Millbrook Power Project

Preliminary Environmental Information Report

Non-Technical Summary

On behalf of **Millbrook Power Limited**

Millbrook Power

Project Ref: 31116 | Rev: 1.0 | Date: October 2014

Contents

PEIR NTS Glossary

Above Ground Installation (AGI)	The Above Ground Installation incorporates the minimum offtake connection (MOC) facility, which would be owned by National Grid, and a Pipeline Inspection Gauge (PIG) Trap Facility (PTF), owned by Millbrook Power Limited. It forms part of the Gas Connection and is located within the Gas Connection Opportunity Area.
Access Road	The proposed purpose built access road from Green Lane to the Generating Equipment Site. It is located within the Power Generation Plant Site.
Applicant	Millbrook Power Limited.
Balance of Plant	All infrastructure required to support the Gas Turbine Generators within the Generating Equipment Site and includes: stacks, electrical banking compound, water tanks; administration/workshop/control building and gas receiving station.
baseline	Environmental conditions at specific periods of time, present on, or near a site, against which future changes may be measured or predicted.
BBC	Bedford Borough Council
CBC	Central Bedfordshire Council
Combined Cycle Gas Turbine (CCGT)	Gas plant technology system comprising Gas Turbine(s) fuelled by natural gas, a Heat Recovery Steam Generator(s) utilising heat from the Gas Turbine exhaust gases, and a steam turbine plant with associated condensing system.
Construction Environmental Management Plan (CEMP)	Strategic document setting out best practice methods to minimise environmental impacts (including dust) during construction.
consultation	Procedures for assessing public, landowner and statutory consultee opinion about a plan or major development proposal including seeking the views of affected neighbours or others with an interest in the Project or affected land.
Covanta RRF Project	The proposed Resource Recycling Facility (RRF) to be developed by Covanta Rookery South Limited to the north of the Generating Equipment Site and for which Covanta Rookery South Limited was granted a DCO consent pursuant to the PA 2008 in the autumn of 2011.
Cumulative effects	The summation of effects that result from changes

	caused by a development in conjunction with other reasonably foreseeable development that is either consented but not yet constructed or is in the process of seeking consent.
Development Consent Order (DCO)	A Development Consent Order (DCO) is made by the Secretary of State (SoS) pursuant to the Planning Act 2008 (PA 2008) to authorise a Nationally Significant Infrastructure Project (NSIP).
Development Consent Order Application (DCO Application)	The Application for a DCO made to the SoS under section 37 of the PA 2008 in respect of the Project, required pursuant to section 31 of the PA 2008 because the Project constitutes an NSIP under section 14(1)(a) and section 15 PA 2008 by virtue of being an onshore generating station in England or Wales of 50 MW capacity or more.
effect	The consequence of an impact on the environment.
Electrical Connection	The new electrical connection to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS) for distribution to homes and businesses. It includes a new substation, two new electrical circuits and up to two sealing end compounds (SECs) to connect the substation to the Generating Equipment and the existing 400 kV network. The Electrical Connection is located within the Electrical Connection Opportunity Area.
Environmental Impact Assessment (EIA)	A systematic means of assessing a development project's likely significant environmental effects undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.
EIA Regulations	For the Project the relevant EIA regulations are the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (SI 2009/2264) (as amended).
Environmental Statement (ES)	Statutory report summarising the findings of an environmental impact assessment.
Flood Risk Assessment (FRA)	A desk based study which considers the contributing factors and predicts / quantifies the risk of flooding to and from a proposed development and also identifies a water level in the event of flooding.
Gas Connection	A new underground gas Pipeline connection and

	Above Ground Installation (AGI) to bring natural gas to the Generating Equipment from the Gas National Transmission System (NTS). There are currently two remaining Gas Connection options which are being taken forward through the PEIR. Gas Connection Route Corridor Option 1, the preferred option and Gas Connection Route Corridor Option 2.
Gas Turbine Generators	Between one and five Simple Cycle Gas Turbine (SCGT) generators (as proposed in the Power Generation Plant) which utilise the combustion of gas and air to generate hot gases that are routed across turbine blades, which generate rotational forces that turn an electrical generator. The exhaust gases are discharged directly to the stack without providing heat for a secondary steam cycle. Each Gas Turbine Generator may constitute one or two gas turbines venting to a single stack. The Gas Turbine Generators form part of the Generating Equipment and are located within the Generating Equipment Site.
Generating Equipment	Gas Turbine Generators and Balance of Plant which are located on the Generating Equipment Site.
Generating Equipment Site	The site where the Generating Equipment is located.
Historic Environment Record (HER)	The repository for all archaeological and historical information relating to a county or district.
impact	A physical or measurable change to the environment attributable to the Project.
Landscape and Visual Impact Assessment (LVIA)	A tool used to identify and assess the likely significant of the effects of change resulting from development both on the landscape as an environmental resource in its own right and on people's views and visual amenity.
Laydown Area	The area required during construction for storing materials and equipment. It is located within the Power Generation Plant Site.
Listed Building	The Secretary of State compiles a list of buildings of special architectural or historic interest for the guidance of local planning authorities in the exercise of their planning functions under the Planning (Listed Buildings and Conservation Areas) Act 1990 and the Town and Country Planning Act 1990. Buildings are graded as follows:

	• Grade I – Buildings of exceptional interest; • Grade II* - Particularly important buildings of more than special interest; and • Grade II – Buildings of special interest.
Low Level Restoration Scheme (LLRS)	The LLRS for Rookery South Pit (assuming no additional proposed developments prior to its completion) aims to restore the pit base to low intensity agricultural land, with a ditch system draining water to a large attenuation pond and pit stabilisation works.
Millbrook Power Limited (MPL)	A special purpose vehicle which has been established by Watt Power Limited (WPL) to develop the Project.
mitigation measures	Actions proposed to prevent, reduce and where possible offset significant adverse effects arising from the whole or specific elements of a development.
National Park	A national park is an area statutorily designated for its special landscape rich in character and distinctiveness, wildlife history and heritage.
National Policy Statement (NPS)	Overarching policy designated under the PA 2008 concerning the planning and consenting of NSIPs in the UK.
National Transmission System (NTS)	A network of gas pipelines throughout the United Kingdom that supply gas to large industrial customers from natural gas terminals situated on the coast, and also gas distribution companies which lead indirectly to homes.
Nationally Significant Infrastructure Project (NSIP)	The Project constitutes a Nationally Significant Infrastructure Project (NSIP) by virtue of s.14(1)(a) and s.15 of the PA 2008 which include within the definition of a NSIP any onshore generating station in England or Wales of 50 MW capacity or more.
noise	Noise defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0 dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB i.e 50 dB + 50 dB = 53 dB. Increases in continuous sound are perceived in the following manner: • 1 dB increase – barely perceptible • 3 dB increase – just noticeable • 10 dB increase – perceived as twice as loud

Preliminary Environmental Information Report Non-Technical Summary (PEIR NTS)	A report which briefly describes the main points discussed in the PEIR in a clear manner, without the use of technical jargon and phraseology.
peaking plant	Peaking plants are operated when there is a Stress Event.
Planning Inspectorate (PINS)	The work of PINS includes examining national infrastructure planning under the Planning Act 2008 process; processing planning and enforcement appeals; holding examinations into local plans and community infrastructure levy charging schedules on behalf of the SoS.
Phase 1 Habitat Survey	An ecological survey technique that provides a standardised system to record vegetation and wildlife habitats. It enables a basic assessment of habitat type and its potential importance for nature conservation.
photomontage	A type of visualisation or illustration that is based on photographs and that simulates the likely appearance of a proposed development in the photographic view. Photomontages are used as illustrations of the professional judgement of a landscape professional as to the significance of the effect of a project on landscape and visual receptors.
Pipeline	The new underground gas pipeline connection proposed as part of the Gas Connection which is located within the Gas Connection Opportunity Area.
Planning Act 2008 (PA 2008)	UK legislation which passes responsibility for examining development consent order applications for NSIPs to the Planning Inspectorate, who will examine applications and make recommendations for a decision by the relevant Secretary of State (the Secretary of State for Energy and Climate Change in the case of energy NSIP applications).
Preliminary Environmental Information Report (PEIR)	The report that provides information referred to in Part 1 of Schedule 4 of the EIA Regulations (information for inclusion in Environmental Statements) which has been compiled by the Applicant; and is reasonably required to assess the environmental effects of the development (and of any associated development).
Power Generation Plant	A SCGT gas fired ‘peaking’ power generating plant capable of providing up to 299 MW comprising: the

	Generating Equipment; Access Road; and temporary Laydown Area. It will be located within the Power Generation Plant Site.
Power Generation Plant Site	The site in which the Power Generation Plant will be located.
Project	The Power Generation Plant, Electrical Connection and Gas Connection located on the Project Site.
Project Site	The entire area covered by or required in order to deliver the Project.
Red Line Boundary	The boundary of the Project Site, donated by a red line on figures.
Registered Parks and Gardens	A register of historic parks and gardens held by English Heritage for parks and gardens of particular historic importance.
Scheduled Monument	A building included in the Schedule of Monuments compiled under Section 1 of the Ancient Monuments, and Archaeological Area Act 1979. Scheduled Monuments have statutory protection under this Act (Section 2) and an application for Scheduled Monument Consent must be made to the Secretary of State for Culture, Media and Sport if work to a Scheduled Monument is proposed.
Simple Cycle Gas Turbine (SCGT)	Gas plant technology system comprising Gas Turbine(s) fuelled by natural gas. The hot exhaust gases are routed directly to the stack without passing through a secondary steam turbine. The generating technology used for the Power Generation Plant.
stack	The structure by which the exhaust gases and waste heat are emitted to the atmosphere. The height of the structure would be between 30m-35m and would contain a silencer to reduce noise emissions. The exhaust gases would be subject to emissions control abatement.
topography	The natural or artificial features, level and surface form of the ground surface.
Watt Power Limited (WPL)	Watt Power Limited was established to develop flexible gas fired generation assets to support the UK Government's drive to a low carbon economy. WPL has set up Millbrook Power Limited, a Special Purpose Vehicle to develop the Project.

1 Introduction

1.1 Overview

1.1.1 This document is the non-technical summary (PEIR NTS) of the Preliminary Environmental Information Report (PEIR) for the proposed Millbrook Power Project (hereafter referred to as the Project). It has been prepared by Peter Brett Associates LLP (PBA) on behalf of Millbrook Power Limited (MPL) (the "Applicant").

1.1.2 The Project is proposed at and in the vicinity of the former clay extraction pit at Rookery South, near Stewartby, Bedfordshire. The boundary of the Project Site falls within both Central Bedfordshire Council (CBC) and Bedford Borough Council (BBC) areas.

1.1.3 The location of the Project Site is shown in Figure 1.1

1.1.4 The Project would comprise:

- A new Power Generation Plant in the form of a Simple Cycle Gas Turbine (SCGT) peaking power generating station, fuelled by natural gas and capable of providing a rated electrical output of up to 299 Megawatts (MW). The Power Generation Plant comprises:
  - Generating equipment including up to five Gas Turbine Generators, up to five exhaust gas flue stacks and balance of plant, which are located within the Generating Equipment Site (together the "Generating Equipment");
  - A new purpose built access road from Green Lane to the Generating Equipment Site (the "Access Road");
  - A temporary construction compound required during construction only (the "Laydown Area");
- A new gas connection to bring natural gas to the Generating Equipment from the National Transmission System (NTS) (the "Gas Connection"); and
- A new electrical connection to export power from the Generating Equipment to the National Grid Electricity Transmission System (NETS) (the "Electrical Connection").

1.1.5 The Generating Equipment, Access Road and Laydown Area are together known as the "Power Generation Plant", and are located within the Power Generation Plant Site.

1.1.6 The Power Generation Plant, Gas Connection, and Electrical Connection, together with all access requirements are referred to as the ‘Project’ and are

all integral to the generation of electricity and subsequent export of that electricity to the National Grid. The land upon which the Project would be developed, or which would be required in order to facilitate the development of the Project, is referred to as the 'Project Site'.

1.1.7 All elements of the Project are shown on Figure 1.2.

1.1.8 The Generating Equipment would operate as a 'peaking plant'. This means it would operate intermittently, with maximum operation not exceeding 1,500 hours per year. A peaking plant is designed to operate when there is a surge in demand for electricity associated with a particular event (e.g. when a large number of people boil their kettles following the end of a popular TV programme) or when there is a sudden drop in power being generated from power stations which are constantly in operation. It will also support intermittent forms of renewable energy which are weather dependent (e.g. wind and solar).

1.1.9 The Project constitutes a Nationally Significant Infrastructure Project (NSIP) pursuant to the Planning Act 2008 which means that a Development Consent Order (DCO) is required to build, operate and maintain it. The proposed DCO Application will be processed and examined by the Planning Inspectorate who will make a recommendation on whether the DCO should be granted to the Secretary of State for Energy and Climate Change (Secretary of State) with whom the final decision lies. It is anticipated that the DCO Application will be submitted in the first quarter of 2015.The PEIR and this PEIR NTS have been prepared in accordance with Regulation 2 and 10 of the Infrastructure Planning (Environmental Impact) Assessment Regulations (the "EIA Regulations"). They present information specifically aimed at assisting consultees and local communities to understand the nature, scale and location of the Project.

1.1.10 Copies of the PEIR and this PEIR NTS may be examined during a consultation exercise being carried out by the Applicant between 13th October 2014 until 16th November 2014 at Central Bedfordshire Council Office (Priory House, Monks Walk, Chicksands, Shefford Bedfordshire, SG17 5TQ, open Mon-Thurs 08:00–17:30 and Friday 08:00–5:00); at Bedford Borough Council Office (Borough Hall, Cauldwell St, Bedford MK42 9AP, open Mon-Thurs 08:30-17:00 and Fri 08:30-16:00); at Marston Vale Forest Centre (Marston Moretaine, Bedford, MK43 0PR, open Mon-Sun 10:00-16:00) and at the following local libraries:

Bedford Library Harpur Street, Bedford, MK40 1PG	Mon/Tues/Wed/Fri 09.00 – 18.00 Thurs 09.00 – 13.00 Sat 09.00 – 17.00 Sun Closed

Ampthill Library, 1 Dunstable Street, Ampthill, Bedford, MK45 2NL	Mon/Wed/Fri 10.00 – 18.00 Tues Closed Thurs 14.00 – 18.00 Sat 10.00 – 13.00 Sun Closed
Wootton Library Lorraine Road, Wootton, MK43 9LH	Mon/Fri 14.00 – 18.00 Tues Closed Wed 10.00 – 1300 / 1400 -18.30 Thurs Closed Sat 10.00 – 13.00 Sun Closed

1.1.11 Copies of the PEIR and this PEIR NTS can also be found on the Project website: www.millbrookpower.co.uk. MPL welcomes your comments on the proposals and the information provided in this PEIR NTS. These can be submitted:

- by email to: info@millbrookpower.co.uk;
- in writing to: Freepost RTEY-JYYB-ERSR, Millbrook Power Ltd, 49 York Place, Edinburgh, EH1 3JD; or
- Phone: 0131 5503380

1.1.12 Representations must be received on or before 16th November 2014.

1.2 Purpose of this Document

1.2.1 An Environmental Impact Assessment (EIA) is being undertaken to determine the likely significant effects of the Project on the environment. The purpose of the PEIR is to present preliminary environmental information relating to the Project, including the preliminary findings of the assessments undertaken to date together with a summary of the additional information or studies required to complete the EIA. This will enable consultees, including the local community, to understand the likely significant environmental effects of the Project so they can provide a comprehensive response to the consultation. Feedback received during the consultation process will help inform the development and design of the Project and further refine the EIA.

1.2.2 Under Regulation 10(b) of the EIA Regulations, the Applicant must consult on preliminary information relating to the Project. The consultation responses received to date have been considered and referenced in the PEIR as summarised in this PEIR NTS.

1.2.3 Once complete, the findings of the EIA will be reported in full in the Environmental Statement (ES) to be submitted with the application for Development Consent.

1.2.4 This document is a summary (in non-technical language) of the PEIR for the Project.

1.3 The Developer

1.3.1 The Applicant is MPL, which has been set up to develop the Project and has been established by Watt Power Limited (WPL). WPL has been established to develop flexible gas-fired power stations, designed to meet the Government's energy policy objectives of security of supply and affordability, in support of the UK's transition to a low carbon economy.

1.3.2 For further details on MPL please visit: http://www.millbrookpower.co.uk or http://www.wattpowerltd.co.uk.

1.4 Need for the Project

1.4.1 National planning policy supports the need for new electricity infrastructure due to the current ageing and inevitable closure of older coal fired power plants and the likely increase in demand for electricity over the coming decades.

1.4.2 The Government's policies in relation to NSIPs are set out in National Policy Statements (NPSs). NPS EN-1 (the overarching energy NPS) states that "gas will continue to play an important role in the electricity sector - providing vital flexibility to support an increasing amount of low-carbon generation and to maintain security of supply (paragraph 3.6.2)".

1.4.3 Gas is a reliable fuel source. It is acknowledged by the Government as being essential to a low-carbon economy and to underpin the country's energy security. In addition, gas peaking plants provide back-up to power generation from renewable sources, particularly wind power, which is an increasingly prevalent but intermittent energy source. Modern gas fired power plants are among the most efficient and cleanest forms of generating electricity.

1.4.4 Indications from the Government, in key documents (e.g. the 'Gas Generation Strategy', released by DECC in December 2012[1]) are that up to 26 gigawatts (GW) of new gas generation will be needed nationally by 2030 to underpin long term electricity supplies and provide back-up to nuclear and wind generation at times of peak demand.

[1] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65654/7165-gas-generation-strategy.pdf

1.5 Planning Policy Context

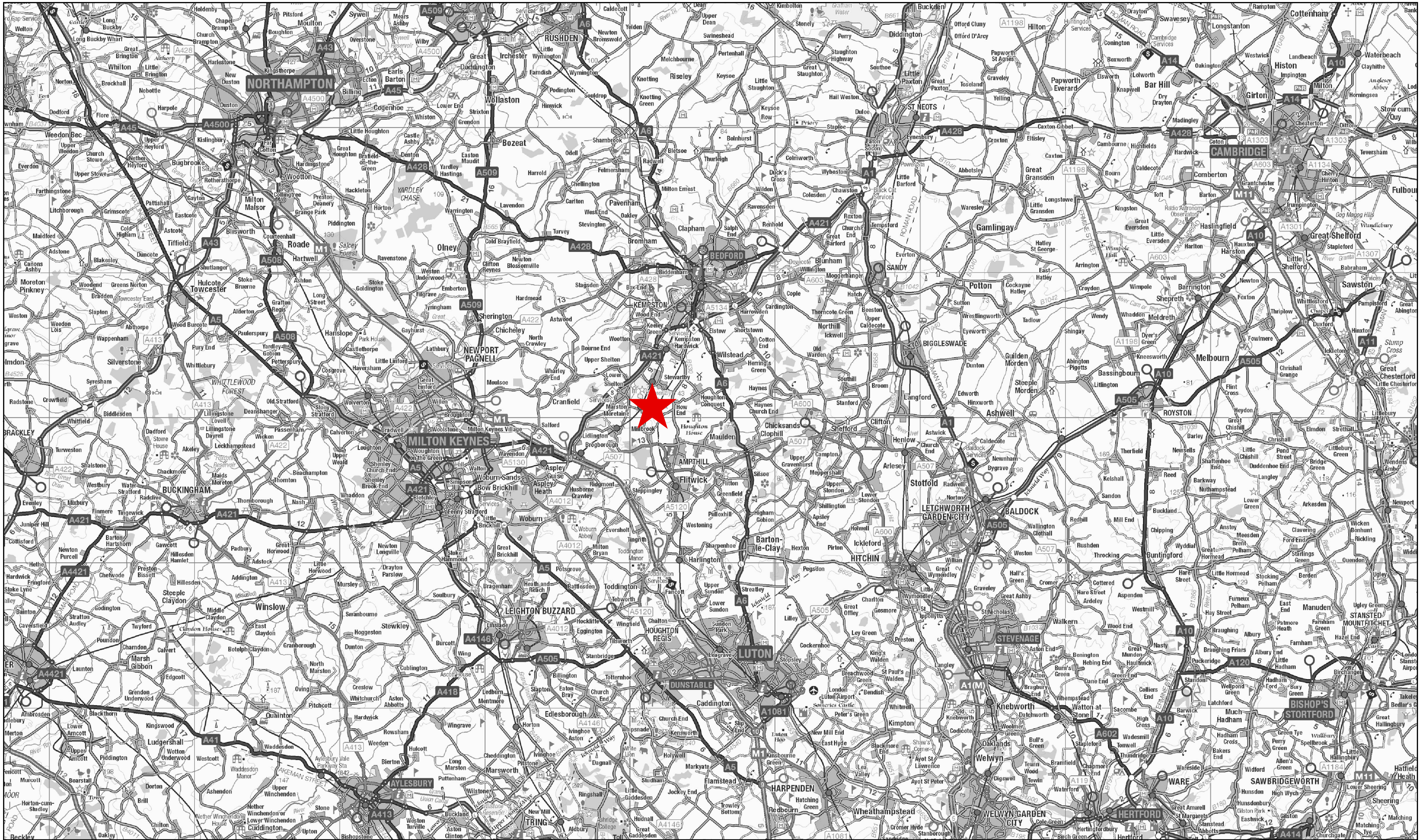
1.5.1 The PEIR and this PEIR NTS have been prepared with reference to all relevant European, national, regional and local policy. Details of these are contained in Section 3 of the PEIR.

1.5.2 As referred to in paragraph 1.4.2 above, the Department for Energy and Climate Change has published a number of NPSs in relation to energy infrastructure, which were designated by the Secretary of State in July 2011. These NPSs set out national policy against which proposals for NSIPs are assessed and decided on.

1.5.3 Due to the nature of the Project (which will generate over 50 MW of electricity), four of the designated NPSs are considered relevant to the determination of the proposed DCO Application:

- NPS for Energy EN-1: This sets out national policy for energy infrastructure as defined by the Planning Act 2008, which provides the primary basis for decisions by the Secretary of State;
- NPS for Fossil Fuel Electricity Generating Infrastructure EN-2: This sets out policies specific to the determination of applications for fossil fuel electricity generating infrastructure;
- NPS for Gas Supply Infrastructure and Gas and Oil Pipelines EN-4: This sets Government policy on the relevant considerations and factors that should be taken into account as to route selection for developers for, inter alia, gas pipelines; and
- NPS for Electricity Networks Infrastructure (EN-5): This provides the primary basis for decisions taken by the Secretary of State on applications it receives for electricity network NSIPs, including the relevant considerations and factors that should be taken into account related to route selection.

1.5.4 NPS EN-1 states that consideration may be given to planning policy outside the NPSs where it is important and relevant to the Secretary of State's decision. Other national planning policies have therefore been considered in the preparation of the PEIR as these may be relevant to the determination of the proposed DCO Application.



www.pba.co.uk
Peter Brett Associates LLP
READING
Tel: 0118 950 0761 Fax: 0118 959 7498

Client

Millbrook Power

Site Location

N

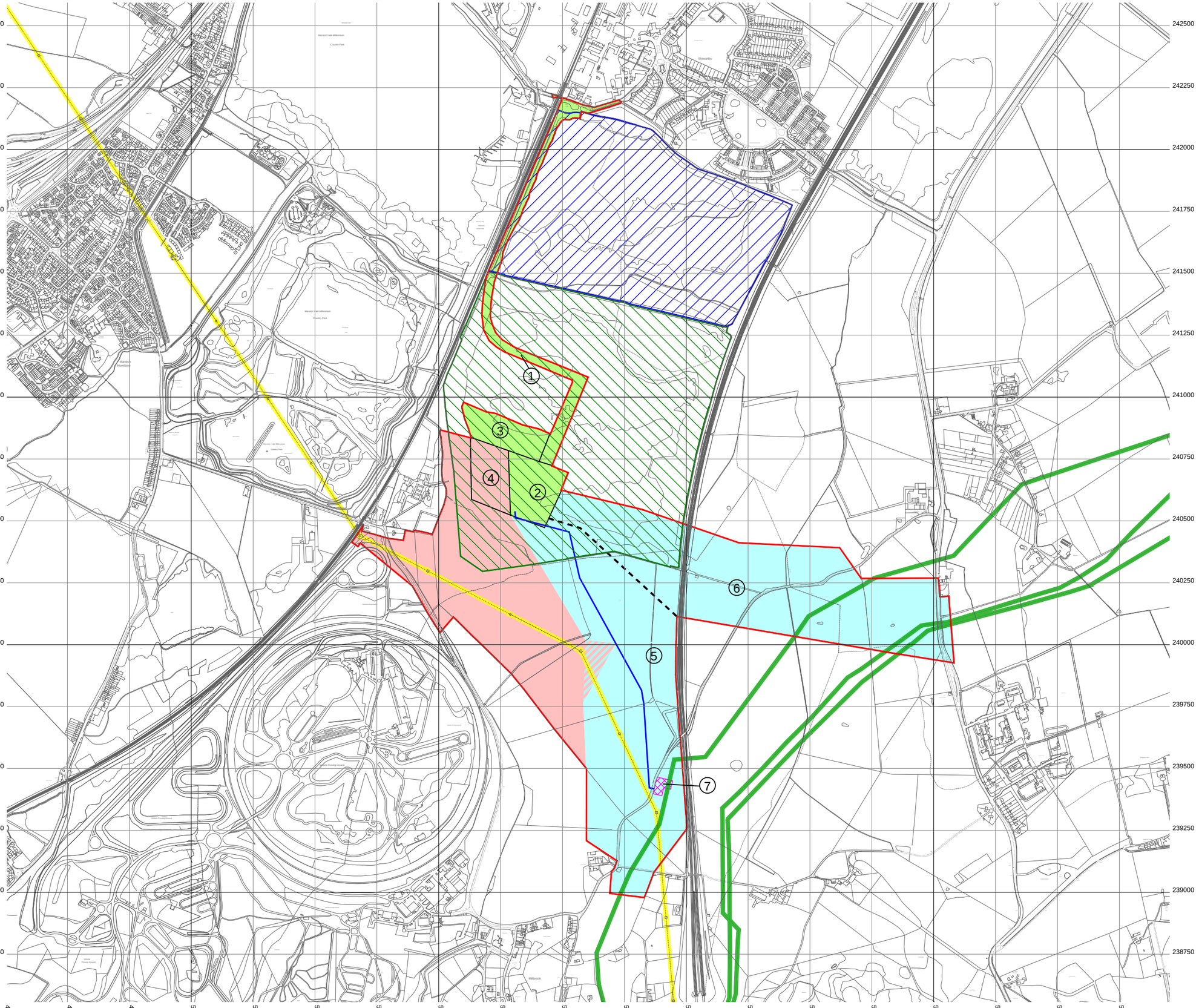
0 5 10 Kilometers

Legend

Site Location

Date	09/ 2014
Scale	1:230,000 @ A3
Drawn By	HF
Checked By	xx
Figure Number	xx

Figure 1.1



Legend:

- Proposed Redline Boundary (Incorporating Alternative Options)
- Gas Connection Route Corridors
- Electrical Connection Area
- Overlap Between Electrical and Gas Connection Areas
- Power Generation Plant Site
- Rookery North Pit
- Rookery South Pit Post LLRS
- 400kV Overhead Electricity Transmission Lines
- National Gas Transmission System
- Indicative Gas Connection Route (Preferred)
- 1 Access Road
- 2 Generating Equipment Site
- 3 Laydown Area
- 4 Location of Substation
- 5 Gas Connection Route Corridor 1 (Preferred)
- 6 Gas Connection Route Corridor 2
- 7 Indicative AGI Location
- Divide Between Gas Connection Route Corridors 1 and 2

N

0.25 km 0.5 km 0.75 km 1 km

Notes:

Created By:

TerraQuest Solutions Limited
10 Clement Street
Birmingham
B1 2SL

w: www.terraquest.co.uk
e: info@terraquest.co.uk

TerraQuest
Business & Property Solutions
A Mears Group plc Company

Created For:

Millbrook Power Limited
33 Cavendish Square
London
W1G 0PW

Millbrook Power

Title:

Figure 1.2 – Project Site

Scale:	Date:
1:15000 @ A3	October 2014
Drawing No: Sheet 1 of 1	Revision: v1.5

Approved By:	Checked By:	Drawn By:
TP	CC	AA

2 Site and Project Description

2.1 Site and Surroundings

2.1.1 The Project Site is shown in Figure 1.2 and encompasses all elements of the Project described in Section 1.1 of this PEIR NTS.

2.1.2 The Power Generation Plant Site and part of the Gas and Electrical Connection would be situated on land within former clay pits known as 'The Rookery'. The Rookery is situated in the Marston Vale between Milton Keynes and Bedford, approximately 3 km north-west of Ampthill, and 7 km south west of Bedford.

2.1.3 The Rookery comprises two large former clay pits, Rookery North and Rookery South Pits. The Generating Equipment Site, Laydown Area and parts of the Access Road and Gas and Electrical Connections would be located within Rookery South Pit. Part of the Access Road would lie within Rookery North Pit.

2.1.4 The Gas Connection and Electrical Connection would be located within the areas identified on Figure 1.2 and would extend from Rookery South Pit into agricultural land to the south and/or east.

2.1.5 To the west of the Project Site is Marston Vale Millennium Country Park, which provides indoor and outdoor community amenities. There is a Forest Centre within the Marston Vale Millennium Country Park located just to the south of Stewartby Lake which provides the focal point for the indoor and outdoor community amenities. In addition Millbrook Proving Ground, a vehicle testing ground, is located to the south-west of the Project Site.

2.1.6 The closest residential dwelling to the Power Generation Plant Site is South Pillinge Farm, located approximately 150 m to the west of the Project Site. To the north of Green Lane and The Rookery, lies Stewartby. Other neighbouring residential areas include: Houghton Conquest approximately 1.5 km to the east of the Project Site boundary; Marston Moretaine approximately 1.2 km to the west of the Project Site boundary; and Millbrook approximately 400 m to the south of the Project Site boundary.

Low Level Restoration Scheme (LLRS)

2.1.7 The Rookery is the subject of an ongoing Low Level Restoration Scheme (LLRS) being undertaken by the landowner. This was the subject of a separate planning permission and would be taking place regardless of the Applicant's proposals for the Project. The objective of the LLRS is to restore the former clay workings to low grade agriculture. This would be achieved through the restoration of The Rookery at a low level (i.e. below pre-excavation ground levels), with measures included in the restoration to enhance biodiversity and landscape. Further details of the LLRS are described in Section 2.6 of the PEIR.

2.2 Generating Equipment Technology

2.2.1 The Generating Equipment would provide a rated electrical output of up to 299 MW, operate as a peaking plant fired on natural gas, and run up to 1500 hours per annum. Given these parameters, it has been determined that a Simple Cycle Gas Turbine (SCGT) plant is the preferred and most appropriate technology choice for the Generating Equipment for the Project. Further detail is provided in Section 3.3 of this PEIR NTS and Section 2.3 of the PEIR and a schematic showing SCGT operation is shown below in Insert 1.

2.2.2 There are several technology options of SCGT plant available to generate up to 299 MW. These different options mainly relate to the number and type of Gas Turbine Generators used.

2.2.3 SCGT plant often use aero-derivative Gas Turbine Generators (i.e. turbines derived from the aeronautical industry), primarily because of their suitability to frequent start-ups, flexibility, high efficiency and easy maintenance. However, 'industrial' type units can also be used. These are typically larger and often more suited to longer operational hours. For the Project it is envisaged that either 3, 4 or 5 individual aero-derivative Gas Turbine Generators or, alternatively 1 or 2 industrial Gas Turbine Generators will be used to generate up to 299 MW.

2.2.4 The Power Generation Plant will have up to five gas turbine generators and up to five stacks, each between 30 and 40 m in height.

2.2.5 Section 3.1.3 sets out the worst case scenario of the Project from the above parameters which has been assessed in the topic sections.

2.2.6 The main equipment in an SCGT is a Gas Turbine Generator, comprising of the following components(shown in Insert 1):

- Inlet air filter;
- Air compressor
- Combustion chamber;
- Gas turbine; and
- Exhaust silencer.

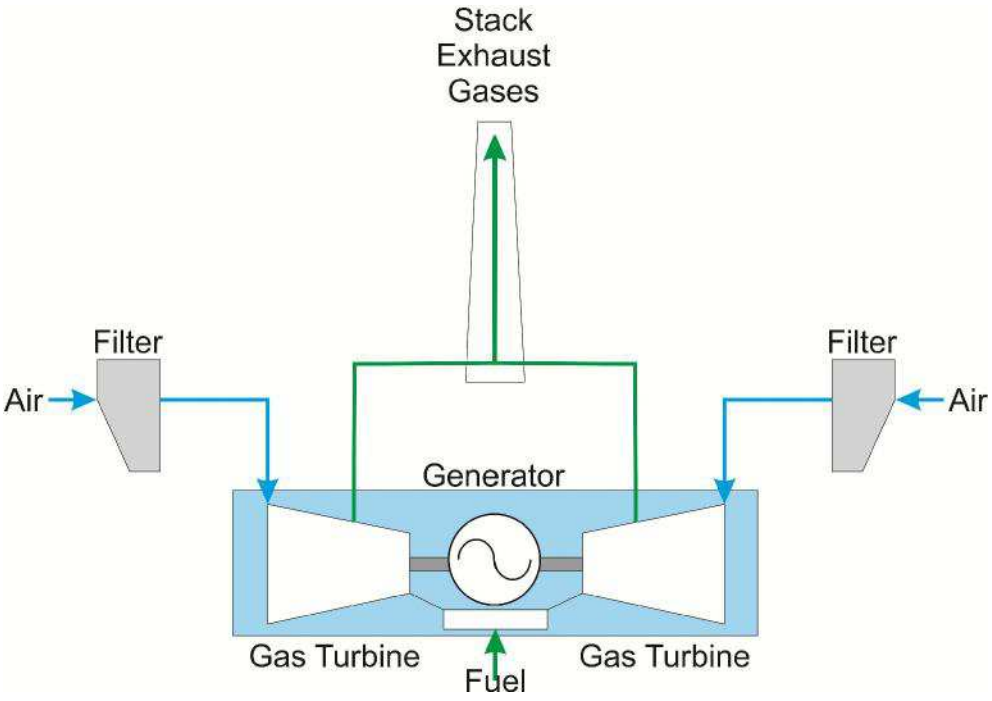
2.2.7 In the gas turbines air is compressed and natural gas is injected. The fuel will then burn in the combustion chamber producing hot, high pressure gases. This gas expands across the blades of the gas turbine which drives the electrical generators to produce electricity. The exhaust silencer will reduce noise pollution from this process.

2.2.8 The waste gases and heat produced from this process will be released to the atmosphere via stacks. The stack(s) will be equipped with emissions control technologies which will reduce emissions released to the atmosphere

2.2.9 In addition to the Gas Turbine Generator Units at the Generating Equipment Site the following integral plant and buildings will also be present and can be seen on Insert 2.

- **Fire Water Tank:** in order to control any fire at the Power Generation Plant Site;
- **A Control Building**: Required in order to monitor the Generating Equipment operation and house plant controls;
- **A Workshop and Stores Building:** To store certain strategic and routine maintenance spares and to provide a facility for carrying out minor maintenance of the Generating Equipment;
- **A Gatehouse:** Needed to provide security and maintain a log of site attendance, deliveries etc;
- **An Electrical Banking Compound:** Required to connect the electrical infrastructure from the Power Generation Plant to transformers before export to the National Grid; and
- **A Gas Receiving Installation**: Required to regulate gas coming from the NTS to feed into the Generating Equipment Site at the right flow and pressure conditions.

Insert 1 – Schematic of SCGT plant.



2.3 Gas Connection

2.3.1 A new underground gas pipeline is required to connect the Generating Equipment to the existing NTS to provide a reliable supply of fuel.

2.3.2 After detailed feasibility studies, it has been determined that there are two suitable Gas Connection options, as shown on Figure 1.2. Further details of these feasibility studies are provided in Section 2 of the PEIR.

2.3.3 Gas Connection Route Corridor Option 1 ("Option 1") is the current preferred option to connect the Generating Equipment to the National Electricity Transmission System (NETS) as it is of a shorter length and avoids crossing the railway line.

2.3.4 As an alternative to the current preferred Option 1, other options that the Applicant considers are less technically and environmentally preferable are still potentially deliverable, being the Gas Connection Route Corridor 2 ("Option 2"). Although Option 2 has not been defined in as much detail as Option 1, it has been included within the redline boundary for the Project as the Applicant has not as yet made any final decisions on the location of the routing of the Gas Connection. The final routing will be finalised following consultation and further assessment work.

2.4 Electrical Connection

2.4.1 A new electrical connection would be required to allow electricity generated by the Generating Equipment to be exported to the National Grid. The most suitable point of connection would be a new substation (likely to be located adjacent to the Generating Equipment within Rookery South Pit), which would connect in to the line of the existing National Grid 400 kV overhead line which runs from Sundon to Grendon. The 400 kV line is located approximately 320 m southwest of the Project Site and is shown on Figure 1.2.

2.4.2 For the purposes of the assessments undertaken to date a realistic worst case scenario of to two overhead line double circuits (including up to seven new towers one of which will replace an existing tower resulting in a net addition of six towers) has been assumed and assessed for the connection between the substation and the NETS. However, the Applicant will continue to work with National Grid on the indicative design of the Electrical Connection over the coming months.

2.4.3 In conjunction with the construction of the Electrical Connection a temporary diversion of the existing 400 kV line located adjacent to the three most westerly existing transmission towers within the Project Site may be required. It is anticipated that the temporary diversion is likely to be constructed as a single circuit outage of the existing 400 kV line. The circuit is likely to comprise between one and up to four Lindsey towers, each being approximately up to 39 m high. The temporary works may also include the temporary erection of scaffolding over Station Lane.

2.4.4 Access for the purposes of installing and dismantling the temporary diversion would be as described for the Electrical Connection above. At this stage, it is anticipated that the installing and dismantling of the temporary works may require a closure of Station Lane for a number of hours and that the temporary diversion of the existing 400 kV line would be in place for approximately three months.

2.4.5 Insert 2 below shows a 3D visualisation of an indicative layout of the Project, including the worst case Electrical Connection that has been assessed.

Insert 2 – Indicative 3D Visualisation of Project Site

2.5 Alternatives

Sites

2.5.1 The Applicant has looked at a range of sites around the UK to support power generation plants being of the same nature as the Project. The key factors which were considered necessary in a site were broadly four fold: technical (e.g. the size of the site and the proximity to appropriate gas and electrical connection points), environmental, economic and whether the proposals would be in line with local planning policy.

2.5.2 Based on these factors, the Project Site was considered suitable for the following reasons:

- Close proximity to the NTS;
- Close proximity to a suitable electrical connection (400 kV overhead line) (NETS);
- The Generating Equipment Site is within previously developed land, lying below ground level;

- It is within an area identified as being potentially suitable for energy infrastructure;
- It has a well-developed road network for access to the Project Site;
- The Project Site is outside of areas at risk of flooding; and
- There is adequate space to develop the Power Generation Plant and integral infrastructure.

Generating Equipment

2.5.3 Although other technology choices were considered for the Generating Equipment, SCGT is considered to be the most suitable technology choice for generating up to 299 MW as a peaking plant based on the following environmental, technical and feasibility considerations:

- Visual impact: SCGT plants require shorter stack(s) compared to Combined Cycle Gas Turbine (CCGT) plant and therefore are less visually intrusive in views from the surrounding environment;
- Water resources: the water requirement of a SCGT plant is significantly lower than for CCGT plants;
- Noise and available space: noise levels from a SCGT plant would typically be lower than for a Reciprocating Gas Engine (RGE) plant. A larger number of RGE units would be required at the Generating Equipment Site to generate up to 299 MW. Spatially this may not be possible;
- Financial: based on the anticipated electricity market, it is essential that the Power Generation Plant of the size proposed will be particularly cost effective, as it will be called upon to operate flexibly to balance out the National Grid and meet changing demands of customers; and
- Start up times: SCGT plants are able to start up and shut down much quicker than similar sized CCGT plants and are, therefore, better suited to meeting variable demands.

Gas Connection

2.5.4 The Scoping Report for the Project[2] described a gas connection 'opportunity area', to the south of the Generating Equipment Site, in which a new gas pipeline and AGI would be developed. Since the publication of the Scoping Report, further studies have refined this opportunity area such that there are now two remaining Gas Connection options (as described in section 2 of the PEIR).

2.5.5 These options have been chosen as the most direct connections between the Generating Equipment Site and the NTS, avoiding obstructions such as

[2] Millbrook Power Project Environmental Impact Assessment Scoping Report – May 2014

roads, large changes in elevation, waterbodies and protected sites as much as possible.

2.5.6 Option 1 is the preferred Gas Connection Corridor Route. This is because it is shorter (and therefore less expensive and less damaging to agricultural land), it avoids crossing the midland mainline railway line, and other high pressure gas pipelines.

2.5.7 Nevertheless, Option 2 remains a viable alternative should further studies reveal any as yet unknown constraints on Option 1 such as previously undiscovered archaeological remains.

2.5.8 Consultation feedback will be considered in determining which option is the most appropriate.

Electrical Connection

2.5.9 The Scoping Report for the Project described an electrical connection opportunity area to the south of the Generating Equipment Site, in which the Electrical Connection would be developed. Since publication of the Scoping Report, further studies have been undertaken to refine the available options.

2.5.10 Based on these studies, it has been determined that the most suitable location for the substation is likely to be next to the Generating Equipment Site within Rookery South Pit. However, a number of options still exist on the best way to connect the substation to the existing NETS. The Applicant will continue to work with the National Grid on the indicative design of the Electrical Connection over the coming months.

3 Assessment findings

3.1 Introduction

3.1.1 This section sets out, by topic area, a summary in non-technical language, of the preliminary findings of the assessment of likely significant environmental effects of the Project. It is based on information gathered from studies to date and will be updated and revised following further work with the final results reported in the ES.

3.1.2 Throughout the following sections, the terms construction, operation and decommissioning have been used. These are defined as follows:

- Construction – Construction of the Project. Depending on the final plant selection, this is anticipated to take approximately 22 months;
- Operation – Operation of all aspects of the Project, including maintenance. The Project is anticipated to have a lifetime of approximately 25 years; and
- Decommissioning – Removal of some plant items and site reinstatement when the Project has reached the end of its operational life. This is anticipated to take a similar time to construction.

3.1.3 The following assumptions have been made prior to and in the carrying out of the preliminary assessment:

- Embedded mitigation will be employed - namely design/standard control measures, such as working within best practice guidance, which will routinely be incorporated for the Project or for any similar project constructed in the UK, and as such will be used to produce the initial assessment as to the likely significant effects of the Project. Embedded mitigation includes the implementation of a construction environmental management plan (CEMP) which is a document designed to ensure best practice working methods are maintained on construction sites so that any risk of causing environmental harm is minimised as far as is reasonably practicable, such as spill prevention plans, correct storage of waste and prevention of pollution to land, air and water.
- A worst case scenario for assessment has been undertaken for each topic. For the majority of topics this worst case scenario assumes that up to five Gas Turbine Generators will be built on the Generating Equipment Site, each with their own stack being up to 40 m in height. For air quality and ecology, a worst case scenario has been assessed assuming that up to five Gas Turbine Generators will be built on the Generating Equipment Site, each with their own stack being up to 30 m in height. This is because a lower stack gives rise to potentially more significant emissions. Further detail is provided in Section 6.2 of the PEIR. It has also been assumed that the Electrical Connection will include two overhead line double circuits, including up to seven new transmission towers one of which will

be replacing an existing tower and is likely to be located in close proximity to the location of that existing tower, thereby resulting in 6 net additional towers, each of up to 45 m high.

- The total construction programme will be approximately 22 months, with a start date of 2017 and an end date of 2019;
- The operational life of the Power Generation Plant will be 25 years;
- The Generating Equipment will be decommissioned and removed at the end of its operational life;
- The Gas Pipeline will be left in situ at the end of its operational life;
- The decommissioning phase will be similar in duration to the construction phase;
- The Power Generation Plant will operate for up to 1500 hours per year. This could be at any time during the year and for any length of time up to 1500 hours;
- The Power Generation Plant will have a rated electrical output of between 50 and up to 299 MW;
- Current surrounding land uses do not change, with the exception of the developments to be cumulatively assessed with the Project that have been identified as referred to at section 3.1.5 below;
- Assessments are based on published sources of information and primary data collection.

3.1.4 The following topic sections are covered by this assessment:

- Air Quality;
- Noise;
- Ecology;
- Water Quality and Resources;
- Ground Conditions;
- Landscape and Visual Impacts;
- Traffic and Transport;
- Archaeology and Cultural Heritage;
- Socio-economics; and

- Other topics considered, including waste and electromagnetic frequency (EMF).

3.1.5 Schedule 4, Part 1 (para 20) of the EIA Regulations requires an ES to include "....a description of the likely significant effects of the development on the environment, which should cover.....cumulative effects". For the assessment of cumulative effects, the effects of the Project, together with other major developments that are proposed or consented but not yet built have been assessed. The developments which have been assessed cumulatively include:

- The proposed Covanta RRF Project to be developed to the north of the Generating Equipment Site;
- Integrated Waste Management Operations at Rookery South, Bedfordshire;
- Brogborough Wind Energy Project at Brogborough Landfill Site;
- Land at Moreteyne Farm at Wood End in Marston Moretaine;
- Land at Warrant Farm on Flitwick Road in Ampthill proposed for residential properties;
- Land East and West of Broadmead Road, Stewartby proposed for residential properties - under construction; and
- The new settlement at Wixams.

3.1.6 As part of the initial scoping of the EIA it was determined that certain topics are more likely to give rise to potential significant cumulative effects than others, based on the nature of the Project and surrounding development proposals. Therefore certain topic assessments have focused specifically, at this preliminary stage of the assessment, on potential cumulative effects and interactions. These topics are air quality, noise, traffic and landscape and visual effects. For example, air quality may give rise to a potential cumulative effect given that there are emissions from the Generating Equipment and also potential emissions from, for example, the proposed Covanta RRF Project.

3.1.7 For those remaining topics where cumulative effects and interactions are unlikely, due for example to the limited geographical nature or significance of the potential effect, potential cumulative effects have been considered at a commentary level only at this preliminary stage and will be considered in detail as the assessment is completed. An example of this is in relation to ground conditions where there will be no significant effects arising from the Project and therefore no potential cumulative effects are anticipated.

3.2 Air Quality

Introduction

3.2.1 The construction, operation and decommissioning of the Project have the potential to affect air quality both through the generation of dust during the construction and decommissioning phases and the generation of stack emissions during operation.

3.2.2 A desk based assessment, together with air dispersion modelling have been carried out to assess any potential air quality effects resulting from the Project on identified residential and ecological receptors.

Construction and Decommissioning

3.2.3 The main potential effects resulting from construction and decommissioning of the Project on air quality are from dust generated from construction activities (e.g. excavation for new foundations, excavation of the gas pipeline route and excavation for the electrical towers). There is also a small potential for effects arising from exhaust emissions from construction traffic.

3.2.4 However, based on the preliminary assessment, it is considered unlikely that levels of atmospheric dust would be generated which would constitute a health hazard or nuisance to local people, ecology or industry in the vicinity of the Project Site. The limited numbers of vehicle movements associated with the project also means that there is not anticipated to be any impacts from exhaust emissions. Impacts would be minimised through implementation of a Construction Environmental Management Plant (CEMP), which would incorporate appropriate dust mitigation measures such as damping down or covering of stock piles and excavations during dry and windy weather. Additionally, the majority of particulates from construction activities settle within a very short distance of the construction site. Therefore, effects on receptors further afield from the Project Site will be negligible.

Operation

3.2.5 The main potential effects arising from operation of the Project are associated with the stack emissions arising as a result of the combustion of natural gas in the Generating Equipment. Emissions from the stack(s) include Nitrous Oxides (NOx).

3.2.6 However, modern gas fired power plant are inherently clean and produce far fewer emissions than other fossil fuel power plants (e.g. coal) when compared on an energy output basis. Emissions of NOx are strictly limited under national and international guidelines such as the Industrial Emissions Directive. Operation of the Generating Equipment will also be regulated by the Environment Agency under an Environmental Permit, which will limit emissions in line with national guidelines.

3.2.7 Initial air quality modelling has shown that an appropriate stack height which will achieve adequate dispersion of NOx to meet legislative limits and prevent

any impacts to identified receptors is between 30 m and 40 m. It is concluded, therefore, that effects on air quality during operation will be negligible.

3.2.8 Emissions during the operational phase of the Gas Connection will potentially include infrequent emissions of natural gas and also minor emissions from vehicles accessing the above ground installation (AGI) for maintenance reasons. In terms of the Electrical Connection, very infrequent maintenance visits will also take place. There is therefore a very limited scope for potential impacts on air quality from the Gas connection or Electrical Connection.

Cumulative Effects

3.2.9 The only development in the vicinity of the Project from the list set out in paragraph 3.1.5 above which has the potential to cumulatively interact in terms of air quality are the Covanta RRF Project and the Integrated waste management facilities planned for Rookery South Pit. The other developments listed are at such a distance from the Project Site so as to not to give rise to the potential for cumulative effects. However, very few details are available about the Integrated waste management facilities as at present only a Scoping Report has been submitted which is a high level outline conceptual design. Should further information on the scheme become available, then a more detailed cumulative assessment will be undertaken in the ES.

3.2.10 There is also the potential that the Covanta RRF Project and the Project could operate simultaneously, giving rise to cumulative effects through combined stack emissions. However, initial modelling has been undertaken which has shown that given the proposed differences in stack heights between the Project and the Covanta RRF Project, no cumulative effects in terms of air quality are anticipated. Furthermore, the Covanta RRF Project will incorporate similar controls on dust during construction, so that no cumulative effects during construction are predicted either.

Conclusions and Next Steps

3.2.11 Based on the preliminary assessment, no likely significant effects are anticipated on air quality as a result of the construction, operation or decommissioning of the Project. A more detailed assessment will be undertaken for the EIA which will provide further information on the potential for any impacts on air quality arising from the Project. Further work will include a more detailed assessment of cumulative effects with other projects, as well as the production of figures accurately showing the distribution of stack emissions.

3.3 Noise and Vibration

Introduction

3.3.1 The construction, operation and decommissioning of the Project all have the potential to affect local noise levels and generate vibration, which may affect sensitive receptors in the vicinity of the Project Site.

3.3.2 A desk based assessment, noise survey and preliminary noise modelling have been undertaken at the nearest noise sensitive receptor (South Pillinge Farm) (approximately 150 m west of the Project Site) to assess the potential noise effects that may be caused by the Project.

Construction and Decommissioning

3.3.3 Construction and decommissioning activity inevitably leads to some degree of noise disturbance at locations in close proximity to these activities. Noise at the Project Site during construction and decommissioning could arise from e.g. excavation for foundations, delivery of plant, and excavation of the Gas Connection. This will however be a temporary source of noise. Based on a conservative, worst case assessment, where numerous large plant items are operating simultaneously, the significance of the overall effect of construction and decommissioning noise from the Power Generation Plant is predicted to be neutral at all receptor locations following the implementation of embedded mitigation measures which include:

- All calculations for construction noise assume a 10 dB reduction due to use of an appropriately placed acoustic screen, which is typical of this type of construction / decommissioning activity.
- Inherent best practice plant design incorporating acoustic enclosures to limit operational noise.
- Implementation of a CEMP;
- Use of appropriately maintained plant and equipment during construction, decommissioning and operation.

3.3.4 Additionally, further noise mitigation is available in the form of programming of construction activities not to occur simultaneously, utilising a temporary noise bund and using quieter equipment.

Operation

3.3.5 During operation, noise disturbance could potentially occur from the rotating components of the Generating Equipment (e.g. the Gas Turbine Generator units) when operational. There may also be a limited amount of noise from the Access Road from the small number of vehicles associated with the operation of the Generating Equipment, although this will not be significant when compared to the existing traffic noise.

3.3.6 In order to predict operational noise, background noise measurements taken at South Pillinge Farm were modelled alongside noise levels predicted for typical Generating Equipment similar to that expected for the Project.

3.3.7 This preliminary assessment has shown that there are not predicted to be any significant noise effects at South Pillinge Farm. As this is the closest property to the Generating Equipment Site, it therefore follows that, by proxy, no

significant effects from noise are predicted at any other properties in close proximity to the Generating Equipment Site.

3.3.8 During operation, there will be small amounts of noise generated by the gas AGI. This may be a low 'hum' noise or 'hiss' type of noise as the AGI regulates the flow of gas from the NTS to the Power Generation Plant.

3.3.9 This noise is rarely perceptible except when in very close proximity to the AGI. Given that there are no residential properties in close proximity to the current preferred location for the AGI, based on the preliminary assessment, it is considered that the operational noise from the Gas Connection would be neutral.

3.3.10 At this preliminary stage of the EIA, no impacts are anticipated from operation of the Electrical Connection, given the distance between the Electrical Connection and residential properties (approximately 100 m minimum), and the typically low levels of noise generated from such electrical equipment. However, these studies will be further refined and a more detailed assessment undertaken and presented in the final ES.

Cumulative Effects

3.3.11 The only development in the vicinity of the Project which has the potential to cause a cumulative effect in terms of noise is the Covanta RRF Project and the Integrated waste management facilities at Rookery South pit, given the distance from the Project of the other developments listed in Section 3.1.5, as well as their nature. However, very few details are available about the Integrated waste management facilities as at present only a Scoping Report has been submitted which is a high level outline conceptual design. Should further information on the scheme become available, then a more detailed cumulative assessment will be undertaken in the ES.

3.3.12 Initial modelling has been undertaken which has shown that given the noise limits which the Covanta RRF Project must adhere to, added to the predicted noise from the Project, no cumulative effects are anticipated during construction or operation. However, this will be further assessed as part of the ES.

Conclusions and Next Steps

3.3.13 Based on the preliminary assessment, no likely significant effects are anticipated from noise as a result of the construction, operation or decommissioning of the Project. Further work will be undertaken to carry out background monitoring at more potential sensitive receptors, as well as better defining any potential effects from operation of the Electrical Connection, and quantifying cumulative effects with the Covanta RRF Project.

3.4 Ecology

Introduction

3.4.1 The construction, operation and decommissioning of the Project has the potential to affect sensitive ecological receptors. The Project also has the potential to provide ecological value, for example, by reinforcing existing habitats or through the introduction of screen planting, which could provide additional habitat for some species.

3.4.2 In order to assess the potential for the Project to affect sensitive ecological receptors, desk studies and site walkover studies known as a “Phase 1 habitat surveys” were undertaken.

3.4.3 Once the Phase 1 habitat surveys were completed, the resulting information obtained from them was then used to inform species specific surveys termed “Phase 2 protected species surveys”. These surveys involved field based assessments to determine the presence / absence of notable species and their population size if present.

3.4.4 Phase 2 surveys have been undertaken for the following species:

- Invertebrates;
- Great Crested Newts;
- Breeding Birds;
- Reptiles;
- Bats
- Otters and Water Voles; and
- Badgers.

Construction and Decommissioning

3.4.5 The potential effects on ecological receptors during the construction phase are likely to be from indirect noise, vibration and lighting, as well as direct disturbance of habitats. However, work is being carried out (as part of the LLRS scheme) to translocate certain ecological species, (for example, Great Crested Newts) from the Project Site so that by the time the Project starts construction, the Power Generation Plant Site will be void of ecological value. Furthermore, the areas where the Gas and Electrical Connection would be located have been found to be of limited ecological value.

3.4.6 Furthermore, mitigation measures would be put in place to further limit potential impacts to ecology, including the careful timing of vegetation removal (outside of times when species are active) and maintaining an appropriate buffer around sensitive ecological sites during construction works. Therefore,

based on the preliminary assessment, no effects are predicted as a result of construction or decommissioning of the Project.

Operation

3.4.7 During operation, the main potential effects on ecological receptors are likely to result from stack emissions impacting on sensitive ecological sites through acid deposition. However, air quality modelling has shown that setting the stack height of between 30 and 40 m will not result in any impacts to sensitive ecological sites. Therefore, no effects are predicted from operation of the Project.

Cumulative Effects

3.4.8 The preliminary assessment has shown that it is unlikely that there will be any ecological impacts as a result of the Project. Accordingly then, based on this preliminary assessment, given that the Project alone is not anticipated to give rise to any ecological effects, it follows that the Project is also unlikely to result in or contribute to any likely significant cumulative or in-combination effects with other developments in the vicinity of the Project Site. As such, it is anticipated that no cumulative effects assessment is required.

Conclusions and Next Steps

3.4.9 Based on the preliminary assessment, no likely significant effects are anticipated on ecological receptors as a result of the construction, operation or decommissioning of the Project. Further work will be undertaken to finalise the Phase 2 surveys, as at the time of writing, there are still some outstanding surveys to undertake for invertebrates and bats. The results of the completed surveys will be included in the ES.

3.5 Water Quality and Resources

Introduction

3.5.1 The construction, operation and decommissioning of the Project all have the potential to affect water quality and resources, for example through introduction of pollutants and sediments to watercourses or for the Project to be impacted by flooding.

3.5.2 A desk based assessment has been carried out with regards to water quality and resources. This has identified all surface water resources within the vicinity of the Project Site, as well as previous pollution incidents which may have impacted on water bodies. The potential for the Project to be impacted by flooding, or for development of the Project to result in an increased likelihood of flooding occurring elsewhere has also been assessed.

Construction and Decommissioning

3.5.3 Based on the preliminary environmental assessment data, the main potential impacts that may result from construction and decommissioning of the Project

are contaminated material entering a surface water body or for the Generating Equipment Site to become inundated with flood water.

3.5.4 However, there are not anticipated to be any effects on the water bodies identified as best practice working methods and mitigation will be employed. These mitigation measures include having appropriate spill response plans in place, the refuelling of vehicles away from watercourses and the siting of stockpiles and materials away from watercourses. The Gas Connection will need to potentially cross one minor watercourse (a drainage ditch). In order to minimise adverse effects best practice would be employed during construction of the Gas Connection to protect the water environment, in accordance with guidelines published by the Environment Agency and Internal Drainage Board. These include re-routing of drainage ditches if necessary and undertaking work at a time of year when ditches are likely to have lowest flow (e.g. summer).

3.5.5 It is predicted that following the implementation of embedded mitigation and best practice construction methods referred to above, any effects on water quality and resources will be negligible.

Operation

3.5.6 During operation, the Power Generation Plant Site would be equipped with a surface water drainage system and a sewerage system. The surface water drainage system would remove any potentially polluted runoff through the use of oil interceptors and silt traps, prior to reaching the main sewerage network.

3.5.7 Due to the very limited water demand of the Power Generation Plant once operational (only required for fire water tanks and cleaning the blades of the Gas Turbine Generators), all water is anticipated to be tankered to the Power Generation Plant Site and stored in water storage tanks adjacent to the administration buildings. No surface water or groundwater abstraction would be required.

3.5.8 Any water generated during washing will be retained on the Power Generation Plant Site in a storage tank and subsequently tankered off-site by a licensed contractor.

3.5.9 Additionally, part of the LLRS works to Rookery Pit mean that any excess surface water (e.g. from a large storm event) will be effectively managed through the construction of a new surface water drainage system, which will discharge to an attenuation pond, therefore posing no risk to the Project Site from flooding. Further details regarding the LLRS drainage strategy are provided in Section 9.4 of the PEIR.

3.5.10 Neither the Gas Connection nor Electrical Connection will require water during operation, nor will they have any impact on flooding or run off rates.

3.5.11 It is predicted that any effects on water quality and resources during operation will therefore be negligible and therefore not significant.

Cumulative Effects

3.5.12 Construction or decommissioning of the Project could occur simultaneously with other projects in the vicinity of the Project Site. However, the preliminary assessment has shown no significant effects on water quality and resources are anticipated to arise from the Project. Accordingly then, given that the Project alone is anticipated to have no significant effects on water quality and resources, it follows that the Project is also unlikely to result in or contribute to any likely significant cumulative effects with other developments in the vicinity of the Project Site. As such, it is anticipated that no cumulative impacts assessment is required.

Conclusions and Next Steps

3.5.13 Based on the preliminary assessment, no significant effects are anticipated on water quality and resources as a result of the construction, operation or decommissioning of the Project. Further work will be undertaken to produce a detailed flood risk assessment which will be submitted as a supporting document to the final ES.

3.6 Ground Conditions

Introduction

3.6.1 The construction, operation and decommissioning of the Project have the potential to affect ground conditions, for example, the removal of good quality agricultural land or from contamination (existing or created) impacting on human health and other sensitive receptors.

3.6.2 An initial desk based assessment has been carried out to assess the baseline geology and ground conditions underlying the Project Site. The assessment studied information regarding previous land uses of the Project Site and the surrounding area, the soils and geology present at the Project Site, any potential contamination issues resulting from former site uses and any potential ground stability hazards.

Construction and Decommissioning

3.6.3 During construction of the Power Generation Plant, the main potential impacts on ground conditions will be from;

- Disturbance of any existing contamination and therefore causing effects to receptors through the creation of pollution pathways; and
- Creation of pollution incidents from e.g. spillages.

3.6.4 Further information is provided in Section 10.4 of the PEIR.

3.6.5 However, mitigation measures such as working within best practice guidelines and adhering to a detailed CEMP will be employed to prevent any contamination or pollution incidents impacting on ground conditions. This will

include having an appropriate spill response plan, correct re-fuelling of vehicles and plant on hardstanding and the correct storage of potentially hazardous substances in bunded storage tanks, thus the effect will be not significant. Furthermore given the historical extraction of clay undertaken in the Power Generation Plant Site there is no important geology or soils underlying the Power Generation Plant Site.

3.6.6 Construction of the Gas Connection will result in the temporary loss of agricultural land. However, this will be a relatively narrow corridor (maximum of 30 m working width) and any effects would be temporary. There is therefore considered to be a minor adverse effect. Given that land underlying the Gas Connection has not been subject to industrial development, the potential for encountering contaminated materials is considered to be low.

Cumulative Effects

3.6.7 Construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site. However, the preliminary assessment has shown no significant effects on ground conditions are anticipated to arise from the Project. Accordingly then, given that the Project alone is anticipated to have no significant effects on ground conditions, it follows that the Project is also unlikely to result in or contribute to any likely significant cumulative or in-combination effects with other developments in the vicinity of the Project Site. As such, it is anticipated that no cumulative impacts assessment is required.

Conclusions and Next Steps

3.6.8 Based on the preliminary assessment, no significant effects are anticipated on ground conditions as a result of construction, operation or decommissioning of the Project. Further work will be undertaken to carry out ground water monitoring at the Project Site to confirm the results of the desk based work carried out to date. The results of this further work will be included in the ES. A further appraisal of slope stability and foundation requirements will also be undertaken.

3.7 Landscape and Visual Impacts

Introduction

3.7.1 A desk based assessment and site visit have been undertaken to determine the baseline landscape character in which the Project would sit and the sensitive receptors which may be affected by the visual appearance of the Project. This study identified landscape designations, nature conservation designations, public rights of way, residential settlements, infrastructure and the historic landscape.

3.7.2 Photographs were also taken from key viewpoints in order to produce photographic models (termed photomontages) showing how the Project would look in the landscape when viewed from key viewpoints. Key viewpoints were

agreed with consultees and include, amongst others; residential areas, public rights of way and historic monuments.

Construction and Decommissioning

3.7.3 The main potential sources of landscape and visual impact during construction of the Project are: earthworks, site clearance works, removal of vegetation (in the case of the Gas Connection), presence of construction traffic and presence of construction site lighting. However, given the limited construction period (22 months) and the relatively modest construction operations, these effects are considered to be not significant from the majority of locations. However, at one viewpoint, located on footpath 14 adjacent to Gas Connection Route Corridor Option 1 there is the potential for significant effects given the close proximity of the views. Work is ongoing to determine effective mitigation to limit these effects.

Operation

3.7.4 During operation, effects on landscape and visual amenity will result from the introduction of permanent structures, particularly the stacks of the Generating Equipment (up to five stacks) and towers (up to seven new towers) and overhead line required for the Electrical Connection, which will be the largest structures on the Project Site.

3.7.5 However, the Project will be largely screened from views by the fact that a large proportion is sited within the Rookery South Pit. The Project will also be viewed in the context of other industrial development such as large towers of the former London Brick Works, the existing Sundon to Grendon overhead line and towers and the wind turbine at the Millennium Country Park. Views of the Electrical Connection and stacks of the Generating Equipment will be clearly visible in some views from the south and south east, particularly along the Greensands Ridge and from footpath 14, as described above for the construction phase. A preliminary assessment is that these impacts will be significant at worst, and may reduce to not significant following mitigation in the form of landscaping and planting of vegetation.

Cumulative Effects

3.7.6 Construction or decommissioning of the Project could occur simultaneously with other projects in the vicinity of the Project Site. However, the preliminary assessment has shown in the majority of cases that there will be no significant effects on landscape or visual amenity arising from the Project during construction or decommissioning. However, there is the potential for significant impacts to occur from views to the south, particularly footpath 14. Should construction of other developments occur simultaneously, then a significant cumulative effect may arise. However, work is ongoing to determine effective mitigation to limit these effects. Furthermore, other developments would also be required to mitigate any construction effects through e.g. screen planting or use of hoardings.

3.7.7 During operation, there is the potential for cumulative effects to arise from the Project together with other planned developments. The most significant of these other planned developments from a landscape and visual impacts perspective are anticipated to be from large scale industrial or power developments such as the Covanta Rookery RRF, the Integrated waste management operations planned for the Rookery and the Brogborough Wind Energy Project.

3.7.8 Whilst work is ongoing as to the cumulative impacts assessment with these other developments, a preliminary assessment has been undertaken which has concluded the following:

- Not enough details are available at this time to make an assessment of cumulative impacts with the Integrated waste management operations proposed for the Rookery South Pit. The scheme is a high level outline concept only at this stage.

- The Brogborough Wind Energy Project is approximately 4.5 km from the Project site and the Project and Project would not be seen in views together apart from when viewed from a significant distance away. Therefore no significant cumulative effects are anticipated.

- It is recognised that the addition of the Project and the Covnanta RRF within close proximity would have the potential to cause cumulative effects, particularly for visual receptors to the south. Although the two projects would be viewed in the context of other industrial development and would look to be complimentary to each other in terms of layout and design. Although there is the potential for a moderately significant impact cumulatively, the Project would add little to the much larger Covanta RRF project.

Conclusions and Next Steps

3.7.9 Based on the preliminary assessment, there is the possibility for moderately significant effects from certain views, primarily from the south and east of the Project Site. Further work will be undertaken to produce photomontages in the winter to ensure that a worst case scenario is being assessed when screening effects of vegetation are at the minimum. Further work will also focus on designing appropriate mitigation such as screen planting in order to limit impacts from views to the south and east of the Project Site. The results of the further work will be included in the ES.

3.8 Traffic and Transport

Introduction

3.8.1 The construction, operation and decommissioning of the Project has the potential to affect the local transport network, through the generation of additional traffic movements to the area in the vicinity of the Project Site.

3.8.2 An initial desk based assessment has been carried out as part of the PEIR. This identified and assessed the following:

- Pedestrian and cycle facilities;
- Public transport services including bus and rail services;
- Private transport services including parking provision;
- Highways networks and junctions;
- Road safety and collision statistics; and
- Impacts from increased traffic movements as a result of construction, operation and decommissioning of the Project.

3.8.3 Access to the Power Generation Plant Site is proposed from the north near Stewartby via Green Lane. Green Lane links to Bedford Road and the A421 to the west, and Stewartby Way and the B530 to the east. There is a junction on Green Lane leading to an access track on the previously unexcavated land on the western side of Rookery North Pit which extends southwards into Rookery South Pit.

3.8.4 A new purpose built access road would be constructed within the Power Generation Plant Site from Green Lane to the Generating Equipment Site (the "Access Road"). The route of the Access Road from Green Lane would follow the existing track which borders the lake within Rookery North Pit. On reaching Rookery South Pit the Access Road would use the access ramp (which will be constructed as part of the LLRS scheme) to enter into the south pit and cross through the base of the pit until it reaches the Generating Equipment Site along the alignment shown on Figure 1.2. It is proposed that the 1.7 km long Access Road would be bitumen construction formed with kerbs, and would be approximately 6 m wide allowing for two-way traffic.

3.8.5 Several options are being considered with regard to accessing the Gas Connection. These options are as follows:

- From M1 Junction 13 via the A507, Sandhill Close, Houghton Lane, Millbrook Road and the B530 Ampthill Road;
- From Bedford Road, via Woburn Road, Manor Road, B530 Ampthill Road and Millbrook Road, or;
- Through the Rookery South Pit, from the area of the Power Generation Plant area; or
- from the A421, northwards along the A5141, westwards then southwards for approximately 7km along the B530 (referred to variously along its route as Ampthill Road / Hardwick Road / Bedford Road / Hazelwood Lane) to Millbrook Road.

3.8.6 Several options are still being considered with regard to accessing the Electrical Connection. They are as follows:

- From Junction 13 of the M1 via the A507, Sandhill Close and Station Lane;
- From Bedford Road, via Woburn Road, Manor Road, B530 Ampthill Road Millbrook Road, Houghton Land and Station Lane;
- Through the Rookery South Pit, from the area of the Power Generation Plant area; or
- From the A421, northwards along the A5141, westwards then southwards for approximately 7km along the B530 (Ampthill Road / Hardwick Road / Bedford Road / Hazelwood Lane) to Millbrook Road, Houghton Land and Station Lane.

3.8.7 Any off-road site construction access would be temporary in nature, and would be removed following completion of the Access Road. In addition, any operational access requirement would have minimal and ephemeral usage.

Construction and Decommissioning

3.8.8 During construction, the Power Generation Plant is anticipated to require up to 120 HGV movements and 20 car movements workers at its peak construction phase (for approximately three months over a 22 month construction phase). Construction / decommissioning of the Gas Connection will require approximately 68 vehicle movements at the construction peak, and the Electrical Connection will require approximately 34.

3.8.9 The construction of the Project will also require the delivery of large plant items such as the Gas Turbine Generators, stacks, components for the new towers associated with the Electrical Connection and sections of gas pipeline. There is therefore the potential to impact on the surrounding road network through for example, temporary road closures and requirement for escort vehicles. Notwithstanding, to minimise the impact of the contractor's vehicles on local towns and villages (particularly Stewartby), the Applicant will seek to agree a contractor's Route Management Plan at the detailed design stage of the Project to ensure the vehicles stick to agreed access routes and avoid built up residential areas as far as reasonably practical. Given these measures, together with the temporary nature of the construction phase, and the relatively few numbers of abnormal loads anticipated the effects on traffic and transport are predicted to be neutral and therefore not significant.

Operation

3.8.10 During normal operation of the Project, up to five members of staff would be working at the Generating Equipment Site at any one time. Three shifts per day are assumed, to provide 24 hour coverage. These shift changes would be timed to avoid the network peak hour i.e. morning and evening rush hours,

hence the highway impact would be minimised. Additionally, there will be infrequent maintenance visits by one or two engineers.

3.8.11 Neither the Gas, nor Electrical Connection will be manned. They will have very infrequent service and maintenance visits.

3.8.12 Therefore, normal operation of the Project is not anticipated to have any negative effects on the local road network.

Cumulative Effects

3.8.13 Given that the Project will not give rise to any traffic and transport effects on its own, no cumulative effects are predicted with other developments. However, it is recognised that there is the potential for the Project to be operational at the same time as the Covanta RRF Project, which will produce a large volume of additional traffic movements during operation. However, the very limited number of vehicles accessing the Project Site during operation (five workers on the Project Site at any one time) will not dramatically change the assumptions made by Covanta RRF in the mitigation required to alleviate the effects from their scheme. Therefore, it is considered that these mitigation measures will still be suitable for use with the Covanta RRF and the Project. Should the Covanta RRF Project not progress, it is anticipated that no measures would be required for the Project given the limited number of traffic movements generated.

Conclusions and Next Steps

3.8.14 Based on the preliminary assessment, no significant effects are anticipated from traffic and transport as a result of the construction, operation or decommissioning of the Project. Further traffic counts will be undertaken on the local road network and included in the ES.

3.9 Archaeology and Cultural Heritage

3.9.1 The construction, operation and decommissioning of the Project has the potential to affect both above ground and buried archaeological assets, as well as the potential to affect the setting and appreciation of assets of Cultural Heritage importance, including, for example, surrounding Listed Buildings, Registered Parks and Gardens, Scheduled Monuments and Conservation Areas.

3.9.2 An archaeological desk based assessment and preliminary site visit were carried out as part of the archaeological assessment which identified archaeological and cultural heritage assets in the vicinity of the Project Site.

Construction

3.9.3 The extent of any previous disturbance to buried archaeological remains is an important factor in assessing the potential impact of the Project.

3.9.4 Given that the Power Generation Plant Site is within formerly developed land (e.g. previously excavated Rookery clay pits, it is likely that any archaeology would have already been removed. Therefore, this preliminary assessment has concluded that there will be no physical direct impacts on any heritage assets. The preliminary assessment has shown that no features or structures of archaeological interest have been recorded on the Bedfordshire Historical Environmental Record (HER) within the area of the Power Generation Plant.

3.9.5 The majority of the construction works will not be visible outside of Rookery South Pit and therefore will have no impacts on the setting of any heritage assets.

3.9.6 The Access Road will have no potential impacts on designated heritage assets.

3.9.7 The Gas and Electrical Connection are in previously undeveloped agricultural land, and therefore there remains the potential for impacts on as yet undiscovered buried archaeology. Although previous archaeological investigations in the areas where the Gas and Electrical Connections are proposed did not reveal any significant archaeology, further assessment of this area will be undertaken as part of ongoing works and presented in the final ES.

Operation

3.9.8 During operation, the introduction of the stack(s) (up to five) associated with the Generating Equipment, as well as the towers (up to six net additional towers) to support an overhead electrical line, have the potential to have minor adverse effects on surrounding cultural heritage assets such as listed buildings. There is also the potential for intervisibility between the stacks of the Generating Equipment and the Electrical Connection and up to five Scheduled Monuments however, in all cases effects are anticipated to be no more than minor and therefore are not significant for EIA purposes.

Cumulative Effects

3.9.9 The Project could occur simultaneously with other projects in the vicinity of the Project Site. However, the preliminary archaeology assessment has shown that no significant effects on heritage assets are predicted as a result of the Project. Given that the Project alone is predicted to have no significant effects on heritage assets, it follows on that the Project is also unlikely to result in or contribute to any likely significant cumulative or in-combination effects with other developments in the vicinity of the Project Site. As such, it is anticipated that no cumulative impacts assessment is required.

Conclusions and Next Steps

3.9.10 Based on the preliminary assessment, no likely significant effects are anticipated on archaeology and cultural heritage as a result of the construction, operation or decommissioning of the Project. Further work will be

undertaken to confirm the potential effects of the Gas Connection on buried archaeology and in relation to the operation of the Generating Equipment and Electrical Connection and the potential effects on cultural heritage assets such as Listed Buildings and Scheduled Monuments. A visit will also be made to Rookery south pit to assess the potential for any heritage associated with the pit. The results of the further assessments will be included in the ES.

3.10 Socio-economics

Introduction

3.10.1 The construction, operation and decommissioning phases of the Project have the potential to affect the area's labour markets, community facilities and tourism sector.

3.10.2 A desk based assessment has been undertaken which has assessed the socio-economic makeup of the local and wider areas surrounding the Project through a review of statistics.

3.10.3 The baseline socio-economic status of the local area surrounding the Project is characterised by a pattern of population increase which is expected to continue until 2021. The area has a declining work age population with more than one fifth of the population expected to be at retirement age by 2021. This is also coupled with high economic activity which is higher than the UK average. Retail work is the main employment category in the local area, and is above the national average.

3.10.4 The Project will have slight positive effects on the socio-economic status of the area through both employment creation and capital expenditure and worker spending in the local economy. It is anticipated that up to 150 construction workers would be required at the Project Site during peak periods. These workers would not only benefit the economy directly, but would also have knock on effects on other businesses (e.g. slight positive impact to accommodation providers in providing accommodation for temporary workers).

3.10.5 No impacts are predicted on tourism and community infrastructure as a result of the Project from visual, noise, traffic and accessibility and air quality impacts, given that the preliminary assessment has concluded that there will be no likely significant effects arising from these areas.

Operation

3.10.6 During operation, there will be a limited number of staff employed (of the order of five on the Project Site at any one time). This is anticipated to bring minor beneficial effects to the area in the vicinity of the Project Site through the generation of jobs and investment of staff from e.g. spending their wages locally.

Cumulative Effects

3.10.7 The Project could occur simultaneously with other projects in the vicinity of the Project Site. However, the preliminary socio-economic assessment has shown that there are minor positive effects associated with the Project. Should construction, decommissioning or operation occur simultaneously with any other projects in the area, it is anticipated that this would enhance local benefits for goods, services and employment, resulting in a minor positive cumulative effect.

Conclusions and Next Steps

3.10.8 Based on the preliminary assessment, no likely significant effects are anticipated on socio-economics as a result of the construction, operation or decommissioning of the Project. However, there are likely to be minor beneficial effects from investment at all stages of the Project. Further work will be undertaken to distribute a questionnaire in the area to ascertain people's opinions of the Project, particularly focusing on local businesses, as well as mapping of tourism receptors alongside the ZTV to assess impact; review of relevant findings of LVIA, Noise, Traffic and Air Quality chapters to confirm that impacts on receptors are not significant, community infrastructure mapping and a review of existing capacity in the local labour market to apply for jobs connected with the Project. , The results of this further work will be included in the ES.

3.11 Other Topics Considered

3.11.1 It is recognised that some of the statutory consultees have raised concerns that the Project may give rise to environmental impacts over and above those described in this PEIR NTS. Specifically, it has been requested that the Applicant assesses waste arising from the Project and Electromagnetic Frequency (EMF) arising from operation of the Electrical Connection.

Waste

3.11.2 As part of the construction works, there is likely to be limited potential for the generation of waste given that the LLRS will ensure that a level platform is created in the base of the Rookery South Pit on which to site the Generating Equipment. There may be small amounts of waste spoil produced from excavations for foundations, for the Gas Connection and for the new towers associated with the Electrical Connection, although it is hoped that as much of this as possible can be re-used on site.

3.11.3 The Project will operate in full accordance with the Waste Framework Directive, the EPR and the Waste (England and Wales) Regulations 2011 (where relevant). The Applicant, at all phases of the Project, will seek to apply the waste hierarchy as part of their waste prevention and management policy.

3.11.4 The waste hierarchy consists, in order of preference, of:

- Prevention;

- Re-use;
- Recycling;
- Other recovery (e.g. energy recovery); and
- Disposal

3.11.5 A CEMP will be produced, which provides for the submission of construction method statements for approval by the local authority prior to commencement of construction, secured by a requirement attached to the DCO.

3.11.6 Measures will include, amongst others, the stockpiling of excavated spoil and testing for Waste Acceptance Criteria, to determine whether it can be re-used on- or off-site, and the testing and removal, as appropriate, of any water from de-watering activities which will be handled by a suitably licensed waste contractor.

3.11.7 In order to facilitate the implementation of the Waste Framework Directive during decommissioning, much of the structures and equipment for the proposed Project will be made of materials suitable for recycling as far as is practicable. For example, a large proportion of the buildings will be constructed of pre-fabricated steel and will therefore be of interest to scrap metal merchants.

3.11.8 Only small quantities of potentially hazardous waste will be stored on the Project Site at any time, and any such substances will be held in secured containers to prevent contaminant migration. Closed storage facilities or suitable dampening techniques will be utilised within the Project where emissions of dust etc. from waste are possible. All mitigation measures will be in full accordance with industry good practices.

3.11.9 The CEMP will ensure that all construction waste will be dealt with in a manner that complies with relevant legislation and (upon leaving the Project Site) waste will be treated and disposed of by suitably licensed contractors. Where hazardous waste is transported from the proposed Project Site, it will be handled in accordance with relevant regulations, and, where necessary, be transported in sealed tankers.

3.11.10 During operation a feature of the Gas Turbine Generator technology to be incorporated in the proposed Project is that waste generated should be minimal and will be restricted to the following:

- General office wastes;
- Used air intake filters (typically replaced annually);
- Used ion exchange resins or used membranes (typically replaced every 5 to 10 years);
- Separated oil / sludge from oil / water separators; and

- Used oil, chemicals or chemical containers.

3.11.11 Based on the above, it can be concluded that that the proposed Project will result in no likely significant effects with respect to waste.

EMF

3.11.12 The potential effects of electric and magnetic fields is a very specialised area which relies upon extensive work of worldwide experts. UK Power developers (such as the Applicant) rely on national guidelines in accordance with Government advice to ensure that new installations consider health risks based on current knowledge. The UK's Health Protection Agency, previously the National Radiological Protection Board NRPB, provides independent recommendations to the Government based on reviews of international study results.

3.11.13 In the absence of statutory regulations to limit the exposure of people to power-frequency electric or magnetic fields, guidelines published in 1998 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) are adopted in the UK as recommended by the NRPB.

3.11.14 Based on these guidelines, it is likely that that the EMF field strength for the Project would be the same as that which is already present associated with the existing 400 kV Sundon to Grendon overhead line, and that the field strength remains within the1998 ICNIRP occupational exposure Reference Level.

3.11.15 A full EMF report will be produced as part of the ongoing EIA and reported in the ES.

4 Overall Conclusions

4.1.1 This PEIR NTS provides a background and sets the context of the proposed Millbrook Power Project and summarises the preliminary assessment of environmental effects from the Project, based on work done to date.

4.1.2 It has concluded that the use of SCGT is the most appropriate technology choice for the Generating Equipment and that the Project Site is appropriate to support a project of this nature. Key features of the Project site are the close proximity to existing gas and electrical connection infrastructure.

4.1.3 The preliminary assessment of environmental effects has shown that the Project can be responsibly delivered without causing significant harm to the environment. No effects are predicted on local air quality, noise sensitive receptors, ecology, water quality, ground conditions, traffic and transport or archaeology and cultural heritage during the construction, operation or decommissioning phases, or cumulatively with those developments listed in Section 3.1.5.

4.1.4 Minor positive effects are likely to result on the socio-economics of the area surrounding the Project Site due to an increase in workforce during all phases of the Project.

4.1.5 Potentially significant effects have been identified from one of the visual receptors on a footpath within the Project Site. However, further assessment will be undertaken to determine whether this impact can be mitigated through the use of strategic planting.

4.1.6 Further work is ongoing to cement the assessments undertaken to date and will be reported in the ES.