

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

**Department of  
Energy and Climate Change**

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

Presented to Parliament pursuant to section 5(9b)  
of the Planning Act 2008.

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# Part 1. The Purpose of Energy National Policy Statements

## 1.1 Introduction

1.1.1 Fossil fuel generating stations play a vital role in providing reliable electricity supplies and a secure and diverse energy mix as the UK makes the transition to a low carbon economy. As part of the transition towards a secure decarbonised electricity system, the move to clean coal through the development and deployment of carbon capture and storage technologies offers the opportunity to reduce fossil fuel generating stations' carbon emissions by around 90%. It is Government policy that all new coal-fired generating stations should be required to capture and store the carbon emissions from a substantial proportion of their capacity. The Government plans to provide funding for up to four coal CCS demonstration projects, to be operational by 2020, and it is expected that new conventional coal-fired generating stations consented under the policy framework described in EN-1 Section 4.7 will retrofit CCS to their full capacity by 2025.

## 1.2 Role of this NPS in the planning system

1.2.1 This National Policy Statement (NPS), taken together with the Overarching National Policy Statement For Energy: A Framework Document For Planning Decisions on Nationally Significant Energy Infrastructure (EN-1), provides the primary basis for decisions by the Infrastructure Planning Commission (IPC) on applications it receives for nationally significant fossil fuel electricity generating stations as defined at Section 1.7. Under the Planning Act 2008, the IPC also has to have regard to any local impact report submitted by a relevant local authority, any relevant matters prescribed in regulations and any other matters which the IPC thinks are both important and relevant to the decision.

1.2.2 The Planning Act also requires that the IPC must decide an application in accordance with relevant NPSs except to the extent it is satisfied that to do so would:

- lead to the UK being in breach of its international obligations;
- be in breach of any statutory duty that applies to the IPC;
- be unlawful;
- result in adverse impacts of the development outweighing the benefits; or
- be contrary to regulations about how its decisions are to be taken.

1.2.3 Applicants should therefore ensure that their applications, and any accompanying supporting documents and information, are consistent with this NPS, EN-1 and any other NPSs that are relevant to the application in question.

- 1.2.4 This NPS, and in particular the policy and guidance on impacts in Part 2, may be helpful to local planning authorities (LPAs) in preparing their local impact reports. In England and Wales this NPS may also be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended). Where relevant, those making decisions on such applications in England should apply the policy and guidance in this NPS as far as practicable.

### 1.3 Relationship with EN-1

- 1.3.1 This NPS is part of the suite of energy infrastructure NPSs in which EN-1 covers:
- the high level objectives, policy and regulatory framework for new energy infrastructure consistent with the objective of contributing to the achievement of sustainable development and the Government's policies on mitigating and adapting to climate change;
  - the need and urgency for new energy infrastructure and the social and economic benefits of meeting the need;
  - the need for specific technologies, including the infrastructure covered by this NPS;
  - key principles to be followed in the consideration and examination of applications;
  - the role of the Appraisal of Sustainability and its outcome in relation to the suite of energy infrastructure NPSs;
  - policy on good design, climate change adaptation and other matters relevant to more than one technology-specific NPS; and
  - the assessment and handling of generic impacts that are not specific to particular technologies.
- 1.3.2 This NPS does not repeat the material set out in EN-1.
- 1.3.3 Further information on the relationship between NPSs and the town and country planning system, as well as background on the role of NPSs and the arrangements in the devolved administrations, will be issued by the Department for Communities and Local Government (CLG).

### 1.4 Geographical coverage

- 1.4.1 This NPS, together with EN-1, is the primary decision-making guidance document for the IPC on applications in England and Wales for generating stations with over 50 MW generating capacity.
- 1.4.2 In Scotland, the IPC will not examine such applications, which will continue to be dealt with by Scottish Ministers. However, energy policy is generally a matter reserved to UK Ministers and this NPS may therefore be a relevant consideration in planning decisions in Scotland.
- 1.4.3 In Northern Ireland, policy and planning consents for all nationally significant energy infrastructure projects are devolved to the Northern Ireland Executive, so the IPC will not examine applications for energy infrastructure in Northern Ireland.

## **1.5 Period of validity and review**

1.5.1 This NPS will remain in force in its entirety unless withdrawn or suspended in whole or in part by the Secretary of State. It will be subject to review by the Secretary of State in order to ensure that it remains appropriate for IPC decision making. Further information can be found in CLG's NPS guidance.

## **1.6 Appraisal of Sustainability**

1.6.1 This NPS has been subject to an Appraisal of Sustainability (AoS) incorporating the requirements for Strategic Environmental Assessment (SEA). The conclusions of the AoS for all the non-nuclear NPSs are summarised in Section 1.6 of EN-1.

## **1.7 Infrastructure covered by this NPS**

1.7.1 This NPS covers the following types of nationally significant electricity generating infrastructure over 50 MW electricity generating capacity:

- coal-fired;
- gas-fired;
- integrated coal gasification combined cycle; and
- oil-fired.

1.7.2 In addition biomass co-firing can be used in coal-fired stations. Biomass-only generating stations are covered in the Renewable Energy Infrastructure NPS (EN-3).

1.7.3 Fossil fuel generating stations can be configured to produce Combined Heat and Power (CHP) and be Carbon Capture Ready (CCR) and/or have Carbon Capture and Storage (CCS) technology applied. Details of the Government's policy in these areas are set out in EN-1 with further information in this NPS.

# Part 2. Assessment and Technology-Specific Information

## 2.1 Introduction

- 2.1.1 EN-1 sets out the general principles that should be applied in the assessment of impacts and sets out policy on the assessment of generic energy impacts which are common across a range of energy technologies. This NPS is concerned with impacts and other matters which are specifically associated with fossil fuel generating stations or where, although the impact is generic and covered in EN-1, there are further specific considerations arising from this technology. The guidance in this NPS is additional to that on generic impacts set out in EN-1 and does not replace it. The IPC should consider this NPS and EN-1 together. In particular, EN-1 sets out the Government's conclusion that there is a significant need for new major energy infrastructure (see summary and conclusion in Part 3 of EN-1). EN-1 Section 3.5 includes assessments of the need for new nationally significant fossil fuel generation infrastructure. In the light of this, the IPC should start its assessment of applications for infrastructure covered by this NPS on the basis that need has been demonstrated.
- 2.1.2 Factors influencing site selection by developers for fossil fuel generating stations are set out below. They are included to provide the IPC with guidance on the criteria that applicants consider when choosing a site. But the specific criteria considered by applicants, and the weight they give to them will vary from project to project. This is at the commercial risk of the applicant. Energy market participants decide what applications to bring forward and the Government does not seek to direct applicants to particular sites for fossil fuel generating stations. A crucial consideration for the IPC is whether the proposal is in line with the NPS and satisfies the impact considerations set out in EN-1 and this NPS.

## 2.2 Factors influencing site selection by developers

### Land Use

- 2.2.1 Fossil fuel generating stations have large land footprints and will therefore only be possible where the applicant is able to acquire a suitably-sized site. The size of the site will also need to be big enough to conform to Government policy on CCR and CCS, set out in Section 4.7 of EN-1 and in section 2.3 below.
- 2.2.2 Depending on the processes adopted, CCR, CCS and mitigation measures for emissions by fossil fuel generating stations may require storage and use of hazardous chemicals regulated under Control of Major Accident Hazards (COMAH) Regulations 1999, which may have an impact on potential land-use in the vicinity. This in turn may affect the applicant's choice of site.



- 2.2.3 Development of a Combined Heat and Power (CHP) generating station may also have an effect on the size of site required and land-use. Details of land-use impacts are set out in Section 4.25 of EN-1.

### Transport Infrastructure

- 2.2.4 New fossil fuel generating stations need to be accessible for the delivery and removal of construction materials, fuel, waste and equipment, and for employees. The IPC should expect applicants to have sought to locate new fossil fuel generating stations in the vicinity of existing transport routes wherever possible. If the existing access is inadequate and the applicant has proposed new infrastructure, the IPC will need to satisfy itself that the impacts of the new infrastructure are acceptable as set out in section 4.28 of EN-1.

### Water Resources

- 2.2.5 Some fossil fuel generating stations have very high water demands, e.g. coal-fired and combined cycle gas turbine (CCGT) generating stations. Other technologies, e.g. open cycle gas turbines, have little water demand.
- 2.2.6 In coal-fired and CCGT generating stations, purified water is needed to produce the steam to drive the generating turbines and additional large volumes of water are needed to condense this steam back to water for reuse. A supply of water will also be needed for CCS processes. The amount of water abstraction required and whether discharge is necessary will depend on the applicant's choice of technology, particularly the cooling system, in the proposed design. The volumes required and availability will depend on a number of factors including:
- the extent of the water resource;
  - the likely flow rate within the body of water;
  - water supply company management plans;
  - the visual impact of the chosen system; and
  - the power consumption of the cooling system.
- 2.2.7 High water demands will mean that developers' preferred sites are likely to be coastal, beside estuaries or alongside large rivers. If sufficient quantities of water from natural sources are not available at a site then some use of mains supplies may be necessary or an alternative means of cooling such as air-cooled condensers would be required. The regulation of water abstraction and discharge is described in Section 4.30 of EN-1. The applicant should be expected to have investigated the availability of such a supply at an early stage. It should be noted that a water company has no duty to supply water. The IPC should expect that any alternative sites proposed during the application process should demonstrate that an adequate supply of water would be available.

## Grid Connection

- 2.2.8 Fossil fuel generating stations connect into a transmission network. The technical feasibility of export of electricity from a generating station is dependent on the capacity of the grid network to accept the likely electricity output together with the voltage and distance of the connection.
- 2.2.9 Applicants will usually have assured themselves that a viable connection exists before submitting the development proposal to the IPC and where they have not done so, they take that commercial risk. In accordance with Section 4.9 in EN-1, any application to the IPC must include information on how the generating station is to be connected and whether there are any particular environmental issues likely to arise from that connection. Further advice on the relationship with grid applications is in EN-1 and EN-5.

## 2.3 Government policy criteria for fossil fuel generating stations

- 2.3.1 The following criteria must be met before consent for a new fossil fuel generating station can be given.

### Combined Heat and Power

- 2.3.2 The Government's strategy for CHP is described in Section 4.6 of EN-1, including the requirements on applicants to fully explore options for incorporating CHP in applications for fossil fuel generating stations.
- 2.3.3 If an application does not demonstrate that CHP has been considered, as described in EN-1, the IPC should seek further information from the applicant. The IPC should not give development consent unless it is satisfied that the applicant has provided appropriate evidence that opportunities for CHP have been properly explored.

### Carbon Capture Readiness

- 2.3.4 The Government's policy and criteria for a CCR requirement for all generating stations with a generating capacity at or over 300 MW are set out in Section 4.7 of EN-1. If an application does not demonstrate that CCR has been assessed according to these requirements, the IPC should seek further information from the applicant. The IPC should not give development consent unless it is satisfied that the proposed development meets all the criteria and is, therefore, CCR. If it cannot be satisfied that the proposal meets the criteria, consent should be refused.
- 2.3.5 The IPC should impose conditions on any consent, requiring developers to:
- retain control over sufficient additional space (whether on or near the site) for the carbon capture equipment;
  - retain their ability to build carbon capture equipment on this space (whether on or near the site) in the future; and
  - submit update reports on the technical aspects of its CCR status to the Secretary of State for DECC. These reports should be required within 3 months of the date on which a consented station first begins to supply electricity to the grid and every two years thereafter until the plant moves to retrofit CCS.

## Carbon Capture and Storage for Coal-fired Generating Stations

- 2.3.6 As set out in EN-1, new coal-fired generating stations in England or Wales are required to have CCS on at least 300 MW net of the proposed generating capacity. Coal-fired generating stations of less than 300 MW capacity are required to show that the proposed generating station will be able to capture CO<sub>2</sub> from their whole capacity.
- 2.3.7 The Government will maintain a rolling review of progress of CCS technologies, with demonstration projects in the UK, EU and globally providing a vital source of evidence on the performance of CCS across technical, economic, environmental and safety matters. By 2018 the Government plans to publish a report that will consider the status of CCS technologies in the light of progress with the demonstration projects in the UK and globally, drawing on expert advice from the Environment Agency, the Committee on Climate Change and others; and consider the appropriate regulatory and financial framework to drive the move to clean coal within the context of wider progress on the move to a decarbonised electricity system.
- 2.3.8 As part of this work, the question of CCS retrofit to demonstration projects will be considered: while the speed at which CCS technology will develop is uncertain, based on the need for and global commitment to CCS it is the Government's expectation that new conventional coal-fired generating stations consented under the policy framework described in EN-1 Section 4.7 will retrofit CCS to their full capacity by 2025. The review will also consider the framework within which new coal-fired generating stations would be constructed beyond the CCS demonstration phase: it is the Government's expectation that new coal-fired generating stations will be fully CCS from day one once CCS has been shown to be economically and technically viable, and that this will be possible from 2020. In the event that CCS is not on track to become technically or economically viable, preventing retrofit, an appropriate regulatory approach for managing emissions will be needed. The review will consider what additional measures, consistent with and complementary to the EU ETS and any other market interventions that are in place, are necessary – for example an emissions performance standard by way of a plant level cap. All of this work will be developed in the light of continuing advice from the independent Climate Change Committee and in a way that is consistent with the need for a clear UK emissions reduction pathway through to 2030 and beyond to 2050. Depending on the outcome of the review, it may be necessary to revise this NPS in the light of its conclusions.
- 2.3.9 The applicant should therefore provide evidence to show:
- technically feasible plans for CO<sub>2</sub> capture unit that meets the minimum size requirements;
  - an Environmental Impact Assessment (EIA) that addresses impacts arising from the capture plant;
  - documentation to ensure compliance with all other existing policy including that any of the plant's capacity which is not to be fitted with CCS at the outset is carbon capture ready.

- 2.3.10 An application must contain sufficient information on the proposed plans for CCS to enable the IPC to determine whether the proposal meets the required criteria as set out in DECC guidelines<sup>1</sup> on CCS for developers. The IPC should also have regard to advice from the Environment Agency (EA) as to the technical feasibility of the proposed CCS. The IPC may also seek further independent advice, but is not required to do so.
- 2.3.11 If the IPC cannot be satisfied that the proposal meets the criteria, consent should be refused.
- 2.3.12 The IPC should include in any development consent for a coal-fired generating station conditions that before construction can commence the applicant should provide:
- evidence that all necessary consents, licences and permits are in place for construction of the CCS chain, including consents for any onshore and offshore pipelines used to transport CO<sub>2</sub>;
  - evidence that a CO<sub>2</sub> storage licence for the intended storage site is in place;
  - evidence that an Environmental Permit (EP) from the Environment Agency (EA) which incorporates conditions around the operation of the CCS chain is in place.
- 2.3.13 No construction, other than preliminary works, should be allowed to start until the IPC is satisfied that the above conditions have been fully met.
- 2.3.14 Additionally, CCR requirements will continue to apply to the full capacity of the coal-fired generating station until such time as CCS equipment is retrofitted onto the remainder of the capacity of the plant.

### Climate Change adaptation

- 2.3.15 Paragraphs 2.1.7 and 2.1.8 of EN-1 set out Government policy on adaptation, while Section 4.8 of EN-1 sets out the generic considerations that applicants should take into account with regard to the potential impact on infrastructure from climate change and describes how projects should be designed to be resilient to such impacts. As fossil fuel generating stations are likely to be proposed for coastal or estuarine sites, applicants should in particular set out how the proposal would be resilient to:
- coastal changes and increased risk from storm surge;
  - effects of higher temperatures, including higher temperatures of cooling water; and
  - increased risk of drought leading to a lack of available cooling water.
- 2.3.16 The IPC should expect that climate change resilience measures will form part of the relevant impact assessment in the Environmental Statement (ES) accompanying an application. For example, climate change impacts on cooling water as a result of higher temperatures should be covered in the impact assessment section on water quality and resources.

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1 Draft Supplementary Guidance for Section 36 Electricity Act Consent Applications for Coal Power Stations.

## Consideration of “good design” for energy infrastructure

- 2.3.17 Section 10(3)(b) of the Planning Act 2008 requires the Secretary of State to have regard to the desirability of good design in designating an NPS. Section 4.5 of EN-1 sets out the principles for good design that should be applied to all energy infrastructure.
- 2.3.18 With regard to this NPS, the IPC needs to be satisfied that, having regard to regulatory and other constraints, fossil fuel generating stations are as attractive, durable and adaptable (including taking account of natural hazards such as flooding) as they can be. In so doing, the IPC should satisfy itself that the applicant has taken into account both aesthetics and functionality (including fitness for purpose).
- 2.3.19 The IPC should expect applicants to demonstrate good design particularly in respect of landscape and visual amenity as set out in Section 2.4.3 below, and in the design of the project to mitigate impacts such as noise and vibration, transport impacts and air emissions.

## 2.4 Impacts of fossil fuel generating stations

### Introduction

- 2.4.1 When considering impacts for fossil fuel generating stations, all of the generic impacts covered in EN-1 are likely to be relevant. In this NPS, the terms ‘effects’, ‘impacts’ or ‘benefits’ should accordingly be understood to mean likely significant effects, impacts or benefits. This NPS has additional guidance on:
- Air Emissions;
  - Landscape and Visual;
  - Noise;
  - Release of Dust by Coal-fired Generating Stations;
  - Residue Management for Coal-fired Generating Stations; and
  - Water Quality and Resources.

## 2.5 Air Emissions

### Introduction

- 2.5.1 This section does not cover CO<sub>2</sub> emissions. Government policy on CO<sub>2</sub> is set out in Section 4.7 of EN-1 and in Section 2.3.4 to 2.3.14 on CCS and CCR above.
- 2.5.2 Generic air quality and emissions impacts other than CO<sub>2</sub> are also covered in detail in EN-1. In addition there are specific considerations which apply to fossil fuel generating stations as set out below.
- 2.5.3 Fossil fuel generating stations are likely to emit nitrogen oxides (NO<sub>x</sub>) and sulphur oxides (SO<sub>x</sub>), although SO<sub>x</sub> emissions from gas-fired generating stations may be negligible. To meet the requirements of the Large Combustion Plant Directive (LCPD) fossil fuel generating stations must apply a range of mitigation to minimise NO<sub>x</sub> and other emissions.
- 2.5.4 These emissions are regulated by the EA through the Environmental Permitting Regulations. Developers must obtain an EP before commencing operation of a new fossil fuel generating station. Details of the EP regime are set out in EN-1, Section 4.10.

### Applicant's Assessment

- 2.5.5 The applicant should carry out an assessment as required in EN-1. Applicants should consult EA and other statutory authorities at the initial stages of developing their proposals and make the views received known to the IPC so that potential emissions can be considered in the scoping opinion before an application is submitted.

### IPC Decision Making

- 2.5.6 The IPC should be satisfied that any consent it grants takes account of likely environmental impacts resulting from air emissions and that in the case of SO<sub>x</sub>, NO<sub>x</sub> or particulates, it follows the advice in EN-1 on interaction with the EA's regulatory processes.

### Mitigation

- 2.5.7 Mitigation will depend on the type and design of a generating station. However Flue Gas Desulphurisation (FGD) and Selective Catalytic Reduction (SCR) – which reduces NO<sub>x</sub> by the injection of a suitable reagent into flue gas over a catalyst – will have additional adverse impacts for noise and vibration, release of dust and handling of potentially hazardous materials, e.g. the ammonia used as a reagent.
- 2.5.8 The IPC, in consultation with EA, should be satisfied that any adverse impacts of mitigation measures for emissions proposed by the applicant have been described in the ES and taken into account in the assessments.

## 2.6 Landscape and Visual

### Introduction

- 2.6.1 Generic landscape and visual impacts are covered in detail in EN-1, Section 4.24. When considering landscape and visual impacts, the IPC should have regard to the impacts on National Parks, the Broads and Areas of Outstanding Natural Beauty as set out in EN-1. In addition to the impacts described in EN-1, there are specific considerations which apply to fossil fuel generating stations as set out below.
- 2.6.2 The main structures for a fossil fuel generating station, including the turbine and boiler halls, exhaust gas stacks, storage facilities, cooling towers, and water processing plant, are large. They will have an impact on the surrounding landscape and visual amenity. The overall size of the development will inevitably be dependent on technology and design. Coal-fired and biomass co-fired generating stations will require more space than other types of generating station for bulk material storage including coal and biomass fuels, limestone and other materials, milling plant and ash and gypsum storage prior to disposal.
- 2.6.3 Cooling towers and exhaust stacks and their plumes have the most obvious impact on landscape and visual amenity. Night-time lighting for continuous operation will also have an impact on visual amenity.

### Applicant's Assessment

- 2.6.4 The applicant should include a landscape and visual impact assessment as part of the ES, as set out in Section 4.2 of EN-1.
- 2.6.5 The applicant should also consider the design of the plant, including the materials to be used, and the visual impact of the stack, in the context of the local landscape.

### IPC Decision Making

- 2.6.6 It is not possible to eliminate the visual impacts associated with a generating station. Mitigation is therefore to reduce the visual intrusion of the buildings in the landscape and minimise impact on visual amenity as far as reasonably practicable.
- 2.6.7 The IPC should expect applicants to design fossil fuel generating stations with the aim of providing the best fit with the existing local landscape so as to reduce visual impacts. This may include design of buildings to minimise negative aspects of their appearance through decisions in areas such as size, external finish and colour of the plant as far as engineering and environmental requirements permit. The precise architectural treatment will need to be site-specific.

- 2.6.8 Reduction of visual impacts may often involve enclosing buildings at low level as seen from surrounding external viewpoints. This makes the scale of the plant less apparent, and helps conceal the lower level, smaller scale features of the plant. Earth bunds and mounds, tree planting, or both may be used for softening the visual intrusion and may also help to attenuate noise from site activities. Where the existing landscape is more industrial, design may involve other forms of visual impact mitigation.
- 2.6.9 Modern hybrid cooling systems, e.g. mechanical draught, do not exhibit visible steam plumes except in exceptional adverse weather conditions. When considering visual impacts, the IPC should expect the applicant to justify use of a cooling system that involves visible steam plumes. It should be satisfied that application of modern hybrid cooling technology is not reasonably practicable before giving consent.
- 2.6.10 As stated in EN-1, the IPC should expect the applicant to have undertaken an appropriate landscape and visual assessment using recognised methodologies and to have taken sufficient measures to minimise the effects of the fossil fuel generating station on landscape and visual amenity. In considering whether these measures are sufficient the IPC should take advice from the relevant statutory consultees. In requiring any design adjustments to minimise adverse effects, the IPC needs to be aware of the statutory and technical requirements that inform plant design. It may need to attach conditions to the consent requiring the incorporation of particular design details that are in keeping with the statutory and technical requirements.
- 2.6.11 The visibility of a fossil fuel generating station should be given limited weight by the IPC if, having regard to the considerations set out in EN-1 and this section, it is satisfied that the location is acceptable for the project and it has been designed sensitively given the various siting, operational and other relevant constraints, to minimise harm to landscape and visual amenity.



## 2.7 Noise

### Introduction

2.7.1 Generic noise (including vibration) impacts are covered in detail in Section 4.26 of EN-1. In addition there are specific considerations which apply to fossil fuel generating stations as set out below. Sources of noise and vibration may include:

- milling of coal to create pulverised fuel and crushing of other materials for use in the generation cycle;
- delivery to, and movement of, fuel and materials at coal-fired generating stations;
- the gas and steam turbines that operate continuously during normal operation; and
- external noise sources such as externally-sited air-cooled condensers that operate continuously during normal operation.

### Applicant's Assessment

2.7.2 The ES should include a noise assessment of the impacts on amenity in case of excessive noise from the project as described in Section 4.26 in EN-1.

### IPC Decision Making

2.7.3 As described in EN-1, the primary mitigation for noise and vibration for fossil fuel generating stations is through good design to enclose plant and machinery in noise-reducing buildings wherever possible and to minimise the potential for operations to create noise or vibration.

2.7.4 Noise and vibration from features including crushing and milling machinery during operation of coal-fired generating stations is unavoidable. Similarly, noise from apparatus external to the main plant may be unavoidable. However the IPC should be satisfied that noise and vibration, particularly at site boundaries and the nearest residential properties, will be adequately mitigated where necessary through conditions attached to the consent. The IPC will need to take into consideration the extent to which operational noise will be separately controlled by the EA.

## 2.8 Release of Dust by Coal-fired Generating Stations

### Introduction

- 2.8.1 Generic impacts of the release of dust are described in Section 4.21 of EN-1. The normal operation of coal-fired generating stations will cause release of dust from such processes as fuel receipt and preparation, furnace maintenance and emissions reduction. Dust may also result from the transport and handling of fuel, materials and waste, e.g.:
- delivering fuel to the site;
  - using conveyors to move fuel from storage areas to crushing machines and furnaces;
  - delivery, removal and storage of materials such as limestone for flue gas desulphurisation and the resultant de-sulpho gypsum; and
  - removal and storage of combustion residues.
- 2.8.2 Dust particles that are less than or equal to 10 microns in diameter (PM10) are regulated as air emissions and therefore included in the generic air quality impact guidance in EN-1.

### Applicant's Assessment

- 2.8.3 As specified in EN-1, Section 4.21, the applicant should set out in the ES the estimated potential for release of dust and measures proposed to mitigate any potential amenity impacts. The assessment should cover potential impacts arising specifically from the operation of a coal-fired generating station in addition to the impacts identified in EN-1.

### IPC Decision Making

- 2.8.4 The IPC should ensure that the EA is satisfied that releases of dust can be adequately regulated under the pollution control framework, or other regulatory controls, before it grants any consent.
- 2.8.5 It is possible that the application for the relevant operational permit from the EA may not be determined until after the IPC has decided the related major infrastructure application, since many developers cannot finalise details of the operational equipment until after a generating station development consent is received and the generating plant supplier selected. Whilst the IPC should not duplicate the regulatory controls that are separately exercised by the EA, neither should it consent a generating station where it has good reason to believe the relevant operational permits will not subsequently be granted.

## Mitigation

2.8.6 The range of measures may include:

- enclosed storage with extraction and arrestment plant as appropriate, e.g. vented and filtered silos for dry powder materials;
- conveyors may be enclosed where possible and the height of drops where coal is discharged on to stockpiles or transferred between conveyors minimised;
- landscaping such as tree-planted bunds as wind-breaks to reduce the potential for wind-blown dust;
- dust suppression systems may be employed e.g. water sprays, atomised mist or polymer coating; and
- control of vehicles and mobile plant movement around materials handling areas to reduce grinding of materials into fine dust.

2.8.7 The IPC should be satisfied, in consultation with the EA, that there are no unacceptable dust effects or, if there are, that they can be adequately mitigated through conditions to control release of dust e.g. by specifying limits on site traffic movements or speed, or specifying maximum drop heights for conveyors.

## 2.9 Residue Management for Coal-fired Generating Stations

### Introduction

- 2.9.1 Generic waste management impacts are set out in Section 4.29 of EN-1. This describes how the waste hierarchy should be followed in relation to energy infrastructure.
- 2.9.2 The combustion of coal in the form of pulverised fuel gives rise to both coarse furnace bottom ash and fine pulverised fuel ash (pfa). Both types of ash must be removed and disposed of according to waste regulations.
- 2.9.3 The by-product of the limestone/gypsum FGD process is “de-sulpho gypsum”. This is used in the manufacture of building materials such as plasterboard. Generally furnace bottom ash is sold for concrete or road fill. Low carbon content pfa is used for pre-cast concrete. Higher carbon content pfa may be re-burned to recover some of the residual calorific value.

### Applicant's Assessment

- 2.9.4 The applicant should assess the production and disposal of ash and de-sulpho gypsum as part of the ES. Any proposals for recovery of ash and mitigation measures should be described. Ash disposal schemes may have benefits where they result in the reclamation of derelict land and the application should set out any opportunities that have been actively sought.

### IPC Decision Making

- 2.9.5 Primary mitigation measures to reduce the amount of ash produced are to use coal which will have a lower ash content or to co-fire biomass (which generally has a relatively low ash content) to replace some of the coal. Although the scope for both these measures may be limited, e.g. where suitable fuel is not readily obtainable, the IPC should expect the applicant to demonstrate it has explored the options in this area.
- 2.9.6 The IPC should be satisfied that waste management arrangements minimise the amount of residue that cannot be used for commercial purposes. Schemes that propose reclamation of derelict land through ash disposal should be the preferred mitigation for residues that cannot be used for commercial purposes. However alternative waste management arrangements may be acceptable.
- 2.9.7 The IPC should consult EA on the suitability of the proposals for ash and de-sulpho gypsum disposal. If EA has indicated that it has no reason to suppose that it would not be able to issue an EP for operation of the proposed coal-fired generating station and agrees that waste management arrangements suitably minimise the wider impacts from ash disposal, the IPC is likely to be able to give any remaining impacts of ash disposal limited weight.
- 2.9.8 The IPC may want to encourage regular review of waste management arrangements in order that new opportunities for improvement are considered. It may therefore decide to include a condition with any consent given that requires the applicant to periodically re-submit its waste management arrangements, revised as necessary, to the relevant Local Planning Authorities (LPAs), which would be able to agree the revised arrangements if acceptable.

## 2.10 Water Quality and Resources

### Introduction

- 2.10.1 Generic water quality and resource impacts are set out in Section 4.30 of EN-1. The design of water cooling systems for fossil fuel generating stations will have additional impacts on water quality, abstraction and discharge. These include:
- discharging water at a higher temperature than the receiving water, affecting the biodiversity of aquatic flora and fauna;
  - use of resources may reduce the flow of water courses, affecting the rate at which sediment is deposited, conditions for aquatic flora and potentially affecting migratory fish species (e.g. salmon);
  - “fish impingement and/or entrainment” – i.e. being taken into the cooling system during abstraction; and
  - chemical anti-fouling treatment of water for use in cooling systems may have adverse impacts on aquatic biodiversity.

### Applicant's Assessment

- 2.10.2 Where the project is likely to have effects on water quality or resources the applicant should undertake an assessment as required in EN-1, Section 4.30. The assessment should particularly demonstrate that appropriate measures will be put in place to avoid or minimise adverse impacts of abstraction and discharge of cooling water.

### IPC Decision Making

#### Mitigation

- 2.10.3 In addition to the mitigation measures set out in EN-1, design of the cooling system should include intake and outfall locations that avoid or minimise adverse impacts. There should also be specific measures to minimise fish impingement and/or entrainment and excessive heat from discharges to receiving waters.

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