Tables

6. Air Quality

6.1 Introduction

6.1.1 This chapter of the Environmental Statement (ES) addresses the potential effects of the construction, operation (including maintenance) and decommissioning of the proposed WBC gas fired generating station on the site of the West Burton Power Station (the Proposed Development) on air quality. The assessment considers:

- the present-day and future baseline conditions during construction and at opening;
- the effects of construction of the Proposed Development on air quality for human health and ecosystems, with respect to associated construction traffic, construction plant emissions and construction dust;
- the effects of operational process emissions associated with the Proposed Development on air quality for human health and ecosystems; and
- the potential effects of the eventual decommissioning of the Proposed Development.

6.1.2 The cumulative effects of emissions associated with the Proposed Development and other committed developments in the vicinity are described in **Chapter 16**: Cumulative and Combined Effects.

6.1.3 This chapter is supported by **Appendix 6A:** Air Quality (ES Volume II) and **Figures 6.1-6.5** (ES Volume III).

6.2 Legislation, Planning Policy and Guidance

Legislative Background

Air Quality Legislation

6.2.1 The principal air quality legislation within the United Kingdom (UK) is the Air Quality Standards Regulations 2010 (Ref 6-1), which transposes the requirements of the European Ambient Air Quality Directive 2008 (Ref 6-2) and the 2004 fourth Air Quality Daughter Directive (Ref 6-3). The Air Quality Standards Regulations set air quality limits for a number of major air pollutants that have the potential to impact public health, such as nitrogen dioxide (NO_2), carbon monoxide (CO) and particulate matter (PM_{10}, which is particulate matter of 10µm diameter or less). The Air Quality Standards Regulations also include an exposure reduction objective for $PM_{2.5}$ in urban areas and a national target value for $PM_{2.5}$ ($PM_{2.5}$ is particulate matter of 2.5µm diameter or less).

6.2.2 The Environment Act 1995 (Ref 6-4) requires the UK Government to produce a national air quality strategy (NAQS), last reviewed in 2007 (Ref 6-5), containing air quality objectives and timescales to meet those objectives. These objectives

apply to outdoor locations where people are regularly present and do not apply to occupational, indoor or in-vehicle exposure. It requires local authorities to undertake an assessment of local air quality to establish whether the objectives are being achieved, and to designate air quality management areas (AQMA) if improvements are necessary to meet the air quality objectives. Where an AQMA has been designated, the local authority must draw up an air quality action plan (AQAP) describing the measures that will be put in place to assist in achieving the objectives. Defra has responsibility for coordinating assessments and AQAPs for the UK as a whole.

6.2.3 The current objectives and assessment criteria applicable in this assessment for the protection of human health are presented in **Table 6-1**. Concentrations are expressed in micrograms per cubic metre (µg/m^3), unless otherwise stated.

Table 6-1: National air quality strategy (NAQS) objectives: Protection of human health

Pollutant	Objective (µg/m^3)	Averaging Period	Percentile (to be met by date)
Nitrogen dioxide (NO_2)	200	1-hour mean	99.79th [or not to be exceeded more than 18 times/year] (31 Dec 2005)
	40	Annual mean	(31 Dec 2005)
Particulate matter (PM_{10})	50	24-hour mean	90.4th [or not to be exceeded more than 35 times/ year] (31 Dec 2004)
	40	Annual mean	(31 Dec 2004)
Particulate matter ($PM_{2.5}$)	24	Annual mean	(2020)
Carbon monoxide (CO)	10,000	8-hour, daily running mean	(31 Dec 2003)

6.2.4 For the protection of vegetation and ecosystems, a number of Critical Levels have been developed; Critical Levels are defined as "*concentrations of pollutants in the atmosphere above which direct adverse effects on...plants [and] ecosystems...may occur according to present knowledge*" (Ref 6-6). The Critical Levels applicable to this assessment are shown in **Table 6-2**.

Table 6-2: Critical Levels: Protection of vegetation and ecosystems

Pollutant	Objective ($\mu g/m^3$)	Averaging Period	Percentile (to be met by date)
Oxides of nitrogen (NO_x)	75	Daily mean	-
	30*	Annual mean	-

* denotes objective set in Air Quality Standards Regulations 2010

6.2.5 In addition to the above Critical Levels set in the legislation, there are non-legislative limits (Critical Loads) that have been derived for different habitats and relate to the deposition of nitrogen and acidifying species; Critical Loads are defined as "*a quantitative estimate of exposure to one or more pollutant below which significant harmful effects on specified elements of the environment do not occur according to present knowledge*" (Ref 6-6). These are discussed further in **Section 6.3** and habitat-specific Critical Loads are presented in **Appendix 6A** (ES Volume II).

Environmental Permitting Regulations

6.2.6 The Environmental Permitting (England and Wales) Regulations 2016 (EPR) (Ref 6-7) apply to all new installations and transpose the requirements of the EU Industrial Emissions Directive (IED) (Ref 6-8) into UK legislation. Under the IED and EPR, the operator of an installation covered by the IED is required to employ Best Available Techniques (BAT) for the prevention or minimisation of emissions to the environment, to ensure a high level of protection of the environment as a whole. Generating stations exceeding 50MW thermal input rating (50MWth) (such as the Proposed Development) are covered by the IED and EPR. Performance against the required emission limit values would be regulated through an Environmental Permit.

6.2.7 Where legislative ambient air quality limits or objectives are not specified for the pollutant species potentially released from the Proposed Development, Environmental Assessment Levels (EALs), published in the Environment Agency's Risk Assessments for Specific Activities: Environmental Permits guidance (Ref 6-9) can be used to assess potential health effects on the general population. The EALs applicable in this assessment for the protection of human health from pollutants that could be emitted from the Proposed Development are presented in **Table 6-3**.

Table 6-3: Environmental Assessment Levels (EALs) – protection of human health

Pollutant	Objective ($\mu g/m^3$)	Averaging Period	Percentile (to be met by date)
Carbon monoxide	30,000	1-hour mean	-

Industrial Emissions Directive

6.2.8 The IED (Ref 6-8) provides operational limits and controls to which plant must comply, including Emission Limit Values (ELVs) for pollutant releases to air. The operational generating station at the Proposed Development would fall under the Large Combustion Plant (LCP) requirements (Chapter III) of the IED, since it would be greater than 50MWth capacity and with each unit individually of greater than 15MWth capacity.

6.2.9 In addition, European BAT reference documents (BRefs) are published for each industrial sector regulated under the IED and include BAT-Achievable Emission Values (BAT-AELs) which are expected to be met through the application of BAT. The current version of the LCP BRef (Ref 6-10), includes BAT-AELs which have been applied in the assessment.

Planning Policy Context

National Planning Policy

6.2.10 National Policy Statements (NPS) are, where in place, the primary basis for the assessment and determination of applications for nationally significant infrastructure projects (NSIPs), such as the Proposed Development. The Overarching National Policy Statement on Energy EN-1 (Ref 6-11) states:

"The planning and pollution control systems are separate but complementary. The planning system controls the development and use of land in the public interest…Pollution control is concerned with preventing pollution through the use of measures to prohibit or limit the releases of substances to the environment from different sources to the lowest practicable level. It also ensures that ambient air and water quality meet standards that guard against impacts to the environment or human health.

In considering an application for development consent, the [Secretary of State] should focus on whether the development itself is an acceptable use of the land, and on the impacts of that use, rather than the control of processes, emissions or discharges themselves. The [decision maker] should work on the assumption that the relevant pollution control regime and other environmental regulatory regimes…will be properly applied and enforced by the relevant regulator." (paragraph 4.10.2-4.10.3)

6.2.11 EN-1 requires the consideration of significant air emissions, their mitigation and any residual effects, the predicted absolute emission levels after application of mitigation, the relative change in air quality from existing concentrations and any potential eutrophication impacts as a result of the Proposed Development project stages, including contributions from additional road traffic. Where a project could result in deterioration in air quality in an area where national air quality limits are not being met, or may lead to a new area breaching national air quality limits, or where substantial changes in air quality concentrations are predicted, such effects

would be expected to be given substantial weight in consideration of the acceptability of the proposal. Where a project is likely to lead to a breach of statutory air quality limits, the developer should work with the relevant authorities to secure appropriate mitigation measures to allow the proposal to proceed.

6.2.12 The Overarching National Policy Statement on Fossil Fuel Electricity Generating Infrastructure EN-2 (Department of Energy and Climate Change, 2011) (Ref 6-12) states:

"Fossil fuel generating stations are likely to emit nitrogen oxides (NO_x) and sulphur oxides (SO_x), although SO_x emissions from gas-fired generating stations may be negligible. To meet the requirements of the Large Combustion Plant Directive (LCPD) and the Industrial Emissions Directive (IED) when it comes into force, fossil fuel generating stations must apply a range of mitigation to minimise NO_x and other emissions."
(paragraph 2.5.3)

6.2.13 **Table 6-4** provides a summary of relevant NPS advice regarding air quality and emissions and presents an assessment of where matters are assessed within this chapter.

Table 6-4: Summary of relevant NPS advice regarding air quality and emissions

Summary of NPS	Consideration within the Chapter
NPS EN-1	
Paragraph 5.2.1 states: "*Air emissions include particulate matter (for example dust) up to a diameter of ten microns (PM_{10}) as well as gases such as sulphur dioxide, carbon monoxide and nitrogen oxides (NO_x). Levels for pollutants in ambient air are set out in the Air Quality Strategy which in turn embodies EU legal requirements. The Secretary of State for the Environment Food and Rural Affairs is required to make available up to date information on air quality to any relevant interested party*".	Particulate emissions as well as those of nitrogen oxides have been included in the assessment of construction, traffic and operational air impacts. Carbon monoxide emissions have also been considered in the Environmental Statement (ES). Sulphur dioxide emissions are negligible from a gas-fired power station. Consideration has also been given to baseline air quality conditions in the locality.
Paragraph 5.2.2 states: "*CO_2 emissions are a significant adverse impact from some types of energy infrastructure which cannot be totally avoided*". "*Any ES on air emissions will include an assessment of CO_2 emissions, but the policies set out in Section 2, including the EU ETS, apply*	An assessment of carbon emissions is included in **Appendix 15A**: Greenhouse Gas Assessment (ES Volume II).

Summary of NPS	Consideration within the Chapter
to these emissions".	
Paragraph 5.2.3 states: "*A particular effect of air emissions from some energy infrastructure may be eutrophication, which is the excessive enrichment of nutrients in the environment*."	Air quality impacts associated with nitrogen deposition on designated ecological receptors have been assessed in **Section 6.6**.
Paragraph 5.2.4 states: "*Design of exhaust stacks, particularly height, is the primary driver for the delivery of optimal dispersion of emissions and is often determined by statutory requirements*".	Stack height evaluation is assessed in **Section 6.6** and **Appendix 6A:** Air Quality (ES Volume II).
Paragraph 5.2.7 states: "The ES should describe: • *any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;* • *the predicted absolute emission levels of the proposed project, after mitigation methods have been applied;* • *existing air quality levels and the relative change in air quality from existing levels;* • *any potential eutrophication impacts"*	The air quality impacts of all project stages have been assessed in this chapter including consideration of residual effects in **Section 6.9**.
NPS EN-2	
Paragraph 2.5.3 states: "*Fossil fuel generating stations are likely to emit nitrogen oxides (NO_x) and sulphur oxides (SO_x), although SO_x emissions from gas-fired generating stations may be negligible… fossil fuel generating stations must apply a range of mitigation to minimise NO_x and other emissions."*	Nitrogen oxide emissions have been considered in the assessment of operational air impacts. Sulphur dioxide emissions are negligible from a gas fired power station. Consideration has also been given to baseline air quality conditions in the locality and the emission limit values that are achievable for the proposed plant technology, based on legislative limits and use of BAT.

Summary of NPS	Consideration within the Chapter
Paragraph 2.5.5 states: "*The applicant should carry out an assessment as required in EN-1, consulting the Environment Agency and other statutory authorities at the initial stages of developing their proposals, as set out in EN-1 Section 4.2.*"	The air quality impacts of all project stages have been assessed in this chapter and presented in **Section 6.6**.
Paragraph 2.5.7 states: "*Mitigation will depend on the type of generating station. However, Flue Gas Desulphurisation (FGD) and Selective Catalytic Reduction (SCR) will have additionally adverse impacts for noise and vibration, release of dust and handling of potentially hazardous materials, for example the ammonia used as a reagent*."	No SCR or FGD use is proposed for the Proposed Development as the ELV set by legislation and use of BAT are achievable through primary means, without the use of such secondary abatement techniques.

6.2.14 **Table 6-5** provides a summary of relevant NPS advice regarding dust, odour, artificial light, smoke, steam and insect infestation.

Table 6-5: Summary of relevant NPS advice regarding dust, odour, artificial light, smoke, steam and insect infestation

Summary of NPS	Consideration within the Chapter
NPS EN-1	
Paragraph 5.6.4 states: "*The applicant should assess the potential for insect infestation and emissions of odour, dust, steam, smoke and artificial light to have a detrimental impact on amenity, as part of the Environmental Statement."*	The operation of the Proposed Development is not considered to have the potential to cause insect infestation, odour, dust, steam or smoke impacts, based on the choice of fuel and nature of plant operation. Management of artificial light will be controlled at the detailed design stage in accordance with the Lighting Strategy (**Application Document Ref. 7.4)** and the Framework Construction Environmental Management Plan (CEMP) (**Application Document Ref 7.3**).
Paragraph 5.6.5 states: "*In particular, the assessment provided by the applicant should describe:* • *The type, quantity and timing of*	This chapter identifies sensitive receptors in the vicinity of the Site, describes the current baseline air quality conditions, outlines the assumptions regarding the nature,

Summary of NPS	Consideration within the Chapter
emissions; • *Aspects of the development which may give rise to emissions;* • *Premises or locations that may be affected by the emissions;* • *Effects of the emission on identified premises or locations; and* • *Measures to be employed in preventing or mitigating the emissions."*	duration and scale of emissions and the predicted effect of emissions on identified sensitive receptors. The Rochdale Envelope and conservative assumptions have been applied in order to derive a worst-case scenario. Embedded mitigation measures are also included.
Paragraph 5.6.6 states: *"The applicant is advised to consult the relevant local planning authority and, where appropriate, the Environment Agency about the scope and methodology of the assessment."*	Bassetlaw District Council (BDC) as local planning authority and the Environment Agency have been consulted at scoping stage, informal consultation and at formal (statutory) consultation stages regarding the proposed approach to assessment of air impacts. Their views have been incorporated into the air impact assessment as discussed in **Section 6.3**.

6.2.15 The National Planning Policy Framework (NPPF) (Ref 6-13) was published in February 2019, replacing earlier versions published in July 2018 and March 2012. In respect of air quality, the NPPF states:

"Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality …" (paragraph 170)

6.2.16 Air quality in the UK has been managed through the Local Air Quality Management regime using national objectives. The effects of a proposed development on the achievement of such policies and plans are matters that may be a material consideration by planning authorities, when making decisions for individual planning applications. In respect of this, the NPPF states that:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to

improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan." (paragraph 181)

6.2.17 The different roles of a planning authority and a pollution control authority are also addressed by the NPPF:

"The focus of planning policies and decisions should be on whether proposed development is an acceptable use of land, rather than the control of processes or emissions (where these are subject to separate pollution control regimes). Planning decisions should assume that these regimes will operate effectively. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities." (paragraph 183)

6.2.18 The Planning Practice Guidance (PPG) published on 6 March 2014, was updated on 24 July 2018 (Ref 6-14), with specific reference to air quality. The PPG states that the planning system should consider the potential effect of new developments on air quality where relevant limits have been exceeded or are near the limit. Concerns also arise where the development is likely to adversely affect the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife). In addition, dust can also be a planning concern, for example, because of the effect on local amenity.

6.2.19 When deciding whether air quality is relevant to a planning application the PPG states that a number of factors should be taken into consideration including if the development will:

- significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle (HGV) flows over a period of a year or more;
- introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled Combined Heat and Power (CHP) plant; centralised boilers or CHP plant burning other fuels within or close to an air

quality management area or introduce relevant combustion within a Smoke Control Area;

- expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality;
- give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations; and
- affect biodiversity. In particular, is it likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites.

6.2.20 The PPG goes on to state:

"Assessments should be proportionate to the nature and scale of the development proposed and the level of concern about air quality... Mitigation options where necessary will be locally specific, will depend on the proposed development and should be proportionate to the likely impact. It is important therefore that local planning authorities work with applicants to consider appropriate mitigation so as to ensure the new development is appropriate for its location and unacceptable risks are prevented."

Local Development Plan Policy

6.2.21 Similarly, local planning policy may be considered by the Secretary of State to be both important and relevant to the determination of the Application for the Proposed Development.

6.2.22 Bassetlaw District Council Core Strategy and Development Management Policies Development Plan Document (DPD) (adopted December 2011 and updated July 2012) constitute the current local development plan (Ref 6-15) and include proposed policy approaches to conservation and enhancement of biodiversity.

6.2.23 BDC is currently in the early stages of preparing a new Local Plan for the District and began consulting on a Draft Bassetlaw Local Plan (Ref 6-16) in January 2019. Although the draft Local Plan makes specific reference to the existing West Burton Power Station, there are no specific policies or objectives relating to air quality.

6.2.24 Sturton Ward Neighbourhood Plan (Ref 6-18) includes a Community Objective to '*protect and enhance the best of Sturton Ward's environmental assets to...promote biodiversity*' and includes Policy 2: Conservation and Enhancement of Existing Natural Features, which outlines the criteria for permitted development.

6.2.25 Given the location of the Site, adjacent to the administrative area of Lincolnshire County Council and West Lindsey District Council, the Central Lincolnshire Local Plan, adopted in 2017 (Ref 6-18) is also relevant. This includes the key environmental objective (Objective J.) of which is '*to minimise pollution (air, noise*

and light) and improve air quality', and Policy LP26: Design and Amenity which states:

"*All development proposals…should demonstrate, where applicable and to a degree proportionate to the proposal, how the following matters have been considered, in relation to both the construction and life of the development: Adverse impact upon air quality from odour, fumes, smoke, dust and other sources.*"

Other Guidance

6.2.26 The Environment Agency Risk Assessments for Specific Activities: Environmental Permits guidance (Ref 6-9) provides guidance on the assessment of BAT and of impacts from permitted installations, primarily for the purposes of Environmental Permitting.

6.2.27 Defra has also published technical guidance (Ref 6-19) to assist local authorities in fulfilling their duties in relation to Local Air Quality Management. Parts of this guidance, and associated tools, are also useful in assessing the impacts of individual developments within the planning process.

6.2.28 The Institute of Air Quality Management (IAQM) in collaboration with Environmental Protection UK (EPUK) has published several guidance documents relating to planning and development works, including:

- 'Land-Use Planning & Development Control: Planning For Air Quality' (Ref 6-20), which describes the indicative criteria to trigger the initiation of an air quality assessment for a development, together with guidance on the content of an air quality assessment, impact description and significance determination with reference to air quality standards; the guidance states that it is not intended to be applied to the assessment of air quality impacts on designated nature conservation sites; and
- 'Guidance on the assessment of dust from demolition and construction' (Ref 6-21), which presents guidance on qualitative assessment of risk of dust emissions from construction and demolition activities and the level of good practice mitigation that should be applied.

6.3 Assessment Methodology and Significance Criteria

Consultation

6.3.1 The consultation undertaken with statutory consultees to inform this chapter, including a summary of comments raised *via* the formal Scoping Opinion (**Appendix 1B**: ES Volume II) and in response to the formal consultation and other pre-application engagement is summarised in **Table 6-6**.

Table 6-6: Consultation Summary Table

Consultee or organisation approached	Date and nature of consultation	Summary of response	How comments have been addressed in this chapter
Secretary of State	June 2017 (Scoping Opinion)	3.28 The SoS considers that the modelling must assess the full range of potential options to be brought forward at DCO application. The worst-case operational scenario(s) must be assessed and all assumptions and/or limitations to the assessment clearly stated. This should include any cumulative effects arising from the operation of WBA and WBB Power Stations. 3.29 The SoS expects the ES to provide a clear link between the assessment parameters used to define the worst-case and the relevant parameters described in the DCO (e.g. stack height/diameter). 3.30 Scoping Report paragraphs 3.1.14 and 3.1.15 discuss the potential inclusion of black-start capability within the Proposed Development. This is not referenced within the air quality scope but would need to be considered as part of the modelling study, in particular the longer term and more frequent use of the black-start facility as an emergency supply. 3.31 Scoping Report paragraph 5.2.12 refers to the Design Manual for Roads and Bridges (DMRB) screening model for construction traffic. The SoS considers that the Applicant should justify the use of DMRB screening criteria, when more recent Environmental Protection UK and Institute of Air Quality Management (IAQM) Guidance is available that may be	The assessment has included the full range of potential options to be brought forward within the Application and the worst-case effects are assessed and reported in **Section 6.6**. The effects of WBA Power Station and WBB Power Station have been considered with reference to previous modelling results for the combined stations, and as part of the baseline reported in **Section 6.4**; the cumulative effects of existing WBB Power Station contributions have been modelled with the Proposed Development emissions, discussed in **Section 6.5** and **Appendix 6A:** Air Quality (ES Volume II). The assumptions relating to the worst-case assessment are stated in **Sections 6.3** and **6.6**. The effects of black-start operation on air quality have been considered within the assessment (**Section**

Consultee or organisation approached	Date and nature of consultation	Summary of response	How comments have been addressed in this chapter
		more applicable to the scale and nature of the project. 3.32 The SoS welcomes the proposed assessment of construction dust and mobile plant emissions using IAQM guidance but queries why the Applicant proposes to adopt the "Guidance on the Assessment of Mineral Dust Impacts for Planning" rather than "Guidance on the assessment of dust from demolition and construction" IAQM 2014, which provides clear significance criteria for construction and demolition works. 3.33 The Applicant makes reference to the use of AECOM quantitative significance criteria in Scoping Report paragraph 5.2.15. In the absence of presenting these criteria, the SoS is unable to comment on their appropriateness. Any significance criteria should be based on recognised standards and robustly justified. The assessment should be made in accordance with NPS EN-1 and the Applicant should identify any substantial changes in air quality relative to the baseline and the absolute emissions levels of the Proposed Development after mitigation methods have been applied. 3.34 Scoping Report paragraph 5.2.13 states that mitigation measures to minimise effects will be recommended "where necessary". The SoS expects that appropriate measures would be outlined in a draft CEMP, Air Quality Management Plan (AQMP) or	**6.6**). The most recent guidance documents have been reviewed and the assessment carried out with reference to these guidance methodologies in relation to construction dust and mobile plant emissions, construction traffic emissions and operational point source emissions as described in **Section 6.3**. The IAQM guidance and EPUK guidance have been adopted rather than the DMRB and the Guidance on the assessment of dust from demolition and construction has been followed instead of the Guidance on the Assessment of Mineral Dust Impacts for Planning. The significance criteria used within the assessment are based on the aforementioned guidance documents and are stated in the methodology as described in **Section 6.3**. Predicted changes in air quality relative to the baseline and the

Consultee or organisation approached	Date and nature of consultation	Summary of response	How comments have been addressed in this chapter
		equivalent submitted as part of the DCO application and secured by a Requirement in the draft DCO. Construction and operational mitigation measures should be clearly distinguished. 3.53 When considering the effects of emissions to air on designated and non-statutory sites, the Applicant should refer to Environment Agency Guidance 1 'Air emissions risk assessment for your environmental permit'. This is available from https://www.gov.uk/guidance/airemissions-risk-assessment-for-your environmental-permit. 3.54 The Environment Agency guidance states that "some larger (greater than 50 megawatt) emitters may be required to screen to 15km for European sites and to 10km or 15km for SSSIs". The SoS expects to see justification within the ES for the defined distances used in the assessment in accordance with this guidance and agreement with the Environment Agency and Natural England as to the approach. In line with NPS-EN1 and NPS-EN2 the Applicant should consider the effect of eutrophication on sensitive habitats.	absolute emission levels, with application of mitigation as necessary, have been provided in **Sections 6.4** and **6.6**. A Framework CEMP accompanies the Application (**Application Document Ref. 7.3)** as described in **Section 6.5**. The assessment of effects of emissions to air on designated and non-statutory sites has been made with reference to the relevant Environment Agency guidance, as described in **Sections 6.3** and **6.6**. Effects on statutory designated receptors within 10km of the Proposed Development have been assessed and eutrophication has been considered.
BDC /West Lindsey District Council (WLDC) / Nottinghamshire	June 2017 (Scoping Opinion)	WLDC considered the approach in section 5.2 of the Scoping Report to be acceptable. BDC and NCC provided no specific comments relating to air quality.	No response required.

Consultee or organisation approached	Date and nature of consultation	Summary of response	How comments have been addressed in this chapter
County Council (NCC)			
Environment Agency	24 May 2017	Representatives of the Environment Agency were provided with a short presentation and invitation to provide comments on the proposed approach, including whether it would be appropriate for the Environment Agency AQMAU to review the proposed modelling approaches.	The Environment Agency did not confirm a desire for the AQMAU to review the modelling approach prior to the ES being issued.
Environment Agency	Formal consultation October 2017	The Environment Agency expressed their preference for parallel tracking of the DCO and permit application to enable resolution of key issues of concern, including uncertainty with regard to technology selection and assessment. The applicant is expected to refer to the BAT Reference conclusion document (2017/1442EU) and emissions should be minimised to levels that will not result in significant impact on people and the environment and in compliance with the IED (2010/75/EU) and other current statutory requirements. The environmental permit determination will include the review of air quality modelling files and the assessment of impacts from NO_x and CO on air quality and any relevant AQMAs.	The environmental permit application has been prepared in parallel with the Application for development consent and includes an assessment of techniques against BAT and emissions against the BAT-AELs and IED ELVs. The air quality assessment has been prepared, assuming operation to these levels. During pre-application dialogue, the Environment Agency did not confirm a desire for the AQMAU to review the modelling approach. Air quality modelling files will be made available during determination of

Consultee or organisation approached	Date and nature of consultation	Summary of response	How comments have been addressed in this chapter
			the Environmental Permit application.
Natural England	Stage 1 formal consultation October 2017	Natural England has stated that the Preliminary Environmental Information (PEI) report correctly identified air quality requirements associated with ecological sites located within 2km of the Proposed Development. Natural England is satisfied with the report's assessment that the effect of nutrient nitrogen and acid deposition from the Proposed Development is described as negligible adverse (i.e. not significant).	No changes required.
Public – local residents	Stage 1 formal consultation October 2017	Concerns have been raised by local residents regarding any additional traffic volumes through local communities. Local residents also raised concerns related to the existing power station pollution effects on local communities.	Cumulative traffic related air quality effects are considered within **Chapter 16**: Cumulative and Combined Effects. The existing contribution of the West Burton Power Station site to local air quality is described in **Section 6.4** and **Section 6.6**. Air pollutant concentrations are controlled by Environment Agency permitting.

Consultee or organisation approached	Date and nature of consultation	Summary of response	How comments have been addressed in this chapter
Bassetlaw District Council Environment Agency Lincolnshire County Council Nottinghamshire County Council West Lindsey District Council	March/April 2019	Provision of copies of final draft chapter and offer of pre-application meeting to each consultee to: • discuss final proposals and assessments; • obtain feedback prior to submission of Application; and • agree an approach to drafting of Statements of Common Ground (SoCG) prior to submission of the Application. Further details on consultation undertaken can be found in the Consultation Report (**Application Document Ref. 7.1**).	

Summary of Key Changes to Chapter 6 since Publication of the Preliminary Environmental Information (PEI) Report

6.3.2 The PEI Report (Ref 6-22) was published for statutory consultation in September 2017, allowing consultees the opportunity to provide informed comment on the Proposed Development, the assessment process and preliminary findings through a consultation process prior to the finalisation of this ES.

6.3.3 The key changes relevant to this chapter since the PEI Report was published are summarised in **Table 6-7** below.

Table 6-7: Summary of key changes to Chapter 6 since publication of the PEI Report

Summary of change since PEI Report	Reason for change	Summary of change to chapter text in the ES
Assessment of carbon monoxide emissions from the operational phase.	Further detailed assessment undertaken, as proposed in PEI Report.	Tabulated data is presented in **Section 6.6** and confirms negligible impacts.
Additional receptors identified on Gainsborough Road for construction phase assessment.	Recommended for inclusion on further review of receptor locations.	Tabulated data is presented in **Section 6.6** and confirms negligible impacts.
Statutory ecological receptor area has been extended to 10km.	Further detailed assessment undertaken, as proposed in PEI Report.	Tabulated data is presented in **Sections 6.4** and **6.6** and confirms negligible impacts.
Environmental impacts of black-start capability, if this is required, have been considered within the overall up to 299MW generating capacity of the Proposed Development.	Further assessment undertaken, as proposed.	Update of relevant paragraphs that were present in Chapter 6: Air Quality of the PEI Report (Volume I) (Ref 6-22).
Construction phase assessment year updated for road traffic related emissions.	To reflect updated indicative construction programme.	Update of relevant paragraphs in **Section 6.6**.

Assessment Methods

6.3.4 The potential emissions to air from construction and, at time of opening, from the Proposed Development have been determined or estimated, and key local receptors have been identified, together with the current local baseline ambient air quality. The potential concentrations resulting from the projected emissions arising from the operational Proposed Development have been predicted using atmospheric dispersion modelling techniques where appropriate, which has enabled the assessment of impacts associated with the Proposed Development on the existing local ambient air quality and in particular on the identified sensitive receptors. The assessment methodology for each type of emission is detailed below.

6.3.5 The process and traffic emissions assessments have been made with reference to the NAQS and objectives laid out in the Air Quality Standards Regulations (Ref 6-1).

Assessment of Dust Emissions Generated During Construction Works

6.3.6 'Dust' is defined in British Standard (BS) 6069-2:1994 (Ref 6-23) as particulate matter in the size range 1µm-75µm (microns) in diameter, and is primarily composed of mineral materials and soil particles. As such, the BS (Ref 6-23) definition has been adopted in this assessment.

6.3.7 Respirable particulate matter (PM_{10}) is composed of material with an aerodynamic diameter of less than 10µm, and includes the size fractions of greatest impacts on human health. The majority of construction dust is larger than 10µm in diameter and, therefore are typically associated with material depositing onto property and potential amenity effects, although there is evidence that PM_{10} and $PM_{2.5}$ (material with an aerodynamic diameter of less than 2.5µm) emissions may result from construction and demolition activities. Particulate matter may therefore have an effect whilst airborne, or as a result of its deposition onto a surface. Consequently, the nature of the impact requiring assessment varies between different types of receptor.

6.3.8 The movement and handling of soils and spoil during the Proposed Development construction activities is anticipated to lead to the generation of some short-term airborne dust. The occurrence and significance of dust generated by earth moving operations is difficult to estimate, and depends heavily upon the meteorological and ground conditions at the time and location of the work, and the nature of the actual activity being carried out.

6.3.9 At present, there is no statutory UK or EU standards relating to the assessment or control of dust. The emphasis of the regulation and control of construction dust should be the adoption of Best Practicable Means (BPM) of working on-site. It is intended that significant adverse environmental effects are avoided at the design stage and through embedded mitigation where possible, including the use of good working practices to minimise dust formation.

6.3.10 The IAQM provides guidance for good practice qualitative assessment of risk of dust emissions from construction and demolition activities (Ref 6-21). The guidance considers the risk of dust emissions from unmitigated activities to cause human health (PM_{10}) impacts, dust soiling impacts, and ecological impacts (such as physical smothering, and chemical impacts for example from deposition of alkaline materials). The appraisal of risk is based on the scale and nature of activities and on the sensitivity of receptors, and the outcome of the appraisal is used to determine the level of good practice mitigation required for adequate control of dust.

6.3.11 The assessment undertaken for this chapter is consistent with the overarching approach to the assessment of the impacts of construction, and the application of example descriptors of impact and risk set out in IAQM guidance. It considers the significance of potential impacts with no mitigation, and recommends mitigation measures appropriate to the identified risks to receptors. The steps in the assessment are to:

- identify receptors within the screening distance of the Site boundary;
- identify the magnitude of impact through consideration of the scale, duration and location of activities being carried out (including earthworks, construction and trackout) as part of the Proposed Development;
- establish the sensitivity of the area through determination of the sensitivity of receptors and their distance from construction activities;
- determine the risk of significant effects on receptors occurring as a result of the magnitude of impact and the sensitivity of the area, assuming no additional mitigation (beyond the identified development design and impact avoidance measures) is applied;
- determine the level of mitigation required, based on the level of risk, to reduce potential impacts at receptors to imperceptible or negligible; and
- summarise the potential residual effects of the mitigated works.

6.3.12 Consideration has also been given to the potential for cumulative dust effects from construction of the Proposed Development and other committed developments. This is discussed further in **Chapter 16:** Cumulative and Combined Effects.

6.3.13 The criteria for assessment of magnitude, sensitivity and risk are summarised in **Tables 1-1 to 1-9** in **Appendix 6A:** Air Quality (ES Volume II).

Assessment of Construction/ Decommissioning and Operational Road Traffic Effects

6.3.14 At the high temperatures and pressures found within vehicle engines, some of the nitrogen in the air and fuel is oxidised to form oxides of nitrogen, mainly in the form of nitric oxide (NO), which is then converted to nitrogen dioxide (NO_2) in the ambient atmosphere. NO_2 is associated with adverse effects on human health.

Similarly, but to a lesser extent, any sulphur in the fuel can be converted to sulphur dioxide (SO_2) that is then released to the atmosphere. The incomplete combustion of fuel in vehicle engines results in the presence of hydrocarbons (HC) such as benzene and 1,3-butadiene, as well as the typical combustion products of CO, PM_{10}, $PM_{2.5}$ in exhaust emissions. Improved emission control technology and fuel specifications are expected to reduce emissions per vehicle in the long-term.

6.3.15 Although SO_2, CO, benzene and 1,3-butadiene are present in motor vehicle exhaust emissions, detailed consideration of the associated impacts on local air quality is not considered relevant in the context of the Proposed Development. This is because the concentrations of release and the number of vehicles likely to be generated as a consequence of the Proposed Development are not likely to give rise to significant effects. In particular, no areas within the administrative boundaries of BDC or WLDC are considered to be at risk of exceeding the relevant objectives for these pollutant species, and the risks to achievement of the relevant air quality objectives from the Proposed Development are considered negligible. Emissions of SO_2, CO, benzene and 1, 3-butadiene from road traffic are therefore not considered further within this assessment.

6.3.16 The Proposed Development would introduce additional vehicle movements in the study area (see paragraph 6.3.33) that require screening to determine the potential for impacts on local air quality. IAQM guidance 'Land-Use Planning & Development Control: Planning for Air Quality' (Ref 6-20) sets out indicative criteria to trigger the initiation of an assessment of air quality of a proposed development, including changes in traffic flows measured using Annual Average Daily Traffic (AADT) flows. The criteria vary, dependent on whether or not the site is located within, or may have an impact upon an AQMA. The relevant IAQM criteria are as follows:

- the development will cause a change of Light Duty Vehicle flows, on local roads with relevant receptors, of more than 100 AADT within or adjacent to an AQMA; or more than 500 AADT elsewhere; and
- the development will cause a change of Heavy Duty Vehicle flows, on local roads with relevant receptors, of more than 25 AADT within or adjacent to an AQMA; or 100 AADT elsewhere.

6.3.17 The IAQM 2017 guidance (Ref 6-20) states that the exceedance of the above screening criteria *'does not automatically lead to a requirement for a Detailed Assessment'; further, in relation to construction phase traffic impacts, the guidance refers to the IAQM's 2014 guidance on construction phase impacts (Ref 6-21) which states that 'for site traffic on the public highway, if it cannot be scoped out (for example by using the EPUK's criteria), then it should be assessed using the same methodology and significance criteria as operational traffic impacts.*'

6.3.18 The EPUK criteria (Ref 6-24), indicates that an air quality assessment should be considered for developments that include *'large, long-term construction sites that*

would generate large HGV flows (>200 movements per day) over a period of a year or more'.

6.3.19 The numbers and types of vehicles that would be involved in the decommissioning of the Proposed Development (currently anticipated to commence after 2063) are not known at this stage, however it is anticipated that this would be similar in scale to (or fewer than) the number and types of vehicles and on-site plant for the construction phase. Therefore the construction phase assessment presented in this chapter is considered to be representative of decommissioning activities.

6.3.20 Consideration has been given to the potential cumulative traffic emissions from the construction of the Proposed Development and other identified cumulative schemes. This is discussed further in **Chapter 16:** Cumulative and Combined Effects.

Assessment of Emissions Generated from Construction/Decommissioning Site Plant (Non-Road Mobile Machinery)

6.3.21 Subject to the necessary consents being granted and an investment decision being made, construction of the Proposed Development could potentially start as early as Quarter 3 (Q3) 2020. Construction activities are expected to be completed within four years and are more likely to be completed within three years, as described in **Chapter 4**: The Proposed Development.

6.3.22 There are likely to be emissions to air during construction activities arising from on-site construction plant or Non-Road Mobile Machinery (NRMM). The IAQM guidance (Ref 6-20) states:

"*Experience of assessing the exhaust emissions from on-site plant … and site traffic suggests that they are unlikely to make a significant impact on local air quality, and in the vast majority of cases they will not need to be quantitatively assessed. For site plant and on-site traffic, consideration should be given to the number of plant/vehicles and their operating hours and locations to assess whether a significant effect is likely to occur.*"

6.3.23 The assessment of construction plant has referenced the IAQM construction dust initial screening criteria (Ref 6-20), which indicates that receptors beyond 350m of a construction site boundary (or 500m from site exit) may be screened out of further assessment. A qualitative assessment of the potential for impact from NO_2 and PM_{10} emissions from NRMM on identified receptors has therefore been made, based on the criteria outlined in the above guidance.

Assessment of Operational Process Emissions from the Plant

6.3.24 The IED (Ref 6-8) defines ELVs for gas turbines (including open cycle gas turbines (OCGT)) for NO_x, SO_2, CO and PM_{10}. However, emissions of SO_2 and PM_{10} from gas fired plant are at such low levels relative to the air quality objectives, that they are considered negligible. The risk to the achievement of the PM_{10} and SO_2 air

quality objectives is also considered negligible. Emissions of these pollutants have therefore been screened from further assessment within the operational process emissions from the Proposed Development.

6.3.25 Based on project experience and professional judgment, emissions of CO at the IED limit do not drive the need for additional mitigation, such as the determination of stack height, and therefore were not included in the PEI report; however impacts and effects relating to CO have been assessed and are presented in this ES.

6.3.26 Emissions from the Proposed Development have been assessed using the Environment Agency Risk assessment methodology (Ref 6-9) in order to identify where proposed emissions can be screened out as having a negligible impact. For the purposes of deriving an assessment year for operational emissions, the impact assessment has been conducted conservatively, assuming the current baseline (2019) as the opening baseline. The baseline air quality is expected to improve in the future therefore the potential impacts from later opening date would not be worse than those reported. Detailed dispersion modelling using the atmospheric dispersion model ADMS5.2 has been used to predict the concentrations of pollutants at identified receptors. These concentrations have been compared with the air quality assessment level for each pollutant species, as summarised in **Table 6-1** to **Table 6-3**.

6.3.27 Dispersion modelling calculates the predicted concentrations arising from the emissions to atmosphere, based on Gaussian approximation techniques. The model employed has been developed for UK regulatory use.

6.3.28 The assessment has been based on the operational design parameters for the Proposed Development, including the alternative plant technologies and configurations under consideration for the Proposed Development, using a Rochdale Envelope approach, as described in this section. The worst-case operational scenarios, with respect to the potential air quality impacts, have been determined and are reported in this chapter. The determination of optimum stack height for each technology option under consideration has been driven by the predicted impacts from NO_x, as described in **Section 6.5**.

6.3.29 The assessment of worst-case long-term and short-term emissions resulting from operation of the Proposed Development has been undertaken by comparison of the maximum process contributions (PC) at identified sensitive receptors with the NAQS annual mean and hourly mean objectives, and Critical Levels and Critical Loads for ecological receptors, taking into consideration the baseline air quality, in accordance with Environment Agency risk assessment methodology (Ref 6-9), and factoring the medium to long-term impacts for annual operating hours, which are expected to not exceed 2,250 hours per year (1,500 hours per year as a five-year rolling average).

6.3.30 The potential for impacts from emissions from West Burton A (WBA) Power Station (coal fired) which is scheduled to close under current legislation by 2025

has been considered within the determination of the existing and future baseline, and emissions from West Burton B (WBB) gas fired combined cycle gas turbine (CCGT) Power Station have been modelled with the Proposed Development emissions. There is also potential for cumulative impacts from additional committed developments in the vicinity of the Proposed Development; these are considered within **Chapter 16**: Cumulative and Combined Effects of the ES.

6.3.31 The emissions from black-start operation, if this is required, have been considered within the overall up to 299MW generating capacity of the Proposed Development.

6.3.32 An assessment of nutrient nitrogen enrichment has been undertaken by applying published deposition velocities to the predicted annual average NOx concentrations at the identified statutory habitat sites, determined through dispersion modelling, to calculate nitrogen deposition rates. These deposition rates have then been compared to the Critical Loads for nitrogen, published by UK Air Pollution Information System (APIS) (Ref 6-6) for the most sensitive species in each individual habitat site, taking into consideration the baseline air quality.

6.3.33 Increases in acidity from deposition contributions of NOx from the PC have also been considered. In this assessment, the nitrogen kilo equivalent (Keq/ha/yr), which are the units in which acidity Critical Loads are described, have been derived from nitrogen deposition modelling values, using standard conversion factors. The acidity deposition rates and baseline deposition rates have been used within the Critical Load Function Tool (Ref 6-6) to determine whether the PC would result in exceedance of the defined Critical Load for the most sensitive feature. PCs of SO_2 to the acidity deposition rate have been assumed to be zero, as the emissions from the Proposed Development are negligible. Non-statutory habitat sites have not been assessed, as the sensitive species present at these receptors and their associated Critical Loads for nutrient and acid deposition are not on public records.

Study Area

6.3.34 The study area for construction phase impacts has been applied, with reference to the IAQM guidance (Ref 6-20), extending:

- up to 200m either side of any affected roads (with predicted changes in traffic volume above the criteria levels) for the identification of human health receptors and designated ecological sites for road traffic air quality impacts;
- up to 350m beyond the Site boundary and 50m either side of the construction traffic route (for a distance of up to 500m from the Site entrance), for the identification of human health receptors; and
- up to 50m from the Site boundary or either side of the construction traffic route (for a distance of up to 500m from the Site entrance) for the identification of ecological receptors.

6.3.35 The study area for operational phase impacts extends up to 2km from the Proposed Power Plant Site in order to assess the potential maximum impacts on human health and ecological receptors, as in practice, the predicted impacts become negligible beyond this distance. For completeness, the ecological study area has been extended to up to 10km from the Proposed Power Plant Site, in line with Environment Agency risk assessment methodology (Ref 6-9).

Significance Criteria

Evaluation of Significance – Construction Dust and Emissions from NRMM

6.3.36 For potential amenity effects, such those related to dust deposition, the aim is to ensure that the Proposed Development includes impact avoidance and mitigation measures, as necessary, that minimise the potential for complaints to be generated as a result of the construction works. The Framework CEMP (**Application Document Ref. 7.3**) is the primary mechanism for identifying necessary measures that the appointed contractor will need to take into account in preparing the CEMP for construction.

6.3.37 The IAQM guidance (Ref 6-20) does not provide a method for the evaluation of impacts on receptors from construction dust or exhaust emissions from NRMM; rather it provides a means to determine the level of mitigation required to avoid significant impacts on receptors. The guidance indicates that application of appropriate mitigation should ensure that residual effects will normally be '*not* significant'.

Evaluation of Significance – Traffic Emissions

6.3.38 The evaluation of the significance of road traffic air quality effects has been based on the criteria set out in the IAQM guidance (Ref 6-20). There are three aspects of a potential effect caused by a development that must be taken into account when assessing its significance. These are:

- the magnitude of the change caused by the Proposed Development;
- the absolute predicted environmental concentration (PEC) in relation to the air quality objectives (baseline plus Proposed Development scenario); and
- the number and sensitivity of receptors exposed.

6.3.39 Particular weighting is given to any impact that takes the PEC from below to above the NAQS objective or vice versa, because of the importance ascribed to the objectives in assessing local air quality.

6.3.40 With regard to road traffic emissions, the change in pollutant concentrations with respect to baseline concentrations is described at receptors that are representative of exposure to impacts on local air quality within the study area. The absolute magnitude of pollutant concentrations in the baseline and 'With

Development' scenario is also described and this is used to consider the risk of the air quality limit values being exceeded in each scenario.

6.3.41 For a change of a given magnitude, the IAQM (Ref 6-20) has published recommendations for describing the magnitude of impacts at individual receptors and describing the significance of such impacts. This terminology has been changed where appropriate in order to maintain consistency with other chapters of the ES – where the IAQM uses 'substantial' this has been changed to 'major', and 'slight' has been changed to 'minor'; other IAQM terms are consistent with those presented in this ES.

Table 6-8: Air quality effect descriptors for changes in ambient pollutant concentrations of NO_2 and PM_{10}

Long-term average concentration at receptor	Percentage change in annual mean concentration				
	Up to 0.5% Imperceptible	0.5-1% Very low	2-5% Low	6-10% Medium	>10% High
75% or less of AQAL	Negligible	Negligible	Negligible	Minor	Moderate
76-94% of AQAL	Negligible	Negligible	Minor	Moderate	Moderate
95-102% of AQAL	Negligible	Minor	Moderate	Moderate	Major
103-109% of AQAL	Negligible	Moderate	Moderate	Major	Major
110% or more of AQAL	Negligible	Moderate	Major	Major	Major

AQAL = Air Quality Assessment Level (NAQS objective or EU limit value or EAL)

6.3.42 The IAQM guidance (Ref 6-20) is explicit that significance only applies to an overall effect and never to an effect at an individual receptor. Consequently, a 'moderate' adverse impact at one receptor may not mean that the overall effect is significant; other factors need to be considered. However, it indicates further that 'negligible' impacts are likely to lead to effects that are 'not significant' and 'major' impacts describe the potential for 'significant' effects. The judgement of whether effects are classified as significant within this assessment is discussed below.

Evaluation of Significant Effects – Point Source Emissions

6.3.43 The evaluation of whether air quality effects from operational point sources of the Proposed Development are 'significant' has been based on the criteria set out in the IAQM guidance (Ref 6-20), and on the criteria outlined in the Environment Agency EPR Risk Assessment (Ref 6-9).

6.3.44 The IAQM guidance (Ref 6-20) indicates that the Environment Agency threshold criterion of 10% of the short-term AQAL is sufficiently small in magnitude to be regarded as having an 'imperceptible' effect. The IAQM guidance deviates from the Environment Agency guidance (discussed below) with respect to the background contribution; the IAQM guidance indicates that severity of peak short-term concentrations can be described without the need to reference background concentrations, as the PC is used to measure impact, not the overall concentration at a receptor. The peak short-term PC from an elevated source is described as follows:

- PC <=10% of the NAQS represents an 'imperceptible' (negligible) impact;
- PC 11-20% of the NAQS is small in magnitude representing a 'slight' (minor) impact;
- PC 21-50% of the NAQS is medium in magnitude representing a 'moderate' impact; and
- PC >51% of the NAQS is large in magnitude representing a 'substantial' (major) impact.

6.3.45 The Environment Agency EPR Risk Assessment (Ref 6-9) screening criteria for comparison of PCs with Air Quality Strategy objectives state that an emission may be considered imperceptible (or negligible) where:

- short-term PC <=10% of the NAQS; and
- long-term PC <=1% of the NAQS.

6.3.46 The second stage of screening considers the PC in the context of the existing background pollutant concentrations; the PEC (Predicted Environmental Concentration) is considered acceptable where:

- short-term PC <20% of the short-term NAQS minus twice the long-term background concentration; and
- long-term PEC (PC + background concentration) <70% of the NAQS.

6.3.47 Where the PEC is not predicted to exceed the NAQS objective and the proposed emissions comply with the BAT-AEL (or equivalent requirements) the emissions are normally considered acceptable by the Environment Agency.

6.3.48 The impact of point source emissions on ecological receptors with statutory designation e.g. Sites of Special Scientific Interest (SSSI) has been evaluated using the Environment Agency criteria (as above) for short-term and long-term objectives for ecological receptors; for short-term impacts, where the PC >100% of the objective the Environment Agency guidance indicates such an impact would not be acceptable.

6.3.49 The impact of point source emissions on ecological receptors with statutory designation, through deposition of nutrient nitrogen or acidity, has been evaluated

using the Environment Agency insignificance criterion of 1% of the long-term objective, as above. The impact of point source emissions on non-statutory designations (Local Wildlife Sites - LWS) have been evaluated using the Environment Agency criterion of requiring the PC to comply with the short-term and long-term objectives for ecological receptors.

6.3.50 Where emissions are not screened as having the potential to have an imperceptible (negligible) effect, the descriptive terms for the air quality effect outlined in **Table 6-8** have been applied.

Evaluation of Significance – Proposed Development as a Whole

6.3.51 Following the assessment of each individual air quality effect, the evaluation of whether all of the reported effects are significant is then considered for the Proposed Development in overall terms. The potential for the Proposed Development to contribute to, or interfere with the successful implementation of policies and strategies for the management of local air quality are considered if relevant, but the principal focus is any change to the likelihood of future achievement of the NAQS values set out in **Table 6-1**, since achievement of local authority goals for local air quality management is directly linked to the achievement of the NAQS values.

6.3.52 Effects are reported as being either 'not significant' or as being 'significant'. If the overall effect of the development on local air quality or on amenity is found to be 'moderate' or 'major' this is deemed to be 'significant'. Effects found to be 'minor' or 'negligible' are considered to be 'not significant'.

Data Sources

Traffic Volume Data

6.3.53 The traffic data used within this assessment has been sourced from **Chapter 7**: Traffic and Transport and its accompanying **Appendix 7A**: Transport Assessment (ES Volume II), as summarised in **Table 6-9**. The data represents the peak traffic flow periods for assessment of the worst-case impacts; outside of these periods traffic flow and hence air quality impacts would be lower.

Table 6-9: Proposed Development traffic flows on public highway

Proposed Development Phase	Peak traffic flow (AADT)
Construction	112 HGV movements (Months 18-30) 338 total vehicle movements (Months 25-27)
Operation	<10 total vehicle movements

6.3.54 Site construction traffic would use the existing, private, surfaced access road owned by the Applicant, with the entrance and exit on the Sturton-le-Steeple: Gainsborough Road. All HGVs and the majority of construction worker traffic

would travel north from this exit and linking to the A620 to the north, whilst a small proportion of construction worker traffic would be anticipated to travel south towards Sturton-le-Steeple.

Combustion Plant Data

6.3.55 At this design stage, the technology providers and hence final layout and combustion emission parameters have not been fixed and a Rochdale Envelope is being applied for certain parameters where flexibility needs to be retained. These parameters are outlined in **Chapter 4**: The Proposed Development. The air quality effects associated with alternatives under consideration within the Proposed Development design have been fully explored and the worst-case results are presented within this assessment. The design evolution will continue as the Proposed Development progresses, however, any changes in design parameters will remain within the envelope evaluated in this assessment.

6.3.56 Opening point source emissions data has been determined from information supplied by the Original Equipment Manufacturers (OEMs) that would potentially supply the OCGT units for the Proposed Development.

6.3.57 Conservative assumptions have been made with regard to operational parameters, to determine the maximum potential effects of the operation of the Proposed Development on sensitive receptors. These assumptions include:

- worst-case emissions from any of the OEM-provided information;
- operation of the plant throughout the year for determination of the peak short-term impact;
- operation of the plant for the anticipated maximum 2,250 hours per year (1,500 hours per year on a rolling five year average) for peak medium to long-term impact assessment; and
- maximum emission rates, at IED ELVs (daily averages) for all combustion units.

6.3.58 The actual hours of operation of the Proposed Development would be subject to the national demand for electricity and the economic viability of gas fired generation.

6.3.59 The Proposed Development would include either a single larger OCGT, or up to five smaller OCGTs to a maximum combined gross electrical output capacity of up to 299MW. Each OCGT unit would vent to a dedicated stack. The modelled point source release parameters have been based on the OCGT technology options, for the minimum and maximum number of units, which thereby include the worst-case impacts. The modelled emission parameters are summarised in **Table 6-10**.

Table 6-10: Modelled combustion plant air emission parameters

Assumed Parameter	Single large OCGT	Small OCGT (each of five)
Nominal gross power output (MW)	Up to 299	up to 60 [up to 299 total, five units]
Average stack exit conditions:		
Maximum volumetric flow (Am^3/s)	1,860	360
Oxygen content (%)	13.5	16
Moisture content (%)	8.5	6
Temperature (°C)	580	420
Maximum volumetric flow at reference conditions (Nm^3/hr)[1]	2,450,000	435,000 [2,177,000 total, five units]
Approx. flue diameter (m)	10.0	4.3
Average efflux velocity (m/s)	25	25
Single Cycle Net Efficiency (%)	39	41
NO_x ELV (IED, mg/Nm^3)[2]	50	50
NO_x release rate (g/s)	38	6.0 [30 total, five units]
CO ELV (IED, mg/Nm^3)	100	100
CO release rate (g/s)	68	12
Stack height (m)	40-45	35-45
Assumed maximum operating hours / year (five-year rolling average)	1,500	1,500

Note: Reference conditions: 273K, 15% O_2, dry

Rochdale Envelope Parameters

6.3.60 At this design stage, the final layout and locations of the Proposed Development stacks and structures have not been fixed, although these would remain within the envelope described (**Chapter 4**: The Proposed Development). Therefore, alternative layouts and locations have been assessed within the dispersion

modelling, with the worst-case impacts predicted at receptors reported in this chapter.

6.3.61 The modelled parameters associated with both technology options are presented in **Table 6-11**.

Table 6-11: Modelled alternative design schemes for the Proposed Development

Design Scheme	GT summary	Layout and location
A	Single OCGT (up to 299MW)	Nominal N-S alignment of unit, stack assessed in each of the four corners of the area of the Proposed Power Plant Site in which the plant could be located (SE, SW, NE, NW), with gas turbine and associated units situated within a building.
B	Up to five OCGTs (up to 299MW total)	Nominal E-W alignment of individual, standalone units, with stacks 30m apart generally aligned N-S, located to east or west within Proposed Power Plant Site.

Note: N, E, S, W refer to cardinal points

6.3.62 The assessment has also taken into consideration the sensitivity of predicted results to dispersion model input variables, to identify the realistic worst-case PC at sensitive receptor locations. These variables include:

- meteorological data, for which five years' recent data from a representative meteorological station (Robin Hood airport) have been used; and
- buildings, structures and local topography that could affect dispersion from the source.

The sensitivity of the predicted results to these variables is presented within **Appendix 6A:** Air Quality (ES Volume II).

6.3.63 The Proposed Development may also provide a 'black-start' capability to National Grid, to help restart the national electricity transmission system in the event of a total or partial shutdown. It is not possible to accurately predict the likely frequency or duration of black-start events. However, historically black-start events have been very infrequent in the UK. If required to help restart the national electricity transmission system a small (anticipated to be circa 2MW output) diesel generator (hereafter referred to as the emergency diesel generator) is used to start a small (anticipated to be between 15 and 60MW output) gas turbine (hereafter referred to as the black-start auxiliary power unit). The black-start auxiliary power unit would be used to start a main gas turbine unit at either WBB Power Station or WBC Power Station. The emergency diesel generator is expected to run for less than 50 hours per year. The emergency diesel generator would be fired on liquid fuel

which is ultra-low sulphur. The diesel generator will have a minimum stack height of 3m above ground level and will be located more than 500m from a Natura 2000 site.

6.3.64 Environmental impacts of the black-start auxiliary power unit have been considered within the overall up to 299MW generating capacity of the Proposed Development.

6.4 Baseline Conditions

Sensitive Receptors

6.4.1 Based on IAQM guidance (Ref 6-20), during the construction phase, receptors potentially affected by NRMM exhaust emissions, dust soiling and short-term concentrations of PM_{10} generated during construction activities are limited to those located within 350m of the nearest construction activity, or within 50m either side of a public road or highway used by construction traffic (up to a distance of 500m from the construction site entrances). Ecological receptors are limited to those located within 50m of the nearest construction activity and/or within 50m either side of a public road or highway used by construction traffic (up to a distance of 500m from the construction site entrances). The construction site entrance would discharge vehicles onto the private, surfaced road, approximately 1.4km before joining the public highway. As such, there are no identified residential receptors within 500m of the construction site entrance.

6.4.2 Receptors potentially affected by the exhaust emissions associated with construction phase road vehicle movements are those located within 350m of a public road or highway used by Site construction traffic. Site construction traffic would use the existing West Burton Power Station site entrance, on Gainsborough Road, linking to the A620 to the north, with a small proportion of construction worker traffic only (no HGVs) travelling south towards Sturton-le-Steeple. Several properties are identified as relevant receptors along this construction route.

6.4.3 Receptors potentially affected by operational emissions from the Proposed Development, including local residential and amenity receptors within 2km, have been identified through desk study of local mapping and through consultation. Where several receptors are present in a locality (for example a hamlet or village), isopleth figures of pollutant dispersion have been examined to identify the receptors that would receive the highest point source contributions. The assessment of impact has been made at these receptors and is assumed to be representative of the impact at all receptors within the locality.

6.4.4 Ecological receptors potentially affected by operational emissions have been identified (see **Chapter 9**: Ecology); statutory designated sites including SSSI up to 10km have been included in the assessment. No statutory international nature conservation designations have been identified within 10km of the Site; however several non-statutory designations (LWS) are located within 2km. Details of the

sites and reasons for designations are provided in **Chapter 9**: Ecology. Identified receptors are detailed in **Table 6-12**.

Table 6-12: Identified receptors with potential for air quality impacts from the Proposed Development

ID	Receptor name	Receptor type[1]	Grid reference	Distance from boundary for impacts from:		
				Traffic[2] (m)	Dust[3] (m)	Operation[4] (km)
R1	Willow Farm; Manor Cottage, East Street, Bole	Residential	479499, 387023	>350	>500	0.9 NW
R2	South Street, Bole	Residential	479110, 386849	230	>500	1.0 NW
R3	Crossing Keepers Cottage	Residential	478570, 385320	25	>500	1.9 SW
R4	Mill House Farm	Residential	478906, 386428	35	>500	1.1 W
R5	Grange Farm	Residential	478663, 386031	20	>500	1.2 W
R6	High Farm Cottages	Residential	478050, 386327	>350	>500	1.9 W
R7	St Ives	Residential	478654, 385082	85	>500	1.3 SW
R8	North Street, Sturton-le-Steeple	Residential	479000, 384560	>350	>500	1.4 SW
R9	Watkins Lane, Sturton-le-Steeple	Residential	478620, 384650	>350	>500	1.6 SW
R10	Public Right of Way (West Burton FP4) – River Trent bank	Transient	480400-480500, 385700-386700	-	Adjacent	>0.1 E
R11	Rose Lea	Residential	478780, 386980	20	>500	1.6 NW

ID	Receptor name	Receptor type[1]	Grid reference	Distance from boundary for impacts from:		
				Traffic[2] (m)	Dust[3] (m)	Operation[4] (km)
R12	Gainsborough Road South	Residential	478470, 384660	<10	>500	2.3 SW
E1	Lea Marsh	SSSI	481573, 386640	>350	>50	1.0 NE
E2	West Burton Power Station	LWS	480400, 386300	<10	Located partially within Site	
E3	West Burton Reedbed	LWS	480400, 385800	<50	<50	0.05 SE
E4	Burton Round Ditch	LWS	480160, 385550	>350	>50	0.1 S
E5	Bole Ings	LWS	480350, 387060	>350	>50	0.4 N
E6	Bole Ings Drains	LWS	480250, 387490	>350	>50	0.4 N
E7	Mother Drain, Upper Ings	LWS	481480, 385730	>350	>50	1.1 E
E8	West Burton Meadow	LWS	478660, 385170	100	>50	1.2 SW
E9	Bole Ings Flood Pasture	LWS	481260, 387490	>350	>50	1.4 NE
E10	Saundby Ponds	LWS	480050, 388050	>350	>50	1.6 N
E11	Saundby Marsh Drains	LWS	480080, 388250	>350	>50	1.7 N
E12	Lea Meadow	LWS	482060, 386620	>350	>50	1.8 NE
E13	Clarborough Tunnel	SSSI	475450, 382650	>350	>50	5.9 SW
E14	Treswell Wood	SSSI	476205, 379875	>350	>50	7.5 SW

ID	Receptor name	Receptor type[1]	Grid reference	Distance from boundary for impacts from:		
				Traffic[2] (m)	Dust[3] (m)	Operation[4] (km)
E15	Ashton's Meadow	SSSI	478650, 380070	>350	>50	6.3 S
E16	Chesterfield Canal (1)	SSSI	473815, 386950	>350	>50	6.4 W
E17	Sutton and Lound Gravel Pits	SSSI	471300, 385700	>350	>50	8.9 W
E18	Chesterfield Canal (2)	SSSI	475100, 392470	>350	>50	8.1 NW
E19	Mother Drain, Misterton	SSSI	478500, 394760	>350	>50	8.7 N
E20	Castle Hill Wood	SSSI	474040, 380680	>350	>50	8.3 SW

Notes:
1. SSSI = Site of Special Scientific Interest; LWS = Local Wildlife Site
2. Distance from Proposed Development highway link
3. Distance from Proposed Development construction site boundary or entrance
4. Distance from Proposed Development operational boundary (for process emissions)

Existing Air Quality

6.4.5 Existing air quality conditions in the vicinity of the Site have been evaluated through a review of local authority air quality management reports, Defra published data and other sources. As described, the key pollutants of concern resulting from construction, operation and decommissioning of the Proposed Development are NO_x, NO_2, CO, PM_{10} and $PM_{2.5}$, therefore the assessment of baseline conditions considers these pollutants only.

Local Air Quality Management

6.4.6 Under the requirements of Part IV of the Environment Act, BDC and WLDC have a duty to undertake the periodic review and assessment of local air quality within their administrative areas.

6.4.7 Over the course of the review and assessment process, BDC has not declared an AQMA within its administrative area.

6.4.8 The most recent Annual Management Report available from BDC (2017) (Ref 6-25) concluded that the majority of the district has very good air quality, although

there are several areas within the district that have elevated levels of NO_2 close to the annual mean NAQS objective. It states that annual mean concentrations of NO_2 are either unchanged or showing a slight downward trend within the district and NO_2 concentrations will continue to be closely monitored by the Council at locations within Worksop and Retford. The review and assessment process has not identified any air quality issues in the vicinity of the Site, nor the air quality study area surrounding it.

6.4.9 BDC does not operate any automatic monitoring stations within its administrative area. However it measures annual mean concentrations of NO_2 passively, using diffusion tubes. The nearest of these diffusion tubes is located at a roadside location in Retford, approximately 11km from the Site, and therefore is not considered representative of background air quality in the vicinity of the Site or within the study area.

6.4.10 Over the course of the review and assessment process, WLDC has not declared an AQMA within its administrative area. The most recent Annual Management Report available from WLDC (2018) (Ref 6-26) concluded that air quality pollutant concentrations within the district were significantly below the NAQS objectives.

6.4.11 Automatic monitoring is undertaken at one location within the district, at Gainsborough Cemetery 4km to the north-east, as part of the Applicant's programme (Ref 6-27) to monitor emissions from the power stations in the Trent Valley; the automatic monitor currently monitors real-time concentrations of NO_2. The results gathered to date show that the NO_2 air quality objectives are being met and indicate a flat trend in concentrations. Summary monitoring data from 2013-2017 is presented in **Table 6-13**.

Table 6-13: EDF automatic monitoring data (background location)

Parameter	2013 ($\mu g/m^3$)	2014 ($\mu g/m^3$)	2015 ($\mu g/m^3$)	2016 ($\mu g/m^3$)	2017 ($\mu g/m^3$)	Data Capture (%)
NO_2 annual mean	15.2	13.8	13.6	13.7	14.8	100
Exceedances of NO_2 hourly mean (99.79^{th} %ile)	0	0	0	0	0	

Note: Monitor located at grid reference 482021, 389974

6.4.12 WLDC also operates a number of NO_2 diffusion tubes within the district, the closest of which are located within Gainsborough, including background, roadside and kerbside locations. Summary monitoring data for 2017 is presented in **Table 6-14**.

Table 6-14: Annual mean NO_2 diffusion tube data (2017)

Monitor ID & Location	Distance to Site (km)	2017 ($\mu g/m^3$)	Monitor type
WL1, Spring Gardens, Gains.	3.9	25.3	Roadside
WL2, Etherington Street, Gains.	3.8	20.9	Roadside
WL3/4/5 (automatic co-location), Gainsborough Cemetery.	4.1	14.6	Background
WL6, Cherry Tree Rd, Gains.	4.3	17.6	Kerbside
WL7, Lea Rd, Gains.	3.1	32.7	Roadside
WL8, Marshall Way, Gains.	4.1	19.5	Roadside

6.4.13 The above background monitoring locations (including automatic monitor, diffusion tubes WL3/4/5) are considered to represent the baseline air quality, including contributions from the WBA Power Station site and contributions from WBB Power Station site, although previous studies have shown that the peak PC from each of the WBA and WBB Power Stations do not occur in the same location, as a result of differences in stack heights, stack locations and emission characteristics.

6.4.14 For the purposes of establishing locations of peak impact of the different power stations, modelling undertaken for the ES for WBB Power Station (Ref 6-28) has been reviewed; this included consideration of WBA and Cottam Power Stations and indicated that the maximum PC from these plants occur to the east of Gainsborough, approximately 7km from the location of maximum impact from the Proposed Development to the immediate north-east of the Site. Therefore, it would be unlikely to coincide with peak PC from the Proposed Development. The modelling undertaken for the WBB Power Station ES indicated that peak PC from the WBB Power Station would occur approximately 2km north-east of the source, close to Lea Marsh, and therefore could occur in a similar location to the PC from the Proposed Development combustion sources. Therefore, for the purposes of a worst-case assessment, the emissions from WBB Power Station have been modelled with the emissions from the Proposed Development, as described in **Appendix 6A** (ES Volume II). Data from the WBB ES indicates that combined WBA Power Station and Cottam Power Station contribution is around 2% of the annual mean NO_2 NAQS at the location of maximum impact from the Proposed Development, therefore represents <10% of the existing background concentration. The impacts from WBA Power Station and Cottam Power Station at this location are therefore not considered to materially affect the results of this air impact assessment.

6.4.15 It is anticipated that WBA Power Station will close by 2025 under current legislation, and therefore, taking a potential later opening year in the proposed construction programme (i.e. post 2025), it is possible that WBA would not be in operation concurrently with the Proposed Development. The inclusion of WBA Power Station PC within existing background pollutant concentrations therefore represents the worst-case assessment of the future baseline at the Proposed Development opening year.

6.4.16 Background data has also been obtained from Defra published maps for the locations of likely maximum impact from point source emissions from the Proposed Development, and at identified sensitive receptor locations. Background mapping data for 2019 (based on 2015 background maps, at the onset of operation of WBB Power Station) is conservatively assumed to be representative of the construction (maximum traffic volume) and opening year baselines. Background data assumed for the maximum impact location from the point source emissions is provided in **Table 6-15** and indicates NO_2, CO, PM_{10} and $PM_{2.5}$ concentrations within the vicinity of the Proposed Development are consistently well below the NAQS annual mean objectives. Background data for NO_2 sensitive receptors is provided in **Table 6-16**.

Table 6-15: Defra background air quality data (annual mean) – current and future year projections (1km^2 grid average)

Location	Pollutant	2019 – Current	2023 – Opening
Maximum impact location, down-wind of Site (480500, 386500)	NO_2 (µg/m^3)	9.3	9.3
	CO (mg/m^3) - 2001	0.11	0.11
	PM_{10} (µg/m^3)	13.1	13.1
	$PM_{2.5}$ (µg/m^3)	8.6	8.6
Gainsborough cemetery, automatic monitor (481500, 390500)	NO_2 (µg/m^3)	12.2	12.2

Note: Based on 2015 background-mapping except where indicated

6.4.17 The Defra NO_2 background mapping data for Gainsborough Cemetery is comparable with the automatic monitoring data in the same location for 2015, which is the background mapping index year and the co-located diffusion tube data. The selection of appropriate background data is discussed in **Section 6.6.**

6.4.18 The Defra background data is therefore considered to be representative of baseline NO_2 levels at the identified sensitive receptors. The Defra background data describing the future baseline NO_2 at receptor locations is shown in **Table 6-16** below.

Table 6-16: Assumed annual mean baseline NO_2 concentrations at sensitive receptors

Receptor	Defra background (µg/m^3)	2020 – Construction; 2023 – Opening
R1	8.8	8.8
R2	9.3	9.3
R3	8.4	8.4
R4	8.4	8.4
R5	8.4	8.4
R6	8.2	8.2
R7	8.4	8.4
R8	8.4	8.4
R9	8.4	8.4
R10(T)	8.2	8.2
R11	9.3	9.3
R12	8.4	8.4

Table 6-17: Assumed annual mean baseline CO concentrations at sensitive receptors

Receptor	Defra background (µg/m^3)	2020 – Construction; 2023 – Opening (µg/m^3)
R1	110	110
R2	110	110
R3	110	110
R4	110	110
R5	110	110
R6	110	110
R7	110	110
R8	110	110
R9	110	110

Receptor	Defra background (µg/m^3)	2020 – Construction; 2023 – Opening (µg/m^3)
R10(T)	110	110
R11	110	110
R12	110	110

6.4.19 PRoWs are included as sensitive receptors for the purposes of assessing short-term impacts. Baseline pollutant concentrations at the identified statutory designation ecological receptors have been obtained from APIS (Ref 6-6) and are provided in **Appendix 6A:** Air Quality (ES Volume II).

6.4.20 No other developments, including those recently consented on the wider West Burton Power Station site, are considered to have likely materially changed the reported baseline for the purposes of this assessment. The recently consented battery storage units, now operational within the footprint of WBB Power Station are not anticipated to result in emissions to air.

Future Baseline

6.4.21 In order to ensure that any adverse effects are not under estimated, it is assumed that the air quality future baseline in 2020 (prior to the earliest date that the Proposed Development would commence construction (subject to the necessary consents being granted and an investment decision being made) is likely to be very similar to the existing baseline. This assumes, for instance, that there would be no improvement in vehicle emissions between 2019 and 2020, and similarly no improvement in background air quality during that period. The air quality future baseline with other developments is considered as part of the cumulative assessment in **Chapter 16**: Cumulative and Combined Effects.

6.5 Development Design and Impact Avoidance

Construction

Construction Environmental Management Plan

6.5.1 Emissions of dust and particulates from the construction phase of the Proposed Development would be controlled in accordance with industry best practice, through incorporation of appropriate control measures, according to the risks posed by the activities undertaken, as determined through this assessment process. The management of dust and particulates and application of adequate mitigation measures would be controlled through the CEMP. A Framework CEMP is included as **Application Document Ref. 7.3**. The selected contractor would be encouraged to be a member of the 'Considerate Constructors Scheme (CCS)' which is an initiative open to all contractors undertaking building work. This would

assist in reducing potential pollution and nuisance from the Proposed Development.

Construction Road Traffic

6.5.2 Construction road traffic would be managed in accordance with the Construction Traffic Management Plan (CTMP) to minimise impacts on local receptors (proposed to be secured by a Requirement of the draft DCO (**Application Document Ref 2.1**)). A Framework CTMP is presented in **Application Document Ref. 7.6**.

Opening and Operational Impacts

IED Emission Limit Value (ELV) Compliance

6.5.3 The Proposed Development would be designed such that process emissions to air comply with the ELV requirements specified in the IED and the European Large Combustion Plant BAT Reference document which was finalised in 2017 and contained lower annual average emission limits than were included in the IED. This would be regulated by the Environment Agency through the Environmental Permit required for the operation of the Proposed Development.

6.5.4 The OCGTs under consideration are all indicated to meet the IED ELVs without the use of secondary abatement techniques, such as SCR for the control of NO_x emissions.

Stack Height

6.5.5 The stack heights for the plant have been optimised with consideration given to minimisation of ground-level air quality impacts balanced against the visual impacts of taller stacks. Dispersion modelling has been undertaken to determine the optimum stack height range, through comparison of the maximum impacts at human health and ecological receptors. Further information on the determination of the stack heights is provided in **Appendix 6A:** Air Quality (ES Volume II).

6.5.6 Emission to air impacts have been assessed based on 35m stack heights (for each of up to five unit stacks) and 40m stack height (for a single gas turbine stack) based on height above finished ground level. These are the stack heights considered to adequately disperse emissions from the Proposed Development assessed options. Stacks of a different height could be utilised depending on the technology selected provided they adequately disperse the emissions which would need to be demonstrated by appropriate dispersion modelling work. Higher stacks could be employed – up to the 45m high stacks have been assessed in **Chapter 10**: Landscape and Visual Amenity Assessment, which would further reduce predicted ground level pollutant concentrations.

Visible Plumes

6.5.7 The potential for visible plumes from the Proposed Power Plant Site is considered to be very low as a result of the water content and temperature of the flue gas emitting from the stacks. There is no steam cycle or wet cooling tower plume associated with the operation of OCGT units and therefore condensing plumes are not expected to ever occur. No assessment of visible plume impacts has therefore been undertaken.

Decommissioning

6.5.8 Appropriate best practice mitigation measures will be applied during any decommissioning works and documented in a Decommissioning Environmental Management Plan (DEMP), proposed to be secured by a Requirement in the draft DCO (**Application Document Ref 2.1**); no additional mitigation for decommissioning of the Proposed Development beyond such best practice is considered necessary at this stage. The predicted air quality effects of eventual decommissioning of the Proposed Development are considered to be comparable to, or less than, those assessed for construction activities.

6.6 Likely Impacts and Effects

Construction

Assessment of Construction Dust and NRMM Emissions

6.6.1 Identified sensitive receptors to dust soiling, PM_{10} and NRMM exhaust emission effects from construction works are detailed in **Table 6-12**.

6.6.2 No residential human health receptors have been identified within the screening distance and therefore the effects of construction dust soiling and PM_{10} impacts, and emissions from NRMM, on these receptors, have been screened out. Residential receptors (R3, R4, R5, R11) along the proposed construction traffic route, which includes the surfaced, private access road, are more than 500m from the construction site exit and therefore beyond the screening distance for trackout effects.

6.6.3 The only sensitive receptors identified within the screening distance are potential transient receptors, such as users of the Public Right of Way (PRoW, Bole FP9#1 and West Burton FP4) along the River Trent, within 350m of the north-east Site boundary. However, in accordance with IAQM guidance and Defra guidance Local Air Quality Management TG09 (Ref 6-29) these receptors are identified as low sensitivity, as relevant sensitive locations to particulates are those in which individuals may be exposed for eight hours a day or more (Ref 6-21). Therefore, such transient receptors are not identified as sensitive for this assessment.

6.6.4 No designated ecological receptors have been identified within the screening distance. The LWS located in close proximity to the Proposed Development are

considered to be of low sensitivity to dust impacts, with reference to the IAQM criteria.

6.6.5 The scale and nature of activities have been estimated to define the potential uncontrolled dust generation magnitude, according to the criteria outlined in **Table 1** of **Appendix 6A**: Air Quality. Whilst a detailed construction plan has yet to be developed for the Proposed Development, estimates of the likely scale of activities, with reference to these criteria have been made:

- the facilitating works are not expected to require demolition or on-site crushing and screening operations;
- earthworks may be required to re-profile the Site, to produce a level platform for the Proposed Development and this has been conservatively assumed to cover an area in excess of 1ha, with potentially dusty materials and using 5-10 heavy earth moving vehicles during peak activity;
- the Proposed Development could entail the use of on-site concrete batching plant, if this is required, for foundations and building construction. For the purposes of the construction dust impact assessment, it is assumed that the total building construction volume is less than 100,000m^3 and includes the use of some pre-fabricated units; and
- HGVs leaving the site would be more than 50 vehicles per day during peak activity.

6.6.6 The magnitude of effects for dust and NRMM emissions has been determined as 'large' for earthworks activities and trackout, and 'medium' for construction activities; demolition activities have been screened out.

6.6.7 The area sensitivity to dust impacts from the construction works, taking into consideration the number and proximity of sensitive receptors to identified activities, is therefore assessed to be 'low' in accordance with **Table 2** of **Appendix 6A**: Air Quality. The magnitude of dust impacts taking into account **Table 1** of **Appendix 6A**: Air Quality and area sensitivity assessments are presented in **Table 14** and **Table 15** in **Appendix 6A**: Air Quality. The potential risks from unmitigated activities are shown in **Table 6-18** below.

Table 6-18: Risk of dust and particulate impacts (pre-mitigation)

Potential impact	Risk of impact from unmitigated activity			
	Demolition	Earthworks	Construction	Trackout
Dust soiling	(none)	Low risk	Low risk	Low risk
Human health (PM_{10})	(none)	Low risk	Low risk	Low risk
Ecological	(none)	Low risk	Low risk	Low risk

6.6.8 The level of mitigation required to reduce dust and particulates from the activities to avoid significant impacts on receptors has been determined based on the above risk assessment and indicative measures are outlined in the Framework CEMP (**Application Document Ref. 7.3)**.

6.6.9 The effects of emissions to air from the construction site activities associated with the Proposed Development on the identified receptors are considered to be not significant, based on application of best practice mitigation measures through the CEMP and the distances to the identified sensitive receptors.

Assessment of Construction Traffic Emissions

6.6.10 Predicted HGV movements during the construction and operation of the Proposed Development are shown in **Table 6-19**. The construction phase AADT is predicted to peak at 112 two-way HGV movements accessing the Site via the existing access point per day (months 18-30). The AADT total number of vehicles is predicted to peak at less than 350 two-way movements on Gainsborough Road (months 25-27). On this basis, further quantitative assessment of road traffic impacts associated with the construction phase has not been undertaken, as the screening criteria recommending initiation of a detailed assessment of air quality impacts have not been exceeded.

Table 6-19: Traffic associated with the construction and operation of the Proposed Development

Proposed Development Phase	Peak traffic flow (AADT)	Screening criterion for initiation of detailed assessment – change in traffic flow (AADT)
Construction	112 HGV movements 338 total movements	200 HGV movements 1,000 total vehicles movements
Operation	<10 total movements	100 HGV movements (if there is no AQMA) 500 LDV movements (if there is no AQMA)

6.6.11 The effects of emissions to air from the construction traffic associated with the Proposed Development on the identified receptors are therefore considered to be not significant as the predicted traffic flows are below the screening thresholds indicated in published guidance.

Opening and Operation

Assessment of Opening Traffic Emissions

6.6.12 The predicted AADT opening traffic is less than 10 vehicles arriving and departing the Site. Therefore, traffic associated with the Proposed Development at time of opening has been screened out of the assessment, as this would be below the criteria set out in the IAQM as requiring an air quality assessment, shown in **Table 6-19.** The effects of emissions to air from the operational traffic associated with the Proposed Development on the identified receptors are therefore considered to be not significant.

Assessment of Operational Point Source Emissions

6.6.13 The PC at human health receptors has been determined from isopleth figures of pollutant dispersion and maximum model output at discrete receptor locations. The maximum hourly, daily and annual mean PC and PEC have been compared with the NAQS objectives, as summarised in **Table 6-20** to **Table 6-23**; detailed concentrations at all identified receptor locations are provided in **Appendix 6A** (ES Volume II). Isopleth figures showing the maximum predicted annual mean and short-term PC of NO_2 (human health receptors) are provided in **Figures 6.2** – **Figure 6.3** (ES Volume III**).** The maximum predicted annual mean and short-term PC for NO_x (ecological receptors) are presented as **Figure 6.4-6.5** (ES Volume III).

6.6.14 These results represent the output from the worst-case modelled scenario, which is up to five smaller gas turbine units with stacks aligned north to south; variation in the predicted results with alternative Rochdale Envelope scenarios is discussed in later paragraphs in this section.

6.6.15 The dispersion modelling includes a number of conservative assumptions in combination, including:

- use of the worst-case year of meteorological data modelled;
- maximum building sizes within the assessed Rochdale Envelope;
- worst-case location of the stack(s) within the Proposed Power Plant Site;
- worst-case OCGT configuration within the assessed Rochdale Envelope, other configurations resulted in lower predicted impacts as shown in **Appendix 6A:** Air Quality (ES Volume II);
- anticipated maximum annual operation for the plant (2,250 hours);
- operation of the plant at IED emission limits;
- inclusion of WBB Power Station PC at maximum emission rates; and
- conservative estimates of background concentrations at the receptor locations.

6.6.16 The following abbreviations are used in **Table 6-20** to **Table 6-21**:

- PC: this is the Process Contribution and represents the change caused by the Proposed Development;
- headroom: this is the short-term PC, as a percentage of the available headroom between the baseline (ambient) concentration (AC) and the NAQS objective; and
- PEC: this is the Predicted Environmental Concentration and is PC plus baseline (ambient) concentration (AC). It is the concentration expected at a particular receptor once the effect of the Proposed Development is taken into account.

Table 6-20: Maximum short-term NO_2 predicted concentrations at worst-affected human health receptors (Receptor R1)

Hourly mean PC – Proposed Development ($\mu g/m^3$, 99.79th %ile)	PC/NAQS	Short-term AC ($\mu g/m^3$)	Combined PC WBB + Proposed Development ($\mu g/m^3$)	$PC_{WBB+PROPOSED\ DEVELOPMENT}$ as % of headroom (PC/(NAQS-AC)	Effect descriptor
5.9	3%	19	17.6	<10%	Negligible

Table 6-21: Maximum long-term NO_2 predicted concentrations at worst-affected human health receptors (Receptor R1)

Annual mean PC- Proposed Development	PC /NAQS	Magnitude of change	Annual mean AC ($\mu g/m^3$)	Combined PC WBB + WBC ($\mu g/m^3$)	$PEC_{WBB+WBC}$ ($\mu g/m^3$)	PEC /NAQS	Effect descriptor
<0.1	<0.1%	Imperceptible	9	0.3	10	24%	Negligible

6.6.17 The maximum hourly mean predicted concentration of nitrogen dioxide from the Proposed Development at the worst affected residential receptor (R1, East Street, Bole) represents 3% of the hourly mean NAQS objective and therefore is negligible, as defined by the IAQM and Environment Agency criteria; the worst-case hourly mean PC from the combined Proposed Development emissions and WBB Power Station emissions are also less than 10% of the hourly mean NAQS objective and therefore the effect is described as negligible adverse (not significant).

6.6.18 Whilst not required to be specifically assessed under the guidance, the maximum hourly mean predicted concentration of nitrogen dioxide from combined emissions of the Proposed Development and WBB Power Station at any off-site location is predicted to be 25% of the available headroom and therefore well below the NAQS hourly mean objective. Therefore no exceedance of the short-term NAQS objectives is predicted from PC from the combined operation of WBB Power Station and the Proposed Development. Furthermore, this represents an assumed conservative operational scenario with maximum operation of the WBB Power Station and the Proposed Development coinciding with weather conditions leading to peak impacts.

6.6.19 The maximum long-term PC of nitrogen dioxide from any of the operational scenarios results in an imperceptible magnitude of change in the annual mean concentration at the worst affected residential receptors (R1, East Street, Bole). The annual mean baseline concentration at these receptors is well below the NAQS objective with the Proposed Development. The maximum long-term PEC is only 24% of the NAQS objective, therefore the effect of emissions from the Proposed Development, at worst affected receptors represented by R1, is described as negligible (not significant).

6.6.20 The selection of Defra background data for use in the assessment of impacts at receptors is considered to be appropriate as there is no available monitoring data in the vicinity of the receptors. The comparison of Defra NO_2 background mapping data and automatic monitoring data for Gainsborough Cemetery indicates a difference of less than 3µg/m^3 between the datasets and it is considered that the difference in baselines would not be sufficient to change the results of the assessment, as the difference in magnitude of effect would be imperceptible.

6.6.21 The maximum 8-hour and 1-hour mean PC of carbon monoxide at identified receptors represent a negligible change, with worst-case PC of <1% of the 8-hour mean NAQS and <1% of the hourly mean EAL at all receptors; the combined maximum PC from the Proposed Development and WBB Power Station represent <10% of the objectives and therefore the effects are considered to be not significant.

6.6.22 The PC from point source emissions at the identified ecological receptors has been determined from isopleth figures of pollutant dispersion and maximum model output at the receptor locations. The NO_x PC has been compared with the Critical

Levels at the worst-affected statutory designated ecological receptor, as shown in **Table 6-21** and **Table 6-22.**

Table 6-22: Maximum NOx (24-hour) PC at worst-affected SSSI

Receptor ID	Daily mean NO_x $PC_{PROPOSED\ DEVELOPMENT}$ ($\mu g/m^3$)	PC/Critical Level	Combined PC $_{WBB + PROPOSED\ DEVELOPMENT}$ ($\mu g/m^3$)	$PC_{WBB+\ PROPOSED\ DEVELOPMENT}$ / Critical Level	Effect descriptor
E1 (Lea Marsh SSSI)	7.4	9.9%	40	54%	Negligible

Table 6-23: Maximum annual NO_x PC at worst-affected SSSI (E1, Lea Marsh)

Receptor ID	Annual mean PC $_{PROPOSED\ DEVELOPMENT}$ / NAQS ($\mu g/m^3$)	Magnitude of change	Annual mean AC ($\mu g/m^3$)	Combined PC $_{WBB + PROPOSED\ DEVELOPMENT}$ ($\mu g/m^3$)	PEC $_{WBB+\ PROPOSED\ DEVELOPMENT}$ ($\mu g/m^3$)	Annual mean PEC/ NAQS	Effect descriptor
E1(Lea Marsh SSSI)	0.7%	Imperceptible	17	1.4	18	60%	Negligible

6.6.23 The maximum daily mean NO_x at any statutory designated receptor occurs at Lea Marsh SSSI and represents <10% of the Critical Level for the Proposed Development in isolation and 54% of the Critical Level when combined with the PC from WBB Power Station, and therefore is below the significance criterion (Unacceptable PC>100% of the Critical Level). Furthermore, this represents a conservative maximum operation of 12-hours per day, every day of the year, which would be more than the anticipated annual maximum of up to 2,250 hours per year (1,500 hours per year on a rolling five year average). As such, the assessment represents the peak daily PC that could occur over a short-term period, rather than a longer-term average of the daily maximum.

6.6.24 The average daily mean PC of NO_x at the Lea Marsh SSSI from the Proposed Development PC (assuming continuous maximum emissions from the Proposed Development, factored for the total annual operating hours) represents 3% of the daily Critical Level. Therefore, the impact of the PC at statutory designated receptors is considered to be negligible adverse (not significant).

6.6.25 The maximum daily mean PC of NO_x at the non-statutory LWS in the Site vicinity, from the Proposed Development in combination with the existing WBB Power Station PC, is predicted to be less than 100% of the Critical Level at the worst-affected receptor. Therefore the PC to daily mean NO_x at non-statutory receptors is not predicted to exceed the Critical Level (not significant).

6.6.26 The maximum PC of NO_x from any of the operational scenarios results in an imperceptible magnitude of change in the annual mean concentration at the worst-affected statutory designated and non-statutory ecological receptors. The annual mean PEC, including maximum PCs from the Proposed Development and WBB Power Station and the existing background at all receptors, is well below the objective. Therefore, the long-term effect of the Proposed Development PCs of NO_x at ecological receptors is described as negligible adverse (not significant).

6.6.27 In addition to the above assessment of the ground level concentration at the identified ecological receptors, an assessment of deposition impacts at the identified statutory designated receptors has also been undertaken as presented in **Appendix 6A:** Air Quality, **Tables 21** and **23** (ES Volume II), for those SSSIs with published deposition Critical Loads (E1, E13-15). The worst-affected receptor (E1) is designated for species that may be sensitive to nutrient nitrogen deposition and acid deposition. The maximum PC of nutrient nitrogen deposition at the identified receptor is less than 1% of the Critical Load published for the most sensitive habitat type. The PC of sulphur deposition at the ecological receptor is expected to be negligible, as the emissions of SO_2 from natural gas combustion are negligible. Therefore, only the PC of nitrogen kilo-equivalent deposition has been compared with the acidity Critical Load, and the maximum nitrogen deposition PC to acid deposition at the ecological receptor is less than 1% of the Critical Load published for the most sensitive habitat type. Consequently, the effect of nutrient nitrogen and acid deposition from the Proposed Development at this receptor is described as negligible adverse (not significant).

6.6.28 The opening and operational phase point source emissions effects on identified receptors has therefore been determined to result in a negligible adverse effect which is considered to be not significant.

Rochdale Envelope Parameters

6.6.29 A number of potential alternative designs under the Rochdale Envelope approach have been modelled and the design option (see **Table 6-10**) resulting in the worst-case PC at receptors (from the Proposed Development in isolation) being used in the assessment of effects. Consequently, the results presented in this assessment may be illustrative of several different design options and the overall effect of the Proposed Development may be lower than that presented, as the design to be taken forward may present lesser impacts on some receptors than presented in this assessment.

6.6.30 The maximum PCs of NO_2 at the worst affected human health receptors and NO_x at ecological receptors associated with the alternative design options are shown in **Table 6-24** as the percentage of reported values used in the assessment of effects. A reported result in **Table 6-24** of 100% means that result is the same as was reported in the main assessment above, and therefore represents the worst-case; if a result is less than 100% then this means that the result is a lower impact than the worst-case presented. The range of maximum values predicted for the alternative layouts for each of the design options (A and B, **Table 6-11**) are shown; no single layout for either design option resulted in worst-case impacts at all receptors, therefore the reported results represent the worst-case from any of the modelled layouts.

Table 6-24: Rochdale Envelope: Maximum PC at worst affected receptors (as % of reported values)

Design Option	Human health receptors		Statutory Ecological Receptors	
	Long-term	Short-term	Long-term	Short-term
A	9-10%	18-20%	33-35%	66-77%
B	94-100%	96-100%	100%	96-100%

6.6.31 The above sensitivity analysis highlights that the scenarios with up to five smaller gas turbine units result in the highest PC at sensitive receptors, but that the location and orientation of stacks relative to the units within the Proposed Power Plant Site boundary makes only limited difference to the maximum PC at receptors, as shown by the small range in predicted maximum values for each design option. Application of the above sensitivity results to PC does not adversely alter the predicted effects or influence whether effects may or may not be significant and therefore the reported receptor effects can be considered worst-case.

6.6.32 This air quality assessment has not specifically modelled emissions from the emergency diesel generator unit, as the unit is expected to run for less than 50 hours per year and does not require detailed assessment under the Environment Agency Standard Rules Permit conditions (SR2018 No.7) as the unit will have a minimum stack height of 3m and is more than 500m from a Natura 2000 site.

6.6.33 On this basis, the mass and concentration of any emissions for the short period on black-start would be considerably lower than the Proposed Development under normal operation and emitted through one of the generator stacks. Therefore this has not been separately assessed as an air quality scenario, since the impacts will be lower than the results presented in this chapter.

6.6.34 Use of the Rochdale Envelope parameters therefore does not change the conclusions of the air quality impact assessment and does not result in any significant air quality effects being identified; it is therefore considered that the retained optionality in the Proposed Development parameters as outlined in **Chapter 4**: Proposed Development does not have any material effect on the impact assessment presented in this chapter.

6.6.35 The potential for cumulative impacts from other committed developments in the vicinity of the Proposed Development are considered within **Chapter 16**: Cumulative and Combined Effects.

Decommissioning

6.6.36 The predicted air quality effects of eventual decommissioning of the Proposed Development are considered to be comparable to, or less than, those assessed for construction activities. This is based upon the assumption that groundwork, traffic movements and site work likely to be required to decommission the Proposed Development would be less than that required for its construction. Appropriate best practice mitigation measures will be applied during any decommissioning works and documented in a DEMP; no additional mitigation for decommissioning of the Proposed Development beyond such best practice is considered necessary at this stage.

Evaluation of Effects from the Proposed Development as a Whole

6.6.37 The effects of construction emissions from construction dust, with the application of best practice mitigation, as identified through the risk assessment described here, are considered to be not significant. The effects of construction road traffic and on-site plant have been screened out of assessment, as the scale of activities falls below the screening criteria requiring assessment. Therefore the effects of construction on air quality are considered to be not significant.

6.6.38 The operational point source emissions effects on identified receptors have been determined to have a negligible adverse effect and therefore the operational effects are considered to be not significant. Sensitivity analysis has identified that the results presented are not adversely altered through the alternative design

options considered, and that the dispersion model variables present a realistic worst-case assessment.

6.6.39 The effects of eventual decommissioning are considered to be comparable to, or less than, those assessed for construction activities and are therefore considered to be not significant.

6.6.40 Therefore, the air quality effects from the Proposed Development as a whole are considered to be not significant.

6.7 Mitigation and Enhancement Measures

6.7.1 As described earlier, the management of dust and particulates and application of appropriate mitigation measures will be controlled through the CEMP, and through application of appropriate best practice measures. A Framework CEMP is submitted as part of the Application (**Application Document Ref. 7.3**).

6.7.2 Submission and approval (prior to construction) of the CEMP, followed by its implementation by the appointed contractor is proposed to be secured by a Requirement of the draft DCO.

6.7.3 The environmental effects from construction of the Proposed Development have been identified as not significant; therefore no additional mitigation has been identified as necessary for the construction phase of the Proposed Development.

6.7.4 The air quality assessment of operational impacts has assumed that the ELVs will be met for the operational plant, as required under the IED and in accordance with use of BAT under the Environmental Permitting regime. The effects from operation of the Proposed Development have been identified as not significant through the assessed stack heights for the two gas turbine technology options; therefore no additional mitigation has been identified as necessary for the operational phase of the Proposed Development.

6.7.5 The measures proposed to avoid and reduce, where possible, significant adverse effects on the environment are set out in **Sections 6.5** and **6.7** of this chapter. The monitoring strategies to track the delivery and success of design elements and proposed mitigation for construction phases are set out in the Framework CEMP (**Application Document Ref. 7.3**).

6.7.6 Monitoring strategies for the operational plant will be enshrined within the Environmental Permit and are likely to require continuous monitoring of key pollutant emissions from each stack, with annual reporting of results to the Environment Agency and annual independent validation of the monitoring results.

6.8 Limitation or Difficulties

6.8.1 No technical limitations or difficulties that could have implications for the assessment were encountered. The assessment presented in this ES takes the

data available from OEMs and assesses worst-case impacts, based on the Rochdale Envelope for the Proposed Development.

6.9 Summary of Likely Significant Residual Effects

6.9.1 The air quality assessment of construction impacts assumes that the measures outlined within the Development Design and Impact Avoidance section (**Section 6.6**) and Framework CEMP (**Application Document Ref. 7.3**) would be incorporated into the design of the Proposed Development, as they are standard best practice measures that are routinely applied across UK construction sites. No additional mitigation has been identified as necessary for the construction phase of the Proposed Development. For this reason, the residual effects would be not significant, as reported within **Section 6.7**.

6.9.2 As described in **Section 6.6**, **Application Document Ref 7.6** provides a Framework CTMP which specifies proposed designated routes that HGVs would be required to use, proposed to be secured by a Requirement of the DCO. Construction road traffic would be managed in accordance with the CTMP to minimise impacts on local receptors. On this basis, no additional mitigation is considered necessary and the residual effects of emissions to air from construction traffic would be not significant, as reported in **Section 6.7**.

6.9.3 The air quality assessment of impacts at opening has assumed that the ELVs will be met for the operational plant as required under the IED, and in accordance with use of BAT under the environmental permitting regime. No additional mitigation has been identified as necessary for the opening phase of the Proposed Development. For this reason, the residual effects would be not significant, as reported within **Section 6.7**.

6.9.4 Consistent with construction mitigation, it has been assumed that relevant best practice mitigation measures would be in place during any decommissioning works. No additional mitigation has been identified as necessary for the decommissioning phase of the Proposed Development.

6.9.5 The air quality effects from the Proposed Development are considered to be not significant and are therefore consistent with the national and local policies for the control of air pollution.

6.10 References

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Ref 6-6 Centre for Ecology and Hydrology and APIS (2016) http://www.apis.ac.uk [Date accessed 16/01/19].

Ref 6-7 HM Government (2016) Environmental Permitting (England and Wales) Regulations 2016.

Ref 6-8 European Commission (2010) European Directive on Industrial Emissions 2010/75/EU.

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Ref 6-24 Environmental Protection UK (2010) *Development Control: Planning for Air Quality 2010 Update,* April 2010.

Ref 6-25 Bassetlaw District Council (2017) 2017 *Air Quality Annual Status Report (ASR), July* 2017.

Ref 6-26 West Lindsey District Council (2018) *Annual Status Report 2018,* Bureau Veritas, June 2018.

Ref 6-27 EDF Energy (2013) AQS Management Plan Annual Review for 2013 for North Trent Stations.

Ref 6-28 EDF Energy (2005) *West Burton CCGT Power Station, Environmental Statement,* Parsons Brinkerhoff, December 2005.

Ref 6-29 DEFRA (2009) *Local Air Quality Management Technical Guidance LAQM.TG(09),* February 2009.