

# **Millbrook Power Project**

## **Preliminary Environmental Information Report**

### **Non-Technical Summary**

On behalf of **Millbrook Power Limited**





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## PEIR NTS Glossary

Acronym	Term	Description
Access Road	Access Road	The proposed purpose built full length access road from Green Lane to the Generating Equipment Site. This could be also be delivered through the 'Short Access Road' as defined below in this Glossary.
AGI	Above Ground Installation	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.
agriculture	agriculture	Section 336(1) of the Town and Country Planning Act 1990 defines agriculture as including: <ul style="list-style-type: none"><li>• Horticulture, fruit growing, seed growing, dairy farming;</li><li>• The breeding and keeping of livestock (including any creature kept for the production of food, wool, skins or fur, or for the purpose of its use in the farming of land);</li><li>• The use of land as grazing land, meadow land, osier land, market gardens and nursery grounds; and</li><li>• The use of land for woodlands where that use is ancillary to the farming of land for</li></ul>

		other agricultural purposes.
air pollutants	air pollutants	Amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects on humans, animals, vegetation and/or materials.
Air Quality Sensitive Receptors	Air Quality Sensitive Receptors	People, property or designated sites for nature conservation that may be at risk from exposure to air pollutants that could potentially arise as a result of the Project.
amenity	amenity	The preferable features of a location which contribute to its overall character and the enjoyment of residents or visitors.
AOD	Above Ordnance Datum	Ordnance Datum is the vertical datum used by the Ordnance Survey as the basis for deriving the height of ground level on maps. Topography may be described using the level in comparison to 'above' ordnance datum.
Applicant	Applicant	Millbrook Power Limited (MPL)
AQMA	Air Quality Management Area	A defined area by virtue of Section 82(3) of the Environment Act 1995, where it appears that the air quality objectives prescribed under the UK Air Quality Strategy will not be achieved. In these areas, a Local Authority must designate Air Quality Management Areas, within which an Action Plan can be proposed to secure improvements in

		air quality so that prescribed air quality objectives can be achieved.
Archaeological Desk Based Assessment	Archaeological Desk Based Assessment	An assessment of the known or potential archaeological resource within a specified area or site on land, inter-tidal zone or underwater. It consists of a collation of existing written, graphic, photographic and electronic information in order to identify the likely character, extent, quality and worth of the known or potential archaeological resource in a local, regional, national or international context as appropriate.
archaeological interest	archaeological interest	Heritage assets with archaeological interest are the primary source of evidence about the substance and evolution of places, and of the people and cultures that made them.
Associated Development	Associated Development	Associated Development means development which is associated with but is subordinate to the NSIP. It must be necessary and should be proportionate to the nature and scale of the NSIP. For the purpose of the Project, both the Gas Connection and Electrical Connection are considered to be Associated Development.
Balance of Plant	Balance of Plant	All infrastructure required to support the Gas Turbine Generator within the Generating Equipment

		Site and includes: a stack; electrical banking compound; fire water tank; administration/ workshop/ control building, maintenance compound; black start generator and gas receiving facility.
BAP	Biodiversity Action Plan	Plans which set specific, measurable, achievable, realistic and time bound conservation targets for species and habitats in the UK.
baseline	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	Bedford Borough Council
biodiversity	biodiversity	Abbreviated form of 'biological diversity' referring to variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part.
CBC	Central Bedfordshire Council	Central Bedfordshire Council
CCGT	Combined Cycle Gas Turbine	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.
CEMP	Construction Environmental Management Plan	Strategic document setting out best practice methods to minimise environmental impacts

		(including dust) during construction.
conservation area	conservation area	An area of special environmental or historical importance that is protected from changes by law by statutory designation.
construction	construction	Within the PEIR this phrase refers to all construction activities associated with the Project. The construction phase is anticipated to commence in 2020 and be completed by 2022.
Construction Laydown Area	Construction Laydown Area	The area required during construction for storing materials and equipment. It is located within the Power Generation Plant Site.
consultation	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.
contamination	contamination	Where land has been affected by contamination it may present a risk to humans, ecosystems, water quality and property.
crop marks	crop marks	A mark that is produced by the effect of underlying archaeological or geological features influencing the growth of a particular crop.
Covanta RRF	Covanta RRF Project	The proposed Resource Recovery Facility (RRF) to be developed by Covanta and Veolia to the

		north of the Generating Equipment Site and for which Covanta Rookery South Limited was granted the RRF Order.
CTMP	Construction Traffic Management Plan	It is a live document that outlines the management of material movements and interactions with the surrounding road network during the various stages of the construction process.
cultural heritage	cultural heritage	Legacy of physical artefacts and intangible attributes of a group or society inherited from past generations, maintained in the present and bestowed for the benefit of future generations. Cultural heritage includes both physical culture (such as buildings, monuments, landscapes, books, works of art and artefacts) as well as intangible culture (such as folklore, traditions, language and knowledge).
cumulative effects	cumulative effects	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.
CWS	County Wildlife Site	County Wildlife Sites known nationally as Local Sites, are considered to be of value for wildlife in a county context. While they do not receive statutory protection, they are given

		some protection through the planning system.
dB(A)	A-weighting sound level	<p>The sound pressure level determined when using the frequency-weighting network A. The A-weighting network modifies the electrical response of a sound level meter so that the sensitivity of the meter varies with frequency in approximately the same way that the sensitivity of the human hearing system varies with frequency.</p> <p>The human ear has a non-linear frequency response; it is less sensitive at low and high frequencies and most sensitive in the range of 1 to 4 kHz. The A-weighting is applied to measured or calculated sound pressure levels so that these levels correspond more closely to the response of the human ear. A-weighted sound levels are often denoted as dB(A).</p>
DBA	Desk Based Assessment	Research based primarily on database and internet data gathering methods.
DCLG	Department for Communities and Local Government	UK Government ministerial department responsible for policy in the fields of planning and building, local government, UK economy, housing, community and society, and public safety and emergencies.
DCO	Development Consent Order	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).
DCO Application	Development Consent Order 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.
decommissioning	decommissioning	Decommissioning will comprise the removal of all Generating Equipment items and restoration of the Generating Equipment Site to a similar condition compared to before the construction of the Project once operation has ceased. This process will also take approximately 22 months. It is likely that some underground structures, including the Gas and Electrical Connections will be capped and left in situ to avoid any adverse environmental effects associated with their removal.
Drax	Drax Group Plc	Drax are one of the UK's largest energy producers and acquired MPL from Stag Energy in 2016.
dust	dust	Fine particles of solid materials capable of being re-suspended in air and

		settling only slowly under the influence of gravity where it may cause nuisance.
EA	The Environment Agency	The Environment Agency
EclA	Ecological Impact Assessment	A recommended procedure for the ecological component of Environmental Impact Assessment.
effect	effect	The consequence of an impact on the environment.
EIA	Environmental Impact Assessment	The assessment of the potential likely significant environmental effects of the Project. Undertaken in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.
EIA Regulations	EIA Regulations	For this project the relevant EIA regulations are the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.
Electrical Connection	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, up to two new underground electrical circuits and up to two Sealing End Compounds (SECs) to connect the substation to the Generating Equipment and the existing 400 kV network.
Electrical Connection Opportunity Area	Electrical Connection Opportunity Area	The area that was investigated for the

		location of the Electrical Connection.
EMF	Electromagnetic Field	A magnetic field is the magnetic influence of electric currents and magnetic materials.
emission	emission	A material that is expelled or released to the environment. Usually applied to gaseous or odorous discharges to the atmosphere.
environmental effect	environmental effect	The consequence of an impact on the environment.
environmental impact	environmental impact	A physical or measurable change to the environment attributable to the Project.
ES	Environmental Statement	A statement that includes the information that is reasonably required to assess the environmental effects of the development and which the applicant can, having regard to current knowledge and methods of assessment, reasonably be required to compile, but that includes at least the information referred to in the EIA Regulations.
ES NTS	Environmental Statement Non-Technical Summary	A report presenting a summary of the information in the Environmental Statement.
exceedance	exceedance	A period of time where the concentrations of a pollutant is greater than, or equal to, the appropriate Air Quality Objective.
features (landscape feature or element)	features (landscape feature or element)	A component part of the landscape (e.g. hedgerow, wood, stream)

findspot	findspot	Location of individual or groups of archaeological artefacts.
flood zone	flood zone	<p>An area identified, through modelling, that is at risk of flooding from rivers or the sea, to varying levels of magnitude and frequency. There are four classifications for flood zones as defined in the National Planning Policy Framework (NPPF):</p> <ul style="list-style-type: none"> <li>• Zone 1: Low probability (less than 1 in 1000 annual probability of river or sea flooding in any year);</li> <li>• Zone 2: Medium probability (between 1 in 100 and 1 in 1000 annual probability of river flooding or between 1 in 200 and 1 in 1000 annual probability of sea flooding in any year);</li> <li>• Zone 3a: High probability (1 in 100 or greater annual probability of river flooding in any year or 1 in 200 or greater annual probability of sea flooding in any given year); and</li> <li>• Zone 3b: High probability (functional flood plain. Essentially the 1 in 20 or greater annual probability of flooding in any given year).</li> </ul>

Gas Connection	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).
Gas Connection Opportunity Area	Gas Connection Opportunity Area	The area that was investigated for specific route corridor options for the Gas Connection.
Gas Turbine Generator	Gas Turbine Generator	One Open Cycle Gas Turbine (OCGT) generator (as proposed in the Power Generation Plant) which utilises 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 a single stack without providing heat for a secondary steam cycle. The Gas Turbine Generator forms part of the Generating Equipment and is located within the Generating Equipment Site.
Generating Equipment	Generating Equipment	Gas Turbine Generator and Balance of Plant which are located on the Generating Equipment Site.
Generating Equipment Site	Generating Equipment Site	The site where the Generating Equipment is located.
groundwater	groundwater	Water occurring in the ground which can be reasonably attributed to relatively geologically recent recharge and which can be reasonably considered to be

		wholesome (potable) unless it has been contaminated (altered) by anthropogenic activity.
habitat	habitat	The environment in which populations or individual species live or grow.
heritage asset	heritage asset	A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets identified by the local planning authority (including local listing).
ha	Hectare	A unit area (10,000 m <sup>2</sup> / 2.471 acres).
HGV	Heavy Goods Vehicle	A mechanically propelled road vehicle that is of a construction primarily suited for the carriage of goods or burden of any kind and designed or adapted to have a maximum weight exceeding 3,500 kg when in normal use and travelling on a road laden.
HER	Historic Environment Record	The repository for all archaeological and historical information relating to a county or district.
Impact	Impact	A physical or measurable change to the environment attributable to the Project.
km	Kilometre	Measurement of distance (1000 metres).
kV	Kilovolt	Measurement of the amount of electric potential energy equal to 1000 volts.

landscape character	landscape character	The distinct and recognisable pattern of elements that occurs consistently in a particular type of landscape, and how this is perceived by people. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement.
landscape effects	landscape effects	Change in the elements, characteristics, character and qualities of the landscape as a result of development. These effects can be positive or negative.
Listed Building	Listed Building	<p>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:</p> <ul style="list-style-type: none"> <li>• Grade I – Buildings of exceptional interest;</li> <li>• Grade II* - Particularly important buildings of more than special interest; and</li> <li>• Grade II – Buildings of special interest.</li> </ul>
LLRS	Low Level Restoration Scheme	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.
LVIA	Landscape and Visual Impact Assessment	A tool used to identify and assess the likely significant 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.
m	metre	Measurement of length
magnitude	magnitude	A combination of the scale, extent and duration of an effect.
maintenance compound	maintenance compound	A small area of hard standing for use during maintenance procedures.
mbgl	metres below ground level	Unit of measure for elevation using ground level as a reference point.
mitigation measure	mitigation measure	Action proposed to avoid, prevent, reduce and where possible offset significant adverse effects arising from the whole or specific elements of a development.
mm	millimetre	Measurement of size.
MOC	Minimum Offtake Connection	A connection that will offtake gas directly from the National Transmission System. The MOC forms part of the AGI and therefore the Gas Connection.
MPL	Millbrook Power Limited	Millbrook Power is a subsidiary business of Drax, which has been established specifically to develop the Project.
MW	megawatt	Measurement of power.
MWe	megawatt electrical	Measurement of electrical power.
MWth	megawatt thermal	Thermal Power, used for energy input to or heat

		output from a power station.
NPS	National Policy Statements	Overarching policy designated under the PA 2008 concerning the planning and consenting of NSIPs in the UK.
National Park	National Park	A national park is an area designated for its special landscape rich in character and distinctiveness, wildlife history and heritage.
NETS	National Grid Electricity Transmission System	A high-voltage electric power transmission network connecting power stations and major substations, ensuring that electricity generated anywhere in England, Scotland and Wales can be used to satisfy demand elsewhere within the UK.
NGET	National Grid Electricity Transmission	National Grid's principal operations are the ownership and operation of regulated electricity infrastructure networks in the UK.
nitrogen deposition	nitrogen deposition	Nitrogen deposition is the term used to describe the input of reactive nitrogen species from the atmosphere to the biosphere.
noise	noise	Noise defined as unwanted sound, is measured in units of decibels, dB. The range of audible sounds is from 0dB to 140 dB. Two equal sources of sound, if added together will result in an increase in level of 3 dB i.e $50\text{dB} + 50\text{dB} = 53\text{ dB}$ . Increases in continuous sound are perceived in the following manner:

		<ul style="list-style-type: none"> <li>• 1dB increase – barely perceptible</li> <li>• 3dB increase – just noticeable</li> <li>• 10dB increase – perceived as twice as loud.</li> </ul>
NSIP	Nationally Significant Infrastructure Project	The Power Generation Plant constitutes a Nationally Significant Infrastructure Project (NSIP) by virtue of s.14(1)(a) and s.15 of the Planning Act 2008 (PA 2008) which include within the definition of a NSIP any onshore generating station in England or Wales of 50 MWe capacity or more.
NTS	National Transmission System	A network of gas pipelines throughout the United Kingdom that supply gas to power stations from natural gas terminals situated on the coast, and also gas distribution companies which lead indirectly to homes.
OEMP	Operational Environmental Management Plan	Sets out the strategies to manage the potential environmental impacts that may occur as a result of operational and maintenance activities on the assets managed by the operator. It will be secured as part of the Environmental Permit Application and is likely to be based on a recognised management system standard e.g. ISO 14001.
Oil Pipeline	Oil Pipeline	An oil pipeline owned and operated by Compañía Logística de Hidrocarburos which is partly located within the

		Gas Connection Site and Electrical Connection Site and would be crossed by the Pipeline.
Order	Order	The Millbrook Power (Gas Fired Power Station) Order, being the development consent order made by the Secretary of State authorising the Project, a draft of which is submitted with the Application.
OCGT	Open Cycle Gas Turbine	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.  Can also be referred to as SCGT.
PA 2008	Planning Act 2008	UK legislation which passes responsibility for examining Development Consent Order (DCO) 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 Business, Energy and Industrial Strategy in the case of energy NSIP applications).
particulate matter	particulate matter	Solid particles or liquid droplets suspended or carried in the air.
peaking plant	peaking plant	Peaking plants are used to provide back up or additional electricity supply to the national grid at times when there is a

		Stress Event on the system.
PEIR	Preliminary Environmental Information Report	This report, which has been prepared for Phase 2 Statutory Consultation. It 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).
2014 PEIR	2014 Preliminary Environmental Information Report	The report that was prepared in 2014 for Phase 1 Statutory Consultation.
PEIR NTS	Preliminary Environmental Impact Report Non-Technical Summary	This report, presenting a non-technical summary of the information in the Preliminary Environmental Impact Report.
2014 PEIR NTS	2014 Preliminary Environmental Impact Report Non-Technical Summary	A report presenting a non-technical summary of the information in the 2014 Preliminary Environmental Impact Report.
Phase 1 Habitat Survey	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.
Phase 1 Statutory Consultation	Phase 1 Statutory Consultation	Initial phase of statutory consultation under s42, s47 and s48 of PA 2008 between 13 October 2014 and 16 November 2014. This coincided with the

		publication of the 2014 PEIR.
Phase 2 Statutory Consultation	Phase 2 Statutory Consultation	Second phase of statutory consultation pursuant to s42, s47 and s48 of PA 2008 undertaken between 29 <sup>th</sup> May and 2 <sup>nd</sup> July 2017. This PEIR has been published as part of this phase of consultation.
photomontage	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.
PIG	Pipeline Inspection Gauge	Means a device to perform various maintenance operations on a pipeline.
PINS	The Planning Inspectorate	The government agency responsible for examining applications for NSIPs.
Pipeline	Pipeline	The new underground gas pipeline connection proposed as part of the Gas Connection.
Power Generation Plant	Power Generation Plant	This is the Generating Equipment, Access Road and Construction Laydown Area.
Power Generation Plant Site	Power Generation Plant Site	The site in which the Power Generation Plant will be located.
Project	Project	Millbrook Power Project comprising the Power Generation Plant, Gas Connection and Electrical Connection.

Project Site	Project Site	The entire area covered by or required in order to deliver the Project. This includes the Power Generation Plant Site, Electrical Connection Site, Gas Connection Site and construction access/laydown and future maintenance access/laydown areas. The Project Site corresponds to the limits of the draft Development Consent Order (the Order Limits) that will form part of the DCO Application.
PRoW	Public Right of Way	An easement granted or reserved by the public over the surface of the land without impediment. Public Rights of Way include public footpaths, bridleways and byways open to all traffic as well as Restricted Byways.
PTF	PIG Trap Facility	PIG traps allow PIGs to be inserted into and removed from a pipeline which is to undergo a 'pigging' program and which is likely to be under pressure.
Ramsar Site	Ramsar Site	Wetlands of international importance, designated under the Ramsar Convention.
receptor	receptor	A component of the natural, created or built environment such as a human being, water, air, a building, or a plant that has the potential to be affected by the Project.
Red Line Boundary	Red Line Boundary	The boundary of the Project Site
Registered Parks and Gardens	Registered Parks and Gardens	A register of historic parks and gardens held by Historic England for parks

		and gardens of particular historic importance.
residual effect	residual effect	Those effects of a development that remain following the implementation of mitigation measures.
RGE	Reciprocating Gas Engine	An engine that employs the expansion of hot gases to push a piston within a cylinder, converting the linear movement of the piston into the rotating movement of a crankshaft to generate power.
Rochdale Envelope	Rochdale Envelope	The Rochdale Envelope allows for a project to evolve over a number of years, within clearly defined parameters.
Route Management Strategy	Route Management Strategy	Strategy to set out an appropriate route for construction traffic to avoid impacts on sensitive roads such as villages.
RRF Order	RRF Order	Means the Rookery South (Resource Recovery Facility) Order 2011, which granted development consent under the PA 2008 for the Covanta RRF Project.
SCGT	Simple Cycle Gas Turbine	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 will be SCGT. This can also be referred to as OCGT.
Scheduled Monument	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.
Scoping	Scoping	An exercise undertaken pursuant to Regulation 8 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 to determine the topics to be addressed within the Environmental Statement.
Scoping Opinion	Scoping Opinion	The Scoping Opinion for the proposed Project issued by the Secretary of State, dated May 2014 (Appendix 1.2 of the PEIR).
Scoping Report	Scoping Report	The Scoping Report for the proposed Project prepared by the Applicant and dated June 2014. (Appendix 1.2 of the PEIR).
Screening	Screening	Consideration as to whether an environmental impact assessment is required for a project.
SEC	Sealing End Compound	Part of the Electrical Connection within which 400 kV power cables are taken underground.
scrub	scrub	Vegetation consisting of stunted trees, bushes and other plants.
sensitivity	sensitivity	A term applied to specific receptors, combining

		judgements of the susceptibility of the receptor to the specific type of change or development proposed and the value related to that receptor.
Short Access Road	Short Access Road	The proposed purpose built access road from the Covanta RRF Project to the Generating Equipment Site. This will only be built in isolation if the Covanta RRF Project has constructed its access road.
SoS	Secretary of State	The decision maker for a NSIP application and head of a government department.
species	species	A group of interbreeding organisms that seldom or never interbreed with individuals in other such groups, under natural conditions; most species are made up of subspecies or populations.
SSSI	Site of Special Scientific Interest	A site statutorily notified under the Wildlife and Countryside Act 1981 (as amended) as being of special nature conservation or geological interest. SSSIs include wildlife habitats, geological features and landforms.
stack	stack	The structure by which the exhaust gases and waste heat are emitted to the atmosphere. The height of the structure would be between 32.5m-35m and would contain a silencer to reduce noise emissions. The exhaust gases would be subject to

		emissions control abatement.
Stag	Stag Energy Ltd	An independent UK based company providing expertise and management services to energy development projects. Stag were the original owners of MPL and have been retained by Drax through a management services agreement.
Substation	Substation	400 kV Substation comprising switchgear bays, gantries, emergency power supply, welfare accommodation, cables, fencing, lighting, landscaping, battery rooms, control cubicles and internal site roads.
TA	Transport Assessment	A quantitative assessment of the transport effects of construction, decommissioning and operational phases of the Project.
topography	topography	The natural or artificial features, level and surface form of the ground surface.
visual amenity	visual amenity	The value of a particular area or view in terms of what is seen.
visual effect	visual effect	Change in the appearance of the landscape from available viewpoints as a result of development.
visual receptors	visual receptors	Individuals and/or defined groups of people who have the potential to be affected by a proposal.
WSI	Written Scheme of Investigation	An archaeological method statement describing known and potential

		archaeological features and deposits and proposes a scheme for exploring them.
ZTV	Zone of Theoretical Visibility	Areas from which a specified element of a development may be visible.
WPL	Watt Power Limited	WPL is an independent company established to develop flexible gas fired generation assets to support the UK Government drive to a low carbon economy. WPL was the owner of Millbrook Power Limited prior to the acquisition by Drax.



## 1 Introduction

### 1.1 Overview

1.1.1 This document is the Non-Technical Summary (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 would comprise:

- A new Power Generation Plant in the form of an Open Cycle Gas Turbine (OCGT) 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 one Gas Turbine Generator with an exhaust gas flue stack and balance of plant, which are located within the Generating Equipment Site (together the "Generating Equipment");
  - A new purpose built access road to the Generating Equipment Site (the "Access Road" or the "Short 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").

1.1.3 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.

1.1.4 The location of the Project Site is shown in Figure 1.1 of the PEIR.

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 required for the generation of electricity and subsequent export of that electricity to the NETS. 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 of the PEIR.
- 1.1.8 The Generating Equipment would operate as a 'peaking plant'. This means it would operate intermittently for up to 2,250 hours per year. This could be at any time during the year and for any length of time up to but not exceeding 2,250 hours and not exceeding 1,500 hours on a 5 year rolling average;
- 1.1.9 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).
- 1.1.10 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 Department for Business, Energy and Industrial Strategy (Secretary of State) with whom the final decision lies. The PEIR and this PEIR NTS have been prepared in accordance with Regulation 2 and 10 of the Infrastructure Planning (Environmental Impact) Assessment Regulations 2009 (the "EIA Regulations"). They present information specifically aimed at describing the nature, scale and location of the Project and a preliminary assessment of any likely significant environmental impacts resulting from the Project.
- 1.1.11 In accordance with the Statement of Community Consultation, hard copies of the PEIR, this PEIR NTS and the Figures may be examined at Central Bedfordshire Council Office (Priory House, Monks Walk, Chicksands, Shefford Bedfordshire, SG17 5TQ, open Mon to Thu 08:00 – 17:30 and Fri 08:00 – 17:00); at Bedford Borough Council Office's Customer Service Centre (2 Horne Lane, Bedford MK40 1RA, open Mon to Thu 08:30 – 17:00 and Fri 08:30 – 16:00); at Marston Vale Forest Centre (Station Road, Marston Moretaine, Bedford, MK43 0PR, open Mon to Sun 10:00 – 16:00) and at the following local libraries:

<b>Bedford Library</b> Harpur Street, Bedford, MK40 1PG	Mon/Tue/Wed/Fri 09:00 – 18:00 Thu 09:00 – 13:00 Sat 09:00 – 17:00 Sun Closed
<b>Ampthill Library,</b> 1 Dunstable Street, Ampthill, Bedford, MK45 2NL	Mon/Wed/Fri 10:00 – 18:00 Tue Closed Thu 14:00 – 18:00 Sat 10:00 – 13:00 Sun Closed

<b>Wootton Library</b> Lorraine Road, Wootton, MK43 9LH	Mon/Fri 14:00 – 18:00 Tue Closed Wed 10:00 – 13:00 / 14:00 – 18:00 Thu Closed Sat 10:00 – 13:00 Sun Closed
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1.1.12 The technical appendices to the PEIR will only be available electronically at the council offices, libraries and Forest Centre.

1.1.13 Copies of the PEIR and this PEIR NTS can also be found on the Project website:  
<http://www.millbrookpower.co.uk>.

1.1.14 The Documents can be obtained by writing to Millbrook Power Limited, 49 York Place, Edinburgh, EH1 3JD. A reasonable copying charge may apply up to a maximum of £250 for the full suite of Documents and £10 for an electronic copy on CD. Copies of individual Documents are also available on request.

## 1.2 Purpose of this Document

- 1.2.1 The Project requires an Environmental Impact Assessment (EIA) in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations).
- 1.2.2 The Project falls under the EIA Regulations 2009 regime and not the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations 2017) regime. This is because a scoping opinion was requested from the Secretary of State under the EIA Regulations 2009 before the commencement of the EIA Regulations 2017. This means that, in accordance with the transitional arrangements at Regulation 37 of the EIA Regulations 2017, the EIA Regulations 2009 will continue to apply to the Project.
- 1.2.3 EIA is an assessment of the Project's likely significant environmental effects. This document is a summary (in non-technical language) of the PEIR for the Project which details the preliminary assessment of the results of the EIA. The full PEIR is available separately.
- 1.2.4 This document is the second "PEIR NTS" which has been prepared for the Project. The first PEIR was published and consulted upon in 2014 (the "2014 PEIR") together with supporting information and a Non-Technical Summary ("2014 PEIR NTS"). This information accompanied MPL's initial phase of statutory consultation ("Phase 1 Statutory Consultation") with both the local community and prescribed consultees.

- 1.2.5 Because the DCO Application for the Project was put on hold in 2015, MPL is undertaking a further round of statutory consultation and has prepared the PEIR and this PEIR NTS to accompany this further statutory consultation.
- 1.2.6 The feedback received relating to the 2014 PEIR has further helped to inform and refine the EIA process (including the PEIR and this PEIR NTS) as well as the design and development of the Project.
- 1.2.7 A full Environmental Statement (ES) will be submitted as part of the DCO Application, anticipated to be in Q4 of 2017.

### **1.3 The Applicant**

- 1.3.1 The Applicant for the Project is MPL, an energy development company established for the Project and recently acquired by Drax Group plc (Drax).
- 1.3.2 Drax is responsible for generating 7% of the UK's electricity, predominantly via Drax power station in Selby. Drax is one of the UK's largest energy producers and is committed to helping to reduce carbon emissions, displacing more coal off the system and providing additional system support to plug the gaps created by intermittent renewables and boost security of supply.
- 1.3.3 Further details on the companies above are provided at [www.millbrookpower.co.uk](http://www.millbrookpower.co.uk) or [www.drax.com](http://www.drax.com).

### **1.4 Need for the Project**

- 1.4.1 There is a considerable national need for this type of project, acknowledged at all levels of government policy. 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 electricity generation.
- 1.4.4 The recommendations and needs case set out in NPS EN-1 are also reflected in the 'Updated Energy and Emissions Projections' – 2016 (BEIS 2017). The projections describe how, under current policy, emissions from the power sector fall by 52% from 113 MtCO<sub>2</sub>e in 2015 to 54 MtCO<sub>2</sub>e in 2020. Low carbon generation is projected to increase from 47% of the generation mix in 2015 to

61% in 2020. The projections also realise that in the short to medium term, an increase in flexible gas generation is required to maintain system flexibility given likely increases in renewable generation and decreases in coal generation.

## 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 Chapter 2 of the PEIR.
- 1.5.2 As referred to in Paragraph 1.4.2 above, the Department for Energy and Climate Change (now the Department for Business, Energy and Industrial Strategy) has published a number of NPSs in relation to energy infrastructure, which were designated by the Secretary of State in July 2011. These NPS' 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. The Electrical Connection is underground rather than overhead but various policies may still be considered by the Secretary of State to be important and relevant in the determination of the Application for Development Consent.
- 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.

## 1.6 Other Documentation

- 1.6.1 This is the NTS of the PEIR. However, this PEIR NTS also makes reference to a number of other supporting documents. The list below provides the reader with a contents for the PEIR in order to aid navigation should they wish to locate further information:

### Preliminary Environmental Information Report

Chapter 1 Introduction

Chapter 2 Regulatory and Policy Background

Chapter 3 Project and Site Description

Chapter 4 Environmental Impact Assessment Methodology

Chapter 5 Alternatives Considered

Chapter 6 Air Quality

Chapter 7 Noise and Vibration

Chapter 8 Ecology

Chapter 9 Water Quality and Resources

Chapter 10 Ground Conditions

Chapter 11 Landscape and Visual Impact Assessment

Chapter 12 Traffic and Transport

Chapter 13 Historic Environment

Chapter 14 Socio-economics

Chapter 15 Other Issues Considered

### Appendices (available as electronic copies)

Volume A – 1.1 Project Glossary

Volume B – 1.2 Scoping Report and Scoping Response

Volume C – 2.6 – 2.14 Legislation and Policy Context for Technical Chapters

Volume D – 6.1 – Air Quality Cumulative Modelling Results

Volume E – 7.1 – Detailed noise survey results

Volume F – Ecology Appendices

- 8.1 – Phase 1 Habitat Survey
- 8.2 – Invertebrate Survey
- 8.3 – Great Crested Newt and Reptile Survey
- 8.4 – Breeding Bird Survey
- 8.5 – Bats, Otter, Water Vole and Badger Surveys

Volume G – 9.1 Flood Risk Assessment

Volume H – 10.1 – Ground Conditions Phase 1 Report

Volume I – LVIA Appendices

- 11.1 – Landscape and Visual Impact Assessment Tables
- 11.2 – Photomontages
- 11.3 – Landscape and Ecology Mitigation and Management Strategy

Volume J – Traffic and Transport Appendices

- 12.1 – Transport Assessment
- 12.2 – Travel Plan
- 12.3 – Public Rights of Way in vicinity of Project Site
- 12.4 – Outline Construction Traffic Management Plan

Volume K – Historic Environment Appendices

- 13.1 – Archaeology Desk Based Assessment
- 13.2 – Setting Assessment
- 13.3 – Correspondence with CBC Archaeologist

## Figures

Figure 1.1 – Project Site Location

Figure 1.2 – Project Site

Figure 3.1a – Indicative Illustration of the Position and Layout of Generating Equipment and Electrical Connection Option 1

Figure 3.1b – Indicative Illustration of the Position and Layout of Generating Equipment and Electrical Connection Option 2

Figure 6.1 – Receptor Locations for Air Quality

Figure 6.2 – Predicted Annual Average NO<sub>2</sub> Concentration (µg/m<sup>3</sup>)

Figure 6.3 – Predicted Annual Average 99.79<sup>th</sup> Percentile NO<sub>2</sub> Concentration (µg/m<sup>3</sup>)

Figure 7.1 – Noise Sensitive Receptors and Study Area

Figure 9.1 – Watercourses and Drainage Features Context Plan

Figure 11.1 –Zone of Theoretical Visibility Plan

Figure 11.2 – Location of Viewpoints

Figure 11.3 – Landscape Character

Figure 11.4 – Landscape Planning Constraints

Figure 12.1 – Location Plan showing Key Strategic Transport Links

Figure 12.2 – Potential Construction / Operational Access Routes

Figure 13.1 – Designated Assets in Study Area

Figure 13.2 – Non-Designated Assets in Study Area

Figure 14.1 – Drivetime Zones

Figure 14.2 – Tourism/Business Survey Study Area

Figure 14.3 – Tourism Audit

Figure 14.4 – Educational Facilities within Study Area

Figure 14.5 – GPs within Study Area

Figure 14.6 – Pharmacies, Dentists and Emergency Services within Study Area

Figure 14.7 – Sport and Recreation Facilities within Study Area

Figure 14.8 – Visitor Attractions

## 2 Site and Project Description

### 2.1 Site and Surroundings

- 2.1.1 The Project Site is shown in Figure 1.2 of the PEIR 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 Connection 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 pits: Rookery North and Rookery South. The Generating Equipment Site, Laydown Area, Short Access Road and parts of the Access Road, Gas Connection 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 of the PEIR and would extend from Rookery South Pit into agricultural land to the south.
- 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, the Millbrook Proving Ground, a vehicle testing facility, 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 Boundary. 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; Marston Moretaine, approximately 1.2 km to the west; Stewartby, approximately 400 m to the north west, Lidlington, approximately 400 m south west and Millbrook approximately 400 m to the south of the Project Site boundary.

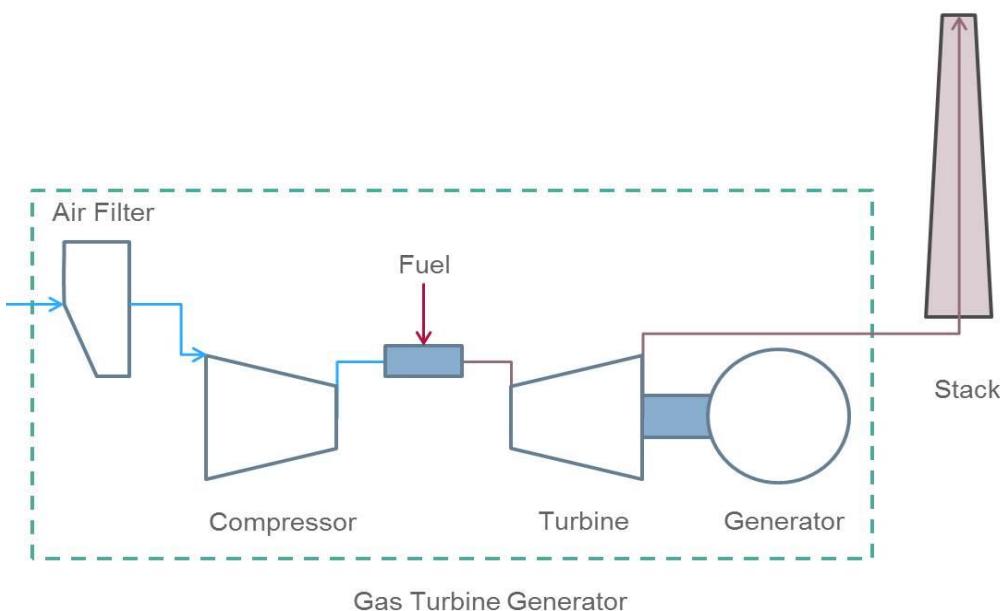
#### Low Level Restoration Scheme (LLRS)

- 2.1.7 The Rookery is the subject of an ongoing Low Level Restoration Scheme (LLRS) for which landowner this responsible. 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 3.1 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 could run up to a maximum of 2,250 hours in any given year, provided that the five year rolling average does not exceed 1,500 hours. Given these parameters, it has been determined that an OCGT 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 the PEIR and a schematic showing OCGT operation is shown below in Insert 1.
- 2.2.2 An ‘industrial’ type gas turbine would be used for the Project. This type of turbine has been selected as it is suited to generating up to 299 MW using only one unit, thereby reducing potential effects of noise, air quality and visual impacts. Additionally, they are suitable for frequent and fast start-ups, flexibility, and high-availability maintenance techniques.
- 2.2.3 The main equipment in an OCGT is a Gas Turbine Generator, including the following components:
- Gas turbine generators;
  - Air inlet filter house;
  - Air inlet duct;
  - Exhaust diffuser;
  - Auxiliaries including:
    - Lube oil system;
    - Air dryers;
    - Fuel gas filter package;
    - Instrument air system; and
    - Compressor washing.
- 2.2.4 A stack with an exhaust silencer will also be part of the OCGT.
- 2.2.5 Air is compressed in the gas turbine 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 generator to produce electricity.
- 2.2.6 The waste gases and heat produced from this process will be released to the atmosphere via the stack.

- 2.2.7 A stack height sensitivity study has been undertaken for the Project which has determined that the minimum stack height for the Power Generation Plant, required for adequate dispersion of emissions and to meet legislative air quality targets is 32.5 m. The maximum stack height would be 35 m. Further information on this is provided in Chapter 6 of the PEIR.
- 2.2.8 In addition to the Gas Turbine Generator Units at the Generating Equipment Site, the following balance of plant and buildings will also be present and can be seen on Insert 2 below:
- Raw / Fire Water Tank: The fire water storage tank would be designed to comply with the relevant fire regulations and would be installed together with fire pumps, hose reels, fire hydrants and portable extinguishers;
  - Demineralised Water Tank: Required to store demineralised water for the Generating Equipment (used for e.g. blade washing);
  - Control Room / office / workshop Building: Required in order to monitor the plant operation and house plant controls;
  - Gatehouse: Needed to provide security and maintain a log of site attendance, deliveries etc.;
  - Electrical Transformer Compound: Required to connect the electrical infrastructure from the Generating Equipment to transformers before export to the NETS;
  - Natural Gas Receiving Station: Required to ensure that gas coming from the NTS feeds into the Generating Equipment Site at the right flow and pressure conditions;
  - Telemetry apparatus including electrical cabinets;
  - Fin-fan coolers to provide cooling to the Generating Equipment;
  - Emergency Generator: a small diesel-fired generator used to start up the plant independently of the NETS; and
  - Maintenance Compound: a small area of hard standing for use during maintenance procedures.



**Insert 1 – Schematic of OCGT plant**

## 2.3 Access Road

- 2.3.1 The Covanta RRF Project includes provision to upgrade this track further, to a tarmac road suitable for 594 traffic movements a day for the delivery of waste via HGV. Should this road be developed as part of the Covanta RRF Project prior to the development of this Project, it would be suitable to meet both the needs of the Project and the Covanta RRF Project. In this instance, there would be a requirement for a short section of new Access Road ('Short Access Road') of up to 1.4 km in length connecting the end of the Covanta RRF road to the Generating Equipment Site. References in this PEIR to the "Access Road" mean the up to 2.2 km access road referred to below and includes the Short Access Road. References to the "Short Access Road" refer only to the approximately 1.4 km length road that MPL would construct in the event that the Covanta scheme commenced ahead of the Project. The Short Access Road would be constructed from tarmac bordered by a concrete kerb. The tarmac surface would be 6 m wide allowing for two-way traffic. It is bordered on one side by a footway.
- 2.3.2 However, because it is not certain when the Covanta RRF Project will be implemented, the Applicant has also included the provision of a complete Access Road from Green Lane to the Power Generating Site within this Project. If the Covanta RRF Project is not built before construction commences for the Project, then the complete Access Road would be built. This complete 2.2 km long Access Road would be constructed from tarmac bordered by a concrete kerb. The tarmacked surface would be 6 m wide allowing for two-way traffic. It would be bordered in part on one side by a footway where there is no existing footpath.
- 2.3.3 The route of the Access Road from Green Lane would follow the alignment of the access road proposed within the LLRS and Covanta RRF Project along the

existing access track which borders Rookery North Pit. On reaching Rookery South Pit, the Access Road (as would also be the case for the Covanta RRF Project's access road) would use the access ramp (built to agricultural standard as part of the LLRS as described below) to enter into the pit and cross through the base of the pit until it reaches the Generating Equipment Site.

- 2.3.4 Should the Access Road for the Project be constructed first, it would not prevent the Covanta RRF Project or other developments from progressing at a later date, although it may mean that the Access Road would be upgraded as part of the other scheme(s). The upgrade of the Access Road would be the responsibility of Covanta in the event that the permission for that scheme is implemented after any DCO for the Project.

## 2.4 Gas Connection

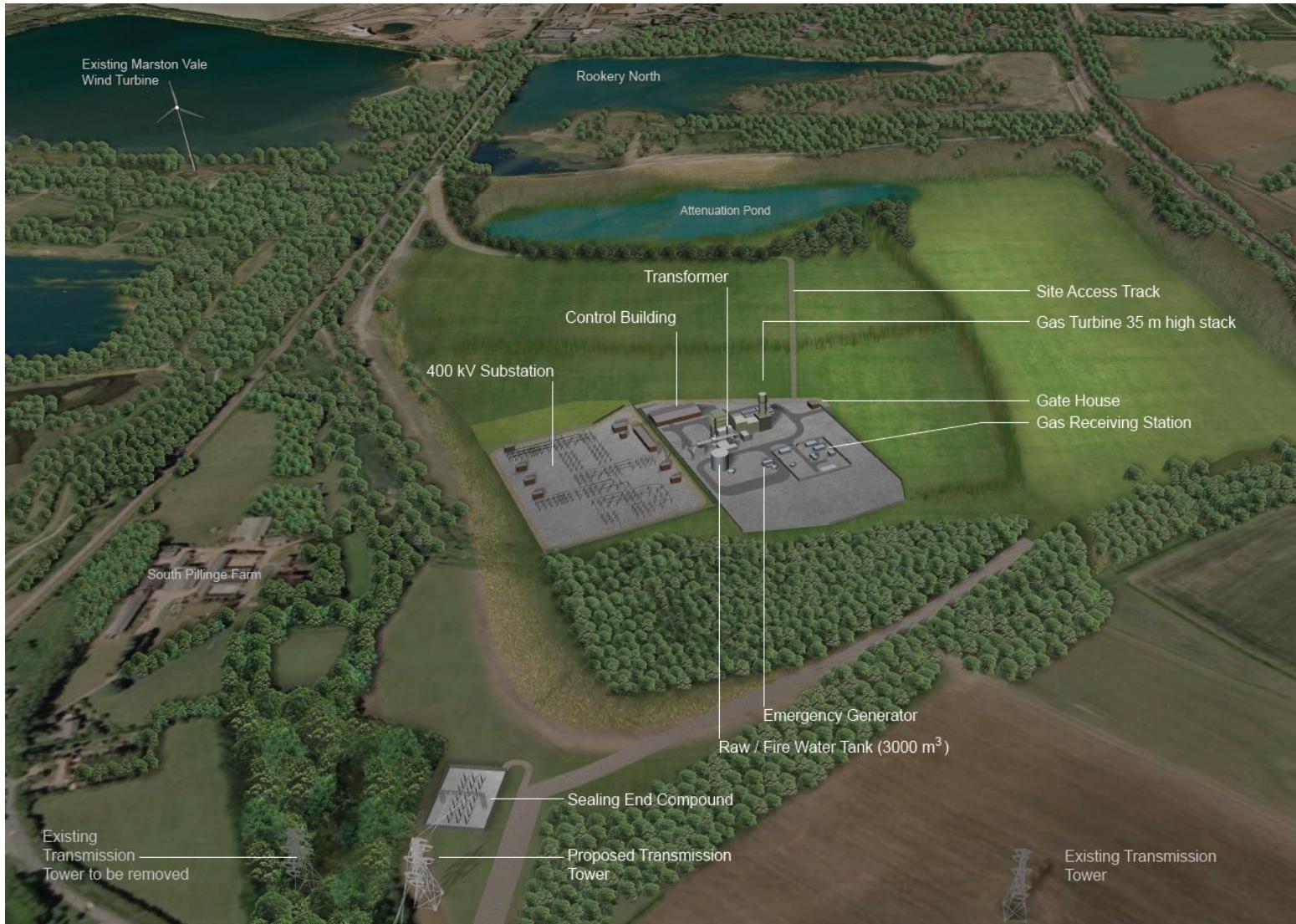
- 2.4.1 A new underground gas pipeline is required to connect the Generating Equipment to the existing NTS to provide a reliable supply of fuel. Connection to the NTS would require two above ground facilities to be installed, a minimum offtake connection facility (containing monitoring and control equipment), which would be owned by National Grid Gas, and a Pipeline Inspection Gauge launching facility (required for maintenance operations on the Pipeline) which would be owned by MPL. Together these form the above ground installation (AGI).
- 2.4.2 The pipeline begins at the AGI, which would allow connection into the NTS Feeder 9, east of the Millbrook Proving Ground approximately 1.82 km south of the Generating Equipment Site. The Pipeline crosses a farm track which is connected to Lower Farm, NTS Feeder 9, a PROW, drainage ditches, Millbrook Road and then an oil pipeline. The route then turns down into Rookery South Pit before terminating at the gas receiving facility within the Generating Equipment Site.
- 2.4.3 Construction of the Gas Connection would likely take place within a 50 m wide strip of land along the Gas Connection, which would be increased or decreased in size, where required (for example, decreased adjacent to nature conservation areas). It is expected that the Pipeline will be constructed using standard open-cut cross-country pipeline construction techniques (i.e. a trench). Trenchless techniques (e.g. Drilling) may be used in some locations to reduce impacts on sensitive areas or public highways.

## 2.5 Electrical Connection

- 2.5.1 A new electrical connection would be required to allow electricity generated by the Generating Equipment to be exported to the NETS. The most suitable point of connection would be a new substation (located adjacent to the Generating Equipment within Rookery South Pit), which would connect into the existing National Grid 400 kV overhead line which runs from Sundon to Grendon. The 400 kV line is located approximately 320 m south west of the Rookery South Pit, as shown on Figure 1.2 of the PEIR.

2.5.2 The Electrical Connection could be delivered in one of two ways (these two options are both assessed in the topic chapters in this PEIR):

- The first option would involve one underground double circuit Tee-in. This would require one new tower (which will replace an existing tower and be located in the existing Grendon – Sundon transmission route corridor, thereby resulting in no net additional towers). This option would also require **two** SECs, one located on each side of the existing transmission line, and both circuits would then be connected via underground cables approximately 500 metres in length to a new substation (the 'Substation'). This is hereafter referred to as "Option 1".
  - The second option is similar to Option 1 and would involve an underground single circuit turn in (requiring two cable circuits, one into and one out of the substation). This would require one new tower (which will again replace an existing tower and be located in the existing Grendon – Sundon transmission route corridor, thereby resulting in no net additional towers). This option would also require **one** larger SEC, which could be located on either side of the existing transmission line, and both circuits would then be connected via underground cables approximately 500 metres in length to a new substation (the 'Substation'). This is hereafter referred to as "Option 2".
- 2.5.3 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 will 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 one temporary tower, being approximately up to 55 m high. The temporary works may also include the temporary erection of scaffolding over Station Lane.
- 2.5.4 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 five months.
- 2.5.5 Insert 2 below shows a 3D visualisation of an indicative layout of the Project (showing Electrical Connection Option 1).



**Insert 2 – Indicative 3D Visualisation of Project Site**

2.5.6 Power Generation Plant would be designed to have an operational life of approximately 25 years, after which time it will be decommissioned or re-powered depending on the nature of the electricity market and energy mix at the time. The Electrical Connection, AGI and respective cables and pipelines will be designed to be operational for the life of the Power Generation Plant. For the purposes of the EIA, it will be assumed that all these elements will be decommissioned at the end of the operational life of the Power Generation Plant, whenever that may be.

## 2.6 Alternatives

### Sites

2.6.1 The site selection process considered a range of factors, in accordance with Section 4.4 (Alternatives) of NPS EN-1 and Section 2.2 (Factors influencing site selection by developers) of NPS EN-2. This process included the following main phases, in order to identify a number of potential sites and refine this set of sites through increasingly detailed selection criteria:

- Identification of a large number of potential sites across the UK through existing data sources;
- Refinement of this set of sites, driven mainly by the need for electrical generation capacity to be located as closely as possible to the main sources of demand in the UK;
- Further refinement based on the layout of the electricity and gas transmission networks in the UK, to ensure proximity to these networks; and
- Assessment of the remaining sites based on technical, environmental and economic factors, as well as consideration of whether or not a proposed Project would be in accordance with local planning policy.

2.6.2 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 balance of plant.

### **Generating Equipment**

2.6.3 Other technology choices were considered for the Generating Equipment, including Combined Cycle Gas Turbine (CCGT) plant; Reciprocating Gas Engines (RGE) plant and CHP Plant. However, OCGT 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: OCGT plants require a shorter stack 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 OCGT plant is significantly lower than for CCGT plants;
- Noise and available space: noise levels from a OCGT 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: OCGT 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**

2.6.4 The Scoping Report for the Project<sup>1</sup> 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 refined this opportunity area such that there were two remaining Gas Connection options presented during the Phase 1 Statutory Consultation and presented in the 2014 PEIR.

2.6.5 These options were chosen as the most direct connections between the Generating Equipment Site and the NTS, avoiding obstructions such as roads, large changes in elevation, waterbodies and protected sites as much as possible.

2.6.6 Based on further refinement and feedback received during the Phase 1 Statutory Consultation, this has been narrowed down further to one option as

<sup>1</sup> Millbrook Power Project Environmental Impact Assessment Scoping Report – May 2014

shown on Figure 1.2 of the PEIR and described above in Section 2.4. This option was selected because it is shorter (and therefore less expensive and less damaging to agricultural land), it also avoids crossing the midland mainline railway line.

### **Electrical Connection**

- 2.6.7 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. Following publication of the Scoping Report, further studies were undertaken to refine the available options.
- 2.6.8 Based on these studies, it was 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 existed on the best way to connect the substation to the NETS. These included the use of an overhead line connection requiring new pylons.
- 2.6.9 Following further refinement studies and feedback received during Phase 1 Statutory Consultation, it has been determined that the most appropriate method of connecting into the NETS would be via underground cables and SECs, as described in Section 2.5 above.

## 3 Assessment Findings

### 3.1 Introduction

- 3.1.1 This section sets out, by topic area, a summary of the findings of the preliminary assessment of likely significant environmental effects of the Project. Further detail can be found in the PEIR topic chapters.
- 3.1.2 In accordance with Planning Act 2008 and the EIA Regulations, the EIA process for the Project incorporates the following (further detail is provided in Chapter 4 of the PEIR):
- Establishing, through consultation, the Scope of the EIA including obtaining a Scoping Opinion from the Secretary of State;
  - Consideration of any potential technical and environmental alternatives;
  - Establishing a comprehensive understanding of the existing baseline environmental conditions for the Project Site and the relevant study areas for each topic;
  - Identifying the likely significant environmental impacts resulting from the Project;
  - Determining how the likely significant environmental impacts can be avoided, reduced or off-set through informed design and / or further mitigation and how its benefits may be enhanced;
  - Assessing the significance of the likely significant environmental impacts in conjunction with other impacts arising from the Project and those from other neighbouring developments and / or sources (in-combination and cumulative impacts); and
  - Proposing options as to how any significant residual impacts will be mitigated, managed and monitored.
- 3.1.3 As part of the EIA for the Project, MPL requested a Scoping Opinion from the Secretary of State in June 2014, who then consulted bodies such as CBC, Natural England and the Environment Agency to agree the scope of the assessment. The formal Scoping Opinion was received in July 2014 and is included in Appendix 2.1 of the PEIR. Further consultation was subsequently undertaken based on the 2014 PEIR, which was issued in October 2014. This provided preliminary environmental information up to the point of the Phase 1 Statutory Consultation, based on the environmental surveys undertaken up to that point.
- 3.1.4 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, starting 2020;
- 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.

3.1.5 The following assumptions have been made prior to and in the carrying out of the 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 most similar projects 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 one Gas Turbine Generator will be built on the Generating Equipment Site, with a stack of up to 35 m in height. For air quality and ecology, a worst case scenario has been assessed assuming that one Gas Turbine Generator will be built on the Generating Equipment Site, with a stack up to 32.5 m in height. This is because a lower stack gives rise to potentially more significant emissions. Further detail is provided in Section 6.4 and 8.4 of the PEIR. Both Electrical Connection options have been assessed, as although Option 1 is considered to be a realistic worst case scenario as it includes one more SEC, the impacts and effects of both options is substantively the same given the very similar design of the connection options. All Chapters have assumed that the full length Access Road will be built out;
- 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 Generating Equipment would operate intermittently for up to 2,250 hours per year. This could be at any time during the year and for any

length of time up to but not exceeding 2,250 hours and not exceeding 1,500 hours on a five year rolling average;

- 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 in Paragraph 3.1.11 below; and
- Assessments are based on published sources of information and primary data collection.

- 3.1.6 The assessments consider the sensitivity of a receptor and the magnitude of impact on a receptor. The significance of the effect on the receptor is then determined. Further detail is provided in the methodology section for each environmental topic in the PEIR (Chapters 6 - 15). A brief summary is provided below.
- 3.1.7 The sensitivity of a receptor is categorised from very high (for example an internationally designated site such as a Special Area of Conservation), high (for example a nationally designated site such as a Site of Special Scientific Interest), medium (for example a regionally designated site), low (for example a locally designated nature conservation site) to negligible (no sensitivity to change). The magnitude of impact on a receptor is categorised from major, moderate, minor, negligible to no change. The significance of the effect is then determined following the method shown below:

**Table 1 – Determining Significance of Effect**

Receptor Sensitivity	Magnitude of Impact				
	No Change	Negligible	Minor	Moderate	Major
<b>Very High</b>	Neutral	Slight	Moderate	Large	Very Large
<b>High</b>	Neutral	Slight	Moderate	Large	Large
<b>Medium</b>	Neutral	Slight	Slight	Moderate	Large
<b>Low</b>	Neutral	Slight	Slight	Slight	Moderate
<b>Negligible</b>	Neutral	Neutral	Neutral	Neutral	Neutral

- 3.1.8 Unless otherwise stated, effects of moderate significance or above are considered to be significant for the purposes of the EIA Regulations.

3.1.9 The following topic chapters are covered by this assessment:

- Air Quality;
- Noise;
- Ecology;
- Water Quality and Resources;
- Ground Conditions;
- Landscape and Visual Impacts;
- Traffic and Transport;
- Historic Environment;
- Socio-economics; and
- Other topics considered, including waste and electromagnetic fields (EMF).

3.1.10 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.

3.1.11 The developments which have been included in the assessment of cumulative effects comprise:

- Covanta RRF Project to the north of the Generating Equipment Site - immediately adjacent to Generating Equipment Site;
- Integrated Waste Management Operations at Rookery South, Bedfordshire – immediately adjacent to Generating Equipment Site;
- Phase 2 of the East-West Rail Scheme, approximately 50 m west of the Electrical Connection;
- Land at Moretayne Farm at Wood End in Marston Moretaine proposed for residential properties – approximately 2 km west of the Project Site;
- Land at Warren Farm on Flitwick Road in Ampthill proposed for residential properties – approximately 3.5 km south of Gas Connection AGI;
- New settlement at Wixams (under construction) – approximately 5km north east of closest point of Access Road;

- Land off Marston Road, Lidlington – proposed residential development of 31 dwellings - approximately 2km west of Electrical Connection;
- Land opposite The Lane & Lombard Street, East of Marston Road, Lidlington – proposed residential development of 40 dwellings approximately 2km west of Electrical Connection;
- Lower Shelton Road, Marston Moretaine - proposed residential development of 15 dwellings approximately 4km north of Access Road;
- Land to the rear of Cowlgrove Parade, Steppingley Road, Flitwick – Multi-storey car park to provide 232 parking spaces – approximately 4km south of Gas Connection;
- Land East of Ampthill Road and North of Bedford Road, Houghton Conquest - proposed mixed use development including 650 dwellings approximately 4km north-east of Generating Facility;
- Land off Chapel End Road, Houghton Conquest – proposed residential development of 125 dwellings approximately 4km north-east of Generating Facility; and
- Land South of Fields Road and East of Cranfield Road, Wootton – proposed residential development of 600 dwellings – approximately 5km north of Access Road.

3.1.12 This list has been agreed with CBC as part of pre-application consultation.

3.1.13 As part of the initial scoping of the EIA it was determined that certain topics are more likely to give rise to likely significant cumulative effects than others, based on the nature of the Project and surrounding development proposals. Therefore, certain topic assessments have focused specifically on quantitative potential cumulative effects and interactions. These topics are air quality, noise and traffic and transport.

## **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 and particulate matter 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 has been carried out to assess any potential air quality effects resulting from the Project on identified human receptors within 10 km of the Project Site and ecological receptors within 2 km of the Project Site. These include properties at South Pillinge Farm, in Stewartby and at Houghton Conquest. The preliminary assessment for this topic is provided in Chapter 6 of the PEIR. A brief summary is provided below.

## Baseline

- 3.2.3 The nearest Air Quality Management Area (AQMA) to the Project Site is within Ampthill, approximately 4 km south of the Project Site. This is a specially designated area where national air quality objectives designed to protect human health are not being met or are in danger of not being met.
- 3.2.4 Monitored concentrations of pollutants within the 10 km study area are presented in Section 6.6 of the PEIR. However, no exceedances of air quality objectives have been identified within the study area.

## Construction and Decommissioning

- 3.2.5 The main potential effects resulting from construction and decommissioning of the Project on air quality are from dust and particulate matter generated from construction activities (e.g. excavation for new foundations, stockpiling, materials transport, excavation of the gas pipeline route and excavation for the electrical cable and SECs). There is also a small potential for effects arising from exhaust emissions from construction traffic. Potential receptors are human receptors and ecological sites.
- 3.2.6 Despite this, it is considered unlikely that levels of dust or particulate matter would be generated which would constitute a health hazard or nuisance to human or ecological receptors in the vicinity of the Project Site. Although the potential for dust generation through construction of the Project is large (given the scale of the Project Site) when taken into consideration alongside the low sensitivity of the study area (agricultural land, with scattered small scale residential development and the potential for bare soils during normal use) as well as the fact that the LLRS works will be responsible for the majority of site preparation, together with the nature of the Gas Turbine Generator which is such that it is largely pre-fabricated, means that risks of dust generation and deposition are low.
- 3.2.7 The limited numbers of vehicle movements associated with the Project also means that there are not anticipated to be any impacts from exhaust emissions and in accordance with best practice guidance, these potential impacts were scoped out of the assessment.
- 3.2.8 Impacts would be minimised through implementation of a 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, there are expected to be no likely significant effects during construction and decommissioning on human and ecological receptors.

## Operation

- 3.2.9 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 which have the potential to cause impacts on human or ecological receptors are limited to Nitrous Oxides ( $\text{NO}_x$ ), which can increase ground level concentrations of nitrogen dioxide ( $\text{NO}_2$ ) which could impact human receptors or lead to nitrogen and acid deposition which could impact sensitive ecological habitats.

3.2.10 However, modern gas fired power plants are inherently clean and produce far lower emissions than other fossil fuel power plants (e.g. coal) when compared on an energy output basis. Emissions of  $\text{NO}_x$  are strictly limited under national and international guidelines such as the Industrial Emissions Directive (IED). 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.

3.2.11 Air quality modelling has shown that an appropriate stack height which will achieve adequate dispersion of  $\text{NO}_x$  to meet legislative limits and prevent any likely significant effects to identified receptors is between 32.5 m and 35 m. It is concluded that there are expected to be no likely significant effects during operation of the Generating Equipment on human or ecological receptors.

3.2.12 In terms of the Gas Connection and Electrical Connection, they will not directly generate any emissions during operation. Only very infrequent maintenance visits will take place, generating very few traffic movements. There is therefore considered to be a negligible effect on air quality from operation of the Gas Connection or Electrical Connection or from traffic emissions and these have been scoped out of the assessment.

### Cumulative Effects

3.2.13 The construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11. However, most of the proposed developments are greater than 2 km from the Project Site and outside of the study area for this topic within which potentially significant effects could occur. As such it is considered that no cumulative effects are likely to arise in relation to these projects in respect of air quality.

3.2.14 The only projects listed in Paragraph 3.1.11 which are considered relevant to the cumulative effects assessment for air quality are the Integrated Waste Management Facilities proposed at Rookery South Pit and the Covanta RRF Project at Rookery South Pit.

3.2.15 The proposed Integrated Waste Management Facilities development is at an early stage and very little information is available regarding potential impacts on air quality as a result of this project. Should it go ahead it will have to consider the Project to ensure that no significant cumulative impacts will arise between it and the Project. As such, any mitigation that is needed in future in relation to cumulative effects as between this scheme and the Project would be assessed as part of (and could be secured through) the permission process for the proposed Integrated Waste Management Facilities development.

- 3.2.16 The ES for the Covanta RRF Project concluded that although there were potential impacts arising from air quality during construction or decommissioning, the implementation of embedded mitigation measures such as adhering to a CEMP would negate any effects on air quality.
- 3.2.17 The proposed Covanta RRF project to the north of the Generating Equipment Site will release both oxides of nitrogen and carbon monoxide from the combustion process. However, the exhaust stack for the Covanta RRF will be much higher than the stack for the Project (105 m compared to 35 m) and therefore the location of maximum ground level concentrations will be different from those associated with the Project.
- 3.2.18 Modelling has been undertaken of the emissions from the Covanta RRF and the Generating Equipment together and the results are contained in Appendix 6.1 of this PEIR. There are no predicted exceedances of the assessment levels for human health impacts for the two plants operating together and therefore the cumulative effect is expected to be negligible and not significant.
- 3.2.19 It is considered that, based on professional judgement, with the implementation of the embedded mitigation described in the PEIR, along with the embedded mitigation in the Covanta RRF Project, no likely significant cumulative effects will arise as between the Project, the Covanta RRF Project and the other developments referred to in Paragraph 3.1.11.

### **Conclusions / Residual Impacts**

- 3.2.20 No likely significant effects are anticipated on air quality, human or ecological receptors as a result of the construction, operation or decommissioning of the Project either cumulatively with other projects proposed in the vicinity or in isolation.

## **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 (e.g. residential properties) in the vicinity of the Project Site.
- 3.3.2 A noise survey and noise modelling have been undertaken at the nearest noise sensitive receptors to assess the potential noise effects that may be caused by the Project. The preliminary assessment for this topic is provided in Chapter 7 of the PEIR. A brief summary is provided below.

### **Baseline**

- 3.3.3 The baseline noise climate in the area of the Project Site is largely dominated by distant road traffic / railway traffic / farm traffic and animal noise. Construction works associated with the LLRS are also ongoing which currently contribute to the background noise climate.

3.3.4 Background noise measurements were made at two residential properties deemed to be Noise Sensitive Receptors in the vicinity of the Project Site in order to determine the existing baseline noise climate (refer to the PEIR for further information). One of these locations was concentrated on the Power Generation Plant Site and Electrical Connection and one was the closest residential property to the Gas Connection AGI. These locations were agreed in consultation with CBC and are shown in Figure 7.1 of the PEIR.

### **Construction and Decommissioning**

3.3.5 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 trenches to lay the Gas Connection and Electrical 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 across the Project Site, the significance of the overall effect of construction and decommissioning noise from the Project is predicted to be neutral for the Power Generation Plant, slight adverse for the Electrical Connection and slight adverse for the Gas Connection (and therefore not significant).

3.3.6 For the project as a whole, the effect is predicted to be slight adverse (and therefore not significant) at all receptor locations following the implementation of embedded mitigation measures, including the implementation of a CEMP, which will include (but is not limited to) the following measures:

- All construction activities would be undertaken in accordance with the recommendations of BS 5228 'Noise and Vibration Control on Construction and Open Sites' Part 1 Noise and Part 2 Vibration;
- Only plant conforming with relevant national or international standards, directives or recommendations on noise or vibrations emissions would be used;
- Construction plant will be operated and maintained appropriately, having regard to the manufacturer's written recommendations or using other appropriate operation and maintenance programmes which reduce noise and vibration emissions; and
- All ancillary plant such as generators, compressors and pumps would be positioned so as to cause minimum noise disturbance (e.g. as far away as practicable from sensitive receptors). If necessary, temporary acoustic barriers or enclosures would be provided.

3.3.7 It is considered that there would be no likely significant effects from noise generated by construction traffic using existing local roads given that the increase in traffic flow during construction would not be significant.

- 3.3.8 Given the distances involved between the Project Site and sensitive receptors (over 90m away), any vibration impact (e.g. from piling activities) has been scoped out of further assessment.

### Operation

- 3.3.9 During operation, noise disturbance could potentially occur from the rotating components of the Generating Equipment (e.g. the Gas Turbine Generator unit and cooling equipment) 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 and has therefore not been assessed in detail.
- 3.3.10 In order to predict operational noise, background noise measurements taken at the nearest sensitive residential receptors was modelled alongside noise levels predicted for typical Generating Equipment similar to that expected for the Project.
- 3.3.11 Calculations indicated that without mitigation noise levels at South Pillinge Farm could be considered to be significant. However, this is a preliminary assessment which has not explored detailed mitigation options. Mitigation measures will be explored further as part of the ES with respect to reducing the impact at the nearest noise sensitive receptors to an acceptable level. The environmental statement will report on all residual effects from noise after mitigation has been applied.
- 3.3.12 During operation, there will be small amounts of noise generated by the 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.
- 3.3.13 This noise is rarely perceptible except when in very close proximity to the AGI. Given that the closest residential property is over 100 m away, it is considered that the operational noise from the Gas Connection would be neutral. Operational noise from the Gas Connection and AGI was scoped out of further assessment due to this.
- 3.3.14 No impacts are anticipated from operation of the Electrical Connection, given the typically imperceptible noise levels generated from an underground electrical cable. Operational noise from the Electrical Connection has therefore not been modelled as, although there will be a low level electrical hum produced at the substation this will not be perceptible at the Noise Sensitive Receptors.

### Cumulative Effects

- 3.3.15 The construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11. However, most of the proposed developments are greater than 2 km from the Project Site and outside of the study area for this topic within which potentially significant effects could occur. As such it is considered that no

cumulative effects are likely to arise in relation to these projects in respect of noise and vibration during construction, decommissioning or operation.

3.3.16 The only projects listed in Paragraph 3.1.11 which are considered relevant to the cumulative effects assessment for noise and vibration are the Integrated Waste Management Facilities proposed at Rookery South Pit and the Covanta RRF Project at Rookery South Pit.

3.3.17 The proposed Integrated Waste Management Facilities development is at an early stage and very little information is available regarding potential impacts on noise and vibration as a result of this project. Should it go ahead it will have to consider the Project to ensure that no significant cumulative impacts will arise between it and the Project. As such, any mitigation that is needed in future in relation to cumulative effects as between this scheme and the Project would be assessed as part of (and could be secured through) the permission process for the proposed Integrated Waste Management Facilities development.

3.3.18 A cumulative noise assessment has been undertaken with the Project and the Covanta RRF project for construction and operation, assuming that the construction and operational phases of the projects would occur simultaneously. The results of the modelling are presented in Chapter 7 of the PEIR. It is considered that provided the noise limits detailed within the PEIR are achieved no likely significant effects are likely to arise.

### **Conclusions / Residual Effects**

3.3.19 Provided that the limits identified in the PEIR are met no likely significant effects are anticipated from noise as a result of the construction, operation and maintenance or decommissioning of the Project. Based on the Preliminary assessments undertaken, mitigation measures are likely to be required which will be fully explored in the ES.

## **3.4 Ecology**

### **Introduction**

3.4.1 The construction, operation and decommissioning of the Project have the potential to affect ecological receptors (e.g. flora and fauna). The Project also has the potential to provide ecological value, for example, through the introduction of screen planting, which could provide additional habitat for some species. The preliminary assessment for this topic is provided in Chapter 8 of the PEIR. A brief summary is provided below.

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 “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. 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.

3.4.5 The study area is 10 km from the Project Site for European and nationally designated sites, 2 km for local/non-statutory designated sites and up to 1 km for desk study records of protected and notable species (extended to 10 km from the Project Site for bat species). Field surveys were undertaken in individually defined survey areas.

### **Baseline**

3.4.6 Baseline conditions at the Generating Equipment Site comprise the Rookery South Clay Pit which forms part of the Rookery Clay Pit CWS. Part of the Access Road is located adjacent to Rookery North Pit (also a former clay pit which has been flooded). The Gas and Electrical Connections are mainly located within agricultural land interspersed with ditches, hedgerows and woodland.

3.4.7 The Extended Phase 1 surveys undertaken in both 2014 and 2017 confirmed that the base of the south western corner of Rookery South Pit presently comprises sparsely vegetated ground, swamp vegetation (including drying reedbeds) and bare ground.

3.4.8 Desk studies identified that there are no Special Areas of Conservation (SACs), Special Protection Areas (SPAs) or Ramsar sites within 10 km of the Project Site.

3.4.9 There are two SSSIs within 2 km of the Power Generation Plant Site, the nearest of which (Coopers Hill SSSI) is approximately 1.4 km to the south east.

3.4.10 Part of the Project is within the Rookery Clay Pit CWS is within the Project Site and comprises Rookery North Pit and Rookery South Pit.

3.4.11 A further 11 non-statutory designated sites are present within 2 km of the Project Site. These include the large water bodies that dominate the base of the Marston Vale as well as woodland and grassland sites which are present both in the base and on the sides of the Marston Vale.

3.4.12 The grid references and principal reasons for designation of these sites are set out in Appendix 8.1 of the PEIR.

3.4.13 At the time that the Project is constructed, it is assumed that all great crested newts and reptiles will have been removed from the base of the Rookery South Pit and surrounding area as part of the translocation operation which has recently been completed. In addition, the LLRS re-profiling works will replace any terrestrial habitat currently suitable for great crested newts, reptiles, breeding birds and/or invertebrates within Rookery South Pit with clay, rendering it of negligible nature conservation value for these species.

### **Construction and Decommissioning**

3.4.14 The potential effects on ecological receptors during the construction and decommissioning phases are likely to be from indirect noise, vibration and lighting, as well as direct disturbance of habitats or indirect impacts from pollution (e.g. silt entering watercourses). The impacts could lead to effects on habitats and species within and adjacent to the Project Site.

3.4.15 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 of negligible ecological value. Furthermore, the areas where the Gas Connection and Electrical Connection would be located have been found to be of limited ecological value due to intensive agricultural practices on the land.

3.4.16 Furthermore, mitigation measures would be put in place to further limit potential impacts to ecology, including the careful timing of vegetation removal and maintaining an appropriate buffer around sensitive ecological sites during construction works. Compensatory planting and ponds would also be created as part of the Landscape and Ecology Mitigation and Management Strategy (LEMMS) for the Project (see Appendix 11.3 of the PEIR). Therefore, no likely significant effects are predicted as a result of construction or decommissioning of the Project.

### **Operation**

3.4.17 During operation, the main potential effects on ecological receptors are likely to result from stack emissions impacting on sensitive ecological sites. An increase in nitrogen deposition can cause a change in plant communities. An increase in acid deposition above the critical load can cause a decrease in soil base saturation and may cause toxicity to plants.

3.4.18 However, air quality modelling (see Section 3.2 of this PEIR NTS and Chapter 6 of the PEIR) has shown that setting the stack height at between 32.5 m and 35 m will not result in any impacts to sensitive ecological sites. Therefore, no likely significant effects are predicted from operation of the Project on ecological receptors on the basis that the stack will be a minimum of 32.5 m in height.

## Cumulative Effects

- 3.4.19 The construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11. However, most of the proposed developments are greater than 2 km from the Project Site and outside of the 2 km study area for this topic within which potentially significant effects could occur. As such it is considered that no cumulative effects are likely to arise in relation to these projects in respect of ecology during construction, decommissioning or operation.
- 3.4.20 The only projects listed in Paragraph 3.1.11 which are considered relevant to the cumulative effects assessment for ecology are the Integrated Waste Management Facilities proposed at Rookery South Pit and the Covanta RRF Project at Rookery South Pit.
- 3.4.21 The proposed Integrated Waste Management Facilities development is at an early stage and very little information is available regarding potential impacts on ecology as a result of this project. Should it go ahead it will have to consider the Project to ensure that no significant cumulative impacts will arise between it and the Project. As such, any mitigation that is needed in future in relation to cumulative effects as between this scheme and the Project would be assessed as part of (and could be secured through) the permission process for the proposed Integrated Waste Management Facilities development.
- 3.4.22 The ES for the Covanta RRF Project concluded that there were no potential impacts likely significant effects arising from construction, operation or decommissioning of the project on ecology.
- 3.4.23 The Landscape Strategy associated with the Covanta RRF has been taken into account when designing the preliminary LEMMS in Appendix 11.3 of the PEIR. All areas of planting and habitat creation proposed associated with the Covanta Scheme has been taken into account in the context of the Strategy and will not be disturbed by the Project. This will ensure that the biodiversity enhancements proposed associated with the Covanta Scheme can still be delivered.
- 3.4.24 Modelling has been undertaken of the emissions from the Covanta RRF and the Generating Equipment together and the results are contained in Appendix 6.1 of the PEIR.
- 3.4.25 For the ecological features, all but one of the predicted annual mean oxides of nitrogen process contributions is insignificant, i.e. above 1% of the assessment level when the plants are operating simultaneously. In one case, (at Rookery Clay Pit CWS) there is a minor breach in annual mean oxides of nitrogen process contributions, at 1.7% of the assessment level. However, when combined with the background concentrations, no breaches of the critical level are predicted to occur and therefore the significance of effect is minor and not significant. The predicted daily mean oxides of nitrogen concentrations are not significant in EIA terms, and when added to the background concentrations, no breaches of the daily mean critical level are predicted to occur.

3.4.26 It is considered that, based on professional judgement, with the implementation of mitigation described in the PEIR along with mitigation in the Covanta RRF Project, no likely significant cumulative effects will arise as between the Project, the Covanta RRF Project and the other developments referred to in Paragraph 3.1.11.

### **Conclusions / Residual Effects**

3.4.27 Based on the assessment, no likely significant effects are anticipated on ecological receptors as a result of the construction, operation or decommissioning of the Project either cumulatively with other projects proposed in the vicinity or in isolation.

## **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, or to cause flooding elsewhere.

3.5.2 It is however noted here that the Power Generation Plant would utilise air cooling, substantially reducing the need for water during operation.

3.5.3 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 fully assessed by undertaking a detailed Flood Risk Assessment including hydraulic modelling (Appendix 9.1 of the PEIR). The preliminary assessment for this topic is provided in Chapter 9 of the PEIR. A brief summary is provided below.

### **Baseline**

3.5.4 The Mill Brook flows to the north, close to the western boundary of Rookery South Pit, and drains a predominantly rural catchment of approximately 4.5 km<sup>2</sup>. It passes through a culvert beneath the Marston Vale Railway Line and ultimately outfalls to Stewartby Lake a further 400 m downstream. A tributary watercourse draining a catchment of 1.5 km<sup>2</sup> joins the Mill Brook to the east of South Pillinge Farm. These watercourses are shown in Figure 9.1 of the PEIR.

### **Construction and Decommissioning**

3.5.5 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.

- 3.5.6 However, there are not anticipated to be any effects on the water bodies identified (see Figure 9.1 of the PEIR) 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. These mitigation measures will be contained within the CEMP. The Gas Connection will need to cross two minor watercourses (drainage ditches). 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).
- 3.5.7 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. Therefore, no likely significant effects are predicted as a result of construction or decommissioning of the Project.

## Operation

- 3.5.8 During operation, the Power Generation Plant Site would be equipped with a surface water drainage system (which would tie into the drainage system developed as part of the LLRS) and a sewerage system which would feed to a septic tank, with waste tankered off site. The surface water drainage system would remove any potentially polluted runoff through the use of oil interceptors and silt traps, prior to discharge into an attenuation pond created as part of the LLRS.
- 3.5.9 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 Generator), 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.
- 3.5.10 Any water generated during washing of turbine blades will be retained on the Power Generation Plant Site in a storage tank and subsequently tankered off-site by a licensed contractor.
- 3.5.11 The Project will lead to an increase in the amount of runoff from within the Power Generation Plant Site boundary due to the increase in hardstanding. However, 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 9.6 of the PEIR.
- 3.5.12 Neither the Gas Connection nor Electrical Connection will require water during operation, nor will they have any impact on flooding or run off rates. It is

anticipated that soakaway drains will surround the AGI and SECs which will effectively manage increased surface water runoff from an increased amount of hardstanding.

3.5.13 It is predicted that there will be no likely significant effects on water quality and resources during operation of the Project.

### **Cumulative Effects**

3.5.14 The construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11. However, most of the proposed developments are greater than 2 km from the Project Site and outside of the study area for this topic within which potentially significant effects could occur (1 km). As such it is considered that no cumulative effects are likely to arise in relation to these projects in respect of water quality and resources during construction, decommissioning or operation.

3.5.15 The only projects listed in Paragraph 3.1.11 which are considered relevant to the cumulative effects assessment for water quality and resources are the Integrated Waste Management Facilities proposed at Rookery South Pit and the Covanta RRF Project at Rookery South Pit.

3.5.16 The proposed Integrated Waste Management Facilities development is at an early stage and very little information is available regarding potential impacts on water quality and resources as a result of this project. Should it go ahead it will have to consider the Project to ensure that no significant cumulative impacts will arise between it and the Project. As such, any mitigation that is needed in future in relation to cumulative effects as between this scheme and the Project would be assessed as part of (and could be secured through) the permission process for the proposed Integrated Waste Management Facilities development.

3.5.17 The ES for the Covanta RRF Project concluded that there were no potential impacts arising from construction, operation or decommissioning of the project on water quality and resources.

3.5.18 It is considered that, based on professional judgement, with the implementation of the embedded mitigation described in the PEIR along with the embedded mitigation in the Covanta RRF Project, no likely significant cumulative effects will arise between the Project, the Covanta RRF Project and the other developments referred to in Paragraph 3.1.11 in respect of water quality and resources.

### **Conclusions / Residual Effects**

3.5.19 Based on the assessment, no likely significant effects are anticipated on water quality and resources or from flooding as a result of the construction, operation or decommissioning of the Project either cumulatively with other projects proposed in the vicinity or in isolation.

## 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 agricultural land or from contamination (existing or created) impacting on human health and other sensitive receptors.
- 3.6.2 A 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. Groundwater monitoring was also undertaken to establish groundwater quality in the study area (1 km from Project Site) and previous site investigations were also studied to assess ground conditions. The preliminary assessment for this topic is provided in Chapter 10 of the PEIR. A brief summary is provided below.

### Baseline

- 3.6.3 Baseline conditions at the Power Generation Plant Site comprise the Rookery South former clay extraction pit. The Gas and Electrical Connections are mainly located within agricultural land interspersed with ditches, hedgerows and woodland.
- 3.6.4 The geological sequence underlying the Project Site broadly comprises the oxford formation overlying Kellaways sand and clays which overlie Blisworth clay and limestone. There are no significant groundwater bodies underlying the Project Site.

### Construction and Decommissioning

- 3.6.5 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;
  - Unstable slopes associated with deep excavations or cuttings into the sides of Rookery South Pit;
  - Uplift from high groundwater levels; and
  - Creation of pollution incidents from e.g. spillages.
- 3.6.6 Further information is provided in Section 10.6 of the PEIR.
- 3.6.7 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 there are expected to be no likely significant effects. Furthermore, given the historical extraction of clay undertaken in the Power Generation Plant Site there is no important geology (e.g. designated geological sites or minerals) or soils (e.g. fertile agricultural land) underlying the Power Generation Plant Site which could be affected or lost during construction.

- 3.6.8 Construction of the Gas Connection and Electrical Connection will result in the loss of a small amount of agricultural land. However, this will be a relatively narrow corridor and most effects would be temporary as the land would be reinstated. The area for the SECs and the AGI would be affected long term (for the lifetime of the Project) although these are small areas. Additionally, the land is of moderate quality. There is therefore considered to be a slight adverse effect from the loss of agricultural land which is not significant. Therefore, no likely significant effects are predicted as a result of construction or decommissioning of the Project.

### **Operation**

- 3.6.9 High groundwater levels may have the potential to result in ground heave in the base of buried structures (e.g. foundations) associated with the Generating Equipment which could result in the potential for uncontrolled release of groundwaters. However, given the placement of engineered low permeability fill across the base of the Rookery South Pit as part of the LLRS, widespread heave is not expected to occur. However, this cannot be confirmed until further ground investigations have been undertaken (as described in Section 10.9 of the PEIR) and therefore a precautionary approach has been taken to the assessment.

- 3.6.10 These further assessments will form part of the additional mitigation measures required and will include Phase 2 investigations to confirm findings of Phase 1 studies to date, along with the determination of an appropriate foundation solution and a subsequent reappraisal of risk. These measures will be secured as DCO Requirements. There are not expected to be any likely significant effects following the implementation of these additional mitigation measures.

### **Cumulative Effects**

- 3.6.11 The construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11. However, most of the proposed developments are greater than 2 km from the Project Site and outside of the study area for this topic within which potentially significant effects could occur (1 km). As such it is considered that no cumulative effects are likely to arise in relation to these projects in respect of ground conditions during construction, decommissioning or operation.

- 3.6.12 The only projects listed in Paragraph 3.1.11 which are considered relevant to the cumulative effects assessment for ground conditions are the Integrated

Waste Management Facilities proposed at Rookery South Pit and the Covanta RRF Project at Rookery South Pit.

- 3.6.13 The proposed Integrated Waste Management Facilities development is at an early stage and very little information is available regarding potential impacts on ground conditions as a result of this project. Should it go ahead it will have to consider the Project to ensure that no significant cumulative impacts will arise between it and the Project. As such, any mitigation that is needed in future in relation to cumulative effects as between this scheme and the Project would be assessed as part of (and could be secured through) the permission process for the proposed Integrated Waste Management Facilities development.
- 3.6.14 The ES for the Covanta RRF Project concluded that there were no potential impacts arising from construction, operation or decommissioning of the project on ground conditions.
- 3.6.15 It is considered that, based on professional judgement, with the implementation of the embedded mitigation described in the PEIR along with the embedded mitigation in the Covanta RRF Project, no likely significant cumulative effects will arise as between the Project, the Covanta RRF Project and the other developments referred to in Paragraph 3.1.11 in respect of ground conditions.

### **Conclusions / Residual Effects**

- 3.6.16 Based on the assessment, no likely significant effects are anticipated on ground conditions as a result of construction, operation or decommissioning of the Project either cumulatively with other projects proposed in the vicinity or in isolation.

## **3.7 Landscape and Visual Impacts**

### **Introduction**

- 3.7.1 The Project has the potential to affect the landscape and people's views and visual amenity due to the processes involved in construction (e.g. ground clearance, use of large plant), operation from the introduction of new large structures into the landscape (e.g. the stack of the Generating Equipment and SECs associated with the Electrical Connection) and decommissioning (e.g. dismantling structures, restoring land).
- 3.7.2 A desk based assessment and site visits 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 character areas, landscape designations (such as registered parks and gardens and conservation areas), public rights of way, residential settlements and infrastructure.
- 3.7.3 Photographs were taken from a range of representative viewpoints in order to produce photographic models (photomontages) showing how the Project would look in the landscape. Key viewpoints were agreed with consultees and include, amongst others, residential areas, public rights of way and historic monuments.

All the viewpoints are from publicly accessible locations. The preliminary assessment for this topic is provided in Chapter 11 of the PEIR. A brief summary is provided below.

### Baseline

- 3.7.4 Baseline conditions at the Generating Equipment Site comprise the Rookery South Pit which forms part of the Rookery Clay Pit CWS. The Access Road is located adjacent to Rookery North Pit (also a former clay pit which has been flooded). The Gas and Electrical Connections are mainly located within agricultural land interspersed with ditches, hedgerows and woodland.
- 3.7.5 Most of the Project Site lies within National Character Area 88: Bedfordshire and Cambridgeshire Claylands but the southern part of the Project Site is within National Character Area 90: Bedfordshire and Greensand Ridge.
- 3.7.6 There are a number of footpaths surrounding the Project Site, as well as several small groups of residential properties. Key sensitive visual receptors include Houghton House and Ampthill Park House.

### Construction and Decommissioning

- 3.7.7 The main potential sources of landscape and visual effects during construction of the Project are earthworks, site clearance works, removal of vegetation (in the case of the Gas Connection and Electrical Connection), presence of construction traffic, the presence of construction site lighting and the temporary diversion of footpaths. Given the limited construction period (22 months) and the relatively modest construction operations, these effects are considered to be not significant in the majority of cases.
- 3.7.8 However, from several distant and medium distance viewpoints and a small number of local viewpoints to the south and south-east, significant visual effects are anticipated.
- 3.7.9 These are from:
- From St. Katherines Cross, Ampthill;
  - Cottages near to Houghton House;
  - Footpath on the outskirts of Ampthill;
  - Public Footpath near Ampthill Park House;
  - Marston Vale Forest Centre including the approach track;
  - Marston Vale Millennium Country Park;
  - Footpath within the Country Park near the railway; and

- Footpath 7, near to Vehicle Proving Ground, to the south of the Generating Equipment Site.

3.7.10 There will be also significant landscape effects on public rights of way and woodlands, trees and hedgerows during construction as footpaths will be temporarily diverted and there will be some loss of vegetation.

3.7.11 However, these effects will be temporary.

### **Operation**

3.7.12 During operation, effects on landscape and visual amenity will result from the introduction of permanent structures, particularly the stack of the Generating Equipment, which will be the largest structure on the Power Generation Plant Site.

3.7.13 However, the Project will be largely screened from views as 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.

3.7.14 The stack of the Generating Equipment will be visible in some views from the south and south-east, particularly along the Greensand Ridge and from Footpath 7. However, the only significant visual effects during the operational phase will be the local viewpoints due to their proximity to the Project.

3.7.15 By year 15 all but one of these effects will have reduced to not significant as the new woodland belts and hedgerows mature to provide effective mitigation.

3.7.16 Most of the significant landscape effects on public rights of way and woodlands, trees and hedgerows during the construction period will have reduced to not significant during operation. By year 15 these will have become significant benefits with the maturing of new woodland areas and hedgerows.

### **Cumulative Effects**

3.7.17 Construction, operation or decommissioning of the Project could occur simultaneously with other projects in the vicinity of the Project Site. However, the assessment has shown that in the majority of cases there will be no significant effects on landscape or visual amenity arising from the Project during construction, operation or decommissioning alongside other planned developments.

3.7.18 However, significant effects are predicted in views from the south, particularly Footpath 7, and in views from the south-east. Should construction of other developments occur simultaneously, then a significant cumulative effect may arise. However, the implementation of appropriate mitigation will limit these effects. Furthermore, other developments would also be required to mitigate any construction effects, such as through screen planting or use of hoardings.

3.7.19 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 Project.

## Conclusions

3.7.20 Based on the assessment, most of the predicted significant landscape and visual effects will occur during the construction period. Few significant effects persist into the operational period and some significant benefits are predicted with the maturing of new woodlands and hedgerows.

## 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 A desk based assessment and on-site traffic count 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 The preliminary assessment for this topic is provided in Chapter 12 of the PEIR. A brief summary is provided below.

### Baseline

3.8.4 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.

3.8.5 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") (should the Covanta RRF project not be constructed prior to the Project). 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 (as would also be the case for the Covanta RRF Project's access road) would use the access ramp (built to agricultural standard as part of the LLRS) to enter into the pit and cross through the base of the pit until it reaches the Generating Equipment Site. It is proposed that the 2.2 km long Access Road would be bitumen construction formed with kerbs and footway where needed, and would be approximately 6 m wide allowing for two-way traffic.

- 3.8.6 Should the Covanta RRF project be constructed ahead of the Project, their access road would be suitable for use for the Project together with the Covanta RRF project. However, MPL would also construct the 'Short Access Road' from the Covanta RRF project site to the Generating Equipment Site, Gas Connection and Electrical Connection.
- 3.8.7 Two access routes will be used with regard to access for the Gas Connection, depending on which part of the Gas Connection is being accessed. These access routes are shown on Figure 12.2 of the PEIR, and are as follows:
- through the Rookery South Pit, from the Power Generation Plant Site; and
  - 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.
- 3.8.8 Two access routes will be used for construction access for the Electrical Connection, depending on which part of the Electrical Connection is being accessed. They are shown on Figure 12.2 of the PEIR and are as follows:
- through the Rookery South Pit, from the area of the Power Generation Plant Site; and
  - from the A421, northwards along the A5141, westwards then southwards for approximately 7 km along the B530 (Ampthill Road / Hardwick Road / Bedford Road / Hazelwood Lane) to Millbrook Road, Houghton Lane and Station Lane. The secondary access into the southern side of Rookery South Pit that is being constructed as part of the LLRS would then be used to access the Electrical Connection. One or two short spur tracks would be created to allow permanent access to the SECs from the LLRS secondary access track.
- 3.8.9 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 short-term ephemeral usage.

3.8.10 The Public Rights of Way (PROW) in the vicinity of the Generating Equipment Site are shown on the plan in Appendix 12.3 of the PEIR.

### **Construction and Decommissioning**

3.8.11 During construction, the Power Generation Plant is anticipated to require up to 53 HGV movements and 20 car movements per day during normal construction works. Construction / decommissioning of the Gas Connection will require up to 15 HGV and 10 car movements at the construction peak, and the Electrical Connection will require approximately 10 HGV and 50 car movements.

3.8.12 The construction / decommissioning of the Project will also require the delivery / removal of large plant items such as the Gas Turbine Generator, stack, cables 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.

3.8.13 The increase in daily traffic flows on the surrounding road network has been calculated in terms of percentage increase over existing flows. The impact of these increases has then been calculated on sensitive receptors including Klimberley College, the Water Sports Club on Green Lane, footways and cyleways on Green Lane and users of footpaths and public rights of way.

3.8.14 In terms of Pedestrian Severance, Pedestrian Amenity and Fear and Intimidation the assessment has shown that all of these relatively limited-duration construction movements are generally well below the level at which changes can be perceived, and the significance of effect is therefore no greater than slight at any receptors and therefore not significant.

3.8.15 Although peak construction movements on Green Lane are anticipated to be around 125 HGVs for a short period of time (1 to 2 days), the effect of this has been calculated as slight and therefore not significant.

3.8.16 In addition, the relatively minor traffic flows associated with construction movements forecast are all below the level at which changes in road user delay or accidents and safety can be perceived or measured, and the significance of effect is therefore neutral and not significant.

3.8.17 Notwithstanding, to minimise the impact of the contractor's vehicles on local towns and villages (particularly Stewartby), the Applicant would 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.

3.8.18 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 there are predicted to be no likely significant effects during construction and decommissioning of the Project.

## Operation

3.8.19 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.

3.8.20 During the annual maintenance of the Generating Equipment, there may be up to 40 additional staff on site for a typical maintenance period of one month. It is assumed that all these trips would all be made by car, assuming 1.6 occupants per car, as per the average Journey to Work car occupancy within the National Travel Survey. Reflecting the typical working hours on construction sites, it is assumed that majority of these movements would be made outside of the network peak. However, in order to provide a robust assessment, it has been assumed that up to 25% of these movements would occur at peak times and a further 4 HGV movements per day are assumed during maintenance.

3.8.21 Neither the Gas Connection, nor Electrical Connection will be manned. They will have very infrequent service and maintenance visits (less than 1 per week).

3.8.22 Even during the higher traffic generating periods in the short-term maintenance period, all of these operational phase movements are so low that they are well below the level at which changes can be perceived, and that they are therefore neutral and not significant.

3.8.23 Therefore, normal operation of the Project is not anticipated to have any likely significant effects on the local road network.

## Cumulative Effects

3.8.24 The Construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11. However, most of the proposed developments are greater than 2 km from the Project Site and outside of the study area for this topic within which potentially significant effects could occur. As such it is considered that no cumulative effects are likely to arise in relation to these projects in respect of traffic and transport during construction, decommissioning or operation.

3.8.25 The only projects listed in Paragraph 3.1.11 which are considered relevant to the cumulative effects assessment for traffic and transport are the Integrated Waste Management Facilities proposed at Rookery South Pit and the Covanta RRF Project at Rookery South Pit.

3.8.26 The proposed Integrated Waste Management Facilities development is at an early stage and very little information is available regarding potential impacts on traffic and transport as a result of this project. Should it go ahead it will have to consider the Project to ensure that no significant cumulative impacts will arise between it and the Project. As such, any mitigation that is needed in future in

relation to cumulative effects as between this scheme and the Project would be assessed as part of (and could be secured through) the permission process for the proposed Integrated Waste Management Facilities development.

3.8.27 The PEIR for the Covanta RRF Project concluded that there were no potential impacts arising from construction, operation or decommissioning of the project on traffic and transport providing their upgraded access requirements and traffic management measures were implemented.

3.8.28 The requirement for any further cumulative effect assessment of the Project is considered in the context of the minimum environmental impact thresholds identified in Section 12.5 of the PEIR for:

- Pedestrian Severance (Minor is below 8,000 additional vehicles);
- Pedestrian Amenity and Fear and Intimidation (Negligible is less than 600 vehicles an hour over an 18 hour day); and
- the significance of effect of the Project being identified as being below moderate throughout Section 12.7 of the PEIR and being considered to be not significant.

3.8.29 The level of Project-generated traffic is significantly below these thresholds.

3.8.30 It is considered that, based on professional judgement, with the implementation of the embedded mitigation described in the PEIR along with the embedded mitigation in the Covanta RRF Project, no likely significant cumulative effects will arise as between the Project, the Covanta RRF Project and the other developments referred to in Paragraph 3.1.11.

### **Conclusions / Residual Effects**

3.8.31 Based on the assessment, no likely significant effects are anticipated from traffic and transport as a result of the construction, operation or decommissioning of the Project either cumulatively with other projects proposed in the vicinity or in isolation.

## **3.9 Historic Environment**

### **Introduction**

- 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 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.

- 3.9.3 The full assessment for this topic is provided in Chapter 13 of the PEIR. A brief summary of the likely significant effects identified is provided below.

### **Baseline**

- 3.9.4 The Power Generation Plant is depicted on historic maps as being agricultural fields until the 1970s when the Rookery Pits are first shown. By 1988-89 Rookery north and south were both disused. Land on which the Gas Connection and Electrical Connection will be sited has remained as undeveloped land according to the earliest historical mapping data available.
- 3.9.5 No significant features or structures of archaeological or historic interest have been recorded on the Bedfordshire Historical Environmental Record (HER) within the Power Generation Plant Site, representative of the fact that the majority of it is located within a former clay extraction pit.
- 3.9.6 A number of crop marks of possible archaeological origin have been recorded within the vicinity of the Gas Connection, although previous excavations in the area did not reveal any archaeological remains.
- 3.9.7 A number of cropmarks of possible archaeological origin have been recorded within the vicinity of the Electrical Connection, which relate to Romano-British remains.
- 3.9.8 A review of the National Heritage List for England confirmed there to be no designated heritage assets within the Power Generation Plant Site or within the Gas Connection or Electrical Connection. Tables 13.5 to 13.9 in the PEIR list the designated assets within the wider study area (5 km from the Project Site). They include 12 Scheduled Monuments and 22 listed buildings, 5 Conservation Areas and 1 Registered Park and Garden.

### **Construction and Decommissioning**

- 3.9.9 The extent of any previous disturbance to buried archaeological remains is an important factor in assessing the potential impact of the Project.
- 3.9.10 Given that the Power Generation Plant Site is within formerly developed land (e.g. previously excavated Rookery clay pits) which are subject to ongoing construction works as part of the LLRS, 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 HER within the area of the Power Generation Plant.
- 3.9.11 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.
- 3.9.12 The Access Road will have no potential impacts on designated heritage assets.

3.9.13 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 vicinity of the Gas Connections did not reveal any significant archaeology, further assessment of this area will be undertaken prior to construction in order to fully characterise the extent of any archaeological deposits at the Project Site. This will involve stripping off and recording any discovered archaeology prior to construction, thereby limiting any effects. This will also be undertaken along the route of the Electrical Connection, in the proximity of previously identified cropmarks and Roman remains.

### **Operation**

3.9.14 During operation, the introduction of the stack associated with the Generating Equipment has 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 stack of the Generating Equipment, the SECs associated with the Electrical Connection and the AGI of the Gas Connection and up to five Scheduled Monuments. However, in all cases effects are anticipated to be no more than no more than a slight adverse indirect effect on the setting of any of the assets, and for the majority of assets, there will be a neutral indirect effect.

### **Cumulative Effects**

3.9.15 The Construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11. However, most of the proposed developments are greater than 2 km from the Project Site and outside of the study area for this topic within which potentially significant effects could occur. As such it is considered that no cumulative effects are likely to arise in relation to these projects in respect of archaeology and cultural heritage during construction, decommissioning or operation.

3.9.16 The only projects listed in Paragraph 3.1.11 which are considered relevant to the cumulative effects assessment for the historic environment are the Integrated Waste Management Facilities proposed at Rookery South Pit and the Covanta RRF Project at Rookery South Pit.

3.9.17 The proposed Integrated Waste Management Facilities development is at an early stage and very little information is available regarding potential impacts on archaeology and cultural heritage as a result of this project. Should it go ahead it will have to consider the Project to ensure that no significant cumulative impacts will arise between it and the Project. As such, any mitigation that is needed in future in relation to cumulative effects as between this scheme and the Project would be assessed as part of (and could be secured through) the permission process for the proposed Integrated Waste Management Facilities development.

3.9.18 The PEIR for the Covanta RRF Project concluded that there were no likely significant effects arising from construction, operation or decommissioning of the project on archaeology and cultural heritage.

3.9.19 It is considered that, based on professional judgement, with the implementation of the embedded mitigation, along with the embedded mitigation in the Covanta RRF Project, cumulative and combined operational impacts with Covanta are the same nature and magnitude as the Proposed Development on its own in respect of archaeology and cultural heritage.

### **Conclusions / Residual Effects**

3.9.20 Based on the 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 and Electrical Connection on buried archaeology prior to construction in the form of trial trenching and recording of any discovered archaeology.

## **3.10 Socio-economics**

### **Introduction**

3.10.1 The Project has the potential to affect the socio-economic make-up of the surrounding area due to increased investment to the local economy and labour market distortions. It also has the potential to affect community infrastructure by placing pressure on facilities used by construction workers and their families. Additionally, the Project could have potential effects on the tourism economy should it cause potential tourist to be dissuaded from visiting the area. The preliminary assessment for this topic is provided in Chapter 14 of the PEIR. A brief summary is provided below.

3.10.2 The study area's socio-economic position has been described using standard indicators. This provides a baseline from which potential impacts and effects can be assessed:

- Socio-economic/ labour market: research has been undertaken into the business and labour market structure of the local economy;
- Tourism economy: the area's visitor attraction has been profiled including: visitor attractions; visitor accommodation; tourism volume and value; and the local tourism economy;
- Community Infrastructure: an audit of community infrastructure including GP facilities, education facilities, sport and recreation facilities, pharmacies and dentists has been prepared; and
- Policy Context: planning, economic development and other relevant policy has been reviewed to identify related economic, social and regeneration objectives which the Project may affect.

### 3.10.3 The study areas are as follows:

- The socio-economic assessment is based on drive time catchment areas from the Project. The 'local area' is defined within a 30 minute drive time, 'wider area' within a 45 minute drive time, and 'wider region' within a 60 minute drive time
- The tourism / recreation study area is based on a 10 km radius from the Project Site.
- The community infrastructure assessment is focussed on the area defined within an approximate 5 km radius from the Project Site.

### **Baseline**

- 3.10.4 The baseline socio-economic status of the local area surrounding the Project is characterised by a pattern of population increase since 2001 which is expected to continue until 2035. The area has a declining work age population with more than one fifth of the population expected to be at retirement age by 2035. This is also coupled with high economic activity which is considerably higher than the UK average. Retail work is the main employment category in the local area, and is above the national average.
- 3.10.5 Tourism volume and value in Central Bedfordshire recovered strongly during the period 2011 to 2013 but has decreased slightly between 2013 to 2015 and now accounts for approximately one third of Bedfordshire's tourism economy. Previously Central Bedfordshire accounted for approximately a quarter of Bedfordshire's tourism volume and value.
- 3.10.6 An initial audit of community facilities shows there is sufficient capacity to accommodate additional demand from construction workers.

3.10.7 The community infrastructure audit has identified:

- 16 schools within approximately 5 km of the Project Site (capacity for 1,004 pupils);
- Six GP surgeries (all accepting new patients);
- One hospital;
- Five pharmacies; and
- One library.

### **Construction and Decommissioning**

- 3.10.8 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 122 construction workers would be required at the Project Site during peak periods at any one

time. Project construction would support up to nine permanent full time equivalent construction jobs.

- 3.10.9 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).
- 3.10.10 No likely significant effects are predicted on tourism and community infrastructure as a result of the Project from traffic and accessibility and air quality impacts, given that assessments in Chapters 12 and 6 respectively have concluded that there will be no likely significant effects arising from these areas. Although noise impacts have been predicted from operation of the Generating Equipment, this is likely to be localised and would not impact on tourism or community assets.

### **Operation**

- 3.10.11 During operation, there will be up to 10 full time equivalent jobs created at the Project Site. 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.
- 3.10.12 No likely significant impacts are predicted on tourism and community infrastructure as a result of operation of the Project from visual, noise, traffic and accessibility and air quality impacts, given that preliminary assessments in Chapters 11, 7, 12 and 6 respectively have concluded that there will be no likely significant effects arising from these areas on tourism or community assets.

### **Cumulative Effects**

- 3.10.13 Construction, decommissioning and operation of the Project could occur simultaneously with other projects in the vicinity of the Project Site, as listed in Paragraph 3.1.11.
- 3.10.14 A total of 4,964 temporary construction jobs would be required to build nearby projects, including the Covanta RRF Project. The assessment shows that there is sufficient labour in a 60-minute drive time of the Project to build all of the cumulative projects. The cumulative projects could therefore be built using labour from the Project labour market area without creating any minor labour market distortions. The projects would therefore contribute to an overall slight benefit in terms of job creation.
- 3.10.15 The air quality and traffic chapters (6 and 12 respectively) conclude that there would be no significant adverse cumulative effects. Therefore, it has been concluded that cumulative impacts on tourism and recreation receptors would also be not significant during the construction/decommissioning process, especially given that there are limited tourism and recreation receptors in close proximity to the Project Site.

## Conclusions / Residual Effects

3.10.16 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 and job creation at all stages of the Project.

### 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 EMFs arising from operation of the Electrical Connection. The preliminary assessment for other topics considered is provided in Chapter 15 of the PEIR. A brief summary is provided below.

#### 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 Pipeline associated with the Gas Connection and for the trench 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, many 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 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 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 the Project will result in no likely significant effects with respect to waste.

### **Electromagnetic Fields**

3.11.12 The potential effects of electric and magnetic fields is a 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 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 The proposed substation would be surrounded by an earthed metal fence and consequently the electric field outside of this fence due to the substation equipment it encloses would comply with ICNIRP exposure guidelines for the public.
- 3.11.15 There are no external electric fields associated with underground cables. Electric fields associated with underground cable are contained by the sheath of the cable itself. The public would thus not be exposed to electric fields from the proposed underground cables.
- 3.11.16 Some equipment within the substation would produce magnetic fields, but these fields tend to diminish rapidly with increasing distance from the equipment. Magnetic fields outside the substation due to these items of equipment are inherently compliant with public exposure limits, as discussed above.
- 3.11.17 The prospective magnetic field strength due to the proposed underground cables is calculated to remain below the public exposure basic restriction levels.
- 3.11.18 There will be a magnetic field due to the underground cable from the SECs beside the existing overhead line to the proposed substation.
- 3.11.19 A full EMF report will be included with the DCO Application.

## 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 assessment of environmental effects from the Project.
- 4.1.2 It has concluded that the use of OCGT 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 assessment of environmental effects has shown that the Project can be responsibly delivered without causing significant harm to the environment. No likely significant effects are predicted on local air quality, ecology, water quality, ground conditions, traffic and transport or archaeology and cultural heritage during the construction, operation or decommissioning phases in isolation, or cumulatively with those developments listed in Paragraph 3.1.11.
- 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 Based on the assessment, most of the predicted significant landscape and visual effects will occur during the construction period and are therefore of a limited duration. Few significant effects persist into the operational period and some significant benefits are predicted with the maturing of new woodlands and hedgerows.
- 4.1.6 Although likely significant effects have been predicted in terms of noise at nearest noise sensitive receptors, the assessment has been based on a worst case scenario and mitigation measures to limit these impacts will be fully explored in the ES.