

Derogation Request Form

Environment Agency guidance to operators requesting an Industrial Emissions Directive (IED) Article 15(4) derogation

Where the EU has published BAT Conclusions that specify Best Available Techniques Associated Emission Levels (BAT-AELs), we will normally initiate a permit review for all existing installations in that sector to ensure that they will comply with the BAT-AELs within the 4 year time period allowed. Post EU-Exit, the UK BAT team publish BAT Conclusions with the same requirements.

As the operator of an installation you can apply for a derogation from one or more of the BAT-AELs. If we grant a derogation, it will allow your installation to operate at a different set of standards and emission levels than those that will apply to every other site within the sector. The criteria for a derogation are set out in Article 15(4) of the IED. Any application for a derogation away from those standards is subject to public scrutiny.

The table below provides the structure for you to send us the minimum level of information that we require. We expect you to provide additional information as separate documents and to include references to those documents in the table.

Information to be provided	Description	
Installation details	EP Lynemouth Power Limited Lynemouth Power Station Ashington Northumberland NE639NW	
Operator details	EP Lynemouth Power Limited (07866585) Lynemouth Power Station Ashington Northumberland NE639NW	
EPR Permit reference	EPR/FP3137CG	
Source of derogation request	Response to Regulation 61 Notice (typically when new BAT Conclusions are published and we initiate a review of the relevant permits in that sector).	✘
	Substantial variation to request a derogation for an emission limit to be above the BAT-AEL.	✔
	In both cases, the assessment of a derogation request is charged as a substantial variation as detailed within our EPR charging scheme https://www.gov.uk/government/publications/environmental-permitting-charging-scheme	

Commercially sensitive information	There is no commercially sensitive information included in this request																																
BAT Conclusions that you are requesting a derogation away from	<p>EP Lynemouth is requesting a derogation from the below BAT Conclusions:</p> <p>BAT 24- NO_x emissions to air</p> <table border="1" data-bbox="435 427 1347 667"> <thead> <tr> <th>Combustion Unit</th> <th>Substance</th> <th>Yearly Average ELV (mg/Nm³)</th> <th>Daily Average ELV (mg/Nm³)</th> </tr> </thead> <tbody> <tr> <td>Solid fuels – biomass > 300 MW_{th}</td> <td>NO_x</td> <td>160⁽⁷⁾</td> <td>200⁽⁸⁾</td> </tr> </tbody> </table> <p>(7) The higher end of the BAT-AEL range is 160 mg/Nm³ for plants put into operation no later than 7 January 2014. (8) The higher end of the BAT-AEL range is 200 mg/Nm³ for plants put into operation no later than 7 January 2014.</p> <p>BAT 26- Dust emissions to air</p> <table border="1" data-bbox="435 896 1347 1135"> <thead> <tr> <th>Combustion Unit</th> <th>Substance</th> <th>Yearly Average ELV (mg/Nm³)</th> <th>Daily Average ELV (mg/Nm³)</th> </tr> </thead> <tbody> <tr> <td>Solid fuels – biomass > 300 MW_{th}</td> <td>Dust</td> <td>10</td> <td>16</td> </tr> </tbody> </table> <p>The requested derogation position is for ELVs aligned with Annex V ELVs</p> <p>NO_x emissions to air</p> <table border="1" data-bbox="435 1337 1347 1576"> <thead> <tr> <th>Combustion Unit</th> <th>Substance</th> <th>Yearly Average ELV (mg/Nm³)</th> <th>Daily Average ELV (mg/Nm³)</th> </tr> </thead> <tbody> <tr> <td>Solid fuels – biomass > 300 MW_{th}</td> <td>NO_x</td> <td>200</td> <td>220</td> </tr> </tbody> </table> <p>Dust emissions to air</p> <table border="1" data-bbox="435 1688 1347 1928"> <thead> <tr> <th>Combustion Unit</th> <th>Substance</th> <th>Yearly Average ELV (mg/Nm³)</th> <th>Daily Average ELV (mg/Nm³)</th> </tr> </thead> <tbody> <tr> <td>Solid fuels – biomass > 300 MW_{th}</td> <td>Dust</td> <td>20</td> <td>22</td> </tr> </tbody> </table>	Combustion Unit	Substance	Yearly Average ELV (mg/Nm ³)	Daily Average ELV (mg/Nm ³)	Solid fuels – biomass > 300 MW _{th}	NO _x	160 ⁽⁷⁾	200 ⁽⁸⁾	Combustion Unit	Substance	Yearly Average ELV (mg/Nm ³)	Daily Average ELV (mg/Nm ³)	Solid fuels – biomass > 300 MW _{th}	Dust	10	16	Combustion Unit	Substance	Yearly Average ELV (mg/Nm ³)	Daily Average ELV (mg/Nm ³)	Solid fuels – biomass > 300 MW _{th}	NO _x	200	220	Combustion Unit	Substance	Yearly Average ELV (mg/Nm ³)	Daily Average ELV (mg/Nm ³)	Solid fuels – biomass > 300 MW _{th}	Dust	20	22
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<p>Your current emissions performance</p>	<p><u>BAT24</u></p> <p>EP Lynemouth utilises a combination of primary measures associated with BAT for the control of NOx emissions. These measures include low NOx burners, low nitrogen-content fuel and boosted over fire air (BOFA) fans. The baseline NOx performance of each of the three units is relatively consistent with any notable difference between the three units emanating from various influences, including the number of running hours since the last major maintenance outage and the boiler conditions.</p> <p>For the period since commissioning on biomass the station average NOx concentration was 174.5 mg/Nm³, reported at 100% of measured value. There are 255 instances where EP Lynemouth would breach the daily BAT-AEL of 200 mg/Nm³ in the period of 2019 to 2025. In the same period EP Lynemouth would breach the annual BAT-AEL of 160 mg/Nm³ in 6 out of the 7 years, reported at 100% the measured value.</p> <p><u>BAT26</u></p> <p>EP Lynemouth utilises ESPs to abate emissions of particulates. The unit dust emissions performance depends upon several factors including the characteristics of the fuel, the frequency of unit start-up and shut-downs, boiler conditions etc.</p> <p>For the period since commissioning on biomass the station average dust concentration, reported at 100% of measured value, was 11.4 mg/Nm³. There are 366 instances where EP Lynemouth would breach the daily BAT-AEL of 16 mg/Nm³ in the period of 2019 to 2025. In the same period EP Lynemouth would breach the annual BAT-AEL of 10 mg/Nm³ in 3 out of the 7 years, reported at 100% the measured value.</p> <p>More information on emissions performance is included in the attached document <i>IED Article 15(4) Derogation Request</i>.</p>
<p>Potential qualifying criteria claimed</p>	<p>The derogations from the NOx and Dust BAT-AEL for all three generating units are being made on basis of the technical characteristics of the installation. While EP Lynemouth believe that derogation request has merit under a number of the accepted derogation criteria as summarised in the attached document <i>IED Article 15(4) Derogation Request</i>, this derogation request is being made on the basis that the configuration of the plant makes it more technically difficult and costly to comply, combined with a limited duration to allow alternative improvements which are expected to have longer term environmental benefits..</p>
<p>Timeline for compliance</p>	<p>Based on the technical information summarised in this report and detailed in the associated technical reports, EP Lynemouth cannot comply with the NOx and dust BAT-AEL prior to operation of pBECCS.</p> <p>Between the date of issue of this report and the end of 2035 the only major unit outages are those provisionally scheduled for 2027 of approximately 8-weeks duration for each of the three generating units allowing for statutory inspections.</p> <p>The delivery of any project to retrofit further abatement would require a highly accelerated project programme which will not be able to deliver a FEED, final design and fully optimised process to meet the end date of the current derogation</p>

on 31 Mar 2027. Furthermore, this would require significant unplanned outages, resulting in significant lost generation and revenue.

If you are proposing not to comply N/A

Options assessment An options assessment has been completed and is detailed in full in section 5 of the attached document *IED Article 15(4) Derogation Request*.

BAT24

Technique	EP Lynemouth Notes
Combustion optimisation	Applied at Lynemouth Power Station
Low-NO _x burners (LNB)	Applied at Lynemouth Power Station
Air staging	Applied at Lynemouth Power Station; Boosted overfire air (BOFA)
Fuel staging	Not appropriate for Lynemouth: Low efficiency for NO _x <200mg/Nm ³ , LNB operation outside of performance envelope, fossil fuel use would invalidate CfD contract. (see section 4.1.3) Not taken forward to CBA.
Flue-gas recirculation	Not appropriate for Lynemouth: Low efficiency for NO _x <200mg/Nm ³ , reduction in efficiency and capacity; LNB operation outside of specification performance envelope (see section 4.1.4) Not taken forward to CBA.
Selective non-catalytic reduction (SNCR)	Not appropriate for Lynemouth: Residence time below minimum in reaction zone; corrosion risk to boiler tubes; low NO _x reduction efficiency (predicted 15%) will not achieve BAT-AEL; ammoniation of ash. (see section 5.1.5). Taken forward for CBA.
Selective catalytic reduction (SCR)	Not appropriate for Lynemouth: Significant retrofit constraints due to existing infrastructure and site configuration, complexity, catalyst deactivation with biomass fuels. (see section 5.1.6). Taken forward for CBA.

BAT26

Technique	EP Lynemouth Notes
Electrostatic precipitators (ESP)	Applied at Lynemouth Power Station: Installation of additional field(s) complex due to existing plant configuration, specifically with reference to the lack of a suitable duct section and may not deliver BAT-AEL compliance (see section 5.2.3). Taken forward for CBA.
Bag filter	Not applicable for Lynemouth: Existing ID fans would require replacement; the ESPs upgraded as part of the conversion would require partial or complete demolition and a significant outage would be required on each unit of the order of 6-12 months minimum (see section 5.2.4). High risk of fire with biomass ash in pulverised fuel combustion plant and therefore not taken forward to CBA.
Dry or semi-dry flue-gas desulphurisation (FGD) system	Not applicable as not installed pre-conversion. Primarily used for abatement of acid gases but these are within the BAT-AEL ranges (see section 5.2.2). Not taken forward to CBA.
Wet FGD	Not applicable as not installed pre-conversion. Primarily used for abatement of acid gases but these are within the BAT-AEL ranges (see section 5.2.2). Not taken forward to CBA.
Fuel choice	Already applied at Lynemouth Power Station (Fuel contract specification includes maximum ash content %, etc.) (see section 5.2.2).

Demonstrating disproportionately higher costs compared to the environmental benefits

The detailed cost benefit analysis is in the attached *IED Article 15(4) Derogation Request*. A summary of the CBA results is detailed below.

	Scenario(s)	ELV/AEL (mg/Nm ³)	CAPEX including lost revenue (£M)	OPEX (£M)	NPV (£M)
	1 & 2: NO _x derogation Position (BAU)	200	0	0	-
	3: NO _x upper BAT-AEL (SNCR)	160	28.4	36.9	-65.27
	4: NO _x upper BAT-AEL (SCR)	160	194.4	4.4	-198.78
	5: NO _x lower BAT-AEL (SCR)	40	194.4	17	-211.39
	1 & 2: Dust derogation Position (BAU)	20	0	0	-
	3: Dust upper BAT-AEL (ESP Upgrade)	10	189.2	1.4	-190.56
	Note: 1. CAPEX costs includes lost revenue from extended outages to install additional abatement calculated using gross margin.				
Demonstrating that no significant pollution is caused and that a high level of protection of the environment is achieved	<p>BAT24</p> <p>Nitrogen Dioxide (NO₂): For both derogation and BAT-AEL scenarios the maximum predicted hourly mean NO₂ process contribution (PC), as a 99.79th percentile, are insignificant (i.e. <10% of the short-term AQS14). For both derogation and BAT-AEL scenarios the predicted long-term mean NO₂ PC is insignificant (i.e. <1% of the long-term AQS) at sensitive human receptors. The maximum long-term off-site PC was 2.5% of the AQS for the derogation scenario and 2.0% for the BAT scenario. Under both scenarios the maximum process environmental contribution (PEC) of 22% is well below the AQS so the impacts of the proposed derogation position are predicted to have an insignificant impact on human health.</p> <p>BAT26</p> <p>Particulates (as PM_{2.5} and PM₁₀): For both derogation and BAT-AEL scenarios the maximum predicted daily mean PM₁₀ PC, as a 90.4th percentile, are insignificant (i.e. <10% of the short-term AQS). For both derogation and BAT-AEL scenarios the predicted long-term mean PM₁₀ and PM_{2.5} PC are insignificant (i.e. <1% of the long-term AQS). A highly conservative assumption was made in the modelling study that all particulates were present in the form of PM₁₀ & PM_{2.5}, as appropriate. For impacts on human health the assessment demonstrates that none of the modelled scenarios risk compliance with AQS and that there are negligible air quality benefits from implementing BAT over the derogation scenario.</p>				