

**Application by Keadby Generation Limited for an Order Granting Development Consent for the Keadby 3 Low Carbon Gas Power Station Project**

**The Examining Authority's further written questions and requests for information (ExQ2)**

**Issued on 12 April 2022 - Responses due by Deadline 6: Tuesday 26 April 2022.**

Please find below answers to the Examining Authority's written questions from the Environment Agency (EA) [ref no. KDB3-SP091].

Ref No.	Question	EA response
<b>1</b>	<b>General and Cross-topic Questions</b>	
Q2.1.2	The ExA notes the Applicant's response to ExQ1 Q1.1.2, but would ask the EA to confirm that the Environmental Permit (EP) would be used to control the Carbon Dioxide capture rate from the Proposed Development and how this is to be delivered, measured and monitored.	The Applicant will need to apply for a UK Emissions Trading Permit and Monitoring, Reporting & Verification requirements are addressed in the regulations and guidance for this. In addition, the Environmental Permit will require the capture plant to be built to achieve a 95% or greater capture rate of CO2 – the EA will utilise the UK Emissions Trading Scheme Monitoring, Reporting & Verification to verify performance.
<b>2</b>	<b>Air Quality and Emissions</b>	
Q2.2.1	The EA's Written Representation [ <a href="#">REP2-022</a> ], submitted at Deadline 2, is noted, as are the 'Applicant's Response to the Examining Authority's first Written Questions – Vol 1' [ <a href="#">REP2-006</a> ] and the 'Applicants Comments on Written Representations' [ <a href="#">REP3-021</a> ]. However, the ExA would seek an update as to the status of the EP variation application (Variation to	At the current time there is insufficient information to consider the permit application 'duly made'. Our National Permitting Service is in the process of advising the Applicant of this and the additional information required to enable it to be 'duly made'. It is therefore possible that the application will be 'duly made' before the close of the Examination period. However, the application may not be determined before the SoS's decision period ends.

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	<p>the existing Keadby Power Station EP (EPR/YP3133LL/V011)) that was submitted to the EA in July 2021 and confirmed by the EA as having been received for duly made checks on 7 September 2021. The ExA would also seek confirmation as to the likelihood of a decision being issued/ made in regard to this EP variation application during:</p> <ul style="list-style-type: none"> <li>i. the remainder of the Examination period, as set out in the ExA's Rule 8 letter [<a href="#">PD-008</a>];</li> <li>ii. the Secretary of State's Decision period (normally no later than 3 months following the submission of the ExA's Recommendation Report).</li> </ul>	
Q2.2.3	<p>The ExA noted the response of the Applicant to ExQ1 Q1.2.3, especially the response to item ii. where it states: "...Due to the low concentrations of amine degradation species that will be released from the CCP, and also the low concentrations of amines within the ambient air, there are currently no accredited monitoring methodologies available for these parameters. It is understood that the EA are currently developing appropriate accredited methods</p>	<p>MCerts monitoring methods are to be developed for amines and their degradation products for the EA by the National Physical Laboratory. We are currently securing funds from BEIS to do this and it is hoped to be complete within two years.</p>

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	<p>and it envisaged that once available and where appropriate these will be applied and secured through the environmental permit monitoring conditions.” Bearing the above in mind, the ExA would ask the EA to provide an update as to progress in relation to its development of appropriate accredited methods in this regard.</p>	
Q2.2.6	<p>In response to ExQ1 Q1.2.11 the EA [<a href="#">REP2-021</a>] commented on windspeed and direction data. The Applicant responded to this comment in its document entitled ‘Responses to the Examining Authority’s Written Question Responses’ [<a href="#">REP3-020</a>]. The ExA also asked questions in the ISH1 [<a href="#">EV-013 to EV-016</a>] in regard to matters related to air quality monitoring. Can the EA confirm it is satisfied with the Applicant’s responses regarding air quality monitoring, especially windspeed and direction data.</p>	<p>The EA is satisfied with the Applicant’s justification for the location, windspeed and direction data used in the assessment. We have no further comments on this.</p>
Q2.2.8	<p>The Applicant’s response to the ExA’s ExQ1 Q1.2.17 [<a href="#">REP2-006</a>] concerning abatement measures to reduce the NOx and ammonia emissions from the development are noted by the ExA. However, the ExA would ask the EA/ NE if, in this regard, they are satisfied with:</p>	<p>EA BAT guidance <a href="https://www.gov.uk/guidance/post-combustion-carbon-dioxide-capture-best-available-techniques-bat#pcc-plant-design-and-operation">https://www.gov.uk/guidance/post-combustion-carbon-dioxide-capture-best-available-techniques-bat#pcc-plant-design-and-operation</a> states:</p> <p><b>NOx removal</b>  <i>The impact of NOx in the flue gas will vary significantly with the solvent composition. If the</i></p>

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	i. the Applicant's response to this question; and ii. the wording of the <a href="#">dDCO</a> in regard to this matter.	<p><i>amine blend will form significant amounts of stable nitrosamines with NO<sub>x</sub> in the flue gas, then you must reduce NO<sub>x</sub> to as low a level as practicably possible (see LCP BREF) using selective catalytic reduction (SCR).</i></p> <p><i>If necessary, it is expected that ammonia (NH<sub>3</sub>) slip from the SCR unit could be addressed in a suitably designed PCC unit. In all cases, you must assess the effects of NO<sub>x</sub> in the flue gas on atmospheric degradation reactions and this may also affect the need for SCR.</i></p> <p><i>If SCR is not fitted to a new build power plant, it is generally considered BAT to maintain space so it may be retrofitted in future, should this be considered necessary to meet ELVs.</i></p> <p>So, the use of SCR would be considered BAT. Also, draft DCO Work No. 1A – covers this under: "(ix) nitrogen oxide emissions control equipment and chemical storage"</p> <p>BAT Guidance then states:  <b>Absorber emissions abatement</b>  <b>Water wash</b>  <i>You must use one or two water washes or a scrubber to return amine and other species to the solvent inventory. Capture levels are limited</i></p>

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		<p><i>by vapour or liquid equilibria, with volatile amines captured less effectively. Any aerosols present will also not be captured effectively. Water washes alone are ineffective in preventing NH<sub>3</sub> emissions, as concentrations will increase until the rate of release balances the rate of formation (and possibly addition from SCR slip).</i></p> <p><b>Acid wash</b>  <i>An acid or other chemically active wash or scrubber after the water wash will react with amines, NH<sub>3</sub> and other basic species and reduce them to very low levels (for example, 0.5 to 5mg per m<sup>3</sup> per species or lower).</i></p> <p><i>You should implement an acid wash as BAT, unless:</i></p> <ul style="list-style-type: none"> <li><i>• emission levels are already at acid wash levels with a water wash</i></li> <li><i>• you can show that the need to dispose of the acid wash waste outweighs the benefits of the additional reduction in emissions to atmosphere</i></li> </ul> <p><i>Depending on PCC system configuration, an absorber acid wash can also counteract NH<sub>3</sub> slip from an SCR system.</i></p>

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		<p><i>If an acid wash is not fitted, you should consider a second water wash as an acid wash if:</i></p> <ul style="list-style-type: none"> <li>• <i>emissions performance is worse than expected</i></li> <li>• <i>you wish to change to a more volatile solvent</i></li> </ul> <p>So, if the Applicant uses an acid wash then that will be BAT, but they may be able to demonstrate that it is unnecessary.</p> <p>Draft DCO, Work No. 1C – carbon dioxide capture plant, - does not explicitly cover water washes or acid scrubbers and so consideration should be given to the need to expand on "<i>(ii) carbon dioxide absorber unit(s) and associated stack(s);</i>"</p>
<b>6</b>	<b>Compulsory Acquisition, Temporary Possession and Other Land or Rights Considerations</b>	
Q2.6.6	<p>In the light of the Applicant’s response to ExQ1 Q1.6.18, Q1.6.19 and Q1.6.20 [<a href="#">REP2-006</a>], the ExA would ask:</p> <p>i. in regard to Q1.6.18 can the Applicant and NR provide the ExA with an update in regard to this matter and whether NR is likely to</p>	<p>Answer re iii: The EA can advise that negotiations with the Applicant have continued, and some progress has been made. Discussions are currently underway to agree some Heads of Terms for an Option agreement. The Applicant’s Agent is drafting proposed easements and lease terms and setting out formal Heads of Terms for the options. We hope to progress these</p>

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	<p>be in a position to withdraw its objection prior to the close of the Examination;</p> <p>ii. in regard to Q1.6.19 can the Applicant and Northern Powergrid provide the ExA with an update in regard to this matter and whether agreement between the parties has been reached or is likely to be reached immanently; and</p> <p>iii. in regard to Q1.6.20 can the Applicant, The Canal and River Trust and EA provide an update in regard to this matter and whether The Canal and River Trust and EA are likely to be in a position to withdraw their objections prior to the close of the Examination.</p>	<p>matters further during May but as yet it is too early to say if the EA will be in a position to withdraw its objection prior to the close of the Examination.</p>
Q2.6.7	<p>The EA's responses to ExQ1 are noted, especially Q1.6.5, Q1.6.9 and Q1.6.23 [<a href="#">REP2-021</a>], as are the 'Applicants Responses to the ExA's Written Question Responses' [<a href="#">REP3-020</a>]. However, the ExA would ask whether there are any updates the EA would like to provide in regard to the above listed questions.</p>	<p>Please see answer to Q2.6.6 above.</p> <p>Also, the clarity sought in respect of Plot 75 has now been received and it has been agreed that the EA has no compensatable interest in this plot.</p> <p>The EA is now aware that Plot 172 may need to be included in our discussions with the applicant; being in the area where we currently have the benefit of an easement. Plot 172 does not appear to have been discussed with us previously, and we need to seek</p>

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		clarity regarding this plot as it does not appear to be mentioned in either Schedule 6 or Schedule 8 of the draft Development Consent Order [ <a href="#">REP5-021</a> ] for the proposed development changes.