an EIA may be required should the area of development exceed the indicative threshold of 0.5ha and if the thermal output of such activities is in excess of 50MW.

5.4.4 An assessment of the Schedule 2 criteria against the Proposed Development concluded that whilst the Proposed Development does exceed the indicative threshold of 0.5ha, it does not have a thermal output that exceeds 50MW and is not located within a sensitive location. Therefore, the Proposed Development does not require an EIA.

6 PLANNING CONSIDERATIONS

6.1 INTRODUCTION

6.1.1 The starting point for the assessment of this proposal is the Development Plan. From an assessment of the pertinent Development Plan policies, and other material planning considerations, the main issues in the determination of this Planning Application are considered to be;

- Supporting National Energy Needs;
- Land Use; and
- Environmental Impacts.

6.2 SUPPORTING NATIONAL ENERGY NEEDS

6.2.1 It is forecast that the demand for electricity will increase significantly over the coming decades with expected growth in the housing sector and businesses. National Policy Statement for Energy EN-1 warns that a lack of sufficiently robust electricity networks can cause, or at least contribute to, large scale interruptions. As such, the Government advocate for the introduction of new electricity infrastructure projects in order to overcome these issues and increase the reliability of the national energy supply. In response to this, flexible generation is cited as a mechanism for supporting the National Grid.

6.2.2 The Proposed Development is intended to support and complement the existing energy supply from the National Grid by promoting the flexible generation of electricity when demand necessitates it.

6.2.3 EN-1 recognises that a flexible approach to energy generation is required to provide back up supply to intermittent renewable energy. Paragraph 3.3.29 states that "the government would like to see decentralised and community energy systems such as microgeneration makes a much greater contribution to our targets of reducing carbon emissions and increasing energy security from current levels of these systems'. Paragraph 3.6.8 of EN-1 recognises that although fossil fuels are likely to be replaced by new nuclear and renewable generating capability in the future, there currently remains a difficulty in providing a reliable and consistent supply of energy from renewables at least in the short term. As such, the government recognises the need for fossil fuel energy to underpin the energy system during

its transition to a low carbon economy.

6.2.4 In addition, Policy CSP6 of the Core Strategy relates to renewable energy and is supportive of development that produce renewable energy, provided that there are no unacceptable adverse environmental impacts resulting from the proposed development (environmental impacts are of the proposed development are assessed individually in Chapter 7.4 of this Planning Statement). Whilst the proposed gas generators do not constitute low carbon or renewable energy, the nature, scale and function of the proposed development is such that it will support the broader strategy for renewable and low carbon energy by serving as a support mechanism to the Local Distribution Network to ensure efficiency and consistency during the transition to renewable energy.

6.2.5 By having a FlexGen facility embedded into the local network, the area is less likely to experience power shortages as well as reducing overall demand on the national network as a whole which, in turn, makes the local network less volatile.

6.2.6 The proposed development is therefore entirely compliant with local and national policy as well as meeting both local and national energy needs and should be afforded significant weight in the planning balance.

6.3 LAND USE

6.3.1 The Proposed Development is located within an Employment Policy Area in the adopted UDP and this is proposed to continue within the emerging Barnsley Local Plan. Policy BA5 of the UDP states that land shall remain in employment use. Policy ED7 of the UDP furthers this by stating that 'development will normally be permitted for business, industry and storage and distribution'.

6.3.2 Similarly, Policy CSP19 of the Core Strategy states that existing employment land or land last used for employment purposes will be retained in order to safeguard existing or potential jobs.

6.3.3 The existing use of land is for a recycling operation.

6.3.4 The extant planning permission at the Site is for inert recycling operations (planning reference 2011/604) which does not fall within the Use Class Order and is considered a sui generis land use. This was a renewal of a 2006 planning permission, so the principle of a sui generis use on this land has been established for over 10 years.

6.3.5 It is notable that in the reasons for granting planning permission the Decision Notice states that the proposal complies with Policy CSP19. It is assumed this is on the basis that the development is employment generating. The recycling facility employs 4 people but only when those operations are fully operational, which is infrequent.

6.3.6 Employment uses are normally classified as B1, B2 or B8 uses. While Policy CS19 is not prescriptive, in terms of the use, compliance could be argued in two ways.

6.3.7 The first is that the Proposed Site is not existing employment land. It is used as an inert recycling facility. If that were to be the case Policy CSP19 does not apply.

6.3.8 The second is that a sui generis use is considered to be akin to an employment use. This would mean that the site is considered existing employment land for the purposes of the Policy. Under this circumstance existing employment land should be retained in order to safeguard existing or potential jobs. Redevelopment of employment land for non-employment uses will only take place under certain circumstances.

6.3.9 It is very clear that the Proposed Development, in planning terms, is classified as sui generis, in the same way as the recycling facility. If that development was considered to be employment, then so will a FlexGen facility. Under these circumstances, it is not necessary to consider redevelopment of employment land for non-employment use.

6.3.10 The FlexGen will generate employment during construction and operation, as set out previously. The facility will take up part of the recycling area so jobs associated with that will be protected. The addition of the Proposed Development will enhance the direct and indirect employment offering. The Proposed Development will attract employment at the Site through the construction phase of development. Beyond this, the Proposed Development requires routine security and maintenance visits for the lifetime of the operation, safeguarding employment for 25 years.

6.3.11 The inert recycling facility was also considered to be compliant with UDP Policy ED7.

6.3.12 The granting of planning permission for such uses on land allocated for employment suggests that the ability of sui generis uses to attract and retain employment was recognised by the Council and subsequently deemed appropriate and acceptable in land use terms.

6.3.13 The Proposed Development is compliant with Policy ED7 and Policy CS19 as existing employment associated with the inert recycling facility will be retained and overall the direct

and indirect employment opportunities will be enhanced.

6.4 ENVIRONMENTAL CONSIDERATIONS

6.4.1 Having regard to pre-application advice, the Development Plan and the National Planning Policy Framework, the main environmental considerations regarding the proposed development are;

- Air Quality;
- Noise;
- Traffic and Transportation;
- Flood Risk;
- Landscape and Visual Impact; and
- Ecology

6.4.2 CSP6 relates to Renewable Energy and the Policy allows development that produces renewable energy providing that there are no significant adverse environmental effects on;

- The character of the landscape and appearance of the local area;
- Biodiversity, geodiversity and water quality;
- Heritage assets, their setting and cultural features;
- Highway safety; and
- Infrastructure including radar.

6.4.3 Policy RE1 of the Draft Local Plan echoes the sentiments of the CSP6 of the adopted Core Strategy. It states that the Authorities will permit development that produces renewable energy as long as there are no significant harmful effects on the environment.

6.4.4 Policy CSP40 'Pollution Control and Protection' states that any proposed development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air, surface water or groundwater pollution, noise, smell, dust, vibration, light or other pollution which would unacceptably alter or cause nuisance to the natural and built environment or to people.

Air Quality

6.4.5 A detailed Air Quality Assessment has been undertaken in relation to the Proposed Development. The Assessment considers the potential impact of emissions from the both of the proposed natural gas fired engines on sensitive receptors in the vicinity of the Proposed Development. This provides a worst case scenario and the cumulative effects of the sites operating simultaneously. A copy of the complete Assessment is appended to this Statement (Appendix 1).

6.4.6 Emissions of Nitrogen Oxides (NOx), Fine Particles (PM10), Carbon Monoxide (CO) and Volatile Organic Compounds (VOC) were assessed in line with the Air Quality Regulations and their objective limits, or against pollutant-specific Environmental Assessment Limits (EALs) outlines in Environment Agency Guidelines.

6.4.7 The Proposed Development comprises of two separate sites running simultaneously to produce a combined output of 40MW of electricity to the National Grid. In the spirit of providing a comprehensive air quality assessment including the cumulative impacts of the proposed development, both sites have been assessed collectively.

6.4.8 Barnsley Metropolitan Borough Council has declared seven Air Quality Management Areas (AQMAs) for nitrogen dioxide, primarily due to exceedances associated with vehicular emissions along major transport routes into and out of the area.

6.4.9 Barnsley Metropolitan Borough Council undertook air quality monitoring across the Borough at 120 locations in 2015, with one situated approximately 900m southeast of the Proposed Development.

6.4.10 Ten specific receptor location in the vicinity of the Proposed Development were modelled in the Assessment, representing nearby residential and commercial premises where members of the general population may be present for extended periods of time and where they may be exposed to airborne pollutants from the Proposed Development.

6.4.11 The nearest residential receptors are located approximately 430m to the south east of Proposed Development.

NITROGEN DIOXIDE

6.4.12 Annual Average Nitrogen Dioxide concentrations at the above monitoring locations are predicted to increase by around 1.3 µg m-3 as a result of the Proposed Development.

6.4.13 When considered in the context of the measured background, the predicted increases will not result in an exceedance on the annual average AQS objective value.

6.4.14 Maximum hourly average Nitrogen Dioxide concentrations at the nearby monitoring stations were predicted to increase by approximately 44µg m-3 or less as a result of the Proposed Development.

6.4.15 Hourly average and annual average process contributions to background pollutant concentrations decrease markedly with increased distance from the Proposed Development. This indicates that the emissions from the Proposed Development are unlikely to have a significant impact on local air quality, apart from in the immediate vicinity of the Proposed Development.

6.4.16 As such, the Proposed Development should not adversely impact on Barnsley Metropolitan Borough Council's Air Quality Action Plans.

CARBON MONOXIDE

6.4.17 The results from detailed modelling of carbon monoxide are based upon predictions for the nearest residential receptor located approximately 220m to the west of the Proposed Development.

6.4.18 The assessment predicted that the maximum hourly average Process Contribution for Carbon Monoxide associated with emissions from the Proposed Development would be approximately 390µg m-3 or 4% of the AQS objective value of 10,000 µg m-3.

6.4.19 However, the AQS objective for Carbon Monoxide is based upon an 8-hour rolling average and as the Proposed Development is only likely to operate for a maximum of two hours at a time, there is no likelihood of the objective being exceeded. As such, the impact of the Proposed Development on Carbon Monoxide emissions is considered insignificant.

PARTICULATE MATTER

6.4.20 The assessment of particulate matter was based upon a worst-case assumption that all of the particulate released from the engine exhausts of the Proposed Development are 10µm or less.

6.4.21 Detailed modelling predicts that the maximum hourly average Process Contribution for Particles (PM10) from the Proposed Development would be approximately 0.2µg m-3 which equates to less than 1% of the daily average AQS objective value.

6.4.22 However, as the Proposed Development is only likely to operate continuously for a few hours per day, emissions of particulate matter will not exceed the daily average objective value for PM10 and, as such, the impact of such emissions is considered insignificant.

6.4.23 Taking into consideration the background with the Process Contribution predicted by modelling, the maximum hourly average Predicted Environmental Concentration for PM10 due to the Proposed Development was predicted to be around 28% of the average daily AQS objective value of 50µg m-3.

6.4.24 However, as previously stated, the Proposed Development will only operate for a few hours continuously, therefore emissions cannot exceed the daily average objective value for PM10.

CONCLUSION

6.4.25 The Assessment was undertaken on the basis of the 4,645 hours of the year that the Proposed Development will be contracted to be available for operation, whereas in practice, it will only be operational for up to 2000 hours of the year.

6.4.26 The results from the detailed modelling indicate that the hourly average Nitrogen Dioxide AQS objective may be exceeded in the immediate vicinity of the Proposed Development as a result of the operation.

6.4.27 However, there will not be a breach of the Air Quality Regulations as a result of the Proposed Development as the area affected is restricted to land within the Application Site and the adjacent commercial premises. As members of the general public will only be present at these locations on an intermittent basis and for relatively short periods of time, these are not considered to be relevant receptors.

6.4.28 Air Quality in the vicinity of the Proposed Development is concluded to be typical of an urban environment. The maximum hourly average and annual average of Nitrogen Dioxide Predicted Environmental Concentrations at the nearest residential receptors represents values equivalent to roughly 70% or less of the AQS objective values and therefore can be considered insignificant in relation to Environment Agency guidance.

6.4.29 The results from the detailed modelling also showed that the operation of the Proposed Development facility would not exceed the AQS objective values for Particulate Matter, Carbon Monoxide or Volatile Organic Compounds.

6.4.30 The results of the Air Quality Assessment render the Proposed Development as compliant with

the Policy CSP6 and CPS40 of the adopted Local Plan alongside RE1 of the draft Local Plan and National Planning Policy.

Noise

Introduction

6.4.31 Sol Acoustics Ltd (Sol) has been commissioned to conduct an environmental noise assessment to establish the environmental noise impact likely to be occurring on the surrounding environment from the operation of the proposed Flexible Generation Facility. The Assessment considers the potential impact of emissions from both of the proposed natural gas fired engines on sensitive receptors in the vicinity of the Proposed Developments. This provides a worst case scenario and the cumulative effects of the sites operating simultaneously. The purpose of this assessment is as follows:

- To identify the nearest pre-existing noise sensitive housing to the site (i.e. receptors), which are most likely to be affected by environmental noise arising from plant and/or processes associated with the Development Site during the proposed operating periods (e.g. daytime weekdays and weekends).
- To determine the prevailing daytime background noise climate at the nearest receptors (weekday and weekend periods).
- To identify all potentially significant proposed noise sources to be installed at the site and obtain suitable source noise level data. This includes the use of manufacturer noise level data as well as the use of source noise level measurements conducted of similar processes and equipment at existing industrial premises.
- To calculate the resultant environmental noise contribution and impact arising at nearest noise sensitive receptors to the site as during the proposed hours of operation.
- To carry out an environmental noise assessment of the proposed development in accordance with the methodology prescribed in relevant Standards and guidance
- (i.e. British Standard 4142: 2014) to determine the significance of the potential environmental noise impact generated (likelihood of complaint).
- Should a significant impact be identified, determine suitable noise mitigation

measures (in outline and performance specification terms) in order to control the anticipated noise emissions from the site to ensure that appropriate environmental noise levels can be achieved at the nearest (and all) noise sensitive receptors.

6.4.32 The outcome is presented in an Environmental Noise Impact Assessment (ENIA) attached as Appendix 2 to this Planning Statement.

Sensitive Receptors

6.4.33 The nearest noise sensitive premises to the Site are:

- Residential estate located on Claycliffe Road located approximately 420 metres to the west of the Site;
- Residential estate located approximately 390m to the south east of the Site boundary.

6.4.34 The locations are set out in Figure 1 in the ENIA.

Characteristics of the FlexGen Facility

6.4.35 The purpose of the FlexGen facility is to provide reliable power to the National Grid on demand and as required. For operational reasons, this facility is divided into two separate entities. The noise assessment has been undertaken on the basis of the total number of generators to provide a worst-case scenario.

6.4.36 It is proposed to install of 38 x 1042 kW Perkins TRS2 gas powered generators on the site. The generators would only be expected to operate between the hours of 07:00 – 23:00 but could operate 7 days a week.

6.4.37 The supplier of the Perkins engines has provided accurate information regarding the layout and configuration of the proposed generators, as well as representative noise level data of the generators in order to inform the assessment.

6.4.38 In basic terms, each Generator consists of a gas engine which is to be housed within an acoustic enclosure of dimensions: 12.188 m (L) x 3.001m (W) x 2.503m (H). Intake air to the generator is provided via a roof mounted, attenuated penthouse louvre. The air outlet is proposed to be mounted on the wall of the generator enclosure. The engine exhaust is to be roof mounted, with the exhaust tailpipe at a height of 8.461m above local ground level. A single remote radiator will be mounted onto the roof of each generator in order to provide

cooling for the engine.

6.4.39 The preliminary indicative general arrangement of each complete, packaged generator unit is provided in Figure 3 in the ENIA.

6.4.40 Table 1 summarises the noise level data assumed for each identified noise source associated with the proposed 1042 kW Perkins TRS2 Gas Powered Generator:

Identified Noise Source	Noise Level Data
Generator Enclosure (including Air Inlet and Outlet Louvres)	86.8 dB $L_{Aeq,T}$ at 1.13m
Air Inlet Penthouse Louvre	86.8 dB $L_{Aeq,T}$ at 1.13m
Engine Exhaust	86.8 dB $L_{Aeq,T}$ at 1m
Remote Radiator	90 dB L_{wA}

Table 1: Assumed 1042kW Perkins TRS2 Gas Powered Generator Noise Level Data.

Noise Survey

6.4.41 In order to inform the assessment, an environmental noise survey have been conducted by Sol between 20th and 24th April 2017. The purpose of these measurements was to determine the prevailing background noise levels expected at the nearest noise sensitive premises to the Application site, for environmental noise benchmarking and assessment purposes.

6.4.42 Two environmental noise measurement positions were selected to inform the survey:

- Noise monitoring point 1: The microphone was positioned approximately 400m to the west of the Site and just to the east of residential premises on Medina Way. The microphone was installed at a height of approximately 2.4m above location ground level. The background noise levels measured at this position are considered to be representative of those expected at the residential estate on the west side of Claycliffe Road.

- Noise monitoring point 2: The microphone was positioned approximately 420m to the south east of the Site and approximately 20m just to the east of the residential premises on Coppice Avenue. The microphone was installed at a height of approximately 3 m above ground level. The background noise levels measured at this position are considered to be representative of those expected at the residential estate off Wilthorpe Road.

6.4.43 The location of the noise monitoring positions is shown in Figure 1 in the ENIA.

6.4.44 The noise survey was carried out using Type 1 Precision Grade noise monitoring equipment, and the complete measuring systems were field calibrated immediately prior to, and following the noise survey period.

6.4.45 Meteorological data was recorded at the measurement position during the course of the noise survey. During all environmental noise measurements, the prevailing weather conditions remained favourable for the purposes of environmental noise assessment throughout the entire survey period, with a light breeze (with a mean wind speed of 1m/s) and no rain occurring. Further details of the identified weather conditions are provided in Appendix A of the ENIA.

6.4.46 Notwithstanding the weather conditions recorded, the microphone systems were entirely weatherproofed and fitted with all-weather environmental windshields, each with bird spike.

Noise Survey Results

Background Noise Climate

6.4.47 Table 2 provides a basic summary of the typical overall, A-weighted noise levels measured at the various noise monitoring locations, in LAeq and LA90 terms, as during daytime and night time periods, weekdays and weekends. The specific, measured noise levels pertinent to the BS4142 environmental noise assessment are highlighted in bold, italic text. The key observations are provided below:

Position	**Date**	**Daytime (07:00 - 23:00)**		**Night Time (23:00 – 07:00)**	
		dB $L_{Aeq,16hour}$	**dB $L_{A90,15min}$ (Typical)**	**dB $L_{Aeq,8hour}$**	**dB $L_{A90,15min}$ (Typical)**
1	Thursday 20 April 2017	62*	***48***	58	44
	Friday 21 April 2017	62	50	57	35
	Saturday 22 April 2017	63	***44***	56	35
	Sunday 23 April 2017	62	***44***	57	36
	Monday 24 April 2017	64*	58	-	-
2	Thursday 20 April 2017	48*	***43***	49	39

	Friday 21 April 2017	53	***43***	48	27
	Saturday 22 April 2017	51	***37***	48	31
	Sunday 23 April 2017	49	38	49	36
	Monday 24 April 2017	64*	48	-	-
	***** Measurement not conducted for the full 16-hour assessment period				

Table 2: Summary of Typical, Measured Broadband Environmental Noise Levels.

Appendix A of the ENIA provides further information, including detailed noise time-history graphs for all the measured receptor daytime, night time, weekday and weekend background noise survey data.

6.4.48 It should be noted that the night time background noise levels are presented for completeness but do not form part of the assessment as the Development will only be expected to operate during daytime hours, namely as between 07:00 – 23:00 hours.

6.4.49 The typical weekday daytime background noise levels measured during the proposed hours of operation were 48dB LA90,15min and 43dB LA90,15min at Measurement Positions 1 and 2 respectively. The typical weekend daytime background noise levels measured during the proposed hours of operation were 44dB LA90,15min and 37dB LA90,15min at Measurement Positions 1 and 2 respectively. These measured background noise levels form the benchmark for the environmental noise assessment.

Environmental Noise Impact Assessment

BS4142 Assessment Methodology and Adopted Environmental Noise Targets

6.4.50 BS 4142: 2014: Method for assessing and assessing Industrial and commercial sound (BS 4142) is intended to be used to assess noise of an industrial nature, which includes sound from fixed installations, which comprise mechanical and electrical plant and equipment.

6.4.51 The procedure contained in BS 4142 for assessing the likelihood of complaints is to compare the measured or predicted noise level from the source in question, the 'specific noise level' immediately outside the noise sensitive premises, with the background noise level. Where the noise contains attention attracting characteristics such as tonal, impulsive, intermittent elements, it may be appropriate to apply a correction to the specific noise level to obtain the

'rating level'.

6.4.52 BS 4142 states that the significance of sound of an industrial and/or commercial nature depends upon both the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. Typically, the greater this difference, the greater the magnitude of the likelihood of noise complaints:

- Typically, the greater this difference, the greater the likelihood of complaint.
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

6.4.53 For the daytime, this assessment is carried out over a one-hour period, and over a fifteen-minute period at night. The daytime and night-time periods are defined as 07:00 to 23:00 hours and 23:00 to 07:00 hours respectively.

6.4.54 In BS4142 assessment terms, it is considered appropriate to limit the combined Rating Level from the Development Site to not exceed the typical measured weekday and weekend daytime background noise levels.

6.4.55 On this basis, and based upon the results of the environmental noise survey, the following daytime maximum permissible Rating Level limits apply at the nearest noise sensitive premises:

Residential Dwellings	**Weekday Daytime (07:00-23:00) Maximum Permissible Rating Level Limit, dB $L_{Ar,Tr}$**	**Weekend Daytime (07:00-23:00) Maximum Permissible Rating Level Limit, dB $L_{Ar,Tr}$**
Residential Estate on Claycliffe Road	48	44
Residential estate off Wilthorpe Road	43	37

Table 3: Daytime Maximum Permissible Noise Rating Limit.

Methodology and Basis for the Assessment

6.4.56 In order to predict the likely resultant noise levels impinging the nearest residential receptors, 3D computer based environmental noise models were created using the DataKustik 'CadnaA' Noise Mapping software. The assumption used in the noise models are set out in Section 6 of the ENIA.

Predicted Daytime Environmental Noise Level Impact at Receptors

6.4.57 Table 4 presents the predicted overall A-weighted, BS4142-defined 'Rating Level' at the identified noise sensitive receptors from the Development. In all cases, the noise levels have been predicted at 4m above local ground level. The corresponding noise map is provided in Appendix B of the ENIA.

6.4.58 A correction of +3 dB has been applied to the specific noise level to determine the Rating Level to account for possible tonal character associated with the noise level emissions expected from the generators. Whilst individual generator units are expected to switch on / off as required between 07:00 – 23:00 hour to meet power demands, no correction for the acoustic character associated with the intermittent operation of the generators has been applied in this assessment. It is considered that the acoustic characteristics associated with individual generators switching on/off is only expected to be noticeable when there are few/no other generators operating, and will in any event be relatively very infrequent. In this instance, the specific noise level generated from the site would be expected to be much lower (at least 3 dB lower assuming that fewer than half of the generators are operating) negating the effect any acoustic character correction applied for intermittent operation.

Residential Dwellings	**Assessment Period**	**Predicted Rating Level, dB $L_{Ar,Tr}$ ***	**Typical Background Noise level, dB L_{A90}**	**Exceedance, dB**
Residential Estate on Claycliffe Road	Weekday	55 (+3)	48	10
	Weekend	55 (+3)	44	14
Residential estate off Wilthorpe Road	Weekday	56 (+3)	43	16
	Weekend	56 (+3)	37	22
* Noise levels are presented as Specific Sound Levels. The correction to be applied for acoustic character is provided in the parenthesis which such be added to the Specific Sound Level to determine the Rating Level.				

Table 4: Predicted Operational Noise Levels at Receptors, at 4m Height.

6.4.59 It can be seen from Table 4 that the predicted rating level is expected to exceed the existing background noise level at each of the identified noise sensitive receptors during both the weekday and weekend periods.

6.4.60 As a result it is necessary to include appropriate acoustic mitigation to ensure that the FlexGen facility does not give rise to noise impacts.

Noise Mitigation

Generator

6.4.61 The 3D computer based environmental noise model has been used to determine a suitable noise mitigation strategy for the scheme. In order to be capable of meeting the noise level limits at each of the identified noise sensitive premises, Table 5 specifies the recommended maximum permissible noise level emissions for each of the identified noise sources associated with the generator:

Identified Noise Source	Recommended Maximum Permissible Noise Level Emissions
Generator Enclosure (including Air Inlet and Outlet Louvres)	60 dB $L_{Aeq,T}$ at 1m
Air Inlet Penthouse Louvre	60 dB $L_{Aeq,T}$ at 1m
Engine Exhaust	65 dB $L_{Aeq,T}$ at 1m

Table 5: Recommended Maximum Noise Level Emissions for the Generator.

6.4.62 The above recommended maximum permissible noise level emissions from the generator will be controlled through the careful design of the generator casing, and the appropriate specification are of air inlet and outlet and exhaust attenuators. These noise levels can be achieved and are practicable.

Remote Radiator

6.4.63 Based upon the above maximum permissible noise level emissions for the generator, the background noise levels at the nearest noise sensitive receptor is capable of being achieved without the need for any further noise mitigation to be applied to the remote radiators. However, in order to be capable of meeting the more stringent weekend noise rating limits, further noise mitigation to the remote radiators will be required.

6.4.64 In order to be capable of meeting the weekend background noise level limits at the nearest noise sensitive premises, the remote radiators will be controlled to not exceed a sound power level of 85 dB(A). This can be achieved using either a quieter remote radiator with the

required sound power level rating, or by reducing the operating fan speed of the currently proposed remote radiator (rated at 90 dB(A) Lw) to c. 83%.

Predicted Daytime Environmental Noise Level Impact at Receptors with Mitigation

6.4.65 Based upon the above noise mitigation measures, Table 6 presents the predicted overall A-weighted 'rating level' at the identified noise sensitive receptors from the Development. In all cases, the noise levels have been predicted at 4m above local ground level. The corresponding noise maps for each assessment period (and mitigation option, where appropriate) are provided in Appendix B of the ENIA.

Residential Dwellings	Assessment Period	Predicted Rating Level, dB $L_{Ar,Tr}$ *	Typical Background Noise level, dB L_{A90}	Exceedance, dB
Residential Estate on Claycliffe Road	Weekday	37 (+3)	48	-
	Weekend	34 (+3)	44	-
Residential estate off Wilthorpe Road	Weekday	38 (+3)	43	-
	Weekend	34 (+3)	37	-
* Noise levels are presented as Specific Sound Levels. The correction to be applied for acoustic character is provided in the parenthesis which such be added to the Specific Sound Level to determine the Rating Level.				

Table 6: Predicted Operational Noise Levels at Receptors, with Mitigation, at 4m Height.

6.4.66 It can be seen from Table 6 that with the proposed noise mitigation in place, the predicted rating level from the site is not expected to exceed the existing background noise level at any of the at any of the noise sensitive properties during the proposed hours of operation.

Traffic and Transportation

6.4.67 The only vehicles required to attend the Site when the facility is operational will be those associated with security and maintenance.

6.4.68 There are no HGV movements associated with operational activities at the Application Site.

6.4.69 In conclusion, there will be no additional pressures on the highway network or on highway safety as a result of the Proposed Development.

Flood Risk

6.4.70 Policy CSP1 of the LDF Core Strategy expects proposed development to adapt to climate

change by locating the development to reduce the risk of flooding.

6.4.71 The Application Site is located within Flood Zone 1, which has a low risk of flooding. Therefore, the proposed location of the Development is considered to be appropriate and compliant with the Development Plan.

LANDSCAPE AND VISUAL

6.4.72 Policy CSP6 permits development that produce renewable energy provided that there are no significant adverse environmental effects on the character of the landscape and appearance of the local area.

6.4.73 The Proposed Development is sited on brownfield land located within an existing operational industrial estate. The nearest residential properties are located over 325m to the south east of the Application Site. The residential properties will be effectively screened from the Proposed Development by the existing businesses at Zenith Park.

6.4.74 The Proposed Development is therefore considered entirely appropriate for its industrial context and there will be no adverse impacts on the landscape and visual amenity as a result is fully compliant with the Development Plan and the guidance in the NPPF.

ECOLOGY

6.4.75 The Application Site currently benefits from planning permission for an inert waste operation, implemented in 2006. This previous industrial use coupled with its location in an active industrial estate means that the Application Site has very limited ecological value.

6.4.76 Therefore, as a result, there will be no adverse ecological impacts associated with the Proposed Development.

7 SUMMARY AND CONCLUSIONS

7.1.1 In conclusion, the UK's electricity network faces two key problems; Capacity Provision and Quality of Supply. One solution that helps with both problems is the implementation throughout the country of FlexGen facilities.

7.1.2 Land at Redbrook Industrial Estate, Whaley Road, Barugh has been identified as a location that would both benefit from, and be able to support, a FlexGen facility.

7.1.3 Sourcing a site that is suitable for FlexGen involves the consideration of several factors. Suitable sites must: be close enough to where they are needed, near a viable electrical connection and viable gas supply, be free from land use restriction and acceptable in planning and environmental terms.

7.1.4 The Site at Redbrook Industrial Estate is one that satisfies all of these criteria.

7.1.5 This Planning Statement and a range of supporting documents demonstrate the nature of the Proposed Development, its compliance with national and local planning policy and provides detailed analysis of any potential impacts on the environment.

7.1.6 An Air Quality Assessment was undertaken as part of the Application to determine the potential worst case impact of the Proposed Development taking into consideration the least favourable meteorological conditions and the frequency with which these conditions could occur within the operational periods of the FlexGen facility.

7.1.7 The Assessment Concluded that the hourly average NO2 AQS objective may be exceeded in the immediate vicinity of the development site as a result of the Proposed Development. However, there would not be a breach of Air Quality Regulations as a result of the operation of the FlexGen Facility as the area affected is restricted to land within the development site and the adjacent commercial premises which are not considered to be relevant receptors given that members of the general public will only be present at those locations on an intermittent basis and for relatively short periods of time.

7.1.8 The results from detailed modelling also concluded that the operation of the FlexGen facility would not result in an exceedance of the AQS objective values for PM10, CO and VOCs.

7.1.9 An environmental noise assessment has been carried out to establish the environmental noise impact likely to be occurring on the surrounding environment from the operation of the

proposed FlexGen facility located at Land at Redbrook Industrial Estate, Barugh, Barnsley.

7.1.10 The assessment has shown that based upon the current proposed generators, the maximum ascertained and permissible Rating Level noise limits are expected to be exceeded and as such, additional noise mitigation will be required.

7.1.11 The noise mitigation measures proposed are achievable and practicable and will ensure that the maximum and permissible Ratings level noise limits will not be exceeded.

7.1.12 Similarly, the Proposed Development is unlikely to cause significant adverse impacts on ecology, flood risk or have a negative landscape and visual impact.

7.1.13 In conclusion, it has been demonstrated that the proposed development is compliant with the relevant national and local planning policies, and that there will be no detrimental impact on the environment as a result of the development. In light of the above, it is concluded that there are no known reasons why this planning application should not be considered favourably by the Local Planning Authority.

APPENDIX ONE: AIR QUALITY ASSESSMENT (APRIL 2017)

APPENDIX TWO: ENVIRONMENTAL NOISE IMPACT ASSESSMENT (MAY 2017)